Thomas Druyen   *Editor*

Radical Change in Everyday Life

Foundations of Psychological
Future Management

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Preface: How to Plan the Future in Times of Exponential Acceleration. Three Scenarios

Thomas Druyen

Psychological Future Management seems difficult, as we know neither what is to come nor how we will react. But since we live in times of exponential change, in which innovations arise constantly and at lightning speed, it is quite simply necessary for us to come up with some ideas. Playing catch-up is not an option. And yet the unfavorable situation of being condemned to merely react is a global fact. Not only is the political sphere stumbling to keep up with the alarming events of presidential narcissism and dictatorial caprice, the economy and financial markets are also being driven by digitization, all over the world. Even lawyers will soon be replaceable by algorithms. How do we learn to deal with the unforeseeable in a professional and anticipatory way, and to plan for an uncertain future? Only when we find an answer to this will we once again be "master in [our] own house," as Sigmund Freud once put it, and if we do not find one we will sink into dependency. New constellations of power, which will soon be shaken up in unpredictable ways by artificial intelligence and quantum computing, will meet brains and emotions unfamiliar with these unaccustomed circumstances. There are no experiences for this, no measurements, and no reliable predictions. Flying blind will be the order of the day. Not a reassuring prospect for what will soon be eight billion people.

All over the world, whenever talk turns to the shaping of the future, education is conjured up as the trump card, the panacea. If we observe global conditions, statements in social media, and the increasingly coarse tone of communication in general, the tremendous popularity of education does not appear to be bearing any great fruit. Education must also change. It is being left behind at an ever-increasing pace. Textbooks are obsolete as soon as they are published. By the time the authorities have agreed on new learning standards, the students have already grown up. By the time all schools are network-compatible, computers will be a thing of the past. With this in mind, change must cease to be a mere reaction; it must become forward-looking, brave and radical. Without change competence, education is backward-looking, only fit for a museum. It is against this background that we have carried out the present study. The topic of change is global. Of course the cultural conditions differ nationally, geographically, mentality-wise and psychologically. It therefore seems vital, an unavoidable necessity, to conduct change studies throughout the world,

measuring the future-fitness of countries, people, companies, and institutions. We have started with Germany. In comparative terms, this country is doing spectacularly well. As the world's top exporter, it has a global presence, and as the leading nation in Europe it serves as a role model. An analysis of Germany's ability to face the future is therefore of universal interest. At the same time, it was obvious that this study was only the prelude to an international series of similar analyses. What we did not know before the results of the study, however, was what contradictions, social differences, and depressive tendencies we would encounter under the surface of an apparently functioning everyday life. Even in a land of milk and honey – or one that at least gives that impression from the outside – there are undercurrents of discontent. It will be fascinating to see how people around the world will try to adapt the new, the other, the unloved to their horizon, or to ignore it. From a psychological viewpoint at least, we are oscillating between illusory optimism and fantasies of doom.

Scenario I: The Topic of Change

This study and this book are all about change. The world has changed radically around us in recent years. Rapid technological development has made things possible which we would have considered fantasy just a few decades ago: libraries and offices in our back pockets, self-driving cars, houses that can be printed. The utopian is moving into the realm of the feasible: asteroids as suppliers of raw materials, neighboring planets as a resource for living space, and the distinct possibility that robots will take over paid work in the foreseeable future. These and other technical innovations, including artificial intelligence and the quantum computer, are part of a huge wave of change coming towards us.

Clever and visionary companies have quickly created mass-compatible platforms that make life much easier. The virtual control functions they offer are already of vital importance to nations and entire continents. Google, Amazon and Facebook have recognized and established platforms as drivers of reality. We have constant, real-time access to information, commodities and services. The use of the platforms is free of charge – an unbeatable market proposition. The business model of offering a free service in exchange for complete documentation of user behavior and privacy, thus creating enormous entrepreneurial value, proves the innovative competence of this strategic interest system. For citizens all over the world, the smartphone has made it possible to leave behind age-old physical limitations. Even if humans have been more or less degraded to mere customers and data providers, this offer remains sensational. That the corporations which have achieved this tremendous transformation have rapidly become the largest players in the world, in strategic and monetary terms, is another aspect of the tremendous changes of our time.

Globalization, climate change, exploding debt, ruthless financial capitalism and terrorism are further elements of a metamorphosis unparalleled in human history. However, phenomena such as Recep Tayyip Erdogan, Bashar al-Assad or Kim Jong-un and Donald

Trump are also of relevance to the subject matter here, since these unpredictable phenomena – together with thousands of other fragments of this metamorphosis – overwhelm the human mind. Our perception, classification and memory are unable to cope. Taboos are crossed, the principles of fairness are destroyed, and interpersonal manners are reduced to absurdity. It is increasingly difficult for us to maintain orientation and a sense of coherence. We no longer recognize the big picture, and we see no relation between our own life and that of society. Emptiness, isolation and lack of prospects gain the upper hand. We are at the limit of our capacity, and a disastrous mechanism is at work: when our neural capacities are exhausted or overwhelmed, deliberate, reflective and rational ways of acting and thinking are shut down. Stress and fear take over, shifting our viewpoints from rationality to emotionality. This state of mind seems to be a neural concomitant of massive change processes. Feeling at the mercy of a completely uncertain future reinforces the propensity for anxiety-ridden disaster scenarios, conspiracy theories in lines with our own viewpoint, retreating into our own cocoon, and reducing our perception to wishful thinking and simplistic contrasts between friend and foe.

In principle, our neurobiological architecture, our orientation-giving emotionality, and our common sense strive for positivity, reward and clarity. Regardless of the situation we are in, we always try to make the best out of ourselves. Therein lies enormous potential. At the same time it automatically and inevitably leads to incompatibilities – and to the suppression of that which is "too much" and "does not fit." People have always had to deal with this dilemma. However, today the contradictions are accentuated by the speed of change and networking, in a way we have never experienced. We are constantly dealing with sudden profound changes, and we endeavor to gauge and classify the new by relating it to what is known. The question is whether this will continue to work in the near future. I do not think so.

Scenario II: New Perspective

At the IZZ Institute for Psychological Future Management, founded in 2015, we deal with the topics discussed above. Above all, we explore the psychological effects of exponential developments in digitization and the use of artificial intelligence, and the associated emotional and neural overload. Dealing with change is our central field of research. Since change can only be understood retrospectively, it always presents itself as a future and unpredictable process both at the moment of its inception and once it has developed an irresistible momentum. This fact suggests that the ability to change also brings about and enables future management competence. In the face of the unanticipated technical and societal changes we face, understanding, navigating, and implementing change is probably one of the most important new tasks now and in the future. We want to make a lasting contribution to this. The study presented here lays the foundations for this endeavor, testing our approach for the first time, and gathering important material and data.

The research field of Psychological Future Management is new, and arises from my conviction that for the time being only the human imagination can stand up to the algorithmic technologies driving us toward singularity. After all, surprisingly successful predictions of future developments have largely come from science-fiction literature, from the film genre and, more recently, from the gaming industry. Impressive evidence can be found in Jules Verne's *Island of the Billionaires*, in Denis Villeneuve's *Blade Runner*, in George Lucas's *Star Wars* or in Spike Jonze's *Her*. But the so-called "unicorns" of Silicon Valley, or companies like Uber, SpaceX and Alibaba, have never stopped at or limited themselves to reality either. Their long-term plans are all driven by the imagination, and go far beyond the present reality. The goals of the tycoons who own them sound equally fantastic, here are just a few key words: creating a new human-machine hybrid, overcoming all diseases, achieving immortality, eliminating evil…

In the context of Psychological Future Management research, and in light of the contemporary developments described above, the next step is to analyze and learn how the areas of fantasy, imagination, prospection and rehearsing can be harnessed for the individual, for society and for service companies. One fundamental change that is already evident is the transformation from rational to emotional perception. The psychological and neural effects of radical change are overwhelming, and so far there is no strategy to raise awareness and foster the capacity for conscious action, in order to navigate through the accelerating, uncertain future in a reflective and purposeful way. The first exercise in configuring these new life models is to understand the process of change. Currently, change is suffered and overcome when imposed. The goal is to think ahead and visualize changes and test solutions in order to be better prepared for the unforeseen. In this sense, the following publication is a first step.

The publication of this study in Germany met with widespread interest. It was not only the media that reacted with surprise and even alarm. Politicians, companies, and most of all citizens wanted to know more. It is not easy to have to hear that one's own change competence is insufficient to meet the challenge of accelerating change. A key question we were repeatedly asked was: How ready and willing are people in other countries to accept change? Comparisons are a vital part of human life, so the question was not just extremely relevant, but was, as it were, our next assignment. Based on deliberations and preliminary talks, three projects were launched in the middle of 2018. In nine countries, we have begun to ask 14 to 24-year-olds about their future prospects. These age groups function differently. Their learning processes were relatively unique: they have grown up with digitization and have been inundated with images from an early age. This has structured something in their brains differently from previous generations. We want to know what it is. Then we will relaunch the present study in Morocco and China. In both countries we have already conducted test interviews, so we have an initial impression. More on this at the end of the book. It is good if the interpretation of our work can also be shared with local experts and institutions. So we are discussing and developing joint programs with the Jiangsu Industrial Technology Research Institute in Nanjing and the Mohammed VI Polytechnic in Ben

Guerir near Marrakesh. There is a universal need to research the capacity for change, and to look for fast and specific ways of putting this into practice.

Scenario III: Task and Content

The basis of this study is a request. On the occasion of its 70th birthday, the prestigious German weekly magazine *Die ZEIT* carried out a large study on the future of Germans, together with the WZB Berlin Social Science Center and the Institute for Applied Social Science (infas). The results of this "Legacy Study" were presented to the public in October 2016 at a ZEIT conference in Berlin. On this occasion, together with the President of the WZB, Prof. Jutta Allmendinger, I had the honor of commenting on some results from the perspective of Psychological Future Management. In this dialogue it became clear that the mood analyzed in Germany was pleasingly positive. However, this only applied to the individual and present perception. With regard to the future, expectations darkened dramatically, and widespread uncertainty gained the upper hand. This contradiction has major significance for the way our societies will perform in future. In times of radical change, it is also about a conscious, anticipatory and deliberate willingness to change. This central aspect and the question of how ready Germany is for the future became the starting point of the study presented here.

It was part of the concept of the ZEIT anniversary conference to have the results of its surveys passed on to and taken up by other companies and institutions. Against this backdrop, Allianz Life Insurance Company Germany took on the task of analyzing Germans' willingness to change in greater detail. The goal was to gain valuable insight into how change can be learned, lived and implemented. Another aim was to focus on people with an optimistic view of the future who had already successfully shaped changes in their own lives. The IZZ Institute for Psychological Future Management was commissioned to implement this task.

The study has produced complex results. In the individual articles we focus on the following aspects. The text by Christian Weller on "Change, Change Competence and Personal Growth" provides essential conceptual information for this explorative study, and a general introduction to the problem of recognizing and naming changes and change processes and developing appropriate adaptive behavior. He introduces the concept of change competence as a general "action competence" as well as a "metacompetence" to activate relevant individual abilities in the face of certain challenges. The IZZ concept of change competence is explained and positioned in relation to central debates of competence research and change management. Finally, he assigns individual situational change competence to the developmental psychological context of identity formation and personal development.

Stephan Duttenhöfer examines the real implementation of "change experiences" in terms of their "challenges, processes and patterns of action." Change is experienced differently by people depending on its proximity to their own sphere of action: change processes

in which individuals themselves have to take care of the establishment of a target state by developing individual strategies for achieving the goal are more likely to be seen as challenges to their own ability to change. In general trends of social, technical or cultural change, on the other hand, a wait-and-see attitude seems to prevail as to how these will affect the personal sphere of action. Both formations follow a processual pattern with the four phases of orientation, problem-solving, stabilization and practice. This phase model offers different patterns of behavior, which can be very important for how we lead our lives. Here, the ability to change becomes tangible.

In his second article, Christian Weller documents the most important results of the representative online survey with 1,951 participants. He explains the task, concept and implementation of the study, and shows how the participants perceive the phenomenon of change from the perspective of specific transformative life events, and how they arrive at an assessment of their experience of change as positive or negative. Special attention is paid to the central role of life satisfaction in the coping process. Finally, he examines how the change experiences of the participants are reflected in the IZZ model of change competence.

On the basis of the interview material from the pilot study, Daniel Brenner deals with the "phases and strategies for coping with biographical experiences of transformation." In the qualitative study, 30 participants were asked about successfully mastered changes in the areas of old age/retirement/care, work, family/children, disability, migration and digital progress. The transcripts are analyzed in terms of the four main topics of recognizing changes, experiencing changes, evaluating changes and implementing changes. Brenner shows how radical and long-term change processes affect the self-image and everyday life of those affected, and how those affected control their coping processes by interpreting, or by integrating or segregating external impetuses. It also becomes clear that positively evaluated change processes increase the anticipated willingness to change. This is where selected interviewees with an optimistic view of the future are given a voice.

Ramin Assadollahi presents the natural language processing-enabled knowledge management application "The Cognitive Workbench" as a tool for using artificial intelligence in the content analysis of change experiences.

In my article "Study Case Germany. The Future is the Legacy of Change," I begin with a short sketch of the main insights of the Change Study from the point of view of Psychological Future Management. A more detailed comparison with the previous Legacy Study shows that tremendous efforts at self-discipline are required to move from the current attitude to the task of imagining or leaving a legacy. Change is not a straight line, but a real journey with ups and downs. This means that if someone wants to make a significant contribution to shaping the future with his or her legacy, it requires forward-looking orientation and adequate planning. I then attempt to give a rudimentary answer to the following question: What findings of our study are typical of a wealthy industrial nation like Germany, and which are likely to prove applicable elsewhere? I conclude by formulating the IZZ's mission and research program as a result of the thought process described. Of course at the end I will also address the future of change and its global impact in an afterword. This is only

a rough selection, however, because until Psychological Future Management has been pragmatically implemented across the board, we simply do not know what is to come.

It would be inappropriate to speak of this text as a summary. Each individual contribution represents different research questions and research perspectives. The consolidation of the content will take shape in the course of the project. The task of the study was clear, so the answer should have a certain clarity. All paths to it and from there into the world are complex, neurally diverse and socially interwoven.

Change, Change Competence and Personal Growth: Conceptual Framework for an Explorative Study

Christian Weller

Abstract

The concept of change competence on which the Change Study is based is presented. Section 1 gives a general introduction to the problem of how individuals can recognize and name changes and processes of change in the complexity and dynamics of everyday life. In the examination of developmental psychological concepts, the scope for adaptive behavior is pointed out. Section 2 gives a brief outline of the development of the debate on the concept of competence. The concept of change competence is introduced as a general action competence and as a metacompetence to activate relevant individual competencies in the face of the challenges of specific situations. In dealing with the paradigms from the field of change management and in further developing the classical problem-solving and action theory, the concept of change competence of the IZZ Institute for Psychological Future Management establishes the four equivalent competence fields of orientation, stabilization, problem-solving and practice. The recognition, shaping and mastering of change processes is in turn understood as a dynamic, iterative, agile process in which the individual makes appropriate use of the various fields of competence. Finally, section 3 classifies individual situational change competence in the developmental psychological context of identity formation and personal development.

1 Change

Changes are all around us. We have no perception, no thought without the process of change in a neuron, when a quantitative threshold is surpassed, triggering an action potential, and a synapse "fires." From entirely everyday phenomena like the progression of the times of day and the changing weather, by way of processes that affect us highly personally, like growing up and aging, to political and economic transformations: everything is in constant change. Precisely for this reason, it is often difficult to demarcate individual changes, to name them, and to react to them.

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At the same time, it is of vital importance for human beings (like for all living beings) to find suitable responses to changes. Hence, we are permanently involved in perceiving, analyzing and anticipating changes in us and around us. We adapt our thoughts, feelings and action to constant change. We move in processes of change like fish in water – and do not even perceive the greater part of our adaptive accomplishments.

The first section provides a – necessarily sketchy – short introduction to the complex world of change. This introduction is meant to delimit a general framework of understanding for the concept of change competence, which will be introduced in the next section. The following thematic complexes will be briefly touched upon: the discursive narrowing down of change to retrospective comparison; the difficulties involved in grasping change as a relational construct; the interrelationship between internal and external changes in adaptive behavior; and, finally, how people deal with complex processes of change in the context of anticipation, planning and goal-setting.

1.1   Change as Normal Condition and the Experience of Crisis

We principally become conscious of change in two contexts: in *retrospect* and in the context of *coping with crises*. In our everyday lives, we are often not conscious of small, gradual changes, but rather only become aware of them in the aggregate (cumulative changes). When we retrospectively make comparisons over a distance of time, we recognize what things have changed in our environment or how much we ourselves have changed: for example, when people over forty think of their first computer and compare the conditions from back then with our current devices or when we look at old photos.

Changes receive our full attention when usual routines are insufficient for dealing with them; we speak, then, of disruptive changes. Disturbances of or obstacles to adaptation lead us to interpret certain processes of change as challenges that cannot be met "automatically." We conceive of them as problems and focus, for example, on possible solutions, resources and self-stabilization. Such change processes are accordingly experienced as burden or crisis and coping with them is experienced as an accomplishment. Some examples are life-changing experiences like an illness, losing one's job or a death of someone who is close to you. Examples of comparable processes of change that transcend the individual level would be a systemic political transformation like the political transition or "*Wende*" in East Germany that led to German Reunification, a major technological transformation like the automation of industrial production or an economic crisis with social, political and financial consequences that are difficult to foresee.

The focus on changes that are clearly perceptible in retrospect and in the midst of the experience of crisis is indispensable for problem-solving and work on one's own biography. But it distorts our view of the fact mentioned at the outset: namely, that we do not only have to cope with changes in exceptional cases. That the appearance of change is the normal condition becomes clear when changes fail to occur. We are alarmed when children do not grow as expected or do not make progress in cognitive terms. And even if the tempo of

change processes is increasingly regarded critically, hardly anyone would like to live in a culture without new books, films, and trends. Insufficient challenge and stasis in personal, social, technical and cultural developments are perceived as tortuous and debilitating. We have a need for the permanent interplay between environmental change and individual adaptive response (including the equilibrating of one's own inner world). It is an essential sign of being alive. Curiosity, learning, problem-solving, and development are important sources of identity formation and of pleasure. How indispensable constant change is for the latter first becomes noticeable for us in low-stimulation and undemanding surroundings. Insufficient challenge and boredom (cf. Arends 2015; Bellebaum 2013; Fenichel 1951) are as little tolerable for the feeling of well-being as excessive demands and constant stress.

1.2   Change as Relational Concept

Understanding and coping with changes is a challenge. This is not only due to their omnipresence and to discourse structures that limit one's perspective, but also due to the fact that change is a relational concept. It is always change of something and for someone. The fact that a thing or phenomenon (or a person) changes also means that something remains "the same" or, in other words, recognizable. A moment of inertia (cf. Hubbard 2015) or a factor of stability is thus inherent to the concept of change. Change is not the replacement of one thing or phenomenon by another, but rather the transformation of state A into state B of something that one experiences as "identical" over a period of time comprising both states. (On the current philosophical debate, cf. Hofweber 2009. Process philosophical approaches appear to offer a promising basis for considering the relationship that is of interest to us here; cf. Rescher 1996.) At the same time, measured by what remains the same, this transformation displays a certain dynamic, which needs to be assessed: How great is the change? How rapid? In which direction does it lead? This also applies for change processes of people, including their own development. Here too, the questions have continuously to be answered anew: for example, what does the constant element in a person consist of (stability) and how does the change get expressed (dynamic).

But change is not only change of something – a thing, a phenomenon, a living being, an organization, etc. – it is, above all, change for someone. Change is a construct (cf. Watzlawick 1976) that we use to understand ourselves and our environment. This is to say that we understand certain perceptions as change A of phenomenon B or as change C of phenomenon D. It can be assumed that these attributions largely take place "automatically" within the framework of Gestalt formations of human perception. (From the perspective of brain research on the visual apparatus, cf. Wagemans 2013). At the same time, however, knowledge conventions and the imprints of subjective learning experiences also play a role. In any case, the perception and the designation of changes always take place from an individual perspective: i.e., they are subjected to a point of view and assessment that are stamped by the individual's needs, expectations, attitudes, etc., and are affectively colored in accordance with them.

All of the attributions listed thus far – change as a definite, demarcated phenomenon, as change of something, of someone, as crisis, challenge, learning opportunity, etc. – are interpretive accomplishments, even if they occur "automatically." They are part of each individual's respective construction of reality within the framework of worldview, self-image, subjective theories (cf. Groeben & Scheele 2000) and suchlike.

Ideal-typically, the perception of change begins for the individual with episodes of his or her lifeworld that are highly dynamic or that appear dissonant vis-à-vis certain expectations and are "labeled" accordingly (isolated external change). The search for effective causes, interconnected chains of cause-and-effect and a direction in events is biologically based and, at the same time, culturally and socially framed. Stocks of knowledge and concepts like intention, progress and responsibility shape the construction of dynamic temporal forms (change processes), which make possible expectations and hence too adjustments of behavior or attitude (self-change). The conceptualization of change processes involves, among other things, the determination of their temporal extension, the attribution of an intended or implicit goal, the putting-into-relation with other events, and their ordering in categories like significance and desirability.

A person's attitude vis-à-vis a concretely identified change essentially depends on the change perspective adopted. Individuals are not able to grasp the "landscape" of surrounding and internally occurring change processes as a whole. Depending on life situation and skills, they focus on the part of the landscape that they consider relevant. In the process of understanding and interpretation, they construct a *change horizon*, which provides the framework for their coping strategies. Cognitively and emotionally grasping what is occurring as a particular change is the presupposition. Practical questions of coping come to be linked to this constructive accomplishment: Can attitudinal models and action models be activated or adapted, in order to react appropriately? Can the required activities be successfully integrated into the existing self-image and worldview? Is it possible to combine the "external" dynamic with one's "own" aims? Does the individual have confidence in his or her ability to meet the challenge?

This is why it is not unusual that two people in "one and the same" situation come to highly different conclusions concerning existing change processes and their relevance. Thus one person can experience an extrinsic pressure to change as a threat, while another interprets it as a test of character that liberates his or her own potential. But even a single individual can, with a certain temporal distance, adopt a changed point of view – say, by way of learning experiences – and thus gain a new understanding of a particular life situation: for instance, when a separation is interpreted, in retrospect, as an important stage on the way to achieving one's own capacity for relationships.

1.3   **Change and Adaptation**

On the background of permanent change, people are constantly required to react, in order continuously to produce a new balance between dynamism and stability, a new "fit" (cf., among others, Filipp & Aymanns 2010, 12 and passim) between inner world and outer world. To this end, however, they have an extraordinarily wide range of *adaptive* behavior available to them: they can choose between the basic attitudes of shaping the environment, adapting their behavior to it, and refusal of change, and they can activate a mix of behavioral and attitudinal options that is suitable to the situation and to their resources.

The personality psychologist Jens Asendorpf (2005; 2012) mentions three forms of interaction as stabilizing factors for personality across all changes. At the same time, these play an important role for adaptive behavior. The (1) "dynamic interaction" between genetic endowment and the influence of early socialization forms the point of departure for individual development. It is itself the result of an adaptation and apparently only changeable to a limited extent. On this basis, the individual navigates through his or her life, on the one hand, (2) with the help of inner stabilizing processes, hence by way of self-image, feeling of self-worth and self-regulation, and, on the other, (3) by shaping the environment, such that this fits (as much as possible) his or her own personality. As we grow older, the possibilities of altering or choosing our environment increase accordingly, but children and young people can already themselves create environments when playing, on the Internet or in peer groups.

This means that apart from intervening in the environment to change it, the adaptation of a person's own norms, values or concepts is also available as adaptive response. This can involve, for instance, people in highly competitive environments becoming themselves ambitious or others being deliberately modest, in order to take their distance from environments that are strongly characterized by conspicuous consumption. An adaptive response can also consist of individuals' changing their attitudes and/or changing their forms of behavior. One can deal with stress in the workplace either by "having a thicker skin" or by reducing one's own performance expectations. One can also, however, react with actions: by consciously taking breaks, doing sports to create a balance, or making sure to eat healthy food.

It becomes clear that people react to changes with change. The adaptive responses can be long-term or short-term, fundamental or provisional, proactive or reactive, etc. But just as little as far-reaching transformations of our inner world and our environment are immediately to be grasped in their full significance, the adaptive response likewise does not happen by "pushing a button." Changed attitudes and forms of behavior are not displayed in sudden, arbitrary decisions, but rather in new attitudinal and behavioral patterns, which have to be continually maintained. There is hardly anyone who is not familiar with the difficulties involved in translating "good intentions" into everyday practice. An altered point of view makes established behavioral patterns appear as a "bad fit" and a desire for behavioral change arises. The transformation of such determinative patterns is, however, for good reason a process that requires time and energy. Changes have to be tested on reality,

integrated into the individual's personality, and communicated to his or her entourage. They have to become anchored, in order to be recognized and accepted both by the person in question and his or her surroundings. Change in attitudes and behavior may well receive strong impetus from, among other things, the cognitive domain; its translation into practice is, however, an existential, biographical and social process that has to be "lived through."

That people can choose one of the different possibilities of refusal of change also belongs to the repertoire of adaptive responses. For the individual, the point of time may not be right for an energy-draining change, and it is advantageous if he or she can manage to postpone it: for example, by putting career plans on ice, in order to devote one's energy to the family one has just started. Even the denial or minimizing of the significance of change processes or consciously diverting attention from them can make sense – in the short-term – in order to obtain space for regeneration and for having a "clear head." Although it is in keeping with the dominant Zeitgeist for people to present themselves as being always willing to change and adaptable, not every change appears necessary and constructive from the perspective of the individual. Inner distance-taking can create the preconditions for a balanced assessment. Resistance is necessary, when core values are threatened and have to be defended. A firm refusal to support and participate in a change process can also contribute to the clarification and consolidation of the individual's own personality and personal integrity.

An incalculably rich repertoire of behavioral and attitudinal possibilities is the result of the situationally adapted, and sometimes dynamic, mix of different ways of reacting: divided between shaping of the external world, adaptation of the inner word and refusal. But conventions, routines and convenience considerably limit this room for maneuver in practice – and thereby also create stability and predictability. It can be assumed, moreover, that not every individual is conscious of the entire range of his or her own options. This is why both self-reflection and consulting with people one trusts or experts in the domain of coaching or therapy are useful measures for broadening one's own perspective.

Change and adaptation are, as a rule, part of processes whose structure and scope have first to be grasped. Apart from spontaneous, "automatic" adaptive responses to smaller everyday changes, adaptive behavioral and attitudinal changes are arrayed into comprehensive processes of adaptation, which can themselves display a powerful dynamic. Learning processes as adaptations to new environments often appear to take place in stages of increasing complexity and mastery: for instance, when someone starting out in his or her profession becomes an expert over time. Especially in biographical processes of adaptation (for a summary, cf. Brandtstädter 2015; 1999), fundamental changes in significance and direction can take place via reinterpretations and reframing – as has already been indicated, by way of the example of the reevaluation of a crisis in a relationship. Further examples would be when a supposed weakness, like unconventional thinking or hyper-sensitivity, is recognized as a unique selling point or when a long-pursued goal is experienced as disappointing when it is reached.

1.4 Anticipation, Planning, Goals

Prospective readying for change is a fundamental feature of human thought, feeling and action: people do not only react to changes, they anticipate them as well. Such anticipation works extremely dependably in the immediate temporal and spatial environment: e.g. in catching a ball. But the more one moves beyond these sorts of "high-density" situations, the more uncertain and tentative the expectations become. Nonetheless, anticipation provides an opportunity for explorative investigation (hypothesis formation and testing) and for actively shaping the physical and social environment. Some representatives of neuroscience and positive psychology understand the human being, accordingly, as "homo prospectus" (Seligman et al. 2016; cf. also Bar 2011). From this perspective, remembrance and recapitulation of the past, as well as perception and interpretation of the present, serve primarily to generate prospective expectations to which action, thought, and planning are adjusted. Learning functions essentially by way of comparing such expectations with what actually occurs.

A 2015 empirical investigation on time reference in everyday thinking – the largest investigation of this sort to be conducted up to now (for a summary, see Baumeister 2016) – shows that concrete planning dominates the flow of thoughts. In the study, which was conducted in Chicago, 500 participants were asked six times, at random points of time on three consecutive days, to hold their current thoughts and to answer questions about them. 10 percent of the reported thoughts were focused on the past, 30 percent on the future and 60 percent on the present. This clear division, however, covers over numerous "bridges" between the temporal categories. The focus of thoughts about the past was, in part, "understanding" something: hence, integrating past events into the present. 45 percent of thoughts about the past concerned possible future consequences. The thoughts about the present essentially revolved around the real implementation of something that one had undertaken to do or that others had assigned to one to do. Here, there is thus a bridge to the past. 29 percent of the thoughts about the present focused on the future consequences of action. 75 percent of the thoughts about the future concerned planning. The social psychologist and expert on self-regulation, Roy Baumeister, speaks in this context of "pragmatic prospection" as a decisive basic feature of everyday thinking.

The respondents' feeling of the significance of their thoughts increased with the number of temporal categories involved. Planning always cuts across temporal categories, affects individuals concretely and hence is linked with meaning. Thus, we come to the surprising empirical finding that a mental accomplishment like planning, which requires a large expenditure of energy, is constantly being undertaken and, moreover, increases the individual's sense of well-being. The rest of the future-oriented mental activity is less focused and explores fears, hopes and possibilities.

According to the study, thinking about the future is not principally concerned with precise cognitive *prognoses* – such as those, say, that are adumbrated by futurology in its trans-individual scenarios – but rather with affective attitudes. The focus is on the question of what the individual wants to achieve or obtain in the future – and the extent to which

these goals are reachable. This is why Baumeister calls everyday anticipation "pragmatic prospection." Findings of research into motivation and action show that concrete planning thought is characterized by (illusory) optimism (cf. Taylor & Brown 1988). This contributes to typical distortions, but is, on the other hand, indispensable for individuals' capacity for action and is thus regarded as a sign of psychological health. If thoughts about the future become more general or if they transcend concrete planning or go beyond a foreseeable time-frame, the opposite tendency comes into play: people become more cautious, risk-evasion becomes the focus. Baumeister regards both attitudes as forms of realistic adaptation.

Hence, adaptive responses do not only occur spontaneously and in isolation, but rather they also always occur in systematic contexts of planning, strategies and ideal views of one's own development and desired future life situations. These get expressed in the establishing of goals and in goal management. Goals for different domains have to be made compatible with one another: for example, when professional ambition and concern for one's own well-being come into conflict. Goals have to stand up to testing over longer periods of time or get adjusted to potentially changed life circumstances: for example, when youthful dreams lose their attraction in later phases of development or when practical experience shifts the perception of the feasible and the utopian. Obstacles and setbacks along the way can lead to increased exertion in the pursuit of goals. Only a very few projects can be brought to fruition without a sufficient degree of perseverance. After a certain point, however, fixating on a goal can prove to be unrealistic. At this point, inner renunciation of a goal is the appropriate process. The developmental psychologist Jochen Brandtstädter defines the "wisdom of age" by reference to the serenity that, in light of the dwindling years remaining and increasingly limited resources, can be achieved through goal disengagement: in other words, inner renunciation of a goal that one has hitherto pursued (Brandtstädter 2015, e.g., 199ff.).

2   Change Competence

The IZZ Institute for Psychological Future Management has developed its own approach to the exploratory investigation of *change competence*. This approach is primarily focused on the question of how people, in a rapidly changing and confusing world, manage to preserve their capacity for action and achieve a corresponding balance in their own inner worlds. The change competence of an individual is understood, accordingly, as the action-guiding and action-facilitating capability (metacompetence), in the face of a concrete challenge, to activate precisely those capabilities (individual competencies) and resources that help to meet that challenge.

This section examines the function of the concept of change competence in the Change Study and situates it within the debate on the concept of competence in general and as against approaches coming from change management. The individual fields of competence will then be discussed and a definition of the concept of change competence will be given.

2.1 Change Competence as the Guiding Concept of the Change Study

The approach presented here constitutes an explorative model, which is designed for use in the Change Study's quantitative survey. It serves neither for the exact measurement of individual competencies nor for the evaluation or optimization of concrete coping strategies, but rather stretches across an – on the one hand, as consistent as possible and, on the other, as open as possible – horizon of questions, in order to cover a broad range of different adaptive behavior. In keeping with the considerations outlined in the previous section concerning the manifold possibilities for perceiving, understanding and responding to changes, the search area should not be narrowed down too much in advance by way of assumptions and hypotheses.

The concept of change competence in the form presented here is drawn from three sources: (1) the qualitative results of the prior pilot study, (2) an in-depth review of the literature in the field of cross-context competencies, especially for adaptation to changing environments, and (3) the theoretical effort to fit the studied competencies into a guiding framework that is compatible with the study's questions and the basic assumptions of Psychological Future Management.

Around the end of 2016/the beginning of 2017, 30 women and men whose biographies are marked by profound change processes were surveyed in an exploratory pilot study. The participants belonged to six groups organized around the topics: (1) disability/accident, (2) old-age/retirement, (3) family/children, (4) migration, (5) choice of/change of profession, and (6) work in the area of information and communication technology (cf. Brenner 2019). This phase was devoted to better understanding the dynamics of change – and to identifying functioning solution contexts among the respondents. At the same time, the interview partners were examined, in qualitative individual explorations, with respect to particular psychological and sociological aspects. The aim was to form initial hypotheses concerning what structural life circumstances (social origin, circle of friends, level of education, etc.) and what subjective characteristics and competencies (e.g., openness, self-confidence, successful attribution of meaning or resilience) influence adaptive behavior. In addition to insights into the change processes and initial assumptions regarding particular types of change, a list comprising ten individual competencies was obtained from the transcripts.

Due to the large number of publications, the review of the specialist literature on competence research could only take place by way of a selection. Focus was placed on foundational contributions and overviews. Works dealing resolutely with the topic of change competence were covered to the greatest extent possible: in particular, attempts to investigate this competence by way of questionnaires. Not untypically for competence research, the end result was a list of several dozen individual, juxtaposed competencies. These consisted, in part, of vague concepts that are, however, comprehensible in everyday speech and, in part, of scholarly concepts that are directly connected to psychological constructs. The terms were, in part, semantic neighbors or synonyms; they were to be found on different levels of abstraction and often could be subdivided, in turn, into further dependent individual competencies. It was then necessary:

- to map out the different concepts with respect to one another,
- to make a sufficiently differentiated selection,
- to establish adequate weights,
- to fit the individual competencies into the framework of Psychological Future Management, and
- to create a clear structure, in order to
- provide orientation to a broader public, to which the Change Study is addressed.

The Psychological Future Management developed at the IZZ takes the standpoint of the individual as its starting point and attempts to understand the formation of future expectations and anticipatory planning from this perspective. This view should already have been made clear in the presentation of the perception and management of change in the first section. Following a foundational research phase, of which the present study forms part, the IZZ's goal is to provide the individual assistance in his or her anticipatory challenges. In this connection, the IZZ takes its orientation from, among other things, the relatively new current of positive psychology (cf. Seligman & Csikszentmihalyi 2000). The focus is placed on the question of how people cope with crises and how they manage to translate the challenges of a constantly changing world into their conceptions of a successful life. In this study, we look for, among other things, realizations of resilience (cf. Fröhlich-Gildhoff & Rönnau-Böse 2015; Yates & Masten 2004), coping (cf. Snyder 1999), post-traumatic growth (cf. Tedeschi & Calhoun 1995), sense of coherence (cf. Antonovsky 1998; Singer & Brähler 2007; Griffiths & Foster 2011) and psychological (as opposed to merely subjective) well-being (cf. Ryff & Singer 1996). In the tradition of salutogenesis (cf. Antonovsky 1987; Lindström & Eriksson 2006), the study does not focus on failure in the face of particular lifeworld challenges, but rather considers successful implementations. The examples of unsuccessful adaptations (pathogenesis) – adaptive and stress disorders, repression and pessimism – do not serve primarily as evidence of "wrong" behavior, but rather as indications of difficult coping processes or need for support.

The individual attempting to create a fit between the external world and his or her inner world is thus at the center of the concept of change competence presented here. The large number of potentially useful individual competencies have been reduced to 16 competencies, which are distributed across four competence fields: Besides classical *problem-solving*, the competence fields of *orientation*, *stabilization* and *practice* are included as innovative emphases.

2.2   Change Competence as Action Competence

Since the 1990s, the concept of competence has undergone enormous dissemination, as well as a multifaceted and not particularly coherent differentiation thanks to its use by different "camps." Finally, by virtue of an inflationary use in currently predominant linguistic practice, it has become increasingly vague (for a summary, cf. Weinert 2001). In

his analysis of the contemporary Zeitgeist, the art historian Hans Dieter Huber comes to the conclusion: "Where there is increased talk of competence, what we are dealing with is an increased emergence of incompetence. Competence is no longer self-evident. Hence, it has to be theoretically and discursively identified, discussed, dissected, analyzed and reinvented" (Huber 2004, 16). It can also be concluded from this that a concept like *change competence* reflects the challenges with which the individual, organizations and society are confronted by virtue of accelerated change, globalization, socio-demographic processes of transformation, etc.

Other good arguments for taking up the term:

- The concept describes cross-context capabilities and is thus particularly well-suited for dealing with altered framework conditions and changing situations.
- The – sometimes harsh – scholarly debates have revealed conceptual strengths and limitations.
- There are a large number of empirical studies and practical examples.
- The competence/performance conceptual pair seems suitable for modeling the calling-up of potential action possibilities in specific contexts.
- The concept is also commonly used in everyday language.

The concept of competence was introduced into recent debate by the linguist Noam Chomsky in the 1950s. His generative transformational grammar – which in his time served as the paradigm for practically all human sciences and which is today the target of vigorous criticism – attempts to explain children's remarkable success in language acquisition by assuming a construct consisting of enabling structures (competence), which lead to the formation of a speech practice (performance) in specific familial and cultural contexts. The concepts of the social philosopher Jürgen Habermas have had tangible impact in the social sciences and pedagogy up to today. Drawing on Chomsky, in the 1970s and 1980s, Habermas placed "communicative competence" and "interactive competence" at the center of his theory of social action. In his overview of the competency debate, the education scholar Rainer Brödel provides the following summary:

> "The approaches of that time have in common a transformation-theoretical understanding of competence. According to this understanding, subjective capacity for action is the result of a dialectical interplay between competence and performance, deep structure and apparent structure. The guiding idea is that of generative competence and of the self-creation of the subject in its own actions. This means that the individual does not only look for simple paths to problem-solving, but rather, by way of the choice and exploratory use of problem-solving strategies, is able to appropriate capabilities that he or she can transfer to other situations and constructively develop." (Brödel 2002, 41)

In the 1990s, the emancipatory competency discourse of the social sciences and education, which had had a major societal impact in the German-speaking countries in the 1970s and 1980s, was replaced by a discourse of occupational psychology and personnel management,

which, up to today, primarily revolves around quality improvements in working life. In the 1990s, the "competency movement" (for a summary, cf. Horton 2000) emerged in parallel in both the United Kingdom and the USA. The background was tangible consequences of globalization, which were, above all, perceived as "overpowering" competition from the Far East and which each country, within the framework of neoliberal convictions, understood as its own respective national challenge. Whereas in the USA, one responded by studying successful managers ("excellence") and companies ("core competencies") in management theory, the British efforts were initially more directed toward the occupational-psychological standardization of the requirement profiles of jobs in general.

As compared to the previous transformation-theoretical analyses, both approaches have in common an inversion of perspective: the necessary competencies were derived from the required or observed performance. In a next step, these capabilities are supposed to be transmitted, in order to increase competitiveness. In contrast to the prior, more intellectual, discourse about communicative competence, the new paradigm of quality improvement by way of the "modernization" of jobs and organizations, as well as by way of training of employees and executives, was sustainably implemented on the governmental level by way of targeted support. Great Britain and the USA established official commissions (National Council for Vocational Qualifications, NCVQ, UK beginning in 1986; National Skills Standards Board, NSSB, USA beginning in 1994), which were supposed to transpose the new findings from labor and management studies into binding standards: in the first place, for professional training. The same development took place somewhat later in the other industrialized countries (on the development in Germany, cf., for example, BMBF 1998). The debate was also essentially influenced by consulting firms, such as McBer Associates, which, on the one hand, were equipped with major research budgets and, on the other, had success with their business model of restructuring companies in accordance with the new standards. Starting from the domains of business and professional training, the new competency discourse first reached public administration and then, finally, the educational system as a whole (cf., for example, the OECD's PISA studies, since 2000).

The occupational psychology/personnel management paradigm was itself subject to a highly dynamic development from the start, and it has already gone through several stages of development and given rise to different approaches. With the pedagogical turn, the initial listing of promising leadership qualities or formal quality requirements for certain jobs gave way to a concentration on so-called key competencies: What fundamental capabilities could the educational system transmit that were usable by graduates across all professions and situations? The German Federal Ministry of Education, Science, Research and Technology (BMBF 1998) listed the following competencies:

- Basic expertise and methodological competence
- Linguistic and media competencies, as well as in-depth knowledge of current social, cultural and economic conditions
- Creativity and capacity for innovation
- Mobility and flexibility

- Perseverance, reliability and precision
- Social competencies, like ability to work in teams and networked thinking

This transformation of the concept of competence, developments in management theory like the discovery of "soft skills" and of "knowledge management," as well as the generally increasing focus on the personal responsibility of citizens or employees, have led – at least in scholarly circles – to a further rapprochement of the social sciences/education camp and the occupational psychology/personnel management camp (cf. Geißler & Orthey 2002, 75f.). In his foundational article on the conceptualization of competence, the developmental psychologist Franz Emanuel Weinert summarizes the current state of play as follows:

> "The variety of meanings given to the concept of competence is seen not only in its many uses, but also in the construction of compound words to express competence, such as: media competence, business competence, … etc. It is not possible to discern or infer a coherent theory out of these many uses. There is no basis for a theoretically grounded definition or classification from the seemingly endless inventory of the ways the term 'competence' is used. One will be equally disappointed if one restricts the search for a common core to only scientifically based definitions of the concept of competence. There are many different theoretical approaches, but no single common conceptual framework. What follows is a descriptive list of nine different ways in which competence has been defined, described or interpreted theoretically. This includes competence as: (a) general cognitive ability; (b) specialized cognitive skills; (c) competence-performance model; (d) modified competence-performance model; (e) motivated action tendencies; (f) objective and subjective self-concepts; (g) action competence; (h) key competencies; (i) metacompetencies." (Weinert 2001, 46)

The IZZ's concept of competence takes its orientation from the concept of action competence outlined in what follows and the concept of "metacompetence," which will be discussed later on (see the section on "Competence Fields and Individual Competencies"). Clearly drawing on the Habermasian model of communicative competence, action competence thematizes the fundamental capacity for action of the individual cutting across different contexts. It thus also has a conceptual proximity to the wealthibility concept of the Institut für Vermögenskulturforschung und Vermögenspsychologie (IVV) in Vienna with which the IZZ collaborates. In its research, the IVV has elaborated the key role of subjective appropriation for intentional action and the assumption of responsibility (cf. el Sehity 2011). From the point of view of Psychological Future Management, its bringing together of cognitive and emotional, psychological and sociological elements also speaks for the concept of action competence. Weinert summarizes the concept as follows:

> "Unlike concepts of competence, that accentuate either cognitive or motivational aspects, action competence includes all those cognitive, motivational and social prerequisites necessary and/or available for successful learning and action. The concept of action competence has been applied especially in the analysis of the necessary and sufficient conditions for success in meeting task, goal and success criteria in selected fields of action (e.g., profession, institution, or social group). The following components are frequently included in action competence models: general problem-solving competence; critical thinking skills; domain-general and

domain-specific knowledge; realistic, positive self confidence; and social competencies." (Weinert 2001, 51)

2.3   Change Competence and Change Management

For psychologists, supporting corporate transformation processes is an exceptionally profitable market segment, which still promises further growth. Accordingly, approaches to coaching in change management (for an overview, cf. Landes & Steiner 2014) have, in the meanwhile, assumed a dominant position in the specialist literature and in the public debate on change processes. The framework within which change competence is expected of employees in this context is clearly demarcated: Change Management concerns corporate change processes that are structured in such a way as to be (to the greatest extent possible) implementation-oriented (performance agreements, intermediate goals), as well as being hierarchically planned and decreed. Insights into employees' psychological processes are supposed to help to integrate the latter into the transformation of the company. Most articles on the topic of change competence are thus to be found in the area of support for corporate change processes, as well as – by way of anticipation – in occupational psychology research on professional aptitude. Many valuable results for understanding how people deal with change have been elaborated in both fields.

In the context of promoting cross-situational key competencies, the consultants Jacob et al. (1998) introduced the concept of change competence into the debate on change management. They conceive the latter by way of three dimensions: willingness to change (motivation, "wanting to"), conditions of change (context, "being permitted/required to"), and ability to change (qualification, "being able to"). The competence researcher Andrej Szebel further developed this model in his dissertation (2015), in which he dealt "with inter-individual differences among employees in the experience of organizational change processes." This study represents an exception in the available literature, since the real change process that is its focus – the moving of 1500 employees of an energy company into a newly established administration building – was not supposed to be influenced, but rather a sample of 250 employees were questioned in detail about their attitudes and their experience. The pronounced knowledge interest from the point of view of differential psychology and personality psychology represents another particularity. This knowledge interest is reflected in an ambitious questionnaire, comprising 151 items (including 13 entries on personal details like age, sex, education, etc.), which was sent to the respondents to be answered in private. The IZZ concept was able to draw on Szebel's analysis of the 102 usable returned questionnaires in several respects:

- Szebel distinguishes between general and specific willingness to change: there are persons in the organizational context who show themselves, for example, to be generally willing to change, but reject a specific change process. Both cognitive and motivational

factors (goals, commitment) determine the actual willingness to change in a concrete situation (Szebel 2015, 106).

- The influence of the change context: the situational framework conditions (structural context, organizational culture, social support, incentives, benefits, opportunity to exert influence) help to determine the extent to which an employee's general willingness to change and potential come to bear in a given assigned task (Szebel 2015, 109).
- The individual's ability to change is a complex interplay of different competencies, which Szebel conceptualizes by way of the two competency fields "knowledge/experience" and "abilities." Among the abilities, he distinguishes between three factors: an "internal" agility dimension (to be self-directed) and an "external" agility dimension (to react flexibly to the social environment), as well as a dimension of "focusing" (in the sense of strategies for systematic, goal-oriented implementation)" (Szebel 2015, 110).
- Szebel's central research question concerning the influence of personality traits on the willingness to change and ability to change of the respondents produces a clear result, if, albeit, one that seems almost modest in light of the apparatus deployed: "In any case, the dispositional personality factors appear not to have any direct relationship to the specific willingness to change. The hierarchical regression analyses showed that rather the general willingness to change and, in particular, the specific change context were most significant for explaining the variance of the specific willingness to change." Two traits have a significant influence on the general willingness to change: a high tolerance of ambiguity (interestingly, a concept that also plays a central role in Habermas's concept of communicative competence) has a positive impact; pronounced neuroticism (as well as perfectionism/fear of failure) has a negative impact (Szebel 2015, 111f.).

The result for the Change Study is a focus on the highly complex area of ability to change and on general willingness to change, as well as the guiding question of how the latter are adaptively applied in different contexts.

The overall record of Change Management appears sobering. A 2007 study by C4 Consulting shows that one-third of all corporate transformation processes are regarded as failures by the participants; responsibility is given in equal parts to upper management, middle management, mistakes in the process, and to employees as "brakes" on change (Houben et al. 2007). The change processes themselves are evidently not up for discussion.

The occupational psychology/personnel management discourse, with its focus on corporate transformation processes, has, as a whole, largely monopolized the topics of competencies and change processes in professional discussion. The framework of evaluation built into this view assures a strong relationship to practice, but it appears considerably to limit most approaches in terms of personality and developmental psychology, as well as in their exploratory potential. The consistent approach from the perspective of businesses and their change requirements has put the emphasis, above all, on the resistance of the persons affected: whether executives or employees. Oreg (2003), for example, distinguishes four basic forms of resistance: "short term thinking," "cognitive rigidity," "routine seeking" and "emotional reaction to imposed change." As consequence, the focus of these analyses is the

question of how the diagnosed resistance can be reduced. In keeping with the hierarchical logic of processes that have been decreed from above, one initially strived to give better training to executive staff. (As both an example of this current and a summary, see Higgs & Rowland 2000). It was only in recent years – in part, through the analysis of companies' own failures – that greater attention was given to the leading role of employees (cf. Hiatt & Creasey 2012): in scientifically well-grounded form, especially in Szebel's (2015) work.
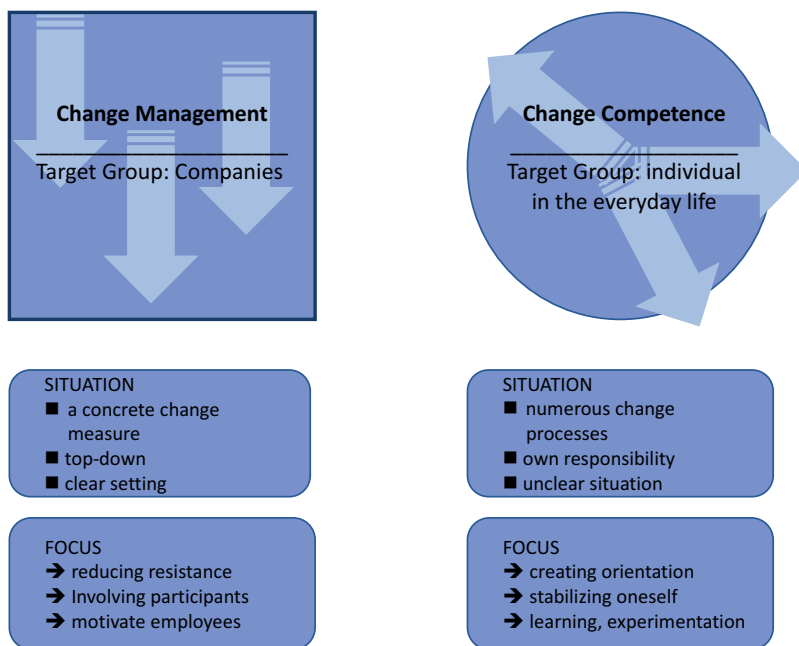
Debate buzzwords are, on the one hand, "employability" and "adaptability," which it is the responsibility of individuals themselves to acquire in anticipation. Lately, in light of the foreseeable scarcity of highly-trained staff, this responsibility is beginning to be shifted to employers (cf. Dlugosch 2009). On the other hand, participation is, above all, being demanded of the coaches who deal directly with employees. (On constructive effects of successful participation, cf. Brotheridge 2003). But as long as the latter are not deployed in such a way as to bring about structural change, the evident credibility problem of staff training persists. Relentless restructuring measures since the start of the new millennium, as well as related efforts to influence and direct the process, have also led, in society as a whole, to an accentuation of the understanding of change as a burden. Whether the associated discourse about change management has not made a significant contribution to the public's much-discussed "change fatigue" (cf. Boos et al. 2004) would be an interesting question.

The four competence fields of the IZZ approach to change competence represent a change in perspective vis-à-vis the available specialist literature in the fields of change management and personnel development. The *individual* in his or her *everyday world* is the focus of the Change Study. Significant shifts in emphasis result from this change in perspective: professional life is only one of the fields in which individuals have to find their way. This means that individuals – as against what occurs in the case of the prescribed change measures of the working world – have to produce *orientation* for themselves. First of all, change processes have to be perceived as such. What is decisive is the assessment of the relevance for one's own life, as well as the question of whether an intervention appears promising. Contexts can be sought out, avoided, endured and changed.

The analysis of the pilot study interviews yielded yet another surprising insight: the capacity for *stabilization* plays an essential role in coping with dynamic change processes. Individuals have themselves to undertake to "stay on the ball," to "keep fit" and to "keep going." Numerous techniques of self-regulation (cf. Vohs & Baumeister 2011), social scripts and societal conventions are available for this purpose. Szebel would speak of "internal agility." But the individual has to retrieve and deploy them in a way that is goal-oriented and appropriate to the given situation. It is only if they, for example, assume responsibility, stay motivated, do not allow themselves to be discouraged by obstacles, obtain support, and pay attention to their resources that people can shape a more long-term process, whether in the private or the professional domain.

There is a consensus among the different approaches to cross-context competencies that the point of shaping change processes is to find *solutions (to problems)*. But these solutions have also to be implemented, tested, further developed, adjusted and, if necessary, revised in everyday life. The competence field of *practice* is decisive for the individual's autonomous

shaping of his or her own life, since it is here that solutions are tried out, inner stabilization is proven, and orientations are gained or revised. By grasping this domain as an open field of learning for competence acquisition and personality development, the IZZ approach goes beyond Szebel's concept of focusing.

Change Management
_____
Target Group: Companies

Change Competence
_____
Target Group: individual in the everyday life

SITUATION
- a concrete change measure
- top-down
- clear setting

SITUATION
- numerous change processes
- own responsibility
- unclear situation

FOCUS
→ reducing resistance
→ Involving participants
→ motivate employees

FOCUS
→ creating orientation
→ stabilizing oneself
→ learning, experimentation

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Fig. 1   From Change Management to Change Competence

In its focus on individual developmental and action possibilities, the IZZ approach is substantively close to the view of the economic educator Wolfgang Wittwer, who accompanied the introduction of teamwork in the "Auto AG" and captured the experience of those involved in qualitative interviews. He grasps change competence as an "important component of individual competence. It allows the individual to apply his or her abilities or strengths in new and changing (work) situations. The concept of change competence comprises highly particular psycho-physical dispositions, which are required, in order to be able productively to process the dynamic of constantly changing and thereby uncertain life situation with regard to one's own professional biography. These include cognitive, affective and motivational dispositions, as well as dispositions that can be described as attitudes and as readiness to take decisions and act." (Wittwer 2010, 149)

In this sense, the Change Study emphasizes the individual's fundamental freedom – which, at the same time represents an obligation – to shape the change processes in which he or she moves. There is a broad spectrum of modes of reacting and action options available here, even if in their everyday lives those concerned may not initially recognize them. Our hope is that by clarifying the function and interrelationships of change processes, the Change Study can make people's possibilities for action and action options conscious and thus available to them.

2.4   Competencies, Competence Fields and Metacompetencies

What are competencies? In 1982, one of the pioneers of the "competency movement," the American psychologist and business consultant Richard Boyatzis, answered the question as follows: "an underlying characteristic of the person that leads to or causes effective or superior performance". The background was his influential study on successful managers that was commissioned by the American Management Association (Boyatzis 1982). As Director of the consultancy McBer Associates, he was able to draw on a large number of studies and came to 19 general competencies for successful executives. McBer subsequently compiled a list of 400 behavioral indicators, from which 216 individual competencies can be derived, which are to be found, in turn, in 300 competency models (cf. Horton 2000, 308).

Besides the problem of the flood of competency definitions, which already becomes apparent here, Boyatzis's simple phrase raises four fundamental questions:

- What exactly does the *underlying characteristic* represent: Is it a personality trait, a disposition, a stock of knowledge, a pattern of behavior?
- Or are they not rather observed, extracted and interpreted interrelationships? How can we *prove* causality?
- How do we define *success* or "superior performance" – for example, in the short-term or as sustainable success – and what effect does this decision have in turn on the competencies being investigated?
- What happens when we extend the study beyond a specific professional field and consider behavior across multiple contexts.

An example of a pragmatic way of dealing with the abundance of competency models is the concept of change competence of the occupational psychologist Simone Dlugosch (2009). She tailors her concept to the concrete field of application of aptitude tests. As underlying characteristic, she understands that which can be examined using the available psychological instruments: hence, her work focuses on personality traits. The success criterion is the successful mastery of assignments. Competency models are not interwoven, but rather dealt with separately and consecutively. Thus, in Dlugosch's work, problem-solving ability does not appear as a "sub-discipline" of change competence. Instead, change competence

is assigned its own domain; in everyday professional life, it gets manifest in four sets of behaviors:

- *Reacting and adapting one's own behavior* in the case of changes that the individual cannot him- or herself influence
- *Acting* in the sense of initiating and accelerating change processes
- *Encouraging other people:* as an executive, this means, above all, supporting employees through change processes
- *Further developing one's own person:* this means developing one's own competencies self-reflexively and by way of feedback

In this way, Dlugosch attempts to avoid a fundamental problem of cross-context competencies, which she would presumably also find affects the IZZ approach. When we begin to develop a competency model with several hierarchical levels, there is the risk that the competence from which the title is derived – whether action competence, communicative competence, change competence or problem-solving ability – becomes a synonym for competence in general and hence loses its precision. (A good presentation of the problem is found in Weinert 2001.)

At the same time, in light of the object of inquiry, it is not clear how such systematic interrelationships and constellations are to be avoided:

- Feedback effects and complex interrelationships determine our everyday lives – even if efforts are made in the aptitude test to isolate individual components. Whether and how a situation is experienced as insusceptible to being influenced depends on the interplay of a number of factors, deriving from the persons involved, the environment, and the specific conditions of the encounter in the situation. These also include the "embedding" of the situation. What was there previously, what is expected subsequently? What significance does the situation have for the different participants?
- Temporal sequences in which competencies are called up cannot be adequately reconstructed without drawing on metacompetencies, which guide the process. Personal development is a good example, and the involvement of a "higher" level is already made clear with the introduction of the concept of "reflection." It is only by (partially) becoming conscious of current action, by assessing and modifying it, as well as by repeatedly checking the results, that a self-image can be created, whose history can then continue to be written in further sequences of action and reflection. Good arguments can be made for here assuming a special metacompetence for identifying and evaluating such processes.
- Taxonomy – in this case, the naming of particular competencies and classes of competencies – is itself a kind of action, which is context-dependent and oriented to problem-solving. The names given are only ever "semantic stopovers." Superordinate and subordinate concepts can easily be formed, and, by way of a combination, a number of

additional domains of application can be determined: for example, general and situational adaptive competence, anticipatory, social or intuitive adaptive competence, and so on.

An interesting attempt at a solution – without any direct thematization of change competence – is the atlas of competencies compiled by the competency researchers John Erpenbeck and Volker Heyse (Erpenbeck & Heyse 2009). Four competence fields, each with four groups of four individual competencies, are juxtaposed here. They mutually inter-penetrate: only one individual competency group is specific to each field; each of the others marks a point of contact with one of the other three fields. The choice of the individual competencies is not immediately obvious in all cases, but, according to the authors, it proved itself in the practice of personnel management. Erpenbeck und Heyse identify the following four competence fields:

- *Personal Competence:* ability to be intelligent and critical vis-à-vis oneself and to develop productive attitudes, values and ideals
- *Activity and Action Competence:* ability, actively and resolutely, to put into practice knowledge and skills, the results of social communication, personal values and ideals
- *Expertise and Methodological Competence:* ability creatively to overcome problems with specialized disciplinary and methodological knowledge
- *Social-Communicative Competence:* ability on one's own initiative to come together and discuss with others, to cooperate creatively and to communicate

The authors provide a topography, in which the individual can be placed according to his or her answers. In their atlas, they do without higher order structures; but on their website, they explain that they conceive metacompetencies as, in effect, floating above this competency landscape (cf. www.competenzia.de). Above all, they do not present the central connective element between the individual competencies, but they think this element practically in an applied manner: namely, the individual with his or her personal mix of competencies. In the final analysis, this connective controlling element forms the center of their conception – even if it remains empty in the visualization. This is shown by their reference to the evolutionary theorist and economist Peter Kappelhoff, whose paper on "Competence Development in Networks" they summarize in their introduction: "Competencies have come into being in an evolutionary process and are generalized self-organizational dispositions of complex adaptive systems – in particular, of human individuals – toward reflexive, creative problem-solving action with regard to general classes of complex, selectively significant situations." (Erpenbeck & von Rosenstiel 2007, XVIII)

It is against this background that the IZZ approach to change competence places the focus firmly on the individual and the development of the individual. The competence fields of orientation, stabilization, problem-solving and practice depict real stages of adaptive behavior or, respectively, classes of tasks that have to be mastered in shaping change processes. The individual attempts – by directing, choosing, applying, testing and changing him- or herself – to achieve a "fit" and coherence for concrete situations in the balance

between inner and outer world. In this sense, change competence is a metacompetence, which tells us something about the extent to which individuals are able to deploy – whether consciously or intuitively – their individual competencies in different contexts, to recognize the need and possibilities of action in changing situations, and to learn and develop their own personalities across these various stages of coping.

On the concept of metacompetence, Franz E. Weinert writes: "We can not only estimate our own performance possibilities and prerequisites, but can also use these subjective judgments to guide our actions. This knowledge about knowledge is called 'metaknowledge', and the ability to judge the availability, use, compensation and learnability of personal competencies is called 'metacompetence' (Nelson & Narens 1990). Better learning and performance does not arise just from knowing and doing more. Given similar conditions, those who know more about themselves and who are able to put this knowledge to practical use are likely to perform better than others when solving difficult tasks and problems." (Weinert 2001, 54)

The Psychological Future Management approach of the IZZ, which considers the human being as a cognitive, motivational and behavioral whole, is oriented by the distinction Weinert makes – drawing on two areas of long-term memory – between declarative and procedural (meta-)competence: "Metacognitive knowledge, combined with subjective consciousness of actions allows diverse forms of unconscious but goal-directed behavioral control. Thus, in addition to declarative metaknowledge, there is development of procedural metacompetencies. These include automatized but potentially conscious skills in planning, initiating, monitoring and evaluating one's own cognitive processes and task-specific actions." (Weinert 2001, 55)

It follows that change competence – even if it is, by way of the "ego," at the center of the following presentation – does not necessarily have to be cognitive and conscious. The preconscious practical aptitude deriving from experience that Weinert discusses seems to go in the same direction as the heuristics and intuitive decisions in the work of the decision and risk theorist Gerd Gigerenzer (2007, 2013). It can be assumed, moreover, that unconscious and emotional elements have a strong influence on what is experienced as "consistent" or "fitting" in a given situation and that a metacompetent, learning way of dealing with this sensorium improves the capacity for action.

2.5   Change Competence: The IZZ Model

In the present model, change competence is understood as a metacompetence that enables the individual, in each case, to choose an adequate, either adaptive or actively shaping, behavior from a pool of orienting, problem-solving, stabilizing and practice-related competencies in changing contexts and dynamic change processes. In this sense, change competence is an essential aspect of general action competence. It assures that the individual remains capable of taking action when confronting change.

competence field
ORIENTATION

□ ability to navigate
□ informational and knowledge
   competence
□ self-reflexivity
□ formation of guiding models

competence field
STABILIZATION

□ resilience
□ self-regulation and
   self-efficiacy
□ optimism and enthusiasm
□ ressource orientation

EGO

competence field
PROBLEM SOLVING

□ diagnostic competence
□ planning ability
□ decision-making ability
□ creativity and
   innovativeness

competence field
PRACTICE

□ ability to put into practice
□ flexibility and
   ability to compromise
□ communicative ability
□ willingness to learn

Fig. 2   IZZ Institute for Psychological Future Management: Change Competence Model

The hinge around which the model turns is the ego, which draws on the competence fields cognitively and intuitively. There is neither a pre-given temporal sequence nor a pre-given hierarchy here. The assumption is that complex and changing loops are run through again and again in real coping processes: What room for maneuver (orientation) do your own resources (stabilization) make possible? What competencies are needed for the implementation (practice) of a solution concept (problem-solving)? Must learning steps (practice) be planned, in order to achieve a worthwhile goal (orientation)? How can these steps be integrated into everyday life (practice, stabilization)? In these feedback and testing processes, individuals change in turn. By way of experience, they reinforce certain patterns from the four competence fields; other patterns will be modified or even abandoned, which in turn has consequences for the system as a whole. The personal integrity of the individual is understood here as an accomplishment, which the individual has to bring about by way of self-organization processes in dealing with his or her environment.

The four "individual competencies" listed in what follows under each competence field are understood as generic terms. Their brief presentation is basically provided for purposes of orientation. In each case, a couple of terms from competence research are also listed; but complete coverage of the whole relevant area is not possible in the present context.

Competence Field Orientation

- *Ability to Navigate*: making unclear and contradictory phenomena of the outer and inner world manageable by way of abstraction and operationalization, focus on what is important for the capacity for action; recognizing change processes, assessing possibilities for shaping them
  (among other things, capacity for abstraction, internal/external locus of control; sense of coherence: comprehensibility, manageability)
- *Information and Knowledge Competence*: in light of data overflow, the ability to select relevant information and to integrate it into existing knowledge
  (among other things, linguistic and media competence, information management)
- *Self-Reflexivity:* understanding one's own standpoint, one's own perspective, processing experiences, developing personal integrity
  (among other things, self-awareness, a knack for self-observation, capacity for self-criticism, personality development)
- *Formation of Guiding Models and Visions*: orientation toward higher-level objectives, consciousness of values, relevance and utility, providing meaning and context
  (among other things, sense of coherence: meaningfulness, consciousness of values, transfer of models, assimilation of orienting patterns of action)

Competence Field Stabilization

- *Resilience*: resistance, withstanding contradictions and lack of clarity, dealing with failures and disappointments, perseverance, "seeing something through"
  (among other things, stress-bearing capacity, hardiness, coping, post-traumatic growth, tolerance of ambiguity, discipline)
- *Self-Regulation and Self-Efficacy:* ability to direct oneself and to give oneself confirmation along the way, to do without immediate gratification, basic attitude of shaping one's own life
  (among other things, self-efficacy, management of emotions, self-reward, postponement of gratification)
- *Optimism and Capacity for Enthusiasm*: positive basic attitude and ability to integrate negative experiences in a positive way or to block them out, to make solutions and goals one's own and sustainably to invest them with emotional significance, fulfillment of obligations, also: ambitiousness as striving for continuous optimization
  (among other things, commitment, dependability, endurance, assimilation, taking responsibility)
- *Resource Orientation*: stress management, preserving one's own strength, support based on deep personal connections, ability to develop sustainable social contacts, trust in others
  (among other things, resource allocation, social competence, attachment, psychological well-being)

Competence Field Problem-Solving

- *Diagnostic Competence:* identifying possible solutions and action options
  (among other things, analytical ability, logical thinking, problem-solving orientation, judgment, expertise)
- *Planning Ability*: setting goals, defining intermediate steps and necessary resources, finding concrete action strategies
  (among other things, goal competence, prospective action orientation, methodical approach)
- *Decision-Making Ability:* choosing goals and possible solutions and connecting them with one's own motivation, recognizing need for change and then also putting this into practice
  (among other things, speed of adaptation, preparedness)
- *Creativity and Innovativeness:* changing perspective out of a sense of inner independence and curiosity and finding new solutions
  (among other things, openness, eagerness to experiment, transfer of learning, reframing, networked thinking, low risk aversion)

Competence Field Practice

- *Implementation:* ability to put into practice, goal-oriented ability to act in the face of uncertainty, obstacles and surprises
  (among other things, organizational ability, focusing, commitment, proactive action and experimentation)
- *Flexibility and Ability to Compromise:* avoiding perfectionism, appreciating intermediate successes, ability to make corrections and adjustments
  (among other things, pragmatism, goal-management, goal adjustment, accommodative flexibility)
- *Communicative Ability:* getting others involved, in order to tackle projects together, in order to obtain feedback and support
  (among other things, ability to work in teams, social competence, capacity for criticism, conflict management, integrative ability)
- *Willingness to Learn*: ongoing feedback and self-criticism, repeated testing of realism, in order further to develop problem-solving strategies and one's own competencies
  (among other things, error management, experimentation, developmental potential)

In this connection, change competence is to be understood as the ability, in a given situation or given context, to activate the fitting bundle of individual competencies, which, adjusted to one's own biography and stage of life, satisfy the adaptive requirements posed by the outer world or inner needs, and, if possible, to make outer progress in so doing, but, in any case, to preserve one's personal integrity and, if possible, to experience inner growth.

3   Personal Growth

The extension of its domain of application beyond professional and educational contexts to everyday life, the extension of the change processes examined to life-stages and lifespan, and the central role of the individual permit the concept of change competence presented here to connect up with, among other things, issues in individual psychology and developmental psychology. In this concluding section, change competence will be situated in relation to the concepts of capacity for action, identity and personal development. The achieving and preservation of psychological well-being and health will be proposed as a sufficient success criterion for change-competent action.

3.1   Embedding Competence Research in Broader Psychological Issues

The question of how people deal with changes is examined by numerous fields in psychology using a variety of approaches. Motivational psychology studies how activation, planning and implementation – as well as changes in behavior – work, and, in this connection, has examined, among other things, adaptive goal-setting (cf. Heckhausen et al. 1987; Brandtstädter & Rothermund 2002). Stress research tries to understand the impact of environmental changes on the individual. Above all, the transactional model of Richard Lazarus has elaborated the processes of interaction between person and context, as well as the important role played by the perception and assessment of the situation by those concerned (cf. Lazarus 1966 & 2006). Life event research considers how individuals deal with life-crises and other transformational events (cf. Filipp & Aymanns 2011; Inglehart & Inglehart 1991; Luhmann et al. 2012). Developmental psychology examines the changes people undergo in the course of their life-stages and the competencies that they thereby acquire in dealing with their own dynamic and the dynamic of their environment.

Even in differential psychology, with its relatively stable construct of personality, change plays a key role. If someone at 50 appears more conscientious and agreeable than he or she was at 20, then we do not speak of a personality change in the strict sense, since, on the average, this process is typical for the age in question. Finally, the outlook and behavior of a person can in fact change: for example, by way of a profound crisis. In many cases, we would speak here of a personality development (cf. Asendorpf 2005, 9)

The concepts developed starting in the 1930s by Jean Piaget, one of the pioneers of developmental psychology, have decisively shaped all research on adaptive behavior. Piaget regards the process of adaptation as an interplay of *assimilation* – I try to understand the environment according to my concepts – and *accommodation*: I adjust my concepts to the demands of the environment (cf. Piaget 2013). These originally cognitive concepts were later extended to behavior: I try to shape the environment according to my needs or I adjust my behavior to the demands of the environment. Appropriation, resistance and active shaping all appear as equally legitimate variants of adaptive behavior against this

background. They are each appropriate for certain contexts and in certain stages of development. In adolescence, for example, "taking distance" from one's family and "fitting in" with the peer group represents a necessary step in the individual developmental dynamic. In Piaget, the aim of the interplay between assimilation and accommodation is achieving a balance: the *equilibration*, which, as soon as it is achieved, is replaced by the next stage of development involving a new tension between assimilation and accommodation (Prof. Brigitte Sindelar of the SFU, personal communication).

Piaget understands people as open systems. They develop their identity precisely by changing, experiencing change and bringing it about. In so doing, they form specific competencies for each stage of development, which are the basis, in turn, for their further development at the next stage.

In the developmental psychology of children and young people, as already mentioned, one speaks of "adaptive potential": a concept that overlaps with the change competence presented here and that, in the meanwhile, is also used in gerontology, in order to describe older people's astonishing feats of adaptation to the challenges of the later stages of life (cf. Jopp & Rott 2006). Adaptive potential, as people's individual capacity for adaptation, is the result, on the one hand, of their vulnerability and, on the other, of the resources available to them – in light of the opportunities and risks of the situation in which they find themselves. The achieved resilience can be used as the success criterion: namely, the ability to master life circumstances under difficult conditions and to find appropriate coping strategies despite adverse circumstances (cf. Fuhrer 2013, 127f.).

Against this background, we can also describe change competence as the ability, amidst the interplay between assimilation and accommodation, to interact suitably with the environment and, at the same time, to preserve a sufficiently coherent inner world by way of self-regulation processes. The objective of change competence is to make possible sufficient change and enough stability – hence successful development – in shaping both the inner and outer worlds.

3.2   Change, Integration and Capacity for Action

In order to retain his or her capacity for action in a dynamic, complex and largely unpredictable lifeworld, the individual has to make considerable integrative efforts. Different change processes in the environment have to be perceived, assessed and evaluated with respect to their relevance. Suitable responses have to be found in the available repertoire. At the same time, they have to be tendentially harmonized with each other. Objectives can, for example, come into conflict with one another, with basic values or with the individual's own self-image. Moreover, it can also be the case that they appear (initially) impossible to achieve under the given circumstances and with the given resources.

Integration also means reducing – cognitive, emotional, social – dissonances that arise to a manageable level. Individuals do not always succeed in eliminating such conflicts in a productive way or in bringing them into a satisfactory balance. It clearly demands a large

measure of inner stability and an increased expenditure of energy to keep contradictions suspended for a certain time.

There are a number of fruitful concepts for how people succeed – again and again and each time, only provisionally – in achieving this balance: in the framework of coping strategies (cf. Zeidner & Endler 1996), dissonance resolution (cf. Festinger 1962), reframing (cf. Watzlawick et al. 2011), finding meaning (cf. Frankl 2014), and self-narrations (cf. Schiff 2012). Integrative effort can, with good reason, be described as an essential factor in actively shaping both oneself and one's environment. The social psychologist and health researcher Aaron Antonovsky defines his concept of sense of coherence, which is crucial for psychological health and successful conduct of one's life, along the three dimensions of comprehensibility, manageability, and meaningfulness as "a global orientation that expresses the extent to which one has a pervasive, enduring though dynamic feeling of confidence that (1) the stimuli from one's internal and external environments in the course of living are structured, predictable, and explicable; (2) the resources are available to one to meet the demands posed by these stimuli; and (3) these demands are challenges, worthy of investment and engagement." (Cf. Antonovsky 1987, 19; Lindström & Eriksson 2006)

If one succeeds in taking perceptible synthetic steps – for example, integrating what is alien or disturbing in one's own worldview, connecting one's own self-image with real action options (self-efficacy), linking one's own objectives with social movements or getting others involved in one's own life – this increases the quality of life. The achieving and maintaining of quality of life, as measured by integration, sense of coherence and psychological well-being, seems like an appropriate criterion for determining the success of coping strategies and hence change competence.

Accordingly, the psychologists Carol Diane Ryff and Burton Singer (Ryff & Singer 1996) define psychological well-being (as opposed to subjective well-being) by way of six aspects:

- Self-Acceptance
- Positive Relations with Others
- Autonomy
- Environmental Mastery
- Purpose in Life
- Personal Growth

Also of relevance here is the critique by the life-event researchers Sigrun-Heide Filipp und Peter Aymanns of the "classical" success criteria for coping with crises: "overcoming maladaptations" and timely "re-adaptation." Both criteria presuppose the possibility of objectively judging the external circumstances to which individuals are supposed, accordingly, to adapt. But, per Filipp and Aymanns, in the complex and dynamic interrelationships of everyday action, it is, on the contrary, the "primacy of the subjective" that applies: "Successful coping is apparent in the extent to which those concerned are able to see the event in question in a positive light, have subjectively derived some benefit from it or have accepted it as part of their lives. Finally, one could also examine the extent to which those

concerned have succeeded in recalibrating individual ideas of happiness and expectations for that which they see as a good life." (Filipp & Aymanns 2011, 19)

But how can the required consciousness of the individual's own capacity for action be distinguished from the "unrealistic optimism" (Taylor & Brown 1988) that is likewise regarded as psychologically beneficial? To what extent does coping with change processes require individuals to be grounded in reality? Drawing on the falsificationism of the philosopher of science Karl Raimund Popper, we could say: the attitudes of individuals that are acquired in the process of equilibration and self-regulation have to be adapted enough to their environment for their lives to "work." This "working" can be conceived in turn as a sufficient and sustainable presence of quality of life and psychological well-being.

It can be assumed that the IZZ concept of change competence correlates with quality of life and psychological well-being. Even if they temporarily shield subjective well-being, a lack of realism and forced disengagement, for example, would have, accordingly, to have a negative impact on psychological well-being in the form of loss of control, fear or the emergence of psychosomatic symptoms. Such a conclusion, which runs contrary to respondents' self-assessments, is suggested by the IZZ study *Drei Generationen im Gespräch* (Druyen 2016).

Creating a relation to reality is anything but a trivial matter. We search in vain for an Archimedean point from which "the reality" as such can be considered. This is why we cannot expect to obtain "harder" criteria for successful coping than the somewhat circular, reciprocal determination of change competence and quality of life. Each individual constructs reality from his or her perspective – and does so indeed amidst the interplay of assimilation, accommodation and self-regulation adumbrated above (and within the framework of social and cultural givens). This applies for the citizens surveyed in the study, as well as for politicians and others who control the levers of power and decisively contribute to shaping our reality. It also applies for scholars, even if they try to develop intersubjective, objectified and more abstract perspectives.

The challenge consists of creating further intertwinings of perspectives and horizons, in which points of view complement one another in a way that promises progress in knowledge, new action options and an increase in psychological well-being. For the purposes of this project, a great deal can be learned precisely from the plurality of individual adaptive solutions and from the diversity of the approaches and results of competence research.

3.3   Identity and Personal Growth

People thus strive to find responses to the different forces that act upon them and to put them into a meaningful context. We can assume that they fundamentally want to learn, to gather experience, and to prove themselves. People are curious (cf. Silvia 2008 & 2001) and eager to explore (cf. Hills et al. 2015). They seek successfully to translate what is new into their own lifeworld. They want to appropriate skills and interesting trends, and to put their experience and knowledge into practice (cf. Koller 2012 & 2017).

The concept of "change competence" aims at the constant challenge confronting the individual: a complex process of balancing that never comes to a conclusion. It is thus not a narrower concept of competence – in the sense of delimitable skills, which are required for a specific – for example, professional – instance of problem-solving, which can be named and can be transmitted by way of targeted training – but rather a comprehensive action competence, which traverses the entire lifespan.

The acquisition of capacity for action and shaping change together function as an identity-creating process: By way of appropriation, behavioral options are transposed into the individual's own behavioral repertoire (cf. Oehme 2004; on media research, cf. Winter 2001; Hepp 2005; Kellner 2011). In the context of adaptive strategies and self-regulatory processes, the choice, harmonization and integration of action possibilities and attitudes form and transform an individual's personality in the course of his or her biography. In this way, individual life histories unfold, which have, in turn, to integrate stages and contradictions. Thus, it appears that early experiences of attachment, and the extent of the basic trust that has been built up in connection with them, have a strong influence on latter exploratory behavior (cf. Bowlby 1988; Ainsworth et al. 1978). The personality can, in turn, develop strengths, compensate for deficits and stabilize itself, to the degree that in the course of its development it is increasingly capable of helping to shape its environment, such that the latter is suitable for it. Successful internal and external adaptation develops the internal locus of control that is needed for the capacity for action.

As a whole, identity formation remains an open, unfinished process of change. In this connection, the motivational psychologist Peter Gollwitzer has coined the concept of "insatiable goal intentions" (cf. Gollwitzer 1987 & 1987a). The individual's actions and decisions are shaped by normative and anticipatory goal images. They are also influenced by how the individual would like to be and how he or she would like someday to become.

The sequence of life-stages (cf. Oerter 2002), social, technical and cultural change (cf. Deines et al. 2014; Inglehart & Welzel 2005), the coexistence of different lifeworlds, fashions and trends – all of this challenges individuals to find a balance between stability and dynamism, between preservation and transformation, and to try out suitable adaptations in each case. Amidst these tensions, individuals are also faced by the challenge of incorporating their adaptive responses into their own self-images or of developing them in such a way that continuity is achieved or that breaks and leaps in the narrative of personal development can be integrated. Periods of dissonance and impending failure, the feeling of helplessness, latency phases (on the meaning of moratorium phases, cf., for example, Maree & Twigge 2015) and experiencing crises (cf. Filipp & Aymanns 2011) are certainly also part of such coping processes.

In his study of "successful living", the developmental psychologist Jochen Brandtstädter points to the essential role of obstacles and existential challenges: "In every life history, there is a mix of results of action and simple occurrences, and in both types of events, there are in turn desirable and undesirable elements. Positive development thus essentially has also to do with overcoming adverse life circumstances and potentially giving them a positive meaning. 'Negative' emotions like worry, anger, and regret are not incompatible with notions

of positive development, if for no other reason, because they indicate existing or possibly to be expected discrepancies between what is and what ought to be and they activate motives for changing given life circumstances and patterns of behavior." (Brandtstädter 2015, 1 f.)

The process of personal growth is always also about proving oneself and attaining self-knowledge. It would appear that people gain the greatest life experience when they themselves are at stake. Hence, beyond its use in concrete contexts of problem-solving, change competence also manifests itself in the ability to work continuously, creatively and constructively at the success of one's own life. In conclusion, here again Brandtstädter: "The question of the conditions of positive development, on the one hand, presupposes a corresponding margin for modifiability and choice and, on the other, the assumption of a reflexive self, which, in the ontogenetic process, acquires the interests and competencies required to make itself and its own development an object of action and consciously to influence them in such a way as to bring about improvement or 'optimization.'" (Brandtstädter 2015, 5)

Accordingly, the development of change competence and current change behavior appear only to be adequately understandable, if their embedding in the entirety of individual identity formation and living are thought along with them. Anyone who wants to understand the change behavior of people in a particular situation, has to be prepared for the fact that in considering different action options, they also allow overriding assessments of their personality development and criteria for a successful life to enter into the equation. Whoever wants to motivate people to adopt a particular sort of behavior with respect to changes, should also be able to show how the action decision in question would sustainably give meaning to their lives.

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Experiences of Change –
Challenges, Processes and Patterns of Action

Stephan Duttenhöfer

Abstract

Change is experienced differently by people depending on the proximity to their own sphere of action: Change processes in which the individual person has to take care of establishing a target state by developing individual strategies for achieving the target are seen more as challenges to their own change competence. In the case of general trends in social, technical or cultural change, however, a wait-and-see attitude seems to prevail as to how these will affect the personal sphere of action. Two main types of changes in the area of personal impact or influence can be identified: emotional coping processes and life-design tasks. The set of emotional changes is strongly biographical and includes events such as entering into a partnership, responsibility for children and the death of relatives. On the other hand, the issues of housing, unemployment, self-employment, divorce and illness prove to be life-design tasks. In retrospect, changes triggered by a more intrinsic impulse receive more positive evaluations than externally induced changes. However, both follow a procedural pattern with four phases: orientation, solution, stabilization and practice. Within each of these phases, drivers can be identified that have different effects on the respective phase. If the phase model is combined with the concrete changes in the area of personal impact or influence on a further aggregation level, specific action patterns emerge as variants of this basic model. The results clearly show that changes do not happen at random, but follow a plan that has a goal. This goal must be understood in advance on the basis of information and become part of life planning—which will require ever faster adjustments in the years ahead. This is a mechanism that supports individual change management in the future.

The topic of change is virtually unavoidable in the public discourse. At present a substantial section of the media is concerned with concepts such as Industry 4.0, cybercrime or the quantified self, to name but a few. Not just politicians and business leaders but also individuals must look into the future and face the changes it will bring for people's every-

day lives. What we are dealing with here is a dynamic of change which is probably higher now than at any other point in human history. Because it is mainly based on advances in digitization, this dynamic has been associated with Moore's Law, which originally related to integrated circuits, and states that their complexity doubles at regular intervals. The growth described in this law seems to be just at the beginning of the upward phase of an exponential function, and will continue to pick up speed in the next few years.

If this prognosis is accurate, there is only one logical consequence: technological changes will have a massive and direct impact on people's living conditions and their ways of life. Furthermore, this development will directly influence the human psyche, on the one hand because changes always cause people to reflect on and restructure their patterns of thought and action, and on the other hand because the expectation of further increases in the pace of change makes every single person feel a growing anticipatory pressure. While it was possible, in the past, to take a relatively cautious, wait-and-see approach to an innovation, today the need for speedy adaptation is rising dramatically. A graphic example is the creation of texts in standardized form. The typewriter dominated the world for more than a hundred years. Then came computers and the first word processors. Only twenty years later, smartphones and tablets can perform this function just as elegantly, if not more so. Now the same output can be produced nearly anywhere, with much greater flexibility and much lighter and more compact technology.

The Change Study broke down the process of confrontation with specific changes, and the associated coping strategies, into their respective elements, in order to identify patterns of successful changes. To reveal these strategies for action, a two-phase approach was chosen for the project: a pilot study and a representative survey.

In the pilot study, "Patterns of coping with change," 30 two-hour in-depth-interviews were carried out to gain a closer view of people's patterns of change. Here the first working hypotheses were validated and calibrated by means of six prototypical types of change. Daniel Brenner presents the detailed analyses in this book.

This article is based on the second phase of the study, the representative survey "Life events and change competencies." 1,951 Germans aged 18 and over were asked about their experiences of change. The survey took place in March 2017, and involved a fully standardized questionnaire, with an average completion time of 17 minutes. The survey was carried out by Kantar TNS, using a study concept developed by the IZZ Institute for Psychological Future Management at the Sigmund Freud University Vienna.

The basic idea of the process analysis was to identify changes experienced in recent years, which were then to be prioritized according to individual importance. The individually most important change was then analyzed in detail. What was the trigger for the change, how long did the change take, and how did it proceed? The process analysis itself was divided into four phases, each with ten to fifteen questions.

This article focuses on the empirical findings of the second project phase, the results of the survey on "Life events and change competencies." It discusses the connections identified, concentrating on the process and the associated developments and requirements of

a change process. No attempt is made to define the project's relationship to the existing research, since this will be done in the subsequent articles.
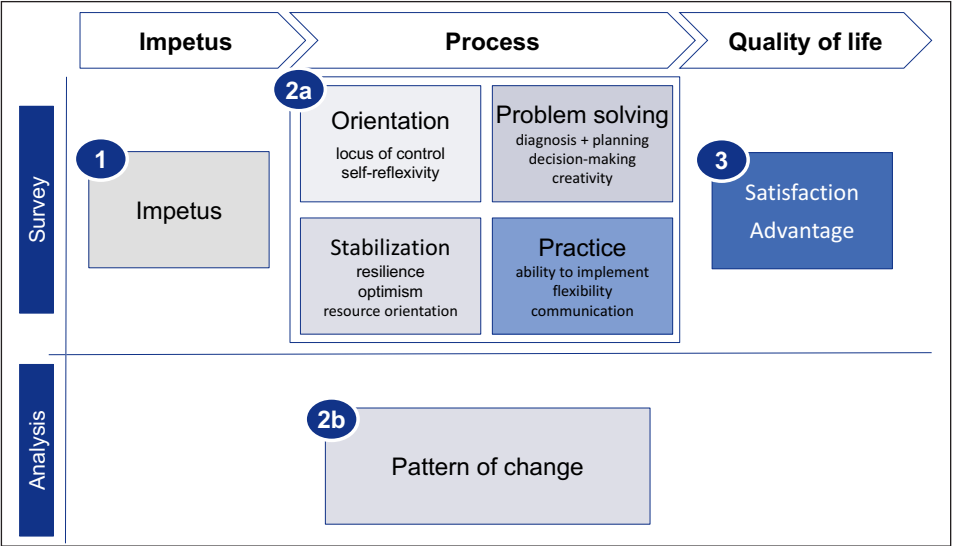

Fig. 1   Schematic Concept of Change

1   Changes Create Satisfaction

Processes of change come with uncertainty, complexity, and imponderability, and this can have a direct impact on people's life satisfaction. However, this situation often ends with the achievement of a positive outcome.

When questioned in a traditional and generalized form (Q6), the Germans are basically satisfied with their lives. This also applies to those who have been through a change. Even at this point, however, it becomes clear that not all changes are alike. Without going into too much detail about the individual changes at this stage, there are clearly contexts of change which have very different effects. In total, 52 percent of respondents select one of the three highest degrees of satisfaction on an eleven-point scale. If the most important change is based on a biographically positive event, such as such as having a child or getting married, the evaluation is far more positive (61 percent and 62 percent respectively). If, on the other hand, there is a biographically negative change such as a separation or bereavement, this kind of change has a correspondingly negative effect on life satisfaction (44 percent and 27 percent respectively). In contrast to these changes, which tend to involve "internal" coping processes, there is a cluster of events which can be characterized as involving an "external life-design task." Events which can be shaped in a positive way, and which people

use to actively achieve a deliberate shift in their perspective on life, such as a self-chosen change of job or a move into self-employment, lead to a more positive assessment of the change (51 percent) than illnesses or the consequences of an accident (36 percent). In the latter cases the "life-design task" is focused on returning to the status quo ante, that is, the familiar reference situation.

As has already become clear, the concept of change implies an extremely wide range of content configurations with different target states. To understand this more precisely, the following section will examine the content of different change processes.

Each participant in the study was first asked to name three important changes from his or her life. Out of this personal selection, the respondents could then select the change that was the most important from their point of view. This was the selection mechanism best suited to measuring personal rankings, without influencing individual choice with preset answers. As will be explained later, in change processes the subjective interpretation of the initial situation is particularly important when it comes to achieving a new target situation.

When we look at the number of changes mentioned, it is striking that on average only 2.5 changes are mentioned; the given framework was not fully utilized by the participants. This is noteworthy, given that the media are full of change-related issues, and the limitation imposed in the survey was not strictly necessary. This distributional parameter becomes even more striking if we look at specific age clusters, which were analyzed in ten-year steps. The value, 2.5, remains nearly stable across all decades. Can we deduce from this that younger people have already had to go through a similar number of changes to older people? Does this mean that the increasing dynamic of change mentioned at the outset is already making itself felt, and that the first generation is already in the grip of its effects? No, instead it must be assumed that—regardless of age—the sum total of possible answers tends to be utilized. The most important fact seems to be that it is evidently not the quantity, but the quality of events that changes.

The changes experienced will now be considered from two perspectives: the first is more sociodemographic; the second divides up the changes and their contexts on the basis of a contextual logic. If we compare the three most frequently mentioned changes from the perspective of gender, we find a fairly traditional ranking. Marriage and partnership are put in first place by both sexes (men: 48 percent; women: 42 percent). Second place, with the same level of agreement, goes to the topic of children (men: 36 percent; women: 41 percent). Only when we reach third place is there a difference between men and women in their choice of events. Here traditional gender roles manifest themselves: for men this place is occupied by *career* or *occupation* (31 percent), for women the cluster that appears here is *house and home, moving to a new house, owning a home* (39 percent). These last two dimensions do not only define the difference in ranking; it is here that the greatest differences between the sexes appear in terms of the proportionate level of mentions.
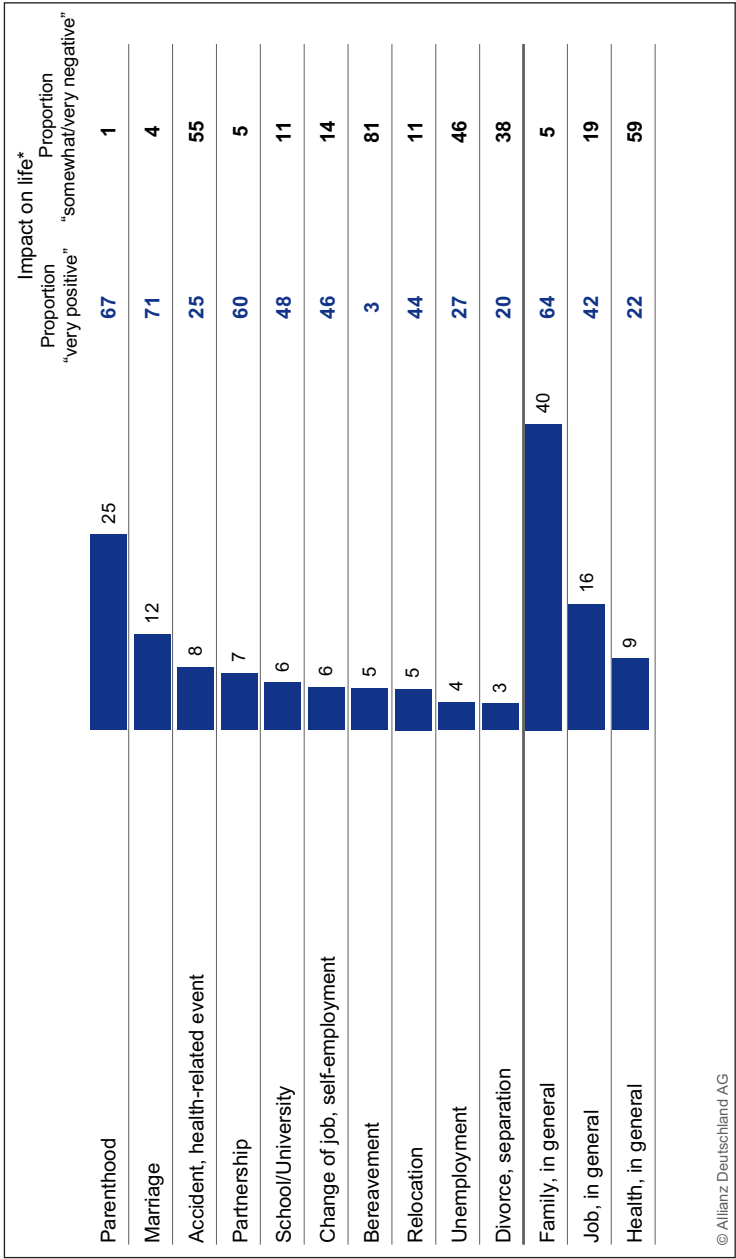
Fig. 2   Most Important Change: top 10 changes mentioned (shares of over 3 %)

Questions: "Which of the important changes in your life was the most important?" (Q12). "All in all, did this most important change have more of a positive or negative impact on your life?" (*Q13). Population from 18 to 70 years of age, n=1,951, all figures in percent.

What happens to this top-three ranking when we compare age decades? Here the synchronism of the sexes disappears and is replaced by more biographical aspects. Over half of the 18- to 29-year-olds put the topic of school, training, and study in first place. Between the ages of 30 and 50, top priority goes to marriage and partnership issues. Between 50 and 70, in contrast, adult children and grandchildren take first place. The transition from partnership to children seems to be a reaction to the associated emotional, social and monetary investments. The demands children make on their parents increase with age and lead to new priorities, at the expense of the usually well-established and sometimes ritualized couple relationships. Another topic that gains ground in the over-50s group is illnesses, which are mentioned by just over a quarter of those over 50, sharing third place with questions of house and home. There is one surprising finding in the 30 to 39 age-group: here the topic of moving to a new house, owning a home, and building a house is on the same level as the highest-ranking topic, partnership. So we can speculate about whether these two aspects of change are an expression of the different degrees of maturity of partnerships, or whether this simply reflects the effect of a phase shift. Are some respondents still preoccupied with love, while others have already moved on to the pragmatic topic of housing?

Let us consider a further dimension: the connection between the three changes. In many cases events which individuals perceive as changes for themselves, and which they experience as laborious and/or time-consuming processes, are part of a normal Western biography. This becomes clear when we consider how the most important cause of change is linked with the next most frequently mentioned causes.

If the birth of a child, that is, the responsibility for a child, is chosen as the most important change, then partnership and housing situation follow as the other most frequently mentioned topics. If a phase of unemployment is put in first place, the subsequent places are still occupied by partnership and housing situation. These patterns are not especially surprising, and do not require any particular explanation, because they give an impression of normality. In contrast, there are events that exert a disruptive force on people's lives.

If an illness or accident is identified as a person's most important change, the material basis of income and job as well as the emotional platform of partnership are also directly linked with this situation. Such changes obviously shake the very foundations of a life, necessitating a fundamental reorientation. Here there are fewer collective coping patterns which a person can fall back on by adapting behavior from his or her own milieu. Individual problem-solving is required to make the best of the situation.

The pattern is similar for bereavement. Here the topic of money and material provision is mentioned, and, with the same weighting, the topics of retirement and partnership. Retirement tends to be biographically driven, and thus part of a normal biography. For the bereaved, however, the loss of their emotional foundation as a result of the death has a direct impact on their way of life, because they must first develop a new orientation in life, sometimes even a new purpose or meaning in life. Material difficulties which affect their life design can further exacerbate this situation.

It has become obvious that changes, in their complexity and their effects, place a variety of demands on the individual. This becomes even clearer when we leave behind the context in which change processes are triggered, and examine their consequences and side effects.

On an emotional level, the more biographical changes such as having children, getting married, or entering into a partnership are mainly associated with happiness and enrichment (38/29/41 percent). When the change event is a child, more than a quarter of respondents experience the additional aspect of responsibility (28 percent). This aspect does not gain a two-digit percentage for any other change (mean value over all change events: 9 percent)—here it becomes clear why children occupy such a high position in the list of changes, and why this hardly alters over the course of life.

Of the respondents who cite accidents and illnesses, more than half of those affected mention an increase in health consciousness as a consequence they have experienced (including health changes and limitations: 52 percent). This obviously reflects the fact that injuries and illnesses threaten the foundations of a person's existence. This effect of personal injury or illness is exacerbated by a lack of prospects and limited opportunities for the future (18 percent). At the same time, 14 percent of this group note that they have a greater appreciation of everyday things and events. For all the challenges that arise from accidents and illnesses, there are people even in this group who look into the future with optimism.

In the group of people with experiences of change there is a third cluster, in which the change events of bereavement and divorce can be linked. The dominant emotional change in a bereavement is based on loneliness and grief (60 percent). This emotional state very clearly dominates all the other effects. It is here that a connection emerges with those who have been through divorce. In this latter group, one in five people (22 percent) responds with a statement evoking loneliness and mourning (mean value over all change events: 6 percent). The loss of a person and the circumstances relating to this seem to lead to the same emotional states, regardless of the degree of hardship. A further commonality is also evident in these two change groups: in second place among the effects is the aspect of self-reliance and self-discovery (bereavement: 11 percent; divorce: 22 percent). This shows that people can have the potential to act and develop even in critical situations in life.

2   What Does Change Mean for the Individual?

Compared to the media discourse on changes in all areas of daily life, the analysis made us re-evaluate the concept of change: from the point of view of our interviewees (or in broader terms, the Germans), changes have relatively little to do with the mega-issues highlighted by the media or with external societal effects.

Changes that people subjectively classify as crucial are distinguished by two constitutive aspects. Firstly, they have a *direct effect* on a person's immediate environment. They have direct consequences for living conditions and demand an individual response from the actor. The change has such a massive impact that in most cases it is impossible to simply

"carry on" as before. Marked changes in lifestyle manifest themselves as the main reaction to a change. Secondly, changes of this kind require the development of an *individual strategy* for dealing with the new situation, in order to be able to cope—cognitively, mentally and also physically—with the circumstances that arise, often without warning. The new situation necessitates a categorization or reframing, to give the situation a frame of reference in which the individual can get his or her bearings. The creation of a new coherence seems to be the key feature of a successful change process.

The major change-related issues for society seem to be disconnected from this direct impact on everyday life, and generally have only an indirect effect on the actions of individuals, because there are strategies for avoiding these developments, at least initially. Even nowadays it is possible to survive everyday life in Germany even if one is not willing to engage with the opportunities offered by digitization.

Almost more important, however, is the logic of collective strategies for dealing with developments. Societal developments are contained and made manageable by cooperation, by groups bound together by a shared destiny, and by the imitation of behavior. In this way the burden of change is distributed over a "swarm" of people affected by change, who do not have to reinvent the proverbial wheel individually, but find solutions in a collective. When many people make small contributions, a bigger picture emerges as if by magic, giving guidance for action. If we consider specific examples, it becomes clear that we have no need to develop our own travel itineraries, diet and exercise plans, fashion sense, or philosophy of happiness, because there are hundreds of all these things available. Thanks to the internet, we can enter these discussions as knowledge providers, or, like the vast majority, simply consume them. These examples from the private sphere of individuals can also, however, be extended to work-related, social, and societal phenomena. On the one hand these collective strategies offer individual users an impetus and a chance to compare with others, and see their own actions reflected in those of others, and on the other hand they make it possible to optimize resources for individual changes.

How do changes arise? Changes for the individual do not happen in a vacuum, but develop, for example, as a result of shifts in reference systems, changes in social or organizational structures, or disruptive, unexpected events. They then demand a reaction from the individual. In a structuring discourse on the topic, the first question that inevitably arises is: Where does the stimulus for a change come from? Is this new personal direction intrinsically motivated, or is there an external stimulus that virtually forces the individual in question to display new behaviors and to put these in a relevant context of meaning?

Five percent of respondents see their change as both internally and externally influenced. 38 percent indicate a clear external stimulus, and 67 percent believe that they themselves are responsible for the change. Two questions are directly connected to this: Are there patterns of changes that are ascribed to one or the other kind of stimulus, and what effects does the stimulus have for the evaluation of the situation as a whole? In sociodemographic terms, no significant differences appear between the sexes or age-groups. If we relate the question of the stimulus to the change events, the events most often experienced as external stimuli are job loss (59 percent) and bereavement (62 percent). The example of bereavement reveals

the ambivalence around the attribution of stimuli. The death of a loved one is obviously an external driver of change, yet 38 percent of those affected view the subsequent process of change as an intrinsic phenomenon. A comparable effect appears when it comes to the experience of having children. Here 24 percent see their own parenthood as an externally triggered event. These are mainly men, for whom parenthood feels like an external phenomenon, because most of the burden is still borne by women. Clearly there is a phase in the change process in which people interpret where the trigger for a change comes from.

This attribution makes a fundamental difference to the qualitative experience of the given change process. 90 percent of respondents with an internal stimulus rate the impact on their life as positive or very positive, while only 69 percent of people with external stimuli come to this conclusion (Q13). If we extend this comparison to the effects on different areas of life (Q15), the result is even more striking. People with an internal stimulus for change see themselves as better placed ("fairly positive" and "very positive") in three respects: health-wise (internal: 46 percent; external: 37 percent), socially (internal: 53 percent; external: 44 percent), and above all emotionally (internal: 75 percent; external: 55 percent). The origin of the stimulus makes no difference to evaluation when it comes to status in society (internal: 44 percent; external: 43 percent) and financial position (both 34 percent). A similar picture appears in the overall evaluation of the change, when respondents are asked whether it has brought any lasting advantage (Q16). Of those who assume an internal stimulus, 40 percent see the change as bringing a substantial advantage (top 2), while only 31 percent of the group with the external stimuli share this verdict.

This shows that changes can be even more successful (in people's subjective evaluation) if those affected are able to see themselves as the source of the stimulus. This mechanism has a far-reaching implication for the increasing and accelerating societal changes which are likely to happen in the years and decades to come. Those who are able to approach the changes from an internal stimulus will have a significantly more positive view of the process as a whole, but also of the resulting outcome. So it will be important to mediate changes in such a way that the general public is able to associate them with a perceived internal stimulus and with the corresponding conviction.

Change always means leaving behind something familiar, and moving towards a new destination. This journey brings uncertainties, unclear situations, and the problem of the uncertain outcome. Companies are supported in change processes by consultancies, while the individual generally has to deal with this alone. If the initial hypothesis about the increasing frequency of change is confirmed, then every society will have to consider how effective it is to leave each person on his or her individual path without support. Perhaps in future a support network should be provided: to inspire people, accompany them on their journey, create safety nets, and manage crises.

For the person involved, every change brings the risk of failure, or of needing to take a detour, or at least make course corrections. Perhaps one of the most striking findings of the present study, and at the same time an indication of the honesty of the answers, is the proportion of changes that went smoothly (Q26). Only one third (34 percent) of the respondents report that their process went off without problems and adjustments. In contrast,

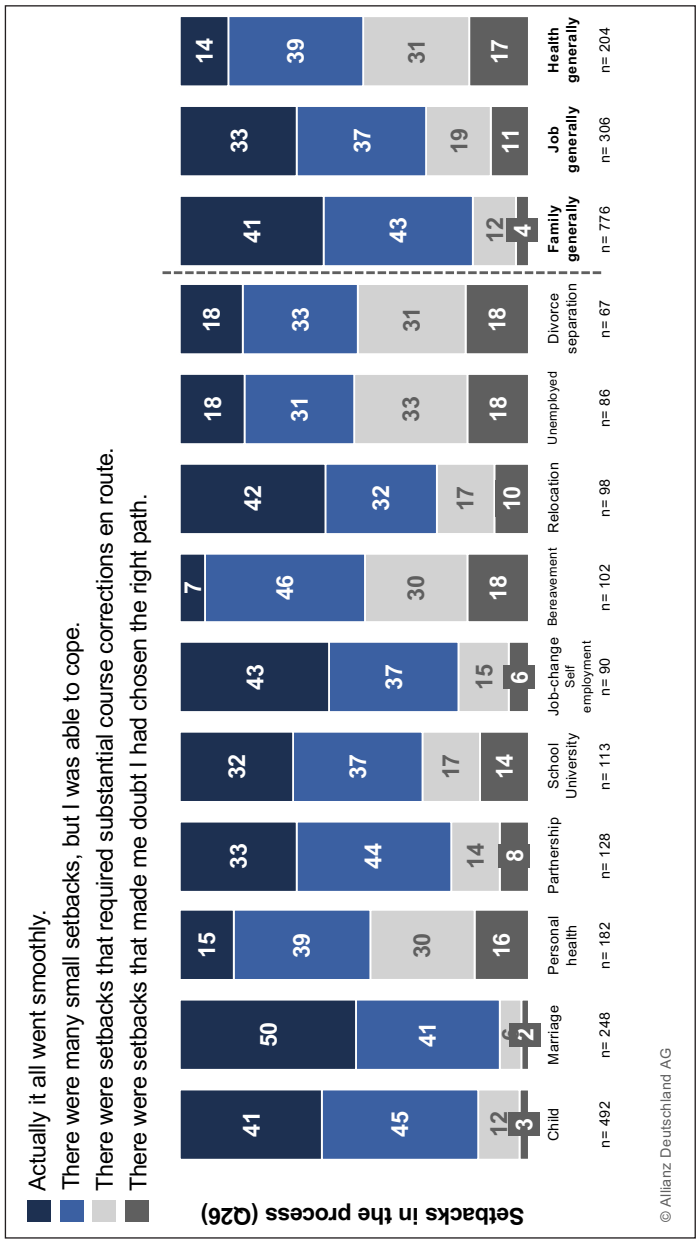**Fig. 3**   Setbacks in the Process (by most important change)

Questions: "Changes can involve setbacks, or everything can go smoothly. Please think about your most important change: Which of the following statements best matches the course of your change?" (Q26). "Which of the important changes in your life was the most important? (Q12). Population from 18 to 70 years of age, n=1,951; all figures in percent.

41 percent state that they had to overcome manageable setbacks. If we look at the life events underlying the change, significant differences appear. The best scores were found for getting married and having children, two causes of change for which people can draw on existing patterns of action and experiences. Illness, death, divorce and unemployment, in contrast, display very little flow and involve much more effort, because of setbacks and course corrections. This once again shows the pattern of biographically pre-shaped events in relation to individual problem-solving patterns. With individual changes, there is a much greater risk of interruptions and restarts during the process, because there are hardly any opportunities to use familiar patterns of action. The point where visible life-world and mental state merge together is especially fragile. In these change events, the personal emotional risk also becomes apparent. One in five of those affected doubted, during the process, whether they had taken the right path. In the case of the especially emotional events, bereavement and divorce, nearly half (47 and 49 percent respectively) doubted whether they had chosen the right path.

Looking ahead toward change means mentally simulating the attainment of the goal and the path to it. This process of thinking about ideas and plans follows a pattern. In the questionnaire, the participants were offered four basic patterns of this kind to choose from (Q31); here different answer distributions emerged depending on the group of change events. Positive, family-oriented events such as parenthood or marriage depend on the adaptation of familiar and usually very traditional patterns of action. In this context almost half the respondents, when asked about the pattern for attaining their goal, answer that the goal was immediately clear to them and that they did not have to think much about how to get there (44 and 45 percent respectively). The family event with negative connotations, bereavement, offers a strong contrast to this. Here more than half the group responds that they worked their way forward step by step, without thinking much about the route, and trusting their gut feeling (57 percent). "Life design" problems such as finding a way out of unemployment, moving to a new house, or forming a partnership also show a common pattern. Different paths are considered, and one of the available alternatives is chosen on the basis of a gut feeling (34 and 32 percent respectively). The final cluster is about coping with the consequences of an accident or illness, or of a divorce. Here, in comparison to the other respondents, there is an exceptionally large proportion of people who think through the different paths and then rationally select the path that seems safest (27 and 34 percent respectively). In view of the sometimes existential situations involved, these people minimize the risks and rely on risk-averse planning rather than intuition.

Change does not occur overnight. The results make it clear that changes are subject to a process which connects different influencing factors on the path to change, and also produces feedback between individual phases. Only when the problem becomes clear in itself can an action be taken; this is then repeatedly compared with the initial situation and the target situation. Thus the change process has a temporal dimension, which needs to be analyzed in the framework of change management.
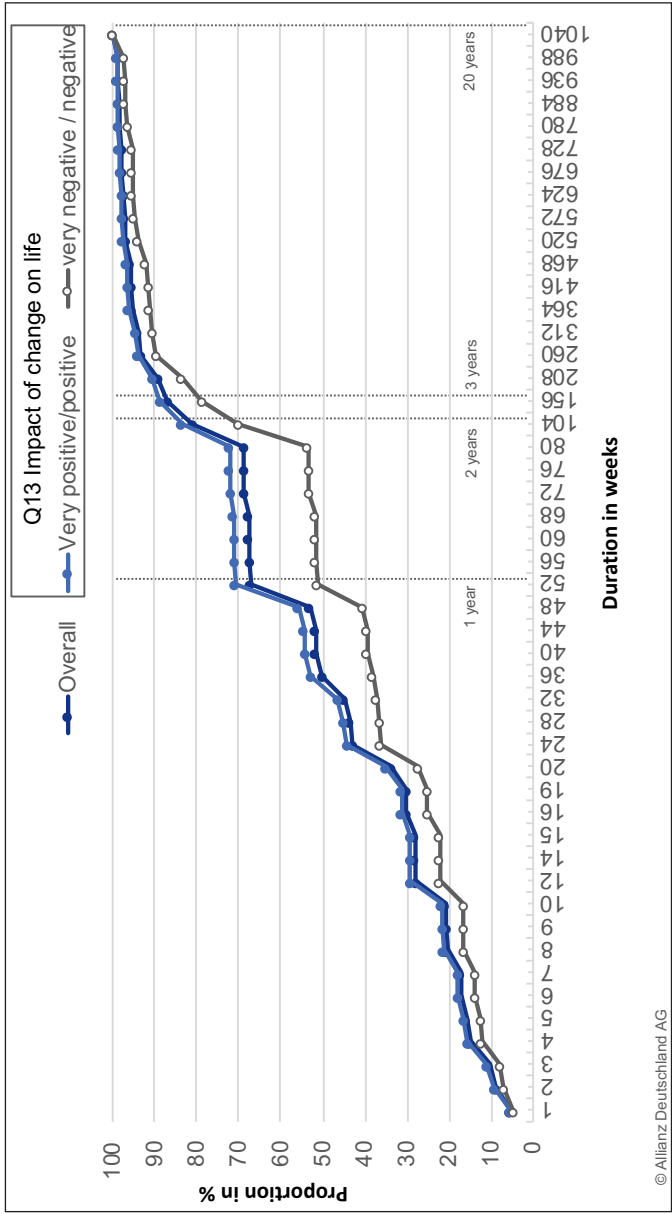
Fig. 4   Duration of the Change (in weeks)

Questions: "How long did the process of change actually take, from the initial idea to the new target state? Please decide whether you wish to give the duration in weeks, months, or years." (Q22): "All in all, did this most important change have more of a positive or negative impact on your life?" (Q13). Population from 18 to 70 years of age who specified a duration, n=1,929; all figures in percent (cumulative).

Changes take time, then. Within one year, just over two thirds of the changes have reached a conclusion (Q22). At the end of the second year the rate is just under 90 percent. The duration of the process correlates with the assessment of its success. Looking at the individual changes, a self-initiated change of job or the transition to self-employment proceeds relatively quickly, i.e. 90 percent can end the process within the first year. After two and a half years, 90 percent of those affected by an illness or accident reach a state which they can regard as the new status quo. It takes somewhat longer—around 33 months—to reach the 90 percent mark in the case of unemployment. And it is only after three years that 90 percent of the bereaved see the process as completed.

One point seems especially important as an interim conclusion here: change is based on a process which begins with the identification of the reason for change. This process also requires a target state as a vision for change, and a map showing the intermediate steps on the way to the goal.

3   The Change Process

In the following section four phases will be introduced to give a better understanding of change processes.

For individuals, the *orientation phase* is initially about defining the present situation in terms of their current life context, and developing a strategy to steer the change in a direction that will be coherent with their own personality and model for life. Individual change, unlike organizational change management with a preset goal, requires an individualized vision toward which the transition process is oriented. The information and knowledge competence of the individual serves both as a basic capability and as a resource, allowing access to a realm of potential options for action.

The *problem-solving phase* is defined on the one hand by the ability of the person involved to diagnose and plan, and on the other hand by his or her creativity and decision-making ability. In this phase, thought experiments and mental anticipation play a key role on the way to a new overall situation. As well as the integration of available knowledge and environmental parameters, individual decision-making confidence is a fundamental parameter for successful change processes.

Once a potential solution has been found, implementation can begin, moving toward a new target state. This requires a *stabilization phase*, because the actor has to stay "on the ball" and "on course" as the process continues. In this phase individual resilience has a major impact, and on the other hand aspects of self-efficacy and the capacity for enthusiasm come into play. How well can individuals deal with opposition, course corrections, and potentially long time spans? How strongly can they identify with the result, after a change has been initiated, and how much enthusiasm can they derive from this situation, so as not to have to start a new change cycle?

In the subsequent *practice phase*, the aim is to establish new patterns of action or situations as a consequence of the process. Here different abilities are required in order to reach a stable situation, depending on the change event. The ability to implement, that is, the willingness to adapt a solution to the circumstances and to sustain altered behavior in the long term, is essential for the effectiveness of the change process. The ability to modify one's own behavior after learning experiences also has considerable importance for the success or failure of this process. Perhaps the most important success parameter in a change process lies in the ability to talk about one's own process. If people in one's social environment can keep track of the change, this leads to acceptance of the new situation and makes it sustainable.

The presentation of the four phases in strict chronological order is a simplification, designed to paint a more vivid picture. In real change processes it can be assumed that there will be feedback effects and simultaneous processes. If the change encounters opposition, as most change processes do, orientation and stabilization have to be regained. Original solutions and objectives may have to be revised or adapted in practice.

3.1   Orientation

Once the stimulus for a change has occurred, the question that arises almost immediately is whether the individual has the confidence to face up to this stimulus and to start a process which will normally bring significant changes to his or her life. This confidence (to use an everyday term) was represented with questions about knowledge management and questions taken from the "locus of control" approach (Q24). To make this concept workable on a descriptive level, the individual questions were aggregated by means of a factor analysis, condensing ten original questions into two opposing factors. The first of the two can be described with the term "ability to navigate." The most prominent question within this factor is about the ability *to access relevant information in order to be able to understand specific problems and issues* (.683), immediately followed by the statement that *personal effort will lead to success* (.680). If people can develop an idea of how to break down the imminent change situation into its component parts, while at the same time trusting in their own capacity to implement the change, then this creates an ideal basis for a self-designed change process. The question of whether respondents feel able to access relevant information is most often answered in the affirmative by those who have coped with a life-design task in their personal change: by respondents who have had children (91 percent), or changed job (92 percent) or retired (94 percent). Agreement is lowest when the change involves involuntary unemployment (77 percent).

The counterpart to the factor "ability to navigate" is the factor of perceived "external control." Crucial here are the two statements that *plans are often thwarted by fate* (.779) and that *things often turn out differently from the way I imagine* (.768). Unsurprisingly, the second statement meets a high level of agreement among people affected by bereavement (28 percent: "that's exactly right") and accidents or illnesses (27 percent) (compared to

21 percent in the total sample). The highest level of agreement with this statement, however, is among trainees and students (31 percent). Here the question is whether these young adults are entering their education and training with the right preparation, or whether they have trouble coping with the transition from the sheltered and structured environment of school into—for example—the mass production environment of many university courses. With regard to training, the question that arises is whether the move away from classroom-based teaching and immersion into the adult world generates similar confusion. The statement about fate is mainly seen as applicable by people who refer to an accident or illness as their most important change (32 percent: "that's exactly right," compared to 14 percent in the total sample). We would expect a similarly high value for bereavement. But the figures show a much less clear picture (19 percent), which possibly has to do with the fact that not every bereavement comes as a surprise. The data cannot show how unexpected such a loss has been for the respondents, but it seems plausible to assume that a sudden death will be interpreted differently from that of a person whose life span ended in conformity with expectations.

Alongside the ability to navigate and external control, orientation is determined by facets of *self-reflexivity* (Q25). Three determining factors were able to be extracted from the data material: *If I'm going to commit to something, it has to make sense to me* (.756) has the strongest effect within the factor "meaningfulness." This isolated driver of change (i.e. the individual attribution of meaning) differentiates relatively little between the individual change projects. However, we see a clearer link between the driver and the age of the respondents (ages 18–29: 85 percent "that's exactly right" and "that's about right"; ages 60–70: 96 percent). If the world is changing faster and faster, and if these changes, which are often technological in nature, are increasingly incompatible with older people's systems of reference and meaning, and are therefore less likely to be seen as making sense, then parts of society will disengage because of this skepticism. To extrapolate on this idea: if older people cannot accept modern technologies in healthcare because these do not fit their system of meaning, then a broad public awareness campaign is needed so these essential resources can be used.

Factor two of *self-reflexivity*, "awareness of position," i.e. knowing where one stands in life (.834), has the strongest effect in this context. This driver is especially prominent in changes which involve social ties and integration in the broadest sense. Having children (82 percent "that's exactly right" and "that's about right" compared to 75 percent of the total sample), getting married (86 percent), or retiring (88 percent) are all events which redefine a person's position or status in a community, and which generally have positive connotations. The effect of this characteristic becomes even clearer with changes that tend to exclude people from participation in life, such as unemployment or illness (64 percent each).

The third factor, which can be described most accurately with the term "utilitarianism," clearly isolates the benefit that a change must bring from the point of view of the person concerned: *commitment only for a tangible improvement* (.769). Here two camps emerge. Those with work-related changes, be it unemployment (65 percent "that's exactly right" and "that's about right"), or job change or self-employment (63 percent), show a tendency
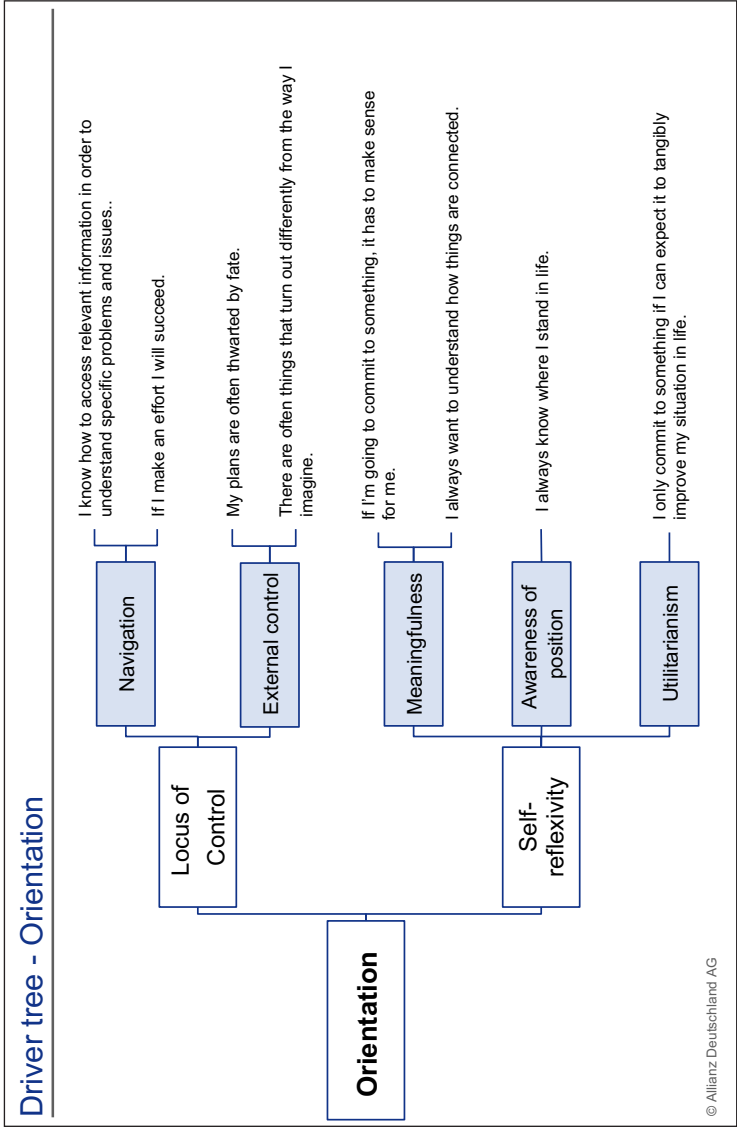
Fig. 5   Five clusters determine orientation – the ability to recognize the potential for change and commitment to an improvement in life provide the framework

to link commitment with benefits. Those with partnership-related changes show a more moderate picture: 58 percent agree with the statement. The level of agreement is somewhat weaker again among trainees and students, of whom only just over one in two agrees with the statement (53 percent). This last result offers hope that young people, in job-related matters, are more inclined to follow their passions than the expectation of a high income.

3.2   Stabilization

After the stimulus for change, and after the orientation phase (involving the mental construction of the new target situation), comes the urge to begin the process, to face the challenge and to embark on a journey which will turn the stimulus for change into a new stability.

In keeping with the pattern of analysis mentioned above, three relevant factors were able to be identified in the context of *resilience* (Q28). The most powerful lever can be described with the term "self-efficacy." Here the statement *I can cope well with problems on my own* (.794) has the greatest impact, closely followed by the confidence that *I can rely on my own abilities in difficult situations* (.775). Job-changers and those moving into self-employment (46 percent), along with retirees (47 percent), rate their confidence in their own ability to cope comparatively highly. This response behavior is not really surprising, as this ability is directly linked with a change that requires active life-design input, but seems achievable in both groups. These aspects are much less pronounced for changes such as unemployment (25 percent) or health problems (23 percent). The second factor in this context is "maximizing success." The most significant driver in this area is the motivation of *not being satisfied with small successes* (.853). In terms of the changes in question here, this driver has relatively little differentiating effect. A somewhat stronger effect is only to be observed for those moving to a new home and for trainees and students. In view of the uniformity of the value across all change events, both on the level of "that's exactly right" and in the expanded version with "that's about right," it seems reasonable to view this effort on the part of the individual as a general factor of change. It is probably an accepted fact that not all people always put in the maximum of effort to achieve the optimal result. For about half of the respondents, however, their individual interpretation of the situation leads precisely to this overly positive assessment, thus showing how much importance a person's own interpretation of the situation has for the success of the change. The third factor is the "time out" or strategic interruption, which involves taking a deliberate break when the situation is poorly understood (.792), or when stress causes health problems. This last aspect finds above-average agreement among people whose most important event was the loss of their job (23 percent "that's exactly right"), or those who have had to struggle with health problems (25 percent "that's exactly right"). Clearly people with rather negative events need opportunities to retreat, to avoid falling into a downward emotional spiral or reacting to the situation with health problems.

The concept of *optimism* (Q29) is divided into the polarizing factors of "pessimism" and "hope of success." Here a more technical line of argument is needed in order to introduce

an exciting fact. The factor of pessimism attains a higher explanation of variance than the hope of success. Does this mean that we Germans are a nation of pessimists? No: clearly it is mainly people whose experiences of change have negative connotations who fear further negative experiences. The statement which is the strongest driver, *If something is going well, I expect that something bad will soon happen* (.791), meets with a particularly high level of agreement ("that's exactly right" and "that's about right") among people who have been affected by unemployment (34 percent) or by a divorce or separation (35 percent); there is also a marked tendency to agree among the bereaved (37 percent). The highest level of agreement comes from people with health problems (44 percent). The hope of success is mainly driven by the statement *I make an effort even if I'm not really convinced by a solution to start off with* (.822). The highest level of agreement is found among retirees (76 percent). Perhaps this attitude can best be understood as an exploration of possibilities. No longer weighed down by everyday working life, retirees invest in this new, unfamiliar phase in life, to ensure that they still have a chance of winning. The group with the lowest level of agreement is people who have experienced unemployment. This is clearly caused by a sense of rejection, which makes investment in a future difficult for the time being.

Changes do not occur in a vacuum. Every person operates in an environment of other people, where their own behavior is reflected and finds expression in the reactions of others. This factor is referred to in the following discussion as a *resource factor* (Q30). The driver with the greatest weight evokes friendships which one can rely on one hundred percent (.839). Here women have much higher levels of agreement (39 percent "that's exactly right") than men (30 percent). A high value is also found among trainees and students (44 percent). On the one hand, friendship plays a key role in this phase of life, and on the other hand, friendships are often still fresh enough that they have seldom been disappointed, which explains why the agreement is relatively high. The resource "good friends" also has a strong effect among respondents who have moved to a new home (45 percent). Agreement is low among the bereaved (28 percent), and even lower among the unemployed (16 percent). Probably both groups suffer from the fact that friends have withdrawn from them for various reasons, or that they themselves do not want to confront friends with their suffering and their temporary uncertainty.
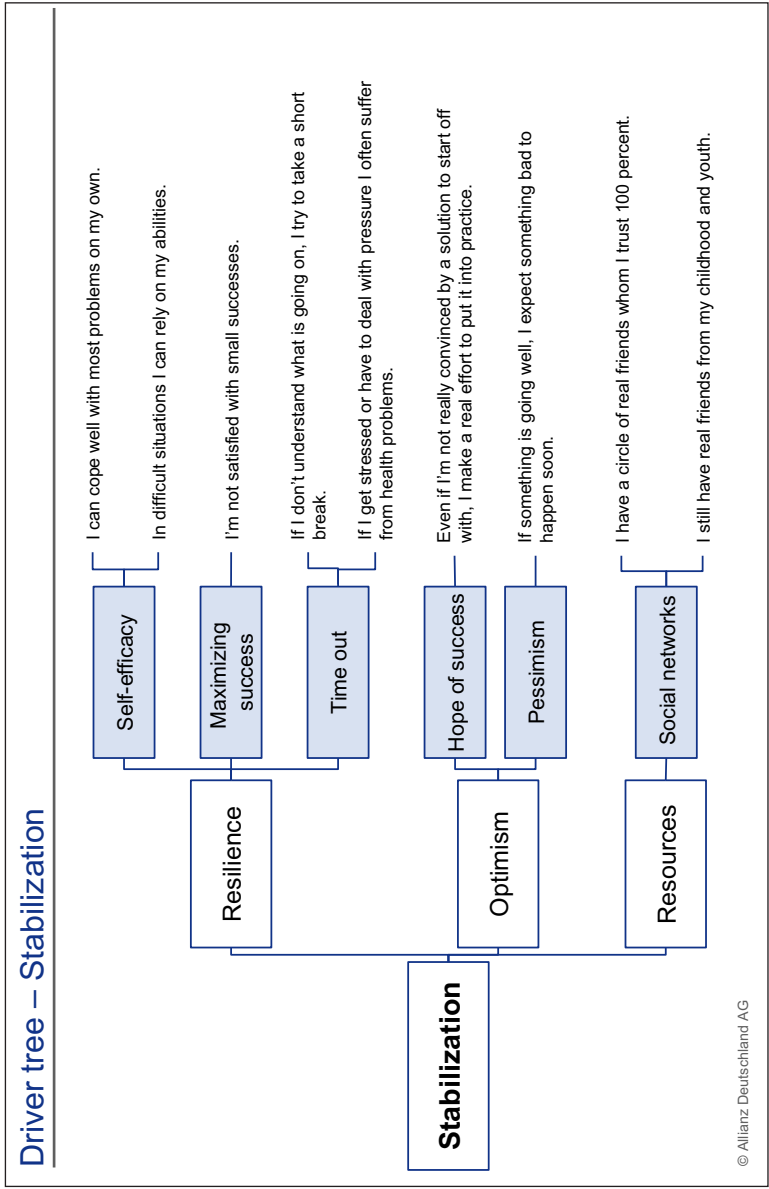
Fig. 6   Stabilization is characterized by resilience, coupled with hope of success and feedback from the people around us

3.3   Problem-Solving

Once an understanding of an imminent change has been developed, then it is time to take the next step towards a solution. Here the first thing needed is the *motivation* to set out. The context of motivation when problem-solving (Q32) is divided into two factors: firstly the capacity for "life planning," that is, a structured process toward attaining a goal. This is based on the insight that a life is, on the whole, plannable (.816). Unsurprisingly, agreement ("that's about right" and "that's exactly right") among people suffering from the consequences of accidents or illnesses, or affected by unemployment, separation and divorce, is below the average for the survey as a whole, 60 percent. Retirees, on the other hand, have a surprising assessment of plannability: 75 percent say that the statement is exactly right or about right. Is this a reflection of their new freedom from obligations, or do senior citizens base their judgment on the experience of a comparatively homogeneous life course? Looking at the spectrum of positive changes, we find that the group of trainees and students only displays an average level of agreement here. Can this level of agreement be explained by a lack of experience of coping, or do these young people suspect that their lives will increase in dynamism, and may therefore become less plannable?

The counterforce to life planning is the factor "motivation deficit." The *difficulty of choosing change as opposed to continuing with everyday life as usual* (.873) drives this factor most strongly. This conflict weighs most heavily on those respondents who have experienced personal suffering or a loss (bereavement, unemployment, illness or accident, divorce or separation). In all these cases around 55 percent say "that's about right" or "that's exactly right," in comparison to 39 percent as an average across the survey as a whole. There is also evidence of a biographical connection, however: the younger the people are, the more strongly they agree with this statement (almost linear decline in agreement from 50 percent among the 18- to 29-year-olds to 26 percent agreement among the 60- to 70-year-olds). This could be an indication of more structured change processes and an associated prioritization of tasks within the change.

A further important point in the area of problem-solving is obvious: the *ability to plan*. Anyone who wants to achieve change must be able to recognize his or her goal, identify the necessary steps, and choose, from possible alternatives, the most promising path toward goal attainment (Q33). The constitutive driver is concerned with the ability to *recognize, out of various alternative ways to reach the goal, the one that is most likely to achieve it* (.764). The respondents who are least convinced of this ability are those who refer to a period of unemployment (66 percent "that's about right" and "that's exactly right" compared to 78 percent on average across the survey as a whole). Clearly this event paralyzes the individual right at the beginning of the process.

After the planning, a *decision* must be made about which anticipated solution could lead to the best outcome in the change process. In the decision-making situation (Q34), a dividing line can be drawn between the opposing factors "accepting challenges" and "problems with reorientation." *Decisiveness* is encapsulated in the statement that *I love situations in which I'm not 100 percent sure what will happen* (.817). If we consider sociodemographic
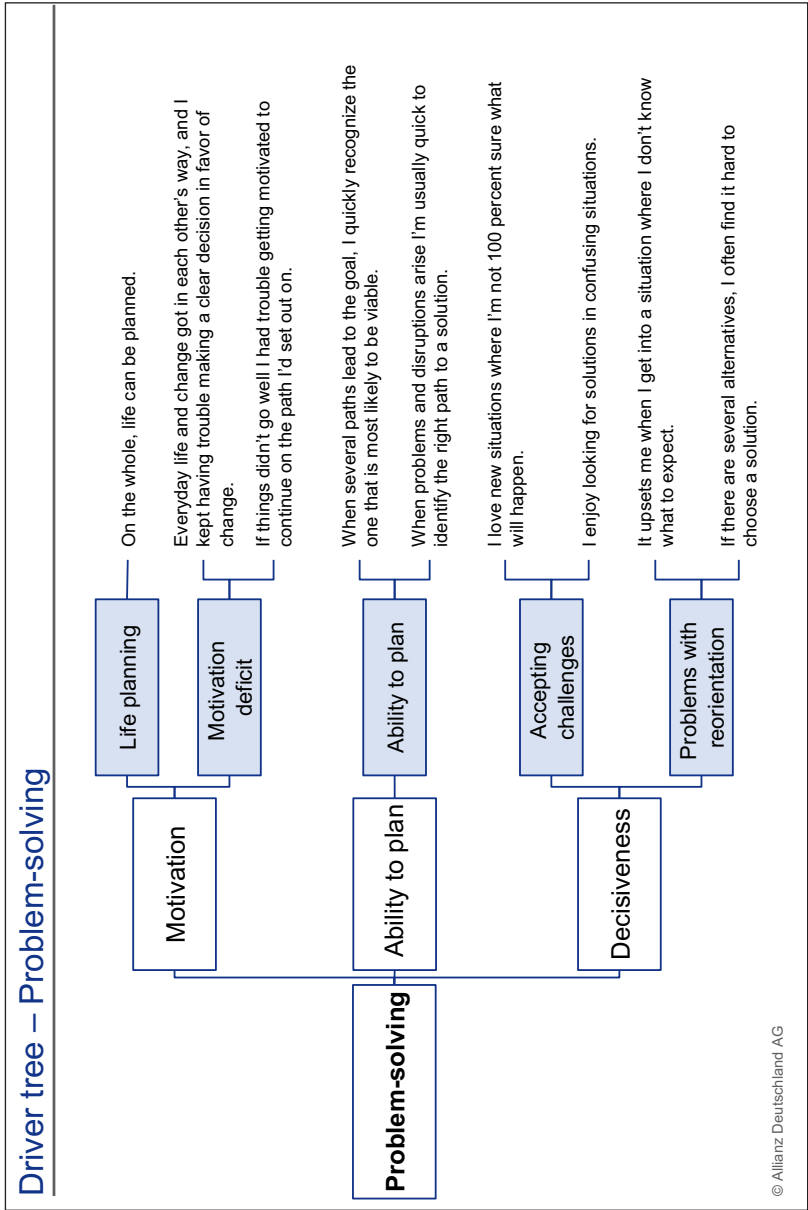
Fig. 7 To solve problems, motivation, planning and a willingness to take risks must be reconciled

groups, a fundamental difference appears here between men and women. 51 percent of men, but only 36 percent of women agree with this statement ("that's exactly right" and "that's about right"). If we consider the statement in terms of the different change events, we find the highest agreement among retirees (52 percent) and people who are moving into self-employment (51 percent). Agreement is lowest in the case of risky changes or those with negative emotional connotations, such as accidents or illnesses (34 percent) or bereavement (32 percent). "Problems with reorientation" correspond to the two core statements: *It upsets me when I get into a situation where I don't know what to expect* (.796) and *If there are several alternatives I often find it hard to choose a solution* (.787). Women (53 percent "that's exactly right" and "that's about right") are evidently more quickly upset or flustered than men (43 percent), and young people more than older people (ages 18–29: 55 percent; 30–39: 57 percent; 40–49: 50 percent; 50–59: 43 percent; 60–70: 37 percent). Evidently this is a much stronger reflection of life experience than of specific change competence, as hardly any variance appears within the events.

3.4 Practice

When the outcome of the change is already visible in our mind's eye as a result of mental anticipation, we still need the necessary *ability to implement* in order to carry out our plan (Q37). This consists of the two factors "implementation orientation" and "exit option."

The factor "implementation orientation" is most strongly embodied by the statement *If things don't go according to plan, I make an active effort to clarify what is happening* (.738). While 85 percent of the total sample agree with this statement ("that's exactly right" and "that's about right"), people who have experienced illnesses and accidents (78 percent) are particularly likely to diverge from this. This reflects the uncertainty typical of these situations. In contrast, 92 percent of those getting married, a change involving life-design input, state that they take an active approach to their problem. The only other group to behave in a similarly passive way to those affected by accidents and illnesses is the 18- to 29-year-olds. The willingness to actively clarify things increases with age; here the factor of life experience is obviously at work.

If something doesn't go according to plan I'm at a loss and just want to disappear (.953)— this statement characterizes the factor "exit option". Here a clear correlation with age is apparent, as people in their twenties agree with this much more frequently ("that's exactly right" and "that's about right") than the subsequent age decades (ages 18–29: 47 percent; 30–39: 44 percent; 40–49: 36 percent; 50–59: 27 percent; 60+: 20 percent). We already saw this phenomenon in the case of the ability to implement. Evidently it is precisely in the phase with the critical changes that the ability to implement and the tolerance for frustration are most lacking. When it comes to the change events, we find the same picture for training and study (41 percent) and for partnership (39 percent). Instead of asking whether this finding is genuinely new, it seems more important to point out that society is failing to act here. Young people need support to enable them to quickly make courageous decisions

that will shape their lives. If there is no prospect of this failing being remedied, and if at the same there are signs of an increasing dynamic of change, then many young people will become victims of their inability to make decisions.

Once a person has set his or her sights on the target state and begun to work toward achieving it, a certain flexibility is also needed in order to be able to react to divergence with regard to the detailed planning and realization, and to make adjustments en route. The construct of *flexibility* (Q38) is defined by the two factors "goal fixation" and "change of perspective."

The strongest driver in the factor "goal fixation" proved to be: *Anyone who adjusts their goals has already lost the game, as far as I'm concerned* (.798). For the analysis, it should be noted that agreement ("that's about right" and "that's exactly right") tends to be fairly low in comparison to the other top drivers, with 23 percent of the total sample. Low agreement here is good news, because it shows that goal adjustment is not excluded as part of a process. Here men (29 percent) operate somewhat less flexibly than women (17 percent), and the under 30-year-olds (32 percent) are less flexible than older age-groups. This stubborn mentality is the counterpart, in a sense, to the more adaptive behavior of the older people in the previous factors. In terms of the change events, the highest agreement can be found for partnership, at 28 percent. It is hard to say what this might mean. Does it show the effect of online dating sites, which promise the perfect match for everyone? Does it reflect a new aspiration to live without compromise, or is it evidence that people want perfection in their private lives, given the increasing complexity and confusion of life in the outside world?

As well as focusing on the goal, it is virtually a mandatory component of every change process to remain open if the boundary conditions change, or if there is a risk that the goal will not be reached by following the planned route. This is the reason for the second factor associated with *flexibility*, "change of perspective." The strongest driver is the attitude of *looking at the problem from a different perspective if there is a risk of failure* (.953). Here again we see a clear connection between this competence and age. 75 percent of the youngest people with experiences of change (ages 18–29) agree with this statement ("that's exactly right" and "that's about right"), compared to 90 percent of the oldest group. This factor produces little variance across the change events, because it is a general factor which applies to every project, every situation, and every change.

If changes are to become established in our lives, and thus have a long-term effect, the time comes when we have to speak to the people in our social environment about our change, so that it can become—as a component of the changed self—part of a new, socially accepted reality. The context of the communication (Q39) is divided into two opposing factors, which, together, make up *social competence*: on the one hand "problem-solving competence," and on the other hand "problems with course correction."

The statement *I can readily accept tips from others and use them to achieve my goals* (.702) ranks as the decisive driver of social competence. Looking at the change events, it is striking that the level of agreement ("that's exactly right" and "that's about right") for partnership (77 percent), divorce and separation (76 percent), and illness and accident (75 percent) lags behind that of the total sample across all events (85 percent). Perhaps

Driver tree – Practice

Practice

- Ability to implement
  - Focus on implementation
    - If things don't go according to plan, I make an active effort to clarify what is happening.
    - If I want to attain a goal, then I focus on it completely and everything else recedes into the background for a certain time.
  - Exit option
    - If things don't go according to plan, I'm at a loss and just want to disappear.
- Flexibility
  - Goal fixation
    - Anyone who adjusts their goals has already lost the game, as far as I'm concerned.
    - For me only the destination counts, not the journey.
  - Change of perspective
    - If there seems to be a risk of failure, I look at the problem from a different perspective.
- Social competence
  - Problem-solving competence
    - I can readily accept tips from others and use them to achieve my goals.
  - Problems with course correction
    - I find it hard to correct decisions that prove to be mistakes.
    - When others criticize me it feels like a defeat.
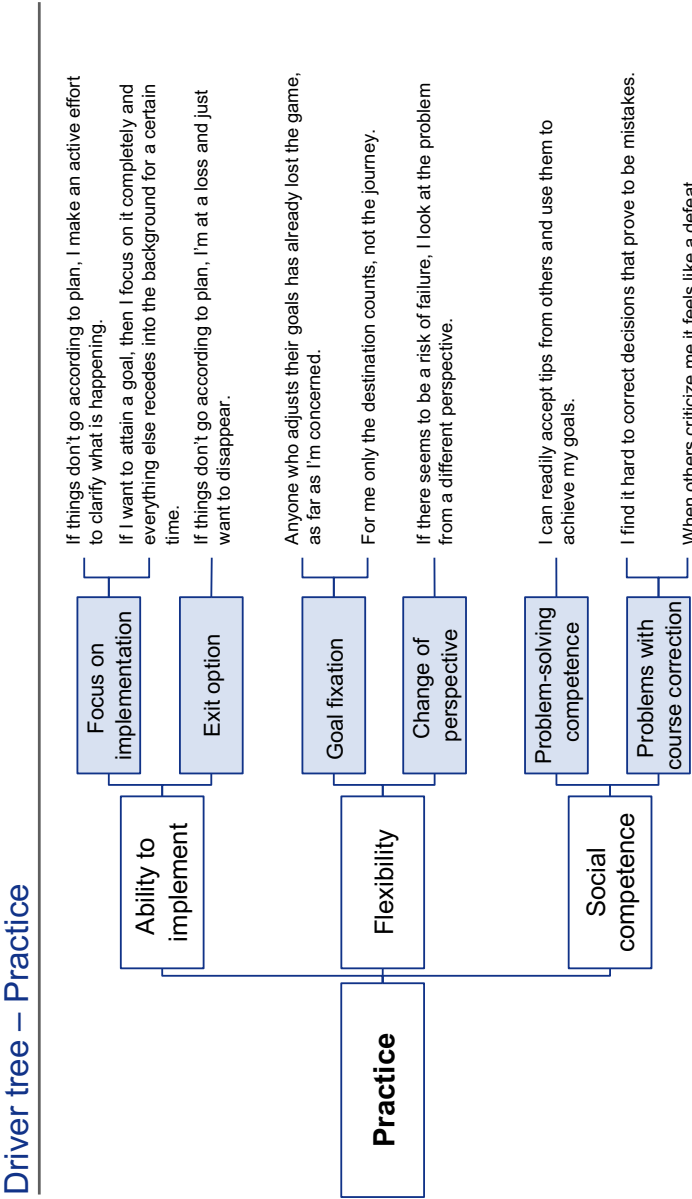
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Fig. 8   In practice, the dominant abilities are adaptation and alignment with the environment

this response behavior reflects the situational need to find one's own individual solutions. Moreover, tips are seldom sufficient in the case of illness and accident. Here it is likely that expert knowledge will be the main basis for recovery.

The most important driver of the factor "course correction" is the attitude: *I find it hard to correct decisions that prove to be mistakes* (.843). The analysis shows, not surprisingly, that the youngest age-group in particular shows significant agreement values (ages 18–29: 50 percent "that's exactly right" and "that's about right," compared to 37 percent of the total sample). This figure exactly matches the change event "training and study" (50 percent). This is a finding of considerable significance, since it means we can assume that a substantial number of young people are going through education and training which they do not really want to do. The logical conclusion is that a substantial portion of the young people we as a society are training will have little passion for their profession from the outset.

4   The End of One Change Is the Beginning of the Next One

On entry into the practice phase, the question of the "future need for change" (Q44) becomes important. The main idea here is that people should keep examining their own situation in life and taking opportunities for change which present themselves or which become necessary. This ongoing learning will be part of our lives more than ever, as technological developments confront people with new demands in ever shorter cycles. This is not just about the use of new technologies, however, but about pro-active planning across the whole life span. *Information acquisition for one's own life planning and active life design* (.741) most strongly drives this aspect of the preparation for or the aftermath of change. This aspect seems to be becoming more significant in the context of an increasing dissolution of structures and values, and the accompanying rise in complexity of the individual life course. On the one hand, this is a matter of establishing dynamic frames of reference for forward-looking life planning, and on the other hand we have to learn to question decisions at shorter intervals, or to synchronize decisions with the fast-developing environment. On closer inspection two patterns appear, revealing a connection between information acquisition and target groups or change events. The first pattern to emerge has to do with the age of the respondents. 76 percent of the 18- to 29-year-olds think that they need to develop "somewhat more" or "much more" in this area. Among the 30- to 39-year-olds this proportion already drops to 66 percent. In the following age decades up to the age of 59, the proportion falls by a few more percentage points (59 percent); among the 60- to 70-year-olds the proportion agreeing is only 48 percent. This age-related view is also reflected in the change events. The highest value is found among the trainees and students (74 percent). People who have experienced unemployment (67 percent), changed job or moved into self-employment (64 percent) also show openness toward more active life planning. It is worth paying special attention to those who have experienced illnesses and accidents. 70 percent recognize the need to be more active in their life planning. This

finding is striking, in that it indicates an increased sensitivity within this group with regard to their own life planning.

The second strong driver addresses *ecological and sustainable behavior, avoidance of waste, and conservation of raw materials*. 47 percent of respondents saw a particular personal need for development here ("somewhat more" or "much more"). If the birth of a child is mentioned as the most important change, this value rises to 51 percent; for people who have moved to a new home it rises to 54 percent. For the victims of illnesses and accidents, the value falls to 37 percent. In direct contrast with information acquisition for life design, it is noticeable that those in this group find their own lives more relevant than a more distant environment. Sustainability stands out as a younger issue: among the under 50-year-olds, 51 percent on average agree that they need to develop further here, while only 40 percent of over 50-year-olds agree with this.

The future needs for change are more accepted among young people because life planning in the future will be dependent—much more than in the past—on personal initiative, but also on living and environmental conditions.

5   Action plans

The four-phase change process presented above gives a framework for orientation, which could be used in specific cases to produce a checklist. This leads directly to the question of whether all changes actually proceed according to the same structural pattern, or whether, selectively, individual aspects recede into the background while others become more important. From the outset, the focus of the research project was not simply to trace the process, but also to verify whether changes proceed according to particular patterns with an emphasis on individual factors.

At this point we will embark on a brief methodological digression. To investigate this question, a Kruskal driver analysis was carried out, integrating the factors identified from the process phases into a model with sociodemographic data and additional psychological aspects such as expectation of gain, strengthening of personality vs. overload, reflection on missed opportunities and future needs for change (Q9, 36 and 44). The dependent variable was, in technical terms, the question of the perceived positive or negative impact of change on life (Q13). If we think of change in terms of its outcome, then it should ideally have a positive impact on our life. From the perspective of those affected by illnesses or accidents, there must at least be the prospect that the current situation will improve, otherwise they will not want to start the change process at all. In order to better understand this mechanism, and to be able to discern which abilities and attitudes are crucial for it, the process factors were condensed using a further factor analysis.

1. Change competence	2. Resignation when faced with barriers	3. Positive development	4. Goal fixation to maximize benefit	5. Loss of orientation
Ability to navigate (Q24, 8.1%*)	Motivation deficit (Q32, 11.2%)	Coherence (Q9, 13.6%)	Exit option (Q37, 1.7%)	Overload (Q9, 5.3%)
Awareness of position (Q25, 7.0%)	External control (Q24, 6.7%)		Problems with course correction (Q39, 1.2%)	Future needs for change (Q44, 0.9%)
Life planning (Q32, 6.3%)	Pessimism (Q29, 5.3%)		Maximizing success (Q28, 0.5%)	
Self-efficacy (Q28, 4.8%)	Time out (Q28, 1.4%)		Goal fixation (Q38, 0.2%)	
Focus on implementation (Q37, 4.2%)	Problems with reorientation (Q34, 0.7%)		Utilitarianism (Q25, 0.1%)	
Accepting challenges (Q34, 3.7%)				
Ability to plan (Q33, 3%)				
Change of perspective (Q38, 2.6%)				
Social competence for problem-solving (Q39, 2.2%)				
Hope of success (Q29, 1.3%)				
Meaningfulness (Q25, 0.4%)				

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Fig. 9 Mapping of the Process Factors onto the Behavioral Factors.

*Standardized impact of the driver on effects on different areas of life after the change (Q15).

The intermediate step before the actual modelling produces a reduction of the 27 process factors presented above to five behavioral factors:

1. change competence
2. resignation when faced with barriers
3. positive development
4. goal fixation to maximize benefit
5. loss of orientation

This rough structure defines the boundaries of the change process. But the extent to which individual drivers contribute to the success of the change process within these boundaries must be tested against the different change objectives and reasons for change.

In the first step, all the factors and the relevant drivers were initially included in the model without restriction on the basis of content-related considerations. The first test of the model parameters showed that the explanatory power of the model was relatively high, at $R^2 = .582$. This effect is strongly driven by the question of the effects of the changes (3. "positive development": Q9), which is directly linked to the overall evaluation of the change. Two further aspects which also contribute substantially to the explanatory power are the strengthening of personality (3. "positive development": Q36) and reflection on missed opportunities (5. "loss of orientation": Q 36), both associated with the evaluation of changes. To make the impact clear, the sum of all effects on the level of the drivers of the five factors was standardized to a value of 100. The identified drivers from behavioral factor 3 bring together a total driver effect of nearly 54 percent. Because of the dilemma caused by the excessively high correlation of the drivers with the target state, these two drivers were excluded for the next iteration phase of the model. As a result, the content from Q36 is also eliminated in factor 5 ("loss of orientation"). This change was clearly to the detriment of the explanatory power, which is only $R^2 = .292$ in the adjusted model. Besides the reduction in explanatory power, however, it is striking that behavioral factor 1 ("change competence") rises from 19 to 44 percent in its contribution to change. Behavioral factor 2 ("resignation when faced with barriers") explains 25 percent, and the adjusted behavioral factor 3 ("positive development"), which overshadowed everything in the first approach, only 14 percent. In contrast, situation in life (described by means of age, household income and occupation) contributes only 7 percent to the total effect.

In order to gain a better understanding of the drivers in the behavioral factors, the following section will examine the strongest individual drivers of the factors, which make up 50 percent of the total effect. This allows us to develop a picture of what is worth focusing on when approaching changes.

A look at the model clearly shows the crucial importance of the target state reached at the end of the process: the changed situation in life. The strongest individual effect on the way respondents evaluate the impact of the change they have experienced on their own life comes from the feeling of a new or adapted *coherence* (3. "positive development": Q9). This development is shaped by statements such as *I recognize the meaning in my life* (.827),

I experience joy (.769) and *I can overcome difficulties in important situations* (.752), all of which were taken from the questions on the *sense of coherence* (SoC). Clearly building coherence in a new situation leads to stabilization and satisfaction. This aspect constitutes 14 percent of what drives the total experience.

In fundamental contrast to this sense of stability and satisfaction after a change is the *motivation deficit* in the case of a possible failure (2. "resignation when faced with barriers": Q32, 11 percent). Here the individual levers are *Everyday life and change got in each other's way, and I had trouble making a clear decision in favor of change* (.873) and *If things didn't go well I had trouble getting motivated and continuing along the path I'd set out on* (.856). Here it becomes clear that change processes do not automatically succeed once a solution has been found, but require cognitive and emotional integration throughout all the phases, right up to completion. This reflects the challenging aspect of change: it takes courage to overcome the life one is accustomed to, and perhaps also the unfavorable certainties, and to engage with the new. Most people can recall a condensed version of this situation: the experience of trying to climb a tree as a child. The first branches are easy, but then you realize how high up you are, lose your nerve, and are afraid to reach for another branch.

Within behavioral factor 1 ("change competence"), the individual factors are interconnected in many ways. The "ability to navigate" (Q24) in the jungle of change is especially significant (8.1 percent). *Knowing how to access relevant information in order to understand problems and issues* (.663) is just as important as the belief that *I'll succeed if I put in enough effort* (.680). What is crucial is the basic conviction that *I have control over my life* (.658). Change requires courage and energy, as shown in the last paragraph. Change is also, however, based on knowledge and self-belief—the conviction that it is possible to master the change. This very belief can become a challenge if the stimulus for change takes us by surprise. An example might be a bereavement, divorce, or unemployment, where change processes usually have to be started from a defensive position.

Before the ability to navigate becomes operative, it is necessary to develop an "awareness of position" (1. "change competence": Q25, 7 percent), in order to *recognize and classify the challenges in life, as well as the dead ends* (.834). In fact this awareness does not necessarily have to happen intrinsically, but can be driven by externally induced events. This then also gives rise to the question of whether we commit to something because we *expect an improvement of our own situation from the commitment* (.787). "Improvement" as it is used here can be either a meaning-giving and therefore often coherence-producing improvement, or a mixture of meaning and material improvement. This weighing up of a commitment can be suppressed and thus delayed for a long time by the motivation deficit. It is easy to conjure up examples: couples who delay their divorce, or employees who are mentally absent, knowing that they really need to make a change, but unable to overcome the motivation deficit.

Behavioral factor 2 ("resignation in the face of barriers") contains the driver "external control" (Q25), which makes up 7 percent of the total effect of the evaluation after the change process. The levers that constitute this driver are: *My plans are often thwarted by fate* (.779) and *Things turn out differently from the way I imagine* (.768). Both details point to a

rationale of failure, or at least to a longer process of change which requires several attempts. If we think about a process to accompany change, without actually calling it coaching, the things that seem able to reduce the power of this driver are planning with regard to the path to the destination, and good information acquisition in terms of expectations of change.

A further relevant factor in a change process is personal "life planning" (1. "change competence": Q32), which explains another 6 percent of the change outcome. When people set out on the path of change, they need the mental conviction that *on the whole, life can be planned (.816).* This is not about large-scale, long-term planning of life designs, but more about how easily target states can be imagined in the medium term. So it is a matter of imagining a target state, visualizing it, as sportspeople do. Often, top sportspeople or exceptional artists have known even at a very early age what role they wanted to take on in life. Without this power to imagine, we drift on the stream of life, unable to see which shore offers greater rewards, or even to reach the shore at all. If we succeed in imagining target states, then the route to these states requires the *planning of intermediate steps, in order to gain security* (.719). It is becoming clearer and clearer that a successful change is not a matter of chance, but depends on a knowledge and strategy plan. Those who can develop an idea of their goal, secure relevant information in order to understand the goal, and develop a map for reaching this goal, with stops for rest and refueling, will be able to actually manage future change—insofar as this is possible.

6 Specific Applications

If we consider the types of change presented, the question that intuitively arises is whether there are patterns and typical sequences, and recommended methods for approaching a change. Analyzing this question, we quickly find that there is no recipe book for life; we cannot simply take a pinch of this and a pinch of that and all will be well. On close inspection, changes prove to be challenges with a certain complexity and individuality, but which—and this is the good news—operate within a system with built-in boundaries. To illustrate this system, the next section will take a closer look at the following types of change: partnership, work-related change, and changes as a consequence of illnesses and accidents.

The selection of these prototypes was based on two perspectives. On the one hand, the explanatory powers of these types on the derived frame of reference are good (partnership $R^2 = .423$, health $R^2 = .507$, work-related changes $R^2 = .554$.), and on the other hand they actually embody different coping mechanisms.

In comparing the types, we discern three different triggers for change. Partnership is a biographical change, which usually happens without significant effort and planning. People come together and accompany each other on their journey for a certain distance, be it long or short. Work-related changes require an inner drive in the person wishing to make a change, in order to either move to a different job or start work again. Here the focus is on active engagement with the situation, and on rebalancing one's system of reference.

Changes as a result of illness tend to strike people in a passive position. They are taken by surprise, and the majority initially experience a deterioration in their quality of life, often a dramatic one at first—hopefully followed by a recovery.

From an emotional perspective, the three types can be described with different emotional curves. In partnership we find steadily rising positive emotions, or in individual cases—if there is such a thing as love at first sight—a sudden peak. The emotional curve of those with work-related changes can be stylized as beginning with a downward movement, followed by a steady upward trend after the new start; it should then remain above the level prior to the change. Illness, in contrast, presents a comparatively simple picture: first there is a dramatic drop, and then things usually begin to improve.

If we can understand these three different initial situations, then it becomes clear—to extend the cooking metaphor—that this is not a case of three variations on the same dish, but of three different dishes. This means that both the starting point and the ways of coping have a type-specific logic, which has to be considered individually.

6.1   Partnership

In the practice phase, changes also manifest themselves in specific experiences. 41 percent mention joy and happiness as a specific effect of partnership. 43 percent acknowledge feelings of security and togetherness as a tangible change. This confirms the initial hypothesis.

The change constituted by partnership, i.e. the coming together of two people as a couple, is marked on the one hand by optimism and security. The optimism of this group is evident in a number of statements, for example the confidence that they *can cope well with difficult situations* (partnership: 54 percent; total: 46 percent; 3. "positive development"), or that *decisions are sometimes made on instinct* (68 percent; total 57 percent; 4. "target fixation"). Here a mechanism is at work that appears in all changes. Once the first step has been taken and old habits have been overcome, the change generates additional self-confidence, boosting one's motivation for the subsequent changes.

This optimism extends into statements about *effort bringing success* (90 percent; total 84 percent) or about *being in control of one's own life* (94 percent; total: 88 percent; both factor 1. "change competence"), and thus points towards security, and a sense of being in control.

On the other hand, it becomes clear that even in the special case of partnership there can be difficulties with reorientation, and motivation deficits. This is a special case of change because it involves two adults committing to a converging change. The majority of the changes analyzed are concerned with one person and his or her transition into a different system with behavioral patterns and rules that are known or can be anticipated. In a partnership of two people who want to come together, decisions must be made which are often not altogether clear, and therefore require negotiation or clarification of patterns on the way to the goal. The statement *Everyday life and change got in each other's way, and I kept having trouble making a clear decision in favor of change* (42 percent; total: 39 percent) gives an indication of the negotiation of positions in contrast to very clear negotiating goals. The

same can be said of the statement *If things didn't go well I had problems getting motivated to continue on the path I had set out on* (47 percent; total: 44 percent). The result for the statement *If there are several alternatives, I often find it hard to choose a solution* (51 percent; total: 46 percent; all 2. "resignation when faced with barriers") fits into the same logic of approximation. With partnership, we see this pattern of affirmation and security when the partners succeed in having a relationship. But we also see very clearly that the beginning of a partnership is marked by a relatively large number of uncertainties, because two people are moving out of their familiar environment and their usual patterns of behavior and values, and this can entail numerous risks of failure. This logic seems to be becoming more important in increasingly individualized societies, as shown by the growing popularity of dating websites, which seek fundamental commonalities on the basis of numerical matches. This makes the negotiation process much shorter. Whether the negotiation is conducted conventionally or digitally, the partners create a new level of congruence.

If we relate this view of partnership to the pattern of the five behavioral factors, we find that four of the five factors identified are activated. Only factor 5 ("loss of orientation") is not significantly involved in this constellation. The moderately limiting factor 2 ("resignation when faced with barriers") is contrasted with the three optimistic factors 1 ("change competence"), 3 ("positive development) and 4 ("goal fixation").

6.2   Work-Related Change

A change in job or occupation can be preceded by many different initial situations. The paths to change are, for example, a classic step up the career ladder, a move into self-employment, or the resumption of employment after a voluntary or involuntary break. In each case, the changer must show initiative, in order to overcome his or her initial situation. A look at the response behavior shows very clearly that a work-related change is worthwhile for the changer. For a third of respondents, the tangible changes are better opportunities for the future and fulfilment in the workplace. But one in five changers also sees independence and freedom as the result of the path taken.

With reference to their change, those who make work-related changes see a "plannability of life" (66 percent; total: 50 percent) in this section. This plannability differs from other changes in that there are few *interim goals which have to be reached* on the way to the change (68 percent; total: 73 percent; both 1. "change competence"). What is needed here is the courage to put the decision that has been made into practice, within the framework for change introduced above. Besides this movement toward the goal, however, this group also benefits in other aspects which are relevant to change. Those who change job, for example, *lose perspective less often than five years ago*, and also less often than the reference group as a whole (52 percent; total: 46 percent; 5. "loss of orientation"). The change also means that this group is more likely to *change perspective if there is a risk of failure* (20 percent; total: 17 percent; 1. "change competence"). It may be that this is the effect of a major experience of change in a small-scale setting. If the change process leads people to

reflect on established behavior that is reaching its limits, and to use this reflection to find a new way to solve problems, then it becomes clear at this point that experience of change is essential for the development of humans and systems.

Considering the drivers from the behavioral model presented above, this type shows a strong focus on two of the five change factors identified with this model. People wanting to successfully manage a work-related change must summon up their own "change competence" in order to visualize what the new target state will be, and how they want to achieve it. Information that helps them to see the goal realistically is just as important as confidence in their own ability to reach the goal, even in adverse circumstances. The second competency takes effect via a negation of the factor "loss of orientation." This can also be understood as a reinforcement of change competence, since this factor manifests itself at a below-average level.

Looking at the three types of change, it becomes clear from the example of work-related changes that the number of relevant and at the same time important factors is relatively small. This seems to be a clear pattern in the case of more concrete objectives. Conversely, however, this does not mean that other factors play only a subordinate role. Every element has its relevance, and disregarding any of them can cause a process to fail. It would therefore be extremely interesting to reverse the perspective of this project and to investigate at what points changes lead to failures.

6.3   Illness and Accident

If we compare changes connected to health with changes overall, there are hardly any differences in the top drivers for the change process and their significance. What does differ, however, is the direction and the emphasis of the details. This becomes very clear if we approach the process by initially focusing on its tangible effects. More than half of respondents citing this type of change mention the topic of physical limitations and health consciousness (52 percent) as tangible consequences of the change. Nearly one in five also talks about unemployment and financial problems (18 percent).

In contrast to the two types discussed above, we can already sense at this point that this kind of change will follow a much more complex process.

The detailed view reveals, however, that what lies behind this is not optimism about an improved quality of life, as in many other change processes, but the risk that the new life with its health-related limitations may not be able to take up where the old life left off. First and foremost, there is an obvious decline in *enjoyment of life* (37 percent agreement; total: 46 percent). In comparison to all respondents, nearly twice as many of those with a change in their health believe that they *are not good at overcoming difficulties in important situations* (19 percent; total 9 percent; both 3. "positive development"). At this point it is already clear that this type of changer is operating in a totally different mode to people who change less abruptly or with a specific goal. Perhaps the image relevant here is that of the supine position people fall into when health problems obstruct their planned path in life.

71 percent of those in this group are able to agree with the statement *If I make an effort I will succeed*, while the reference group achieves a comparison value of 84 percent. The result is similar for the statement that *I am in control of my life* (80 percent; total: 88 percent; 1. "change competence"). This limiting of the capacity for action can also be found in other drivers, such as "motivation deficit" or "awareness of position."

In the structure of the statements of those affected by health-related changes, there is evidence of a double challenge in the change process. If job-related or biographical changes are imminent, then people act toward the goal, and the change is—naturally—judged much more positively than is the case for illnesses. In the case of illnesses or accidents, a physiological basis must often be created, along with the inner balance to regain a minimum of stability from an unstable position, and to start again on a new basis. *Information acquisition for personal life planning* is viewed as relevant by 68 percent of this group (5. "loss of orientation"). This value can be better assessed if we compare it with the values for two other change topics: marriage (54 percent) and study and training (74 percent). Changes initiated as a result of health-related stimuli are often understood as a new beginning. Radical reorientation is needed in order to cope with the changed situation and develop a perspective.

The difficult initial situation of the respondents with health-induced changes is also apparent on the level of behavioral drivers. Factors 3 ("positive development") and 1 ("change competence") are both identified as influencing behavior. When the factors are evaluated, however, their effective force must be taken into account. The statements on which the two factors are based do not attain the average level of the survey as a whole, so in specific cases the factors must be interpreted as negative values. These people are less convinced of their change competence, and they do not perceive the positive development as strongly as others. In keeping with this, they are more inclined than other changers to see themselves as helpless and at the mercy of their situation.

The types of change illustrated show patterns that give clues about how changes proceed. Perhaps the simplest case for a change lies in a clear vision of change. One wishes to reach a specific goal within familiar, mostly static structures—so the first step is to prepare the ground with advance planning. On the one hand this requires a certain knowledge of structures and facts, and on the other hand it takes a willingness to commit to the goal and not give up at the first sign of adversity. The essential drivers identified are "the ability to navigate," to determine the vision to be pursued, the overcoming of "motivation deficits" in the case of difficulties with implementation, and the flexibility to be able to undertake a "change of perspective" if the process seems at risk of failure.

Far more complicated are those changes in which the unit of change is not one person and a static system, but two people. In this article, partnership serves as a representative example of changes in interpersonal relationships. Crucial for the success of this process is the relationship between the security that arises from the increasingly stable relationship, and the ongoing risk of not being able to stabilize the relationship. Here the interplay between the "ability to navigate"—both in its positive, reinforcing form and in the limiting

belief in "external control"—and aspects of "motivation deficit" is representative of the way partnerships find an equilibrium and continue to develop.

The most difficult coping pattern appears in illnesses, where a clear caesura begins the change process, which was not wanted and generally does not lead to an improvement in life. A positive solution to the change, insofar as this is possible, requires elements of meaning and enjoyment of life, and the belief that one can shape one's life even in the given conditions. In the language of the model drivers it is "coherence" and the "ability to navigate" which must be activated as a basis for a successful change process. At a later point, "motivation deficit" and "awareness of position" make stimulation necessary.

To summarize: people experience change differently depending on its proximity to their own sphere of action. Change processes in which it is up to individuals to establish a target state, by developing individual strategies for achieving the goal, are more likely to be seen as challenges for their own change competence. In the case of general trends of societal, technological or cultural change, however, the dominant attitude seems to be to wait and see how these will affect one's personal area of action. When it comes to changes in the immediate environment, two basic types can be discerned: emotional coping processes, and life-design tasks. The set of emotional changes is strongly biographical, and includes events such as entering into a partnership, responsibility for children, and the death of family members. Life-design tasks, on the other hand, include dealing with life issues such as housing, unemployment, self-employment, divorce and illness.

In retrospect, changes inspired by a more intrinsic stimulus are judged more positively than externally induced changes. Both, however, follow a process pattern with the four phases of orientation, problem-solving, stabilization and practice. Within each of these phases, drivers of differing strength can be identified. If, on a further aggregation level, we relate the phase model to the concrete changes in the immediate environment, then specific patterns of action emerge as variations on this basic model.

The results clearly show that changes do not occur by chance, but follow a plan based on the way the individual imagines his or her goal. It is important to understand the consequences of this goal prior to the change, on the basis of information, and to make it part of one's planning for a particular stage in life, which will require ever faster adjustments in the years ahead. This understanding of the goal implies a weighing up of the opportunities and risks of the target state, and of alternative possibilities for reaching the goal. The process includes a mental rehearsal, giving the would-be changer an indication of whether the objective envisaged gives a greater sense of coherence. This is a mechanism that supports individual change management in the future.

Coping with Crucial Change
Results of the Representative Survey "Life Events and Change Competencies"

Christian Weller

Abstract

Following a previous pilot study, the Change Study of the IZZ Institute for Psychological Future Management examines in the online demoscopic survey "Life events and change competencies" (n = 1,951) how people perceive and cope with real change processes in their lives. Key results of the representative survey are presented and analyzed in this paper. Section 1 explains the task, concept and implementation of the study. Section 2 shows how respondents perceive the phenomenon of change from the perspective of specific transformational life events. Section 3 examines how the participants arrive at an evaluation of their experiences of change as positive or negative. The following factors are identified: the kind of change event, the benefit and degree of burden attributed to it, and whether it was driven by an internal or external change impetus. The final overall evaluation seems to be holistic, intuitive and primarily emotive. Section 4 analyzes the central role of life satisfaction and personal development in the coping process. Section 5 shows how the change experiences of the participants are reflected in the model of change competence of the IZZ in the fields of orientation, stabilization, problem-solving and practice. Each competence of the respective competence field is examined for correlations with positive or negative change experiences, occupational and age groups. It becomes apparent that the development of some competencies is linked to increasing life experience, others thrive through positive change experiences, while some can be seen more as general factors. Overall, it should be noted that the respondents show a high degree of optimism and life satisfaction. They succeed in doing this in spite of high burdens from change processes by focusing on manageable life events and making a continuous positive shift in the perception of their own possibilities for action. In this way, they create a space for action in which they gain life experience and acquire change competence. Section 6 summarizes the results and theses and discusses the limitations and potentials that result from the respondents' behavior in dealing with change.

1   The Study: Purpose and Implementation

The Change Study examines how people perceive and cope with real change processes in their lives. To this end, in 2016–17, the IZZ Institute for Psychological Future Management, in cooperation with the Customer Insights & Experience department of Allianz Deutschland AG, conceived the qualitative pilot study "Patterns of Coping with Change" and the representative quantitative survey "Life Events and Change Competencies" and carried them out and evaluated them (in the case of the quantitative survey, together with Kantar TNS). The goals of the two-stage Change Study were thus:

- Better understanding the functional interrelationships and interactions influencing why people react differently to the challenges of change processes.
- Identifying successful behavioral patterns – and their framework conditions – in the sense of coping with profound change, while, at the same time, preserving social and inner equilibrium, as well as both physical and psychological well-being.
- Analyzing psychological and sociological factors in such a way that possibilities for reflexive understanding and active optimization become clear. In this connection, factors that hinder a constructive and creative way of dealing with change processes were also supposed to be identified. The aim was to find change competencies that are learnable and teachable.
- Overall, the aim was to uncover practical and implementable change competencies, which enable individuals to deal realistically and, at the same time, optimistically with the unpredictability of the future and to prepare for changes, for example, as a result of technological or demographic transformations, in a precautionary manner.

The goal of the pilot study was to identify especially change-competent patterns of behavior, in the sense of striking a balance between adaptation to external changes and the preservation or increase of quality of life: understood as psychological stability or psychological well-being. Process patterns and behavioral dispositions became clear in discussion with selected interview partners who have succeeded in coping with significant changes in their lives (Brenner 2019). In the next step, the question was, then, how many of these would be validated in a representative sample of the German population.

To this end, the IZZ developed an explorative conception of change competence (Weller 2019) on the basis of the prior pilot study; this conception was meant to cover as wide a range of adaptive responses to change processes as possible. Using this approach, IZZ and Allianz Marktforschung, together with Kantar TNS, developed a questionnaire comprising 50 complexes of questions (which will be referred to by the abbreviations Q1 to Q50 in what follows). The representative survey[1] took place in March 2017, in the form

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1   Representative weighing of the data using structural specifications from the FMDS and the official updates of the Federal Statistical Office: occupation, household net income, political municipality size class (GKPOL), marital status.

of an online survey with an average interview length of 20 minutes (panel) and produced a return of 1,951 usable questionnaires. The respondents were between 18 and 70 years old.

The questionnaire consists of fifty questions, each of which presents participants with from one to eleven statements for approval/rejection, ranking or selection:

- Socio-demographic data 1 (age, sex, province, occupation, marital status): Q1–5
- Opening sequence on state of respondents at the point of time of the survey (life satisfaction, enjoyment, worries, retrospective consideration of personal development): Q6–9
- Selection of key change event: Q10–12
- Description and evaluation of the change event (impact, internal or external impetus, evaluation, duration): Q13–22
- Exploration of the four competence fields of the IZZ concept of change competence (drawing on available psychological instruments, cf. Weller 2019): Q24–39
- Concluding assessment of the expenditure of energy required by the change process: Q40
- Socio-demographic data 2 (parents, siblings, size of place of residence, immigrant background, household size, income): Q41–43, Q46–50
- Two concluding questions on expectations or hopes for the future are embedded in the last group of questions: Q44/45

2   Life Events: The Individual Focus on the Change Process

In the pre-test of the questionnaire, it turned out, not unexpectedly, that the participants – in contrast to what took place in the personal conversations of the pilot study – had a hard time giving general answers on their change behavior. Therefore, an open response field (Q11) was added with the request for respondents to indicate the three most important changes in their lives that have led to a lasting reorganization. In the next step (Q12), respondents were supposed to choose the most important among them: as the anchor for answering the following questions about how they dealt with these change processes in detail. This modus operandi worked well in the further course of the test and in the later carrying-out of the survey. With the focus placed on a personal change event, participants were also able to answer general questions on problem-solving behavior, self-stabilization, etc. The number of incomplete or unusable questionnaires was less than five percent.

The life events that the respondents thematized and with which they had to cope (cf. Duttenhöfer 2019, Weller 2019 "Personal Growth") come almost exclusively from the immediate private sphere[2] and mark important stages in their life histories. The interpersonal biographical extensions represented by offspring and relationships are by far the

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2   The total number of responses that situate one of the three most important events (Q11) in the sphere of social or technological developments was 3 percent and of these only a fraction entered into the choice of the most important event (Q12).

top performers. From the abundance of individual responses, 15 types of life events were identified, which could be assembled into five thematic groups:

1. Private relationship sphere
2. Working world, economic sphere
3. Spatial changes
4. Accident, illness, bereavement
5. Travel/Emigration

In order to obtain orders of magnitude that are sufficient for statistical analysis, individual categories that were less than three percent of the total number were attached to related life events and only treated separately again with respect to particular issues (1b. grandchild to 1a. child, 2e. retirement to 2b. change of occupation/self-employment, 2d. poverty to 2c. unemployment). The limited amount of data for group 5, as well as the events assembled under 6. Miscellaneous, do not allow for any generalizing conclusions. For the purposes of the analysis, the overall result is the following list of most important change events:

1a. Child   (n = 492)
1b. Grandchild   (n = 27) (under 3 percent)
1c. Marriage   (n = 248)
1d. Relationship   (n = 128)
1e. Divorce/Separation   (n = 67)
2a. School/Training/Studies   (n = 113)
2b. Change of occupation/Self-employment   (n = 90)
2c. Unemployment   (n = 86)
2d. Economic impact/Poverty   (n = 21) (under 3 percent)
2e. Retirement   (n = 29) (under 3 percent)
3a. Moving to a new home   (n = 98)
3b. Building a house/Owning one's own home   (n = 35) (under 3 percent)
4a. Accident/Health-related episode   (n = 182)
4b. Bereavement   (n = 102)
5. Travel/Emigration   (n = 31) (under 3 percent)
6. Miscellaneous: consumer experiences, change of life habits, system change GDR-FRG, military service/alternative civilian service, new circle of friends (each under three percent)

A first glance at this list already suggests that the different life events are connected to different emotional reactions and evaluations for the persons concerned. More on this issue can be found in Chapter 3 ("Evaluation"), as well as in Duttenhöfer (2019). Here, we want briefly to elucidate the question of whether such an evaluation may possibly have had influence on the selection of the most important of three change events (Q11 to Q12; (see Fig. 1). In fact, the life event that (in Q13) is given an unambiguously positive assessment

– receiving the responsibility for a child or a grandchild – has by far the highest selection share (in the sense of a *hit rate*): this is to say that its being named under Q11 often led to its selection as most important event. In a somewhat attenuated form, this also applies to the life events marriage and relationship. On the contrary, the predominantly negatively assessed events unemployment/poverty and divorce/separation have a low selection share: this means they are more rarely adopted in the final selection. The participants tended rather to decide for one of the other variants available to be chosen. This trend of turning toward the agreeable and positive is clearly noticeable, but it only goes half-way to explaining the choice behavior. The event accident/health-related episode, which is, for the most part, negatively evaluated, takes second place in the ranking of selection shares; the only life event whose evaluation is unambiguously negative, the loss of a family-member, takes fourth place. Events that are, for the most part, positively evaluated, like moving to a new home/building a house, bring up the rear.

Life Event	Share Three Events (Q11) in Percent	Selection Share (Q12) Most Important Event in Percent	Assessment Most Important Event (Q13)
1a. Child / 1b. Grandchild	38.6	65.3	very positive
4a. Accident/Health-related episode	20.0	46.5	somewhat negative
1c. Marriage / 1d. Relationship	45.1	43.5	very positive
4b. Bereavement	13.1	41.2	negative
5. Travel/Emigration	4.8	33.3	positive
2a. School/Training/Studies	17.3	35.3	positive
2b. Change of occupation/Self-employment 2e. Retirement	24.1	29.8	positive
1e. Divorce/Separation	13.6	25.0	somewhat negative
3a Moving / 3b. Building a house/Owning one's own home	33.5	21.2	positive
2c. Unemployment / 2d. Poverty	27.8	16.9	somewhat negative

Fig. 1 Choice of Three Most Important Changes and of the Principal Event Among Them Per Selection Share and Evaluation

Questions: "What were the three most important changes in your life?" (Q11). "And which of these was the most important?" (Q12). "All in all, did this change have more of a positive or negative impact on your life?" (Q13)

Overall, these findings suggest a weighing up of, on the one hand, resistance to "problematic" change processes and, on the other, an appreciation of their actual significance for one's own life. Life events that are important make it to the top. Hence, "difficult" subjects also move to the front. It seems appropriate to conclude from this that the participants seriously grappled with the question of choosing their most important life event.

3   The Evaluation of the Key Change Events

The question of whether the changes associated with a life event are, on the whole, *evaluated positively or negatively* depends on four factors: (1) on the type of change event, (2) on the benefit attributed to it, (3) on the degree of burden it creates, and (4) on the appraisal of whether the impetus for change has come from within the person in question or to him or her from an external source. For the individual, each of these four attributions is open to and dependent upon interpretation and such attributions can be modified in the course of the process or following its conclusion. The overall concluding appraisal of the persons concerned appears to be holistic, intuitive and, above all, emotionally-oriented.

3.1   Types of Life Events

A glance at the listed change events makes immediately clear that they each have different impact on the lives of the people concerned. A birth "means" something different than the death of someone close to you; starting a relationship, something different than ending one. On the one hand, these differences can be understood as social conventions or stereotypes. Experiences are grasped as interconnected and are given a label – for example, change of occupation – and they are linked to particular associations and action patterns or scripts. Some of these events are even set apart from everyday life by way of forms of ritualization. The most obvious example here is marriage.

On the other hand, the different life events appear to be characterized by a kind of inner logic or dynamic. One could speak of a phenomenological signature. A birth and entering into a relationship, first of all, open future-oriented temporal horizons, which promise happiness, development and reciprocity. A separation or the death of a family member close off a common space of action and confront those affected with the task of working through the consequences on their own. An accident or an illness mark the beginning of a phase that will very likely be characterized by heavy burdens. A move or a change of occupation may make possible a new beginning and the bringing-to-a-close of a domestic or work situation that was experienced as unsatisfactory. Against this background, we can, as a first approximation, sketch out four different types of patterns of experience under which the change events can be grouped: (1) fulfillment (e.g., child, marriage), (2) new beginning (e.g., move, change of occupation), (3) burden (e.g., accident/health-related episode) and (4) loss (e.g., unemployment, separation, death).

These attributions are not rigid and "automatic," and in individual cases, they are certainly not free of dissonance. In the case of a move or a change of occupation, the experience of loss may play a major role. Starting a family can also be experienced as bidding farewell to one's own independence; a divorce, as a new beginning in a self-determined phase of one's life. Over the course of the process – especially if it lasts for a longer period of time – different patterns of experience may be activated. Thus, for instance, a program of studies may be experienced in different phases as new beginning, fulfillment or burden.

On the basis of the available data from the present study, it is not possible to answer how individuals arrive at their final classifications. Current research in memory, however, suggests that "representative" moments are especially decisive: hence, impressions that are particularly strong or that come from the end of the process. This supposition is supported by the results of life event research (cf. Suh et al. 1996).

Particular types of life events not only trigger related connotations and associations, but also give rise to particular coping strategies. Thus – although this can only be mentioned in passing here – different behavioral profiles can also be assigned to the different change processes. In the cases of the change events divorce and moving to a new home, for example, respondents exhibit a greater consciousness of their own efficacy, but also higher levels of stress.[3] It can be concluded from this that the majority of respondents experience them within the framework of the "new beginning" experiential context. The life events unemployment and bereavement also exhibit parallels in response behavior: above all, with respect to a stronger feeling of external control and with respect to a decline in support from one's social milieu.[4] We can interpret this as meaning that they are experienced in the context of "loss." An in-depth analysis cannot be undertaken in the framework of the present contribution. On the subject of event-appropriate patterns of behavior, see Duttenhöfer (2019).

3.2   Benefit of the Change

In what follows, we will reconstruct how respondents assess the benefit of the selected change event on the basis of two complexes of questions. At the end of the section, the results of the question "Did the change result in a lasting personal benefit for you?" (Q16) will be broken down by the individual change events. Before getting to that, we analyze the

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3   Parallel response patterns and attributes of self-sufficiency are also to be found in the area of belief in an internal locus of control and that of self-efficacy: Q24_6 "I'm in control of my own life", peak values agreement ("exactly right") for divorce 63 percent and moving to a new home 59 percent (total sample: 42 percent) and Q28_9 "I am alone responsible for my life", peak values agreement for divorce 58 percent and moving to a new home 60 percent (total sample: 45 percent). Also in the case of ability to implement in practice: Q37_3 "even if a plan B is suddenly required, I quickly know what I need and where to get support," peak values agreement for divorce 26 percent and moving to a new home 28 percent (total sample: 19 percent), and Q37_5 "One learns by taking action: sometimes the only option is to give a try and to see if it brings you closer to your goal," peak values agreement for divorce and moving to a new home, both 30 percent (total sample: 25 percent). Also in the case of the feeling of being overwhelmed: e.g., Q29_2 "Sometimes I just want to pull the covers over my head and be left alone," peak values agreement for divorce and moving to a new home, both 37 percent (total sample: 22 percent).

4   Cf. Q24_9 "My plans are often thwarted by fate," peak values for agreement ("somewhat right" and "exactly right") for accident/health-related episode 68 percent, death in the family 65 percent and unemployment 58 percent (total sample 50 percent); on social milieu, for example Q30_2 "I have a circle of real friends whom I trust 100 percent," peak values disagreement ("not right"): death in the family 14 percent and accident/health-related episode, both 14 percent, as well as unemployment 22 percent (total sample: 9 percent).

responses to the question "What impact did the change have in the following areas?" (Q15). Five areas of life were offered for evaluation here using a five-point scale going from "very negative" and "somewhat negative," by way of "unchanged," to "somewhat positive" and "very positive." In what follows, a short summary of the responses by life event is provided for the "financial," "health-related," "social recognition" and "social contact" areas. The positive findings are discussed in the present section; the negative ones, since they are more a matter of losses and costs, are included in the considerations of the following section ("3.3 Degree of Burden"). The "emotional impact" that was likewise surveyed under Q15 (Q15_3) is analyzed in section "3.5. Assessment as Intuitive Judgment".

Financial Area (Q15_1). If we do not limit ourselves only to the peak values for the evaluations "very negative" (unemployment: 25 percent, accident/health-related episode and divorce/separation: both 20 percent; average for total sample: 8 percent) and "very positive" (change of occupation/self-employment: 30 percent, school/training/studies: 27 percent, and moving to a new home: 24 percent; average total sample: 11 percent), a more complex picture emerges. It is possible to distinguish between groups with different levels of change dynamics: responses of "unchanged" at 11 percent (unemployment), around 20 percent (change of occupation/self-employment, school/training/studies, divorce/separation, moving to a new home, retirement), around 40 percent (child, accident/health-related episode, marriage, relationship) and 54 percent (bereavement); the average for the total sample is 35 percent. Moreover, it is also possible to distinguish between groups with differing overall results. The more stable group is divided into financial winners (marriage: 49 percent positive, 11 percent negative; relationship: 47 percent positive, 14 percent negative) and losers (child: 20 percent positive, 43 percent negative; accident/health-related episode: 15 percent positive, 45 percent negative). In the highly dynamic group, the gap between positive overall result (change of occupation/self-employment: 62 percent positive, 18 percent negative; school/training/studies: 56 percent positive, 24 percent negative; moving to a new home: 49 percent positive, 25 percent negative) and negative overall result (divorce/separation: 32 percent positive, 47 percent negative; retirement: 21 percent positive, 50 percent negative) becomes, in part, even greater. A ranking of benefit from financial points of view could look as follows: greater benefit in the cases of change of occupation, school/training/studies, marriage, relationship, moving to a new home; limited benefit or costs in the cases of bereavement, unemployment, divorce/separation; no benefit in the cases of having a child, accident/health-related episode, retirement.

Health-Related Area (Q15_2). Not surprisingly, the event accident/health-related episode attains peak values for "very negative" (36 percent; average for total sample: 6 percent); it also, however, attains a high value for "very positive" (16 percent). Here, only change of occupation/self-employment performed better (17 percent; average for total sample: 11 percent). In the area of health as well, it is possible to distinguish between groups with different levels of change dynamics. "unchanged" responses over 50 percent (school/

training/studies, child, moving to a new home, relationship, bereavement) and between 48 and 33 percent (divorce/separation, marriage, retirement, change of occupation/self-employment, unemployment) predominate. Little stability is found in the case of accident/health-related episode (6 percent; average for total sample: 45 percent). It is again also possible to distinguish between groups with differing overall results. In the ratio of positive ("somewhat positive" and "very positive") to negative ("very negative" and "somewhat negative") impact, a clear tilt toward the positive predominates (change of occupation/self-employment, marriage, relationship, school/training/studies, moving to a new home, retirement). Only three events have a clearly negative overall result (accident/health-related episode, unemployment, bereavement). Only two display a more or less balanced ratio (slightly positive: having a child; slightly negative: divorce/separation). Besides a majority with a stable health-related situation, there is a minority with a negative overall result (accident/health-related episode: 34 percent positive, 61 percent negative; unemployment: 22 percent positive, 45 percent negative; bereavement: 9 percent positive, 40 percent negative). In the case of the life event accident/health-related episode, the basic situation is also unstable.

Social Contacts (Q15_4). The highest values for "very negative" are obtained by the events unemployment (15 percent), accident/health-related episode (12 percent) and bereavement (11 percent; average for total sample: 4 percent). For "very positive," relationship, marriage, moving to a new home, and having a child are between 20 and 23 percent (average for the total sample: 18 percent). Overall, a dynamic is evident that is comparable with the finance's areas, but is considerably greater than in the areas of health and social recognition. The greatest stability is displayed by bereavement (43 percent) and unemployment (41 percent); the least by moving to a new home and retirement (both 26 percent). For "unchanged," all the others fluctuate around the average value for the total sample of 33 percent. In the ratio of positive ("somewhat positive" and "very positive") to negative ("very negative" and "somewhat negative") impact, a clear tilt toward the positive predominates (marriage, child, retirement, relationship, moving to a new home, change of occupation/self-employment, school/training/studies). A more or less balanced ratio is displayed by accident/health-related episode; a slightly positive one, by divorce/separation; a slightly negative one, by unemployment and bereavement. Besides a broad range of people who experience an increase in social support in their change processes, the results for the events accident/health-related episode, unemployment and bereavement suggest that in these cases inadequate provision of social resources makes the coping process more difficult.

Social Recognition (Q15_5). Peak values for "very negative" are obtained by the events unemployment (11 percent) and bereavement (10 percent; average for total sample: 3 percent). For "very positive", school/training/studies (20 percent), moving to a new home (18 percent) and change of occupation/self-employment (15 percent) stand out (average for total sample: 10 percent). The area of social recognition displays considerably greater

stability vis-à-vis that of finances and slightly greater stability vis-à-vis that of health. The two life events with the highest average age – retirement (62 years old) and bereavement (52 years old) – attain 73 percent for "unchanged" (average for total sample: 50 percent). The events divorce/separation, relationship, marriage and child are over 50 percent. The events accident/health-related episode, change of occupation/self-employment, moving to a new home, and unemployment are between 46 and 36 percent. The greatest change dynamic is found in the case of school/training/studies (21 percent). It is also possible to distinguish between groups with differing overall results. In the ratio of positive ("somewhat positive" and "very positive") to negative ("very negative" and "somewhat negative") impact, a clear tilt toward the positive predominates (school/training/studies, moving to a new home, change of occupation/self-employment, child, marriage, relationship). A more or less balanced ratio is displayed by retirement, divorce/separation, unemployment, and, though slightly negative, accident/health-related episode. Besides a majority with stable or increasing social recognition, there are two groups that deviate sharply: The event with the greatest stability, bereavement, is the only one with a negative overall result (8 percent positive, 19 percent negative). The group with the lowest average age (22 years old) and the greatest dynamism has, at the same time, the most positive overall result (68 percent positive, 10 percent negative; average for the total sample: 40 percent positive, 11 percent negative): namely, that of students and trainees.

Change and Benefit. The question "Did the change result in a lasting personal benefit for you?" (Q16) exhibits more the character of an overall judgment. The evaluation took place using an eleven-point scale that goes from "no benefit at all" (0) to "very great benefit" (10). In order to facilitate comparison with the already discussed evaluations in Q15, the scale was subdivided into five categories: "no benefit" (0, 1), "hardly any benefit" (2, 3), "indifferent judgment" (4, 5, 6), "benefit" (7, 8) and "great benefit" (9, 10). The responses were broken down by individual change event.

By far the highest values for "no benefit" are attained by the events bereavement and accident/health-related episode (both 50 percent); unemployment attains a high value as well (42 percent; average for total sample: 17 percent). At "great benefit," we find a broad front of events that, with values between 43 and 54 percent, are above the average for the total sample (37 percent): marriage, having a child, relationship, change of occupation/ self-employment and school/training/studies. Overall – as in the case of Q15 "emotional impact" (see below) – a tendency toward polarizing evaluations outside of the middle range is apparent. With respect to the ratio of positive ("benefit" and "great benefit") to negative ("hardly any benefit" and "no benefit") evaluations, three groups can be distinguished: (1) A clear tilt toward the positive predominates in the case of seven of the eleven main change events: marriage (86 percent positive, 2 percent negative), relationship (83 percent positive, 0.4 percent negative), retirement (81 percent positive, 8 percent negative), change of occupation/self-employment (80 percent positive, 10 percent negative), school/ training/studies (80 percent positive, 12 percent negative), moving to a new home (78 percent positive, 8 percent negative), and having a child (78 percent positive, 6 percent

negative). (2) Three events assume an intermediate position: divorce/separation with a slightly positive overall result, a peak value in the indifferent range (33 percent), a raised negative value (21 percent) and an average positive value (47 percent); unemployment with diverging equally strong evaluations (42 percent positive, 42 percent negative), as in the area of "financial impact," and accident/health-related episode with a slightly negative overall result (37 percent positive, 50 percent negative). (3) The overall evaluation of someone affected by the death of a family member is clearly negative, even if there is a large share of indifference (9 percent positive, 64 percent negative).

Summary: The clearly positive tilt in the case of the question whether the change resulted in a lasting benefit (Q16) is largely consistent with the responses on the impact in different areas of life (Q15).

- In both question complexes, the life events marriage, relationship, retirement, change of occupation/self-employment, school/training/studies, moving to a new home, and having a child obtain positive results. The only outliers are the events having a child and retirement, which do not have a positive overall result in the financial area. Moreover, with respect to social recognition, the responses for retirement are in the middle range.
- The intermediate position between evaluations as "clearly beneficial" and "not beneficial" of the three events divorce/separation (slightly positive), unemployment and accident/health-related episode (slightly negative) differs depending on the impact area: divorce/separation is also in the middle range financially and with respect to social recognition and social contacts, but it has a positive result in terms of health. Unemployment is likewise in the middle range financially and with respect to social recognition, but it has a slightly negative result with respect to social contacts and a clearly negative one in terms of health. Accident/health-related episode is in the middle range with respect to social recognition, but has a negative result with respect to finances, social contacts and, above all, in terms of health.
- The evaluation is clearly negative in the case of bereavement. Overall, no advantage is seen (Q16), and also financially, in terms of health, and with respect to social contacts and social recognition, the persons concerned experience costs rather than benefit.

3.3   Degree of Burden

No matter whether they are connected to a clear added value or not, life events result in profound changes whose shaping confronts those concerned with major challenges, and these challenges demand great expenditure of energy over considerable periods of time. The burdensome side also includes setbacks during the process, as well as losses due to the changed life situation.

3.3.1 Losses

In order to assess which life events are characterized by losses, we can draw on the results of the prior section. 20 percent of those affected by a divorce/separation do not report any beneficial impact. In the case of unemployment, this number is 42 percent and in that of accident/health-related episode, 50 percent; in both these cases, there are also losses in the areas of social contacts and health. In the case of bereavement, 64 percent see no benefit and there are also losses in all the areas surveyed.

3.3.2 Duration

On the duration of profound life changes, the qualitative interviews of the pilot study already indicated periods of, in part, several years (Brenner 2019, 2.3. "Time Factor"). These findings are confirmed by the quantitative study (cf. Duttenhöfer 2019). The average duration of a change process until the attaining of a new target state (Q22) varies between one year and three and a half years for the different events. The following ranking is to be found: change of occupation/self-employment (48 weeks), moving to a new home (50 weeks), marriage (73 weeks), relationship (77 weeks), school/training/studies (90 weeks), having a child (101 weeks), divorce/separation (105 weeks), unemployment (115 weeks), accident/health-related episode (124 weeks), retirement (155 weeks), bereavement (179 weeks).

The inner dynamics of the different change events is made clearer in the graphical representation of the distribution of the duration (Fig. 2) than by way of the averages. Three groups can be identified here:

1. 75 percent of respondents completed the change within a year; this group includes change of occupation/self-employment and moving to a new home (in both cases, the remaining 25 percent: up to two years), as well as relationship (the remaining 25 percent: up to three years).
2. 75 percent of respondents need up to two years to cope with the change; this group includes marriage (remaining 25 percent: up to about three years), having a child and school/training/studies (in both cases, remaining 25 percent: up to four-and-a-half years), and also divorce/separation (remaining 25 percent: up to five years).
3. 75 percent of respondents experience the change as having been mastered within two to three years; this group includes accident/health-related episode (two and a half years; remaining 25 percent: up to five years), unemployment (two years and nine months; remaining 25 percent: up to five years) and bereavement (three years; remaining 25 percent: up to 20 years). The third group also includes the event retirement, which did not enter into the graphically presented calculation on account of the small number of retirees. 70 percent of the respondents here indicate (Q22) that they needed more than two years until a new target state was reached.
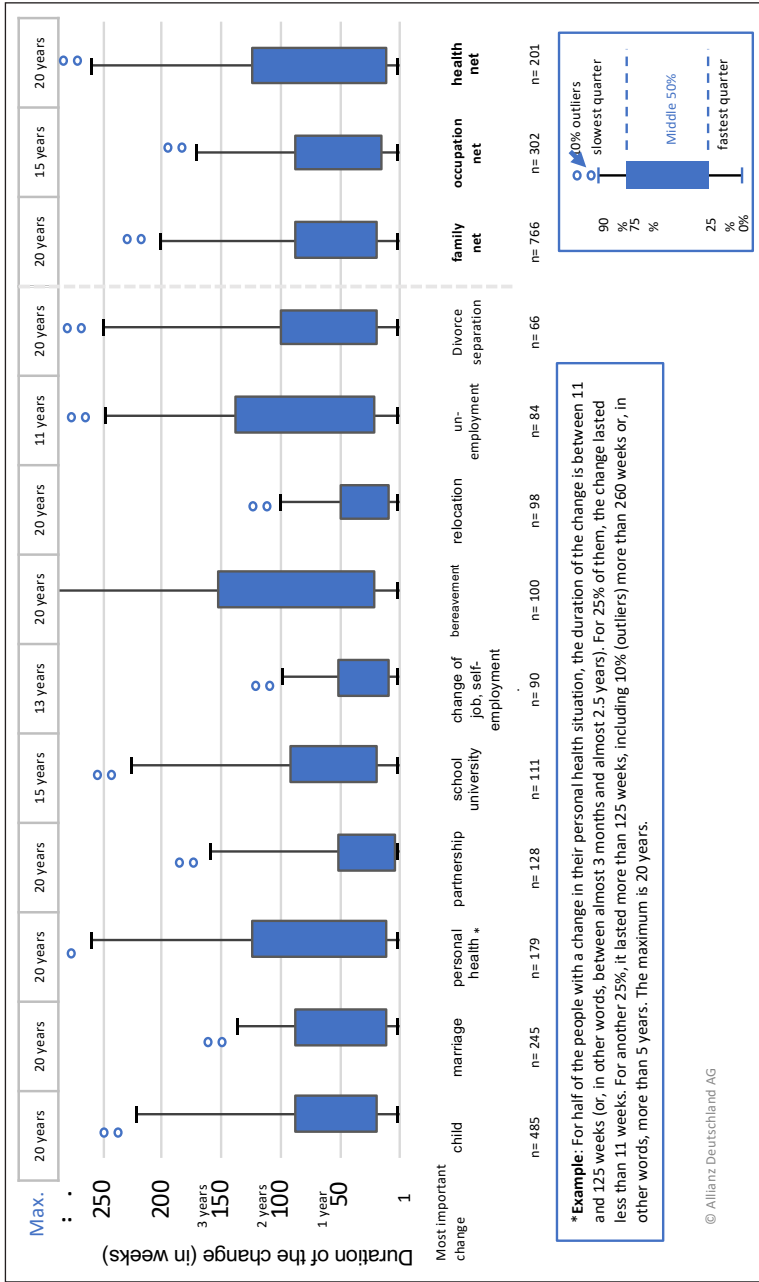
Fig. 2 Duration of the Change in Weeks

Questions: "How long did the process of change actually take, from the initial idea to the new target state?" (Q22). "And which of these change in life was the most important?" (Q12). Population from 18 to 70 years of age who specified a duration, n = 1,929. All figures in percent.

3.3.3   Expenditure of Energy

In addition to the time expenditure, respondents were also asked about the expenditure of energy required for the change: "How much effort and energy did the change process require from you?" (Q40). The evaluation was done using an eleven-point scale going from "no effort at all" (0) to "very great effort" (10). In order to facilitate comparison with the already discussed evaluations, this scale was likewise subdivided into five categories: "no effort" (0, 1), "hardly any effort" (2, 3), "indifferent judgment" (4, 5, 6), "a certain effort" (7, 8) and "great effort" (9, 10). Since the breakdown into five categories did not result in any gain in knowledge as opposed to a summation in the three categories "great effort" (7-10), "indifferent" (4-6) and "little effort" (0-3), this tripartite division is presented in what follows. The responses were broken down by individual change event.

The highest values for "great effort" are to be found in the cases of accident/health-related episode, divorce/separation, bereavement and unemployment, which, with values between 86 and 70 percent, are even above the already high average for the total sample (60 percent). In the middle range between 71 percent and 49 percent are to be found school/training/ studies, moving to a new home, change of occupation/self-employment and having a child. The event retirement displays an exceptionally low value here (29 percent). Consistent with this, it easily attains the top spot (45 percent) for the response "little effort," followed by marriage (23 percent), relationship and having a child (both 16 percent; average for total sample: 13 percent). With respect to the "indifferent" evaluation, only the four events with the highest values for "great effort" are below the 26 percent average for the total sample.

Against the background of what is generally experienced as a great expenditure of energy, three groups (and one exception) can be identified:

1. Accident/health-related episode (86 Percent "great effort," three percent "little effort"), divorce/separation (81 Percent "great effort," two percent "little effort"), bereavement (81 percent "great effort," four percent "little effort") and unemployment (79 percent "great effort," four percent "little effort") appear as rarely indifferent, as not allowing goal-attainment with little expenditure of energy, but rather as highly demanding.
2. A similar overall result with higher values in the range of indifferent judgments is displayed by school/training/studies (70 percent "great effort," seven percent "little effort"), moving to a new home (62 Percent "great effort," 10 percent "little effort") and change of occupation/self-employment (57 percent "great effort," 10 percent "little effort").
3. Marriage (41 percent "great effort," 23 percent "little effort"), having a child (49 percent "great effort," 16 percent "little effort") and relationship (50 percent "great effort," 16 percent "little effort") appear more positive.
4. The relation is inverted in the case of retirement (29 percent "great effort," 45 percent "little effort").

3.3.4 Setbacks

The experience of setbacks represents a further measure of the degree of burden associated with the different life events. Respondents were offered four alternative responses in this connection: "Actually it all went smoothly," "There were small setbacks, but they were bearable for me," "There were setbacks that required substantial course corrections en route," and "There were setbacks that made me doubt I had chosen the right path" (Q26). In what follows, the first two responses were summarized as "few setbacks" and the last two as "considerable setbacks," and the overall result was calculated for the individual life events. On the average for the total sample, the change processes were predominantly not experienced as involving significant setbacks (75 percent "few setbacks," 25 percent "considerable setbacks"). Against this background, we can also identify three groups (and one exception) here:

1. The process went more smoothly than on the average for the total sample in the cases of the life events having a child and retirement (both 85 percent "few setbacks," 15 percent "considerable setbacks") and especially marriage (92 percent "few setbacks, eight percent "considerable setbacks").
2. Relationship, change of occupation/self-employment, moving to a new home and school/training/studies are in the neighborhood of the quite positive average.
3. Accident/health-related episode, divorce/separation and unemployment form a group around 50 percent "few setbacks" and 50 percent "considerable setbacks."
4. The only life event with a clearly negative overall result is coping with bereavement (23 percent "few setbacks," 77 percent "considerable setbacks").

3.3.5 Feeling Overwhelmed

In concluding this section, as a countercheck to the responses on degree of burden, we will consider the responses on phases of feeling overwhelmed. More than half of the respondents in the total sample agreed with the statement "Sometimes I just want to pull the covers over my head and be left alone" (Q29_2; 56 percent "somewhat right" and "exactly right"). Greater agreement is to be found in the case of the life events bereavement (65 percent), moving to a new home (68 percent), divorce/separation and unemployment (both 70 percent), and school/training/studies (71 percent). Here too, exceptionally low agreement is to be observed among the retirees (33 percent).

Summary: Summing up the perceived degree of burden of the different life events, three groups can be determined.

1. The results discussed in this section clearly show that bereavement is the life event that places individuals under by far the greatest burden, followed by unemployment, accident/health-related episode and divorce/separation. These experiences are associated with

losses, great expenditure of energy and appreciable setbacks. They are, moreover, the change processes with the longest duration. Accordingly, signs of feeling overwhelmed by them pile up.

2. Moving to a new home, change of occupation/self-employment and school/training/ studies appear to be connected to no losses and fewer setbacks. They are dealt with in the shortest amount of time, but they demand a relatively great expenditure of energy. The students, the youngest respondent group, have a greater tendency to feel overwhelmed here.

3. A comparatively low degree of burden is found for marriage, having a child, relationship and retirement. No losses are reported (apart from financial losses for young parents) and the overall result for expenditure of energy and setbacks appears positive, even if the duration of the process fluctuates between one and two years. Surprisingly, the transition to retirement is experienced as going particularly smoothly in the present survey, even if the persons concerned report a particularly long period required for processing the change. The number of respondents is, however, too small to draw representative conclusions.

3.4   Internal versus External Change Impetus

This section examines respondents' assessment as to whether the impetus for change came from their entourage or environment or "from within," i.e., was the product of their own development. The background to this question was provided by observations from the pilot study, general considerations regarding the perception of change processes (Weller 2019, Duttenhöfer 2019, Brenner 2019), and, among other things, research on the difference between intrinsic and extrinsic motivation (for example, Heckhausen & Heckhausen 2018). The corresponding formulation (Q17) runs: In relation to the chosen most important change experience (Q12), which statement is correct for you: "The impetus for me to have to change came to me from an external source" or "The impetus to change came from me"? Figure 3 shows the distribution of responses.

Only two life events exhibit a majority of attributions of an external cause: bereavement and unemployment. An increased share of external attribution (42 to 48 percent) is found for accident/health-related episode, moving to a new home and divorce/separation. A smaller share (34 to 37 percent) is to be seen for marriage, relationship, change of occupation/self-employment and school/training/studies. The leader in the perception of an internal impetus for change is the life event having a child (with only 24 percent external attribution). Apart from the fact that similar groupings are evident here as in the previous sections, three phenomena appear particularly interesting:

1. There are no unambiguous classifications of life events and of the perception of either a purely internal or a purely external impetus. Even in the case of bereavement, which viewed from a distance appears unambiguously to befall the persons concerned exter-
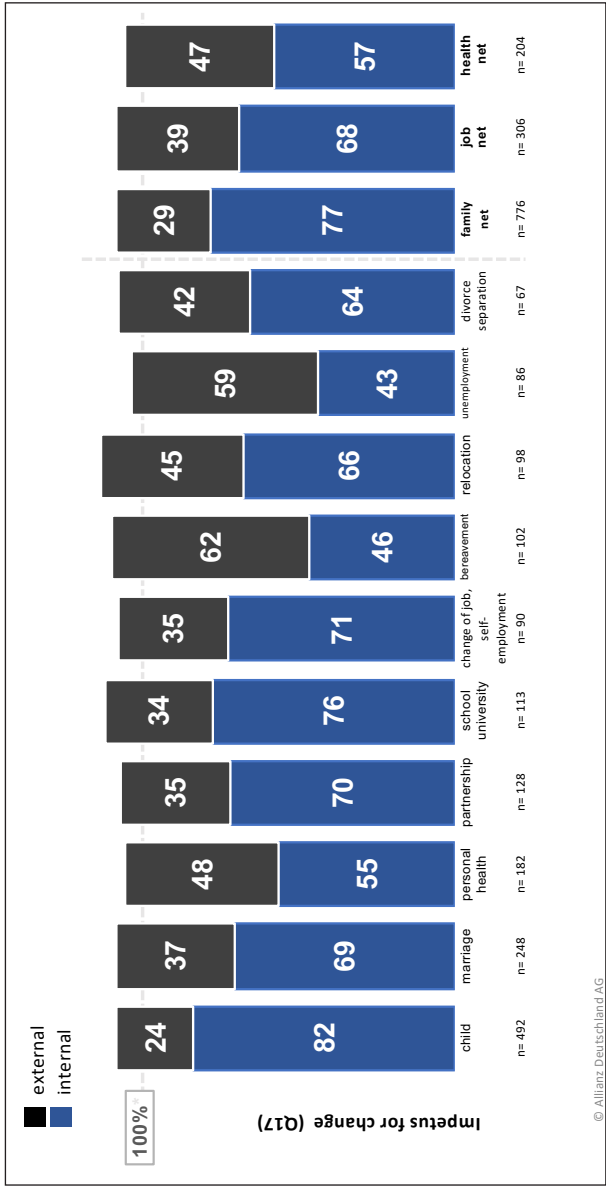
Fig. 3   Impetus for Change

Questions: "Where did the impetus for the change come from?" (Q17, multiple answers possible). "And which of these changes in life was the most important?" (Q12). Population from 18 to 70 years of age, n = 1,929. All figures in percent.

nally, over 40 percent of respondents interpret the process in question, nonetheless, as an inner one. On the other hand, in the case of the event that is internally situated with the greatest frequency, viz. having a child, a quarter of those concerned, nonetheless, respond that the impetus came from an external source.

1. Although respondents were not explicitly offered the possibility of giving multiple answers in the questionnaire, for some events between 5 percent (child, marriage, relationship, change of occupation/self-employment, divorce/separation and bereavement) and 10 percent (school/training/studies and moving to a new home) checked both answers.
2. A preponderance of the attribution of an internal impetus is to be observed. Whereas the share for an external impetus falls to below 25 percent, the lowest share for an internal impetus is 43 percent.

As an attempted explanation for the first two points, we can here adduce the complexity of change processes, which are both socially embedded – i.e., as a rule involve other participants, as well as social conventions, roles and expectations – and have a temporal extension and composite structure. Even when, for example, the desire to have a child seems like a key component of his or her own development for one of the parties involved, for the other, it can (initially) seem like a demand of the partner. And even for the person for whom the desire to have a child is genuinely his or her own, the role attributions and behavioral expectations that are associated with the new stage of life can be experienced as dealing with external demands. In addition: an individual's own adaptive behavior is always a part of the change process as a whole. In this connection, a life change that initially appears as externally precipitated, like an accident or a death in the family, can trigger a coping process that is increasingly perceived as intrinsic and self-directed. This focus on one's own coping process may also provide an explanation for the third point: the greater weight given to the contribution of one's own action. The appropriation of change processes and the role of belief in an internal locus of control and self-efficacy for actively coping with the life events in question will be the subject of the next chapter. The material of the present quantitative survey provides no insight into the relationship between environmental conditions and internal attributions. This could be an area for follow-up studies. We are only concerned here with the question of to what extent the attribution of an internal or an external impetus enters into the evaluation of change events, and, in this regard, the results of the survey point to a close interrelationship. The extent to which a change event is assessed as external represents a strong marker for the fact that it will also, correspondingly, be evaluated as negative (see Fig. 4).

| | Impact on one's own life | | | |
	"very positive"	"positive"	"somewhat negative"	"very negative"
The impetus for me to have to change came to me from an external source.	31 %	34 %	63 %	65 %
The impetus to change came from me.	77 %	71 %	42 %	39 %
(Higher percentage due to attribution of both an internal and external impetus)	108 %	105 %	105 %	104 %

Fig. 4 On average, a change event is positively evaluated more often, if the change impetus is understood as internal.

Questions: "All in all, did the selected change have more of a positive or negative impact on your life?" (Q13). "Where did the impetus for the change come from?" (Q15).

3.5 Evaluation as Intuitive Judgment

Participants were asked to evaluate the life event chosen by them: "All in all, did this most important change have more of a positive or negative impact on your life?" (Q13). A four-point scale was proposed with the entries "very positive," "positive," "somewhat negative," and "very negative." Interestingly, the responses provided deviate from the individual evaluations of benefit and burdens hitherto presented in this chapter. The only parallels are to question Q16 on the overall benefit of the change, which likewise involves a global evaluation. At the same time, these deviations are symptomatic and are also evident in the context of other questions. In the concluding discussion in the next section, we will interpret this fact as an indication that the evaluative behavior of the respondents is less to be explained as utility-maximization in the sense of classical decision theory, but rather as a holistic and intuitive integrative accomplishment on the background of the need to find meaning and orientation.

In Q13, the highest values for "very positive" are obtained by marriage (71 percent), child (67 percent) and relationship (60 percent; average for total sample: 48 percent). Such high positive values were not obtained on any of the scales of evaluation discussed thus far. For the "very negative" evaluation, the events bereavement (28 percent), unemployment (25 percent) and accident/health-related episode (21 percent) stand out (average for total sample: 7 percent). In the ratio of positive ("positive" and "very positive") and negative ("very negative" and "somewhat negative") impact, an extreme shift toward the positive is apparent (average for total sample: 82 percent positive, 18 percent negative), which

would appear to require explanation.[5] Overall, three groups and one exception are again identifiable here too:

1. The top performers for an overall positive result are having a child (99 percent positive), marriage (96 percent positive) and relationship (95 percent positive).
2. On a slightly lower level (corresponding to the average level for the total sample), there follow the events moving to a new home and school/training/studies (both 89 percent positive), retirement (88 percent positive) and change of occupation/self-employment (86 percent positive).
3. The events accident/health-related episode (45 percent positive, 55 percent negative) and unemployment (54 percent positive, 46 percent negative) come in below the average, and at a considerable distance, as does, though with a somewhat more positive result, divorce/separation (62 percent positive, 38 percent negative).
4. The only event with a clearly negative overall result is the experience of loss in the case of bereavement (19 percent positive, 81 percent negative).

The grouping of the life events, which appeared in similar form also on the other scales of evaluation, offers few surprises. What is interesting are individual shifts. The life event having a child takes first place. Financial losses are indeed mentioned (Q15), but they do not influence the final evaluation. In certain categories, the loss of a job exhibits similar response behavior as the loss of a loved one (evaluated as more the result of an external impetus and as requiring a great expenditure of energy, negative impact on health and in the social domain); nonetheless, in the final evaluation, the two life experiences are assigned to different categories. A clue as to how these summary assignments arose is provided by the responses to the five-point scale for Q15, "What emotional impact did the change have for you?", which was bracketed in section 3.2 above and will be discussed in what follows.

Emotional Impact of the Change (Q15_3) The peak value for "very negative" is obtained by the event bereavement (33 percent), followed by unemployment (18 percent), divorce/separation and accident/health-related episode (both 16 percent; average for total sample: 6 percent). The top events for "very positive" are relationship (52 percent), child (48 percent) and marriage (46 percent; average for total sample: 34 percent). These values are considerably higher than in the other areas surveyed (impact in the financial domain, on health or social recognition). A stronger dynamic than in the other impact areas is also apparent in the responses to "unchanged" (average for total sample: 15 percent). Retirement (25 percent), unemployment (22 percent), accident/health-related episode, and change of occupation/self-employment (both 19 percent) exhibit comparatively high stability. The greatest dynamism is apparent in the cases of divorce/separation, bereave-

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5   Q16, "Did the change result in a lasting personal benefit for you?", yields an attenuated form, which exhibits major substantive overlaps: 17 percent "no benefit," 16 percent "indifferent," 68 percent "appreciable benefit."

ment (both 8 percent "unchanged") and relationship (11 percent). In the ratio of positive ("positive" and "very positive") to negative ("very negative" and "somewhat negative") impact, here too a conspicuous tilt toward the positive predominates (average for total sample: 68 percent positive, 18 percent negative). Overall, three groups and one exception are again identifiable: (1) In the upper range of the overall results are found the events having a child (86 percent positive, 1 percent negative), relationship (83 percent positive, 7 percent negative), marriage (78 percent positive, 5 percent negative), and moving to a new home (74 percent positive, 11 percent negative). (2) At the level of the average values for the total sample are to be found the events retirement (67 percent positive, 9 percent negative), change of occupation/self-employment (67 percent positive, 15 percent negative) and school/training/studies (65 percent positive, 19 percent negative). (3) Scores below the average, and with a more or less balanced ratio, are recorded by the event divorce/separation (49 percent positive, 44 percent negative), as well as, with a slight preponderance of the negative, accident/health-related episode (37 percent positive, 44 percent negative) and unemployment (36 percent positive, 43 percent negative). (4) Here too, bereavement appears as the only life event with a clearly negative overall result (14 percent positive, 74 percent negative).

Apart from slight shifts for the events moving to a new home and divorce/separation, the findings for Q13 and Q15_3 almost completely coincide (see Fig. 5). The percentage values for Q13 appear to be raised, but this could also be explained by the move from a five-point to a four-point response scale. Overall, the parallels suggest the conclusion that the final evaluation of a change process is essentially based on the perception of its emotional impact. The intuitive overall evaluation does not thereby come into contradiction with the assessments of benefit, burden and triggering impetus. It places emphases, however, that cannot be explained by adding up the individual aspects.

Emotional impact	Influence on one's own life			
	"very positive"	"positive"	"somewhat negative"	"very negative"
"very positive," "positive"	82 %	72 %	8 %	4 %
"unchanged"	11 %	21 %	17 %	4 %
"somewhat negative," "very negative"	2 %	7 %	75 %	92 %

Fig. 5   High correlation between the perception of the emotional impact and the evaluation of the change event

Questions: "All in all, did the selected change have more of a positive or negative impact on your life?" (Q13). "What emotional impact did the change have for you?" (Q15)

60 percent of respondents note that the change process is connected to "great efforts" (see above, Q40), which attests to a realistic assessment. But the results in the cases, for example, of the life events having a child (49 percent) and changing occupation or becoming self-employed (57 percent) are substantially lower than, for example, the results for accident/health-related episode (86 percent) and unemployment (79 percent). Anyone who is familiar with the everyday existence of young families or start-ups will be taken aback. Evidently, the expenditure of energy that is also required for "positive" life events is assessed as less than that required for a life event that is categorized as "problematic." The interpretation is apparently dependent upon individual perception and assessment of context. Already here, the type of life event (see above, 3.1.) and how it is situated in the course of an individual's biography play an important role.

A striking inversion vis-à-vis the assessment of expenditure of energy occurs in the evaluation of obstacles (see above, Q26): here, a majority of 75 percent notes that there were "few setbacks." Symptomatic differences are also apparent in the assessment of hindrances and problems (see Fig. 6). Parents respond much less frequently that they experienced "considerable setbacks" in the process (25 percent) than those affected by unemployment, illness or an accident (50 percent). It can be supposed that the difficulties involved in (re-)learning to walk are evidently assessed differently when accompanying a toddler than in one's own process of rehabilitation following an accident. The room for interpretation available in the assignment of an originally internal or external impetus has already been addressed in 3.4. What is interesting is that a clear relation is apparent between the assignment of an internal or an external impetus and the evaluation of a change event as positive or negative (see Fig. 5): Evaluations as "somewhat negative" or "very negative" (Q13) correspond in 63 or, respectively, 65 percent of cases with agreement to the statement "The impetus for me to have to change came to me from an external source" (Q17_1). Evaluations as "positive" or "very positive" (Q13) correspond in 71 or, respectively, 77 percent of cases with agreement to the statement "The impetus to change came from me" (Q17_2). Overall, it becomes clear that both the assessment as setback and the assessment of an external impetus are interpretation-dependent. Presumably, these assessments are already made on the background of a basic attitude of, for example, rejection or affirmation, fear or hope, and they are "colored" accordingly.
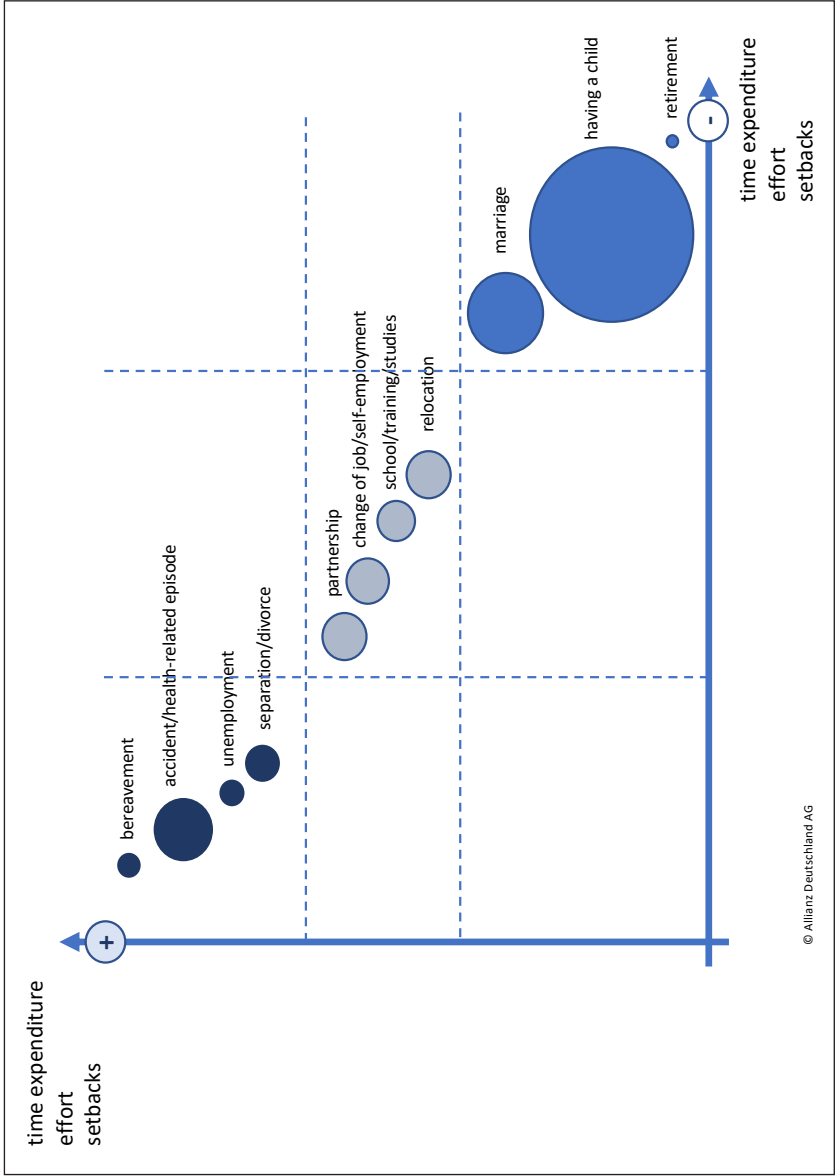
Fig. 6   Ranking of life events according to perception of time expenditure (Q22), effort (Q40) and setbacks in the process (Q26). The size of the circle represents the choice share of the most important change, cf. Fig. 1.

3.6   Evaluation as Interpretive Accomplishment in the Framework of Personal History and as Part of the Coping Process

It seems appropriate not to understand the evaluation of change processes primarily as retrospective adding-up of individual factors like benefit or effort. It is rather embedded in the dynamic of the active development of an individual's life and is done on a meaningful horizon and in the context of the individual's complete biography as he or she conceives it. Such a view would appear suitable to explaining the striking differences between life events in the perception of burdens and obstacles (see Fig. 6): events that in their anticipatory dynamics differ as clearly as the experience of interpersonal expansion when entering into a relationship or raising a child as opposed to the experience of loss, and having to process this loss, in the cases of an accident, illness, death and unemployment.

The balancing out of the complex interplay of factors like type, benefit, burden and cause of a life event in the process of making an evaluation can hardly be reconstructed as a purely cognitive accomplishment. It can be assumed that for the individual, even fundamental perceptions are already influenced in feedback loops by, for example, the experience of dissonance or consonance with the individual's own life plans or the experience of one's own capacity for action and suchlike. One's attitude in a given moment is ultimately produced intuitively: as a "feeling" of the correctness of concrete decisions and objectives on the background of individual perceptions of the given situation, of one's own potential and of one's personal orientation. Accordingly, the evaluation of life events is understood in the present chapter as a global – and, hence, not purely cognitive – interpretive accomplishment within the framework of personal prospective life management. The American psychologist Roy Baumeister would speak of "pragmatic prospection" (Baumeister 2016, cf. also Weller 2019, "Anticipation, Planning, Goals").

Such an approach is supported by the – on first glance, surprising – responses to the question "What concretely changed in your life?" (Q14). The abundance of keywords used by the over 1900 participants were categorized by Kantar TNS into 16 thematic clusters, which are presented in what follows in summary form. In an open field, participants were asked to provide a short description of the most important change experience they chose. The team that designed the Change Study hoped to gather facts in this response field that could help to determine the chosen life events more precisely, in case a particular classification should prove difficult. Respondents were consciously requested to provide "concrete" details.

Only a tiny minority talked about material acquisitions under this heading (2 percent of the total sample). The enumeration of practical problems that were directly connected to the change event also only played a subordinate role. Especially those affected by accident/health-related episode, unemployment and change of occupation/self-employment expressed themselves here. But their mentions of "decline in social position, financial problems, etc.," "health-related limitations etc." (both five percent) and "good finances, professional fulfillment" (seven percent) do not attain particularly high percentages, and

general anticipatory orientation concepts like "future prospects" and "lack of perspectives" enter even into these comparatively practical thematic clusters.

The placements of the respective change experience on a scale of psychological states and attitudes display similar numbers: "loneliness, anxiety, sorrow" (six percent), "stress, burden, mental suffering" (five percent), "relief, serenity, free time" (seven percent), "enjoyment, appreciation" (five percent) and "found meaning, fulfillment" (five percent). But this enumeration can be interpreted as proof that when asked about the consequences of changes in their lives, people naturally respond with evaluations from the emotional sphere – and not with numbers and material facts.

The top performers among the mentioned consequences of the change for one's own life are particularly interesting: "enrichment, joy" (22 percent), "sense of security, belonging" (16 percent), "everything" (twelve percent), "independence, release, freedom" (eleven percent) and "responsibility" (nine percent). The statement that everything changed should be dealt with first as a special case: it evidently signals that the experienced change is perceived as particularly profound. High values are obtained here by moving to a new home (24 percent), having a child (16 percent), bereavement (eleven percent), marriage, relationship, divorce/separation and accident/health-related episode (nine percent each). The other four clusters concern themes of personal development and social integration. "Sense of security, belonging" and "responsibility" thematize the integration of one's own biography in the social context; in the case of "independence, release, freedom," the counteracting force of the individual's autonomous positioning is at issue.

It would appear to be no exaggeration to identify the thematic complex "enrichment, joy" as the key criterion in the evaluation of change events. In a Pearson correlation matrix, positive emotional impact (Q15_3) displays a significant correlation (two-sided with a p-value of 0.05) with the evaluation of the change event as positive (Q13 = .734), with newly won self-confidence (Q36_5 = .549) and with life satisfaction (Q6 = .369).[6] As would be expected, the top performers under Q14 "enrichment, joy" are relationship (41 percent), having a child (38 percent) and marriage (29 percent); the most negative result is obtained by loss of a family member (less than one percent). This finding too speaks for the thesis of an intuitive, emotionally-oriented navigation.

The different distribution of thematic clusters would appear to be a promising basis for developing informative profiles on the orienting horizon of the persons concerned. The following list provides some first cursory indications.

- *Bereavement*: highest value for "loneliness, anxiety, sorrow" (60 percent; average for total sample: 6 percent), raised values for "everything" (eleven percent), for "independence,

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6   There is also a significant correlation (.469) between positive evaluations of life satisfaction (Q6) and statements of experiencing greater joy in life at the point of time of the survey as compared to 2012 (Q9_2). In the driver analysis, behavioral factor 3, „positive development," plays a decisive role. Cf. Duttenhöfer 2019.

release, freedom" (11 percent), and for "decline in social position, financial problems, lack of perspectives" (nine percent).

- *Divorce/Separation*: high value for "loneliness, anxiety, sorrow" and for "independence, release, freedom" (both 22 percent).
- *Moving to a new home*: high value for "everything" (24 percent; average for total sample: twelve percent) and for "independence, release, freedom" (24 percent).
- *School/Training/Studies*: high values for "good finances, professional fulfillment, future prospects" (25 percent) and for "independence, release, freedom" (37 percent).
- *Change of occupation/Self-employment*: high values for "good finances, professional fulfillment, future prospects" (40 percent), slightly raised values for "relief, serenity, free time" (18 percent) and "independence, release, freedom" (15 percent).
- *Unemployment*: great ambivalence with high values for "decline in social position, financial problems, lack of perspectives" (33 percent) and "good finances, professional fulfillment, future prospects" (31 percent), raised value for "stress, burden, mental suffering" (twelve percent), low values in all other areas: above all, for "enrichment, joy" and "sense of security, belonging."
- *Accident/Health-related episode*: extremely high value for "health-related changes and limitations, health consciousness" (55 percent; average for total sample: five percent), raised value for "decline in social position, financial problems, lack of perspectives" (18 percent).
- *Relationship*: very high values for "sense of security, belonging" (44 percent) and "enrichment, joy" (41 percent).
- *Marriage*: likewise, very high value for "sense of security, belonging" (53 percent), high value for "enrichment, joy" (29 percent).
- *Child*: very high values for "responsibility" (28 percent; average for total sample: nine percent), "meaning, fulfillment" (15 percent; average for total sample: five percent) and "enrichment, joy" (38 percent), high values for "everything" (18 percent), slightly raised for "sense of security, belonging" (13 percent).

Given this background, it is not surprising that the experience of having a child attains first place among the positive evaluations. In the emphasis on having found meaning and having assumed responsibility, this life event is unique – a connection that would be just as worthwhile to investigate in further studies as the lack of mentions in the areas of joy, development, social cohesion, etc. for the more negatively evaluated change experiences.

The present study provides a snapshot of the lives of the respondents. Accordingly, the results represent evaluations at a particular point in time, and in the analysis thus far, we have deliberately bracketed the diachronic aspect of arriving at, altering and developing an evaluation. We need now, however, to point to the need for supplementing this approach by adopting a dynamic perspective. It already became apparent in the pilot study that the respondents are exceptionally creative in their strategies for coping, appropriating and repressing (cf. Weller 2019, part 1, "Change"). Such strategies are also apparent in the responses of the quantitative study, and from them, we can deduce that it makes sense to

understand each respective evaluation as part of an individual history of coping. In what follows, we present four key points in this regard:

- *Shift of Focus from Problem to Solution*: Even in the case of life events that presumably are characterized by loss and burden, a substantial percentage of respondents still indicate that the changes associated with them resulted in a great to very great benefit for their lives (Q16; cf. 3.2): separation/divorce (47 percent), unemployment (42 percent), accident/Illness (38 percent). We can assume that here a distinction is made between the problematic trigger for the change and the subsequent coping process and that in the course of adaptation, the emphasis is increasingly placed on successful adaptive measures of both an inner and outer sort.

- *Prospective and Retrospective Comparison*: As the pilot study showed (Brenner 2019, 2.2.1. "The Significance of the Pressure for Change"), even the, as a rule, positively evaluated decision to change occupation or to become self-employed is, in part, preceded by suffering and pressure for change – which, however, presumably only reinforces the positive overall judgment. On the other hand, it can be assumed that where there is a lack of prospects for the future, this lack has a major impact on the evaluation of the current life situation. This is likely one of the reasons for the fact that the life events bereavement, unemployment and accident/illness are, in comparison with others, more negatively evaluated. This is to say that an evaluation is always situated in a before-and-after comparison and this comparison can shift and change in the course of the process.

- *Shift of Focus to Proving Oneself and Personal Growth*: To the question "If you consider your situation following the process of change, which statement most accurately describes your thoughts?" (Q35), 60 percent of those affected by the death of a family member chose the option that the change process provided them confirmation of their abilities. Respondents were asked to choose among three responses: "If I had known what was coming, I would have never taken this path," "Why didn't I do this earlier?," and "I feel that my abilities have been confirmed and I would always take the path of change." The third variant (confirmation) attains high rates of assent also among the other life events: child, retirement: both 69 percent; marriage, school/training/studies: both 67 percent; moving to a new home: 60 percent; accident/health-related episode: 44 percent; relationship: 44 percent; unemployment: 35 percent; divorce/separation: 32 percent. There is even clearer agreement ("somewhat right," "exactly right") to the statements "The change process made me stronger" (Q36_1; overall average for the study: 80 percent) and "gave me self-confidence" (Q36_4; overall average for the study: 83 percent). This is to say that respondents show an astounding willingness to extract a positive interpretation even from difficult phases in their lives, by focusing on the change competencies acquired.

- *Reinterpretation of External Events as Internal Coping Tasks*: The interpretive accomplishment involved in the attribution of internal or external impetus for each respective change process has already been discussed (3.4). 69 percent of respondents interpret the experienced change as their own process of development resulting from an inner

impetus (Q17). This can be regarded as a form of active appropriation of the process. Even in the case of life events that for an observer "externally" befall the persons affected, the latter themselves still ascribe high values to an internal impetus: this applies for accident/health-related episode (55 percent), bereavement (46 percent), and unemployment (43 percent). Such attributions are only understandable if we assume that the persons concerned shift the focus from the triggering event to the coping process that they themselves shape. The life event divorce or separation attained slightly higher values (64 percent). Here we have to assume either an emphasis on the individual's own capacity for action, which deliberately does not focus on the loss of the relationship, or – like presumably in the cases of a change of occupation or moving to a new home – the orienting of the evaluation towards the solution phase of the process, while bracketing the prior problem phase.

Finally, it should be noted that the evaluation itself can be understood as a part of coping. Moving from a problem or "stroke of fate" (external impetus) to a self-directed adaptation (internal) and integrating "setbacks," as much as possible, as parts of the process appears to be an essential characteristic of successful coping. Within such a framework, a changed perception is also then possible, in which benefit appears as maximized and burdens as minimized.

4   Life Satisfaction as Criterion of Success of Individual Coping Processes

The positive responses on individuals' own life satisfaction represent a key result of the Change Study. A clear majority of respondents indicate that they are satisfied with their lives (Q6). 85 percent situate themselves in the upper half of the eleven-point scale; 52 percent choose the three highest positions in the "extremely satisfied" range. This basic attitude is to be found across all differences in sex, age, income and place of residence, and it even applies for burdensome life events. A pervasive tendency to place one's own life satisfaction in the positive range of evaluation and to paint a positive picture of one's own abilities and development is apparent here. We can assume that a basic "survival mode" is visible in this, from which, at the same time, a key everyday heuristic derives: as long as individuals manage to keep their life satisfaction in the positive range, no profound changes have to be undertaken.

The participants were asked: "All in all, how satisfied are you with your life as a whole?" An eleven-point scale going from "not at all satisfied" (0) to "extremely satisfied" (10) was provided for purposes of evaluation. The typical distribution is apparent, for example, in the following list (Fig. 7) of responses by sex and age groups:

	Total	Sex		Age				
		male	female	18-29	30-39	40-49	50-59	60-70
10	6,2	5,4	7,1	4,6	6,5	6,9	7,5	5,4
9	13,2	14,4	12,0	11,1	12,3	17,0	32,7	20,4
8	32,6	34,2	30,9	33,8	32,2	31,6	32,7	32,7
7	18,6	194,0	17,7	22,3	18,9	17,4	16,8	17,7
6	10,1	9,6	10,6	11,2	12,8	9,2	11,2	5,8
5	9,5	7,3	11,7	7,8	8,0	11,0	12,0	7,8
4	3,3	3,3	3,3	1,6	3,9	3,2	3,9	3,7
3	3,3	3,2	3,3	4,8	3,2	2,2	3,0	3,1
2	1,6	1,6	1,5	1,3	0,8	2,9	1,3	1,5
1	0,5	0,7	0,4	-1,5	0,5	0,3	0,5	1,1
0	1,2	1,0	1,5	1,5	0,9	1,6	1,2	0,7

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Fig. 7 Evaluation of Life Satisfaction: placement above an average satisfaction

Question: "All in all, how satisfied are you with your life as a whole? Please answer on a scale of 0 to 10. Ten means 'extremely satisfied,' 0 means 'not at all satisfied.' With the numbers in between you can indicate gradations." Percentages (vertical). Population from 18 to 70. All figures in percent.

For the purposes of elucidation, the value in the middle of the scale is emphasized. No matter what selection criteria are used in assembling further tables on the evaluation of life satisfaction, all of them show the same picture: below the middle line, the values thin out, above it they swell up, in order then to fall again among the highest evaluations. We thus observe a systematic shift toward the positive whose dynamics recall the better-than-average effect (Alicke et al. 1995) – even if the orientation vis-à-vis the average value is in the present case more intuitive and not primarily a result of external comparison. The better-than-average effect has been demonstrated in numerous small studies. A study of motorists in New Zealand became particularly popular. It showed that 80 percent of the respondents (n = 178) regarded themselves as better-than-average drivers (McCormick et al. 1986). Behavioral economists speak of a cognitive distortion in this connection. In the current context, the shifting of the individual's own level of satisfaction above the experienced average is understood as a useful everyday heuristic, which contributes an essential element to the preservation of his or her capacity for action. The requisite degree of belief

in one's own control and of optimism may be illusory, but, nonetheless, it appears to play an indispensable role for the preservation of psychological well-being.[7]

4.1   Life Events and Life Satisfaction

Following-up on the previous section, in what follows, the responses on life satisfaction will be placed in relation to the individual life events. In order to make the results more readily comparable to the evaluative scales already presented and to make the differences in evaluations clearer, the eleven point scale will be reduced to four basic positions: "not satisfied" (0,1), "less satisfied" (2,3,4), "somewhat satisfied" (6,7,8), and "very satisfied" (9,10) – the average value (5) was allocated in equal parts to the evaluations "less" and "somewhat satisfied." The shift to the positive is apparent in the average for the total sample: 85 percent are "satisfied" (19 percent "very satisfied," 66 percent "somewhat satisfied") and 15 percent "dissatisfied" (two percent "not satisfied," 13 percent "less satisfied"). Overall, three groups for the different life events are to be found:

1. Marriage (93 percent "satisfied," of which 30 percent "very satisfied"), child (93 percent "satisfied," of which 23 percent "very satisfied"), relationship (92 percent "satisfied," of which 12 percent "very satisfied")
2. Change of occupation/self-employment (87 percent "satisfied," of which 21 percent "very satisfied"), school/training/studies (87 percent "satisfied," of which 16 percent "very satisfied"), retirement (86 percent "satisfied," of which 17 percent "very satisfied"), moving to a new home (85 percent "satisfied," of which 18 percent "very satisfied")
3. Divorce/separation (79 percent "satisfied," of which four percent "very satisfied"), bereavement (76 percent "satisfied," of which 11 percent "very satisfied"), unemployment (71 percent "satisfied," of which 12 percent "very satisfied"), accident/health-related episode (69 percent "satisfied," of which 16 percent "very satisfied")

The results for the following three groups, which comprise a number of participants of less than three percent and which are otherwise assigned to the life events child, moving to a new home and unemployment, are particularly striking. The most positive result – more positive than all the other life events – is obtained by the experiences of having a grandchild (96 percent "satisfied," of which 40 percent "very satisfied") and building a house or moving into one's own home (94 percent "satisfied," of which 32 percent "very satisfied"). The most negative overall result is to be observed in the confrontation with economic losses and poverty (only 60 percent "satisfied," of which three percent "very satisfied").

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7   Cf. Taylor & Brown 1988. Even if some studies have shown that exaggerated and self-immunizing positive illusions can be harmful for psychological health, this does not disprove the basic theory that people construct their scope for action from self-posited evaluations and the conviction that they are in control.

This is the only group with a double-digit figure for "not satisfied" (14 percent), followed by accident/health-related episode, moving to a new home and unemployment (slightly above two percent). For "not satisfied," all other life events are under 1.3 percent.

It would certainly be problematic simply to draw conclusions about the quality of life of the persons concerned from a single life event: biographies are defined by way of series of events and a tension between different life events and change processes. However, the participants in the present study were asked about key changes and the most important event "in the sense of a lasting reorganization" of their lives, and – despite a coping process that we can assume required great effort – the traces of what has happened to them are apparent in the results presented above. On one end of the spectrum, we find the negative impact of lasting poverty, mourning or illness on quality of life; on the other, the sustained positive influence of relationships to partners or children. In between are to be found successful instances of coping that are more strongly related to particular projects and stages of life. The three groups differ, finally, in their predominant temporal reference and its "coloring" by fear or hope. Education, moving to a new home and a change of occupation are focused on temporally limited challenges with a strong relation to the present. In the cases of marriage, relationship and children, it can be presumed that current fulfillment is confidently extrapolated into the future. Someone who suffers from a separation, a loss or an illness will be preoccupied by the restoration of the status quo ante and will tend rather to fear a prolongation of current burdens in the future.

All coping processes offer one option for the future in common, regardless of what life event they respond to: the change competence that has been acquired or expanded can be experienced as personal development and provide the feeling of being better prepared for further changes that are on the way. This result was already apparent in the pilot study (Brenner 2019, 3.4 "Lasting Impact of Positively Evaluated Changes"). Successfully coping with change processes reinforces individuals' belief that they are well-equipped to confront coming challenges. Now, the question of when coping behavior is to be judged successful is anything but trivial. In contrast to the customary conceptions, which attempt to define success as the "correcting" of "maladaptations" within an "acceptable time frame," the IZZ approach presented here calls into question whether such an external perspective can be adequately constructed. Instead, it takes the primacy of the subjective perspective as its point of departure and thus connects up with current discussions in life event research. (Cf. Weller 2019, "Change, Integration and Capacity for Action.") Accordingly, the observation of whether, despite the challenges and the dynamism of the change process, an inner balance and a certain degree of life satisfaction can be preserved or restored figures as criterion for successful coping. This, in turn, is regarded as a favorable framework condition for preserving health and psychological well-being – on the assumption that real solutions are found in the change process and that the share of wishful thinking and repression does not prevent them from being implemented.

4.2   Life Satisfaction and Personal Growth

One of the most striking results of the relationship between life satisfaction and life event presented above is that the life event bereavement is not at the negative end of the scale. On all the evaluation scales presented previously, the loss of a family member dependably marked the experience involving the highest degree of burden. In the last chapter, it was already mentioned that 60 percent of persons affected by the death of a family member choose the statement that they feel their abilities confirmed by the change process (Q35). This evaluation was interpreted as a shift of focus toward the experience of proving oneself and personal growth.

Despite the major burdens associated with bereavement, the persons affected also perceive gains. More clearly than other respondents, the latter do not situate these gains in the event itself. 50 percent of those affected by the loss of a family member select the extreme value "no benefit at all" on the eleven-point scale of Q16 (see section 3.2.). The only area that appears to offer the possibility of a positive overall result is personal growth. Thus, in the present study, 67 percent of those who have experienced bereavement agree with the statement "The change process made me stronger" (Q36_2). They are thereby considerably below the average for the total study sample of an astounding 87 percent agreement ("somewhat right" and "exactly right"); but, nonetheless, the result remains remarkable in light of the losses observed in all areas of life. The question "If you compare your life today with your life five years ago, how has the following aspect changed for you personally: I can overcome difficulties in important situations?" (Q9_7) yields a comparable result: 41 percent of those who have experienced bereavement give the answer "more frequently," 48 percent "unchanged" (average for the total sample: 46 percent for both responses). This is to say that only eleven percent regard matters as having gotten worse. Regulating and preserving the equilibrium of one's own personality, as well as practical learning processes related to basic orientation, evidently open up a field for action in which success in coping can be achieved and experienced, even if a loss is found to be painful and cannot be reversed.

In the response fields just discussed, the life events unemployment and accident/health-related episode are sometimes ranked even above bereavement.[8] Why, nonetheless, do they receive slightly worse evaluations in the assessment of life satisfaction? It is possible that accident, illness and loss of work – and poverty as well – are more strongly connected to the individual's own person and own self-worth; whereas bereavement allows for the possibility of differentiating between the event that has happened to you (the death of someone close) and your own person and focusing more on your own developmental progress when

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8   Parallel results for Q9_7 "overcoming difficulties": unemployment, 39 percent "more frequently," 46 percent "unchanged"; accident/health-related episode, 42 Percent "more frequently," 40 percent "unchanged. Considerably better results for Q36_2 "made me stronger": unemployment, 71 percent agreement; accident/health-related episode, 75 percent agreement ("somewhat right" and "exactly right"). Considerably weaker agreement for Q35_3 "confirmed my abilities," also because other answers are available than in the case of bereavement: unemployment, 35 percent; accident/health-related episode, 44 percent.

considering the overall result. This hypothesis would need to be tested in further studies. In conclusion, it can be noted that taking into account the area of personal development allows for a counterweight in the case of negative events or, respectively, additional reinforcement in the case of change processes that are, in any case, positive. This appears to represent an essential factor for explaining the positive shift in the results on life satisfaction.

Even if they are positively evaluated – like in the cases of entering into relationship or raising a child – key life events bring about fundamental shifts within the framework of a biography. At least in phases, they lead to core insecurity, since, as a rule, both one's self-image and one's social milieu must be adapted to the changed conditions and expectations. This was already shown by the successful change stories contained in the life narratives in the pilot study. The substantial expenditures of time and energy, which were likewise addressed there, are confirmed and further clarified by the responses in the quantitative study (cf. 3.3.). The psychological effort involved can be read off from the quantitative results in two ways:

1. Heavy Burden: Experience with early stages of coping or with enduring problematic processes of adaptation is apparent, for example, in the values for pessimism and being overwhelmed. 58 percent of respondents know the feeling of sometimes wanting "just to pull the covers over my head" (Q29_2). Among those who qualify their life event as "very negative" (Q13), the share rises to 85 percent. Overall, 35 percent of respondents indicate that they tend to have a basically pessimistic attitude (Q29_1 "The glass is half empty"). Among those who qualify their life event as "very negative" (Q13), the share is 59 percent.

2. Smooth Going: Retrospective consideration of completed and successful coping processes can be read off from the responses on perceived self-efficacy (cf. Bandura 1997)[9], on belief in an internal locus of control (cf. Lefcourt 2014)[10] and on sense of coherence (cf. Antonovsky 1997; Griffiths et al. 2011). These questions survey the area of individuals' own orientation and personal development. A majority of respondents attain exceptionally high values in this domain. Here, we will cite just three values regarding the sense of coherence and two values regarding perceived locus of control for the purpose of clarification. A more precise presentation and more detailed analysis of the results on the relationship between coping with change and capacity for action will follow in the next sections.

The concept of sense of coherence (SoC) was developed by the social psychologist Aaron Antonovsky and brings together key findings of resilience research. Accordingly, it displays overlaps with the surveying of self-efficacy and perceived locus of control. The question of the motivational linkage, by way of the ascription of significance for one's own life, provides an important additional perspective – also precisely for the IZZ approach, which targets orientation. In this regard, the approach forms part of the tradition of logotherapy (Frankl 2014).

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9   In the Change Study questionnaire, covered under Q24_5, Q28_8–11, Q33_1,3, Q36_1–6.

10   In the Change Study questionnaire, covered under Q24_6–9, Q37_1–3, 5.

Overall, the instruments relating to sense of coherence measure the extent to which respondents experience their lives as fundamentally comprehensible, manageable and meaningful. In the present study, respondents are asked about sense of coherence in numerous places.[11]

Already before moving to the life-changing events, participants were asked to provide information on the dynamics of eight factors – five that point to a lack of and three to the presence of a sense of coherence – related to the SoC: "If you compare your life today with your life five years ago, how have the following aspects changed for you personally? Do you find more rarely or more frequently – that you find yourself in unfamiliar situations in which you do not know what to do (Q9_1), that you feel bored (Q9_3), that you lose perspective (Q9_4), that you also sometimes feel like a loser (Q9_6), that you waste time with activities that make little sense (Q9_8), that you feel joy (Q9_2), that you find meaning in your life (Q9_5), that you are able to overcome difficulties in important situations (Q9 7)?" A five-point scale was proposed, which is reproduced in simplified form by the three values "more rarely" (1, 2), "unchanged" (3) and "more frequently" (4, 5).
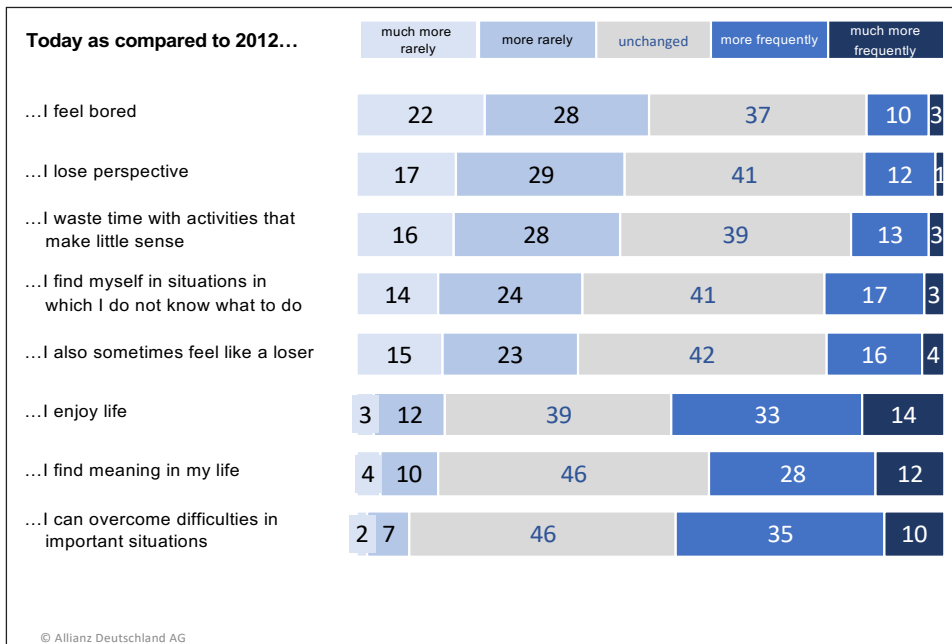
Fig. 8   Sense of Coherence (SoC): evolution in the five years before the survey

Question: "If you compare your life today with your life five years ago, how have the following aspects changed for you personally?" (Q9). Population from 18 to 70 years of age, n = 1,951. All figures in percent.

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11   In the Change Study questionnaire, covered under Q9_1–8, Q24_1–4, Q25_2, 6, 7, 9, Q28_1, Q29_3, Q32_4, Q36_1–6.

As mentioned, three factors are highlighted in what follows. The overall picture provided by the survey shows a clear increase in sense of coherence, even if the results for negatively and positively evaluated life events are diametrically opposed. An important reason for the positive overall result is to be found in the unequal distribution of this evaluation (Q13): 49 percent (n = 968) of the participants (altogether n = 1,951) evaluate their chosen life event as "very positive," 33 percent (n = 658) as "positive," twelve percent (n = 231) as "negative," and only six percent (n = 126) as "very negative." It should be noted that a positive shift was already to be observed in this evaluation: in the further course of the survey, positively evaluated life events are more frequently selected as "most important" (cf. section 2 "Life Events"); even "problematic" change processes are only sometimes evaluated as negative: divorce/separation (38 percent negative), unemployment (46 percent negative) and accident/health-related episode (55 percent negative). Only the experience of loss in the case of bereavement appears to be unambiguously negative (81 percent). Interestingly, this special status of the event bereavement is not noticeable in the results for SoC.

1. 40 percent of respondents recognize the meaning in their lives more frequently than five years earlier (Q9_5, 46 percent "unchanged"). This is to say that 86 percent move within a frame that is characterized by stability or increase. Among those who evaluate their life event as "very positive," the number is 92 percent (50 percent "more frequently," 42 percent "unchanged"). Only 8 percent of this group recognize meaning in their lives more rarely. Among those who evaluate their life event as "very negative," the number exhibiting stability or increase is only 56 percent (14 Percent "more frequently," 42 percent "unchanged"). 44 percent of this group recognize meaning in their lives more rarely. If we consider the results for the individual life events, unemployment, divorce/separation and bereavement, with responses of "more rarely" between 26 and 20 percent, are above the average of 14 percent for the total sample – but nowhere near to the same extent as is the case for the evaluation "very negative." This is to say that those affected by certain life events are not automatically to be found in the "very negative" segment[12], with its strong signs of frustration and fatalism, but rather who is to be found there are those whose coping process has not (yet) been successful. There can be a variety of different reasons for this – the combined effect of many unfavorable events, a lacking potential for coping or simply the fact of drawing conclusions in an early or problematic phase of the change process – but such reasons cannot be identified on the basis of the available data.

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12 Nonetheless, the life events accident/health-related episode (with a share of 26 percent), bereavement (23 percent) and unemployment (14 percent) occupy a special position in the evaluation "very negative"; all other life events have shares between 0.3 and 4.5 percent.

2. 46 percent of respondents indicated that they experience joy more frequently than five years earlier (Q9_2, 37 percent "unchanged"). In the case of those who evaluate their life event as "very positive", the number is 60 percent (34 percent "unchanged"). Among those who evaluate their life event as "very negative," this number is only 15 percent (27 percent "unchanged"); 59 percent in this group experience joy in their lives more rarely. If we consider the results for the individual life events, accident/health-related episode, unemployment, divorce/separation and bereavement, with mentions of "more rarely" between 31 and 25 percent, are clearly above the average of 15 percent for the total sample.

3. 38 percent of respondents feel like losers more rarely than five years earlier (Q9_6, 42 percent "unchanged"). In the case of those who evaluate their life event as "very positive," the number is 46 percent (42 percent "unchanged"). Among those who evaluate their life event as "very negative," this number is only 12 percent (30 percent "unchanged"); 58 percent in this group feel like losers more frequently. If we consider the results for the individual life events, divorce/separation, unemployment, accident/health-related episode and bereavement, with mentions of "more frequently" at around 30 percent, are clearly above the average of 20 percent for the total sample.

Finally, we present the results for two questions pertaining to locus of control. These results too permit us to draw conclusions regarding the coping strategies of the respondents. The construct of locus of control measures the extent to which respondents tend more to believe that they themselves have an impact on their environment (internal locus of control) or regard their influence as limited and perceive themselves rather as the object of effective forces (external locus of control). It thus focuses on a key aspect for the individual sense of coherence and capacity for action. A classical instrument for ascertaining locus of control was used in the Change Study. It consists of the agreement ("somewhat right" and "exactly right") to or rejection ("not so right" and "not right") of four statements. Here, we analyze the results for the two statements "I'm in control of my own life" (Q24_6) and "My plans are often thwarted by fate" (Q24_9).

1. The relation of affirmation to negation in the answers to the question of whether one's own plans are "thwarted by fate" (Q24_9) is fifty-fifty for the total survey sample. Among those who evaluate their change event as "very positive," agreement falls slightly to 41 percent; among those who evaluate their change event as "very negative," it rises considerably to 83 percent. If we consider the results for the individual life events, above average rates of agreement between 68 and 58 percent are found for accident/health-related episode, bereavement and unemployment. The life event retirement (37 percent) is considerably below the average for the total sample.

2. A remarkable 88 percent of respondents agree with the statement that they have control of their own lives (Q24_6). Among those who evaluate their life event as "very positive," agreement even reaches 94 percent. Among those who describe their life event as "very negative," it falls to 65 percent – which still seems like a very high value. If we consider the results for the individual life events, higher values, between 28 and 18 percent, for the rejection of the statement are evident for unemployment, accident/health-related episode and bereavement (average for the total sample: twelve percent).

In summary, in addition to a stable share between 37 and 46 percent, an increase in sense of coherence is apparent throughout, as well as a clear preponderance of belief in an internal locus of control. These values can be read as an indication that the majority of respondents feel that they have mastery over their own lives. This also applies with respect to experiences like illness or death. The values for loss of coherence and an external locus of control rise noticeably here; nonetheless, there is still a majority of the persons concerned who, despite the considerable challenges involved in the coping process associated with such life events, can be seen to perceive personal development.

What is the relationship between these results and the already established high degree of life satisfaction of the respondents? A Pearson correlation matrix showed reliable positive correlations between a high degree of life satisfaction and sense of coherence, self-confidence and belief in an internal locus of control. Reliable negative correlations were shown for the lack of a sense of coherence, lacking self-efficacy and a perceived external locus of control. Comparatively high positive significant values (two-sided with a p-value of 0.05) were, accordingly, shown in the relation between life satisfaction and the above presented factors enjoyment of life (Q9_2 = .469), meaning (Q9_5 = .394) and self-determination (Q24_6 = .340). Comparatively high significant values with a negative sign were shown for the feeling that one is a loser (Q9_6 = -.427) and that one's plans are thwarted by fate (Q24_9 = -.351). The correlations between life satisfaction and self-confidence ("the change event gave me self-confidence" Q36_5 = .333) and, on the negative side, between life satisfaction and the feeling of being overwhelmed ("Sometimes I just want to pull the covers over my head and be left alone" Q29_2 = -.359) also belong here.

The astonishingly high degree of life satisfaction of those concerned – 85 percent situate themselves in the upper half of the scale – thus derives from two sources: joy about positive life events and pride in one's own developmental progress. This result can be explained, in part, by the selection of life events that are, for the most part, positively evaluated. The top performers having a child (n = 492), marriage (n = 248) and relationship (n = 128) represent 44 percent of the total sample. As mentioned earlier, this selection is already the result of a particular focus: positive events are chosen more frequently as most important vis-à-vis negative ones. The second factor, the focus on one's own developmental progress, is noticeable for all the life events: it is added to a positive overall outcome, and in the case of a negative outcome, it is used to shift this, as much as possible, into the positive range.

As a whole, it appears justified to understand the preservation or increase of life satisfaction as the goal of coping with changes. Accordingly, the degree of life satisfaction can be employed as the criterion for successful coping. At the same time, however, one needs to be careful here. A low degree of life satisfaction can have a variety of causes and should not be hastily attributed to the individual's inadequate capacity for coping. Dissatisfaction is a characteristic of certain phases in a number of change processes – for example, when changing occupation or separating – and it has an important function in this context: namely, to move the dynamic forward. Satisfaction cannot simply be decreed, if the external circumstances are "not right" or inner dissonances have to be clarified.

The present study shows the considerable extent to which the individual can, by way of choice of focus and self-regulation, influence the perception of the situation and thus, ultimately, influence his or her own sense of coherence. These interconnections are confirmed by recent stress research (cf. Lazarus 2006). From the role of the factor of personal growth for the positive steering of orientation, capacity for action, feeling of self-worth and life satisfaction, we can deduce that more research in this area, as well as education and practical guidance, are useful for increasing the change competence of those concerned. For it is apparent that life satisfaction is, in no small measure, an accomplishment of the individual. How satisfied individuals are with themselves and their lives is essentially connected to what they do to preserve their life satisfaction and how they interpret their lives and the role they play in them.

5 Change Competence: Pragmatically Dealing with Change Processes

Clear proof of the respondents' change competence is provided by the fact that the competence fields of the IZZ approach are largely covered by surprisingly positive results. The self-assessments for the most part exhibit very high rates of agreement. Of course, respondents also provide answers here that are regarded as "desirable." But, on the other hand, both indications of self-critical response behavior and a consistent response behavior in the case of multiple queries[13] lend the answers credibility.

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13   For example, the questions on stress and being overwhelmed: The statement "I felt overwhelmed and I tried to change as little as possible" (Q19_4) overall received 43 percent agreement ("somewhat right" and "exactly right"; choice among four descriptions of the change behavior); for life events that were evaluated as "very positive": 26 percent, for "very negative" ones: 69 percent. "Sometimes I just want to pull the covers over my head and be left alone" (Q29_2) overall received 58 percent agreement; "very positive": 48 percent, "very negative": 85 percent. Overall, 35 percent of respondents agree with the statement "If things go other than as planned, then I feel defeated and would like just to disappear" (Q37_2); "very positive": 30 percent, "very negative": 54 percent. 77 percent say that "even if I'm not able to explain all the interconnections in my life, I still stay calm" (Q28_1); "very positive": 83 Percent, "very negative": 49 percent. "If I get stressed or have to deal with pressure, I often suffer from health

In what follows, the data collected will be analyzed within the framework of the four competence fields of the IZZ approach (Weller 2019, part 2, "Change Competence"). Given the abundance of data, the analysis here can only provide an overview. The following discussion identifies patterns and formulates initial theses. First, an observation on the concept of change competence: At the center of this concept is to be found the individual who, while navigating, acting and testing, draws on the competence fields and moves among them. It can be assumed that in real coping processes, there are feedback loops between *orientation*, *stabilization*, and *problem-solving*, as well as implementation and experimentation in *practice*. We assume neither a temporal sequence in the relation among the competence fields, nor any hierarchy among them, nor any strict segregation of their contents[14].

5.1 Competence Field: Orientation

Assuming that changes are omnipresent, complex and not accessible to consciousness as such, the perception and the interpretive grasp of change contexts by individuals constitute the key points of departure for the IZZ approach (Weller 2019, part 1, "Change"). The individual has first to create orientation before he or she can move on to planning and acting. This includes sketching an – at least rough – picture or developing a feeling of how the inner dynamic of personality development can be joined with the dynamic of the outer world: Where is the person concerned him- or herself? Where does he or she want to go? What opportunities and resources are available? What developments and patterns can be recognized or surmised in external events?

The IZZ model categorizes the abundance of individual competencies required for orientation into four overriding thematic fields: (1) Formation of Guiding Principles and Visions, (2) Information and Knowledge Competence, (3) Self-Reflexivity and (4) Ability to Navigate. The questionnaire created for the representative study attempts to identify the competencies involved, to the extent that this is possible within the framework of a quantitative survey. In what follows, we present an overview of the most important results for the individual thematic fields.

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problems" (Q28_2) – 49 percent overall answer in the affirmative; "very positive": 42 percent, "very negative": 71 percent.

14 Overlaps are evident in the following analysis on two levels: (1) Basic psychological constructs like SoC, LoC and self-efficacy are key to orientation/ability to navigate, but are complexly interconnected among themselves and within the competence fields. (2) Within the combination of competencies that make up the concept, there are, for example, intersections between self-reflexivity (orientation) and self-regulation (stabilization) or between creativity (problem-solving) and flexibility (practice) and resource orientation (stabilization) and communicative ability (practice).

5.1.1   Formation of Guiding Principles and Visions

Per the IZZ concept, the "orientation toward higher-level objectives, consciousness of values, relevance and utility, and the provision of meaning and context" needed to be studied. Accordingly, four statements on the themes of value orientation (Q25_3) and goal orientation (Q25_4), as well as the meaningfulness of reality (Q24_1 and 2), were presented here. The basic feeling of orientation, which is connected to the experience of manageability and personal significance, is addressed at various places in this study[15]: among others, in the sub-section after next in the context of self-reflexivity. In order to clarify the question of the creation and acquisition of models and orienting patterns of action, as well as their transfer, it would be useful subsequently to study narrative and semantic references in qualitative interviews.

86 percent of respondents agree ("somewhat right" and "exactly right") with the statement "I will not betray my values for short-term success" (Q25_3). The differences in relation to positively or negatively evaluated events are inconsequential. The results for the individual life events do not exhibit any striking differences – apart from a particularly high level of approval in the cases of retirement (90 percent) and bereavement (93 percent). With respect to the occupational groups, retirees and self-employed persons attain above average scores (around 92 percent) and students, below average scores (73 percent). With respect to age groups, a constant increase is to be observed from 71 percent for the 18–29 year olds up to 93 percent for the 60–70 year olds.

82 percent of respondents agree with the statement "I orient my life by goals that do not change daily" (Q25_4). Among those who evaluate their change event as "very positive," the agreement rises slightly to 84 percent. Among those who qualify their change event as "very negative," it falls to 76 percent. If we consider the results for the individual life events, somewhat lower values between 69 and 72 percent are evident for divorce/separation and unemployment. With respect to age group, three slightly different groups are apparent: the 18–39 year olds (80 percent), the 40–59 year olds (84 percent) and the 60–70 year olds (86 percent).

74 percent of respondents agree with the statement "I am often able to recognize a broad, clear line behind the confusing multiplicity of details" (Q24_1; evaluation change event "very positive": 79 percent, "very negative": 51 percent). If we consider the results for the individual life events, slightly lower values between 61 and 63 percent are apparent for unemployment and accident/health-related episode. On the other hand, particularly great agreement, at 84 percent, is to be found among the retirees. With respect to age groups, a constant slight increase is to be observed from 70 percent for the 18–29 year olds up to 75 percent for the 60–70 year olds.

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15   The following items in the questionnaire cover the sense of coherence: Q9_1–8, Q24_1–4, Q25_2, 6, 7, 9, Q28_1, Q29_3, Q32_4, Q36_1–6. The factors life enjoyment (Q9_2) and meaning of life (Q9_5) were discussed in connection with respondents' life satisfaction in section 4.2 ("Life Satisfaction and Personal Growth").

76 percent of respondents agree with the statement "When I am clear about what I actually want, then things around me automatically get sorted out" (Q24_2; evaluation change event "very positive": 83 percent, "very negative": 44 percent). If we consider the results for the individual life events, slightly lower values, between 61 and 66 percent, are also apparent here for unemployment and accident/health-related episode. Particularly great agreement, at 84 percent, is also to be observed here for the retirees. With respect to age groups, two slightly different groups are apparent: the 18–49 year olds (at 74 percent) and the 50–70 year olds (at 78 percent).

Summary: All four statements obtain high agreement scores. In the cases of value orientation and goal orientation, these are six to twelve percentage points higher than for the statements on meaningfulness. Value and goal orientation prove, moreover, to be considerably more stable vis-à-vis the different change experiences and their evaluation; whereas it is apparent that the personal feeling of the meaningfulness of life essentially depends on the experience of positively or negatively perceived change processes. This finding is also supported by the findings for questions Q9_2, 5 and 6 in section 4.2. All of the answers point to a gain in personal development over the course of one's life. But this is especially pronounced for value orientation, with agreement increasing by 22 percent over the lifespan. The divergent response behavior for value orientation of the two occupational groups that are most strongly characterized by their age is also consistent with this picture: namely, students and retirees.

5.1.2   Information and Knowledge Competence

In light of increasing amounts of data, the ability to select information and to apply it to particular contexts has become decisive. In the present study, this ability is thematized by Q24_5.

87 percent of respondents agree with the statement "I know how to access relevant information, in order to understand specific problems and issues" (Q24_5; evaluation change event "very positive": 90 percent, "very negative": 68 percent). If we consider the results for the individual life events, lower values are apparent for unemployment (77 percent). Greater agreement, between 91 and 94 percent, can be observed for the events parenthood, self-employment and retirement. With respect to age groups, a constant increase is to be observed from 82 percent for the 18–29 year olds up to 90 percent for the 60–70 year olds.

Summary: As the high rates of agreement show, knowledge competence has great significance. Individuals' assessment of their own competence appears relatively stable and largely independent of increasing life experience. It is more strongly influenced by a sense of orientation, especially in the working world; hence striking differences are apparent here for positive (self-employment) and negative (unemployment) change experiences.

5.1.3   Self-Reflexivity

In order to study the competence for "understanding one's own standpoint, one's own perspective, processing experiences, and developing personal integrity," respondents were asked about their ability to accept criticism (Q25_1), self-observational powers and self-assessment (Q25_2 and 6), as well as the link to action that is experienced as meaningful (Q25_7 and 9).

87 percent of respondents agree with the statement "Justified criticism helps me to improve my abilities" (Q25_1; evaluation change event "very positive": 88 percent, "very negative": 76 percent). If we look at the results for the individual life events, slightly lower values are manifest for unemployment (82 percent). Greater agreement is to be observed among those who have moved to a new home (93 percent). Among the occupational groups, students (79 percent) stand out with a particularly low level of agreement. There are hardly any differences among age groups; only the 18–29 year olds exhibit marginally below average agreement rates (81 percent).

76 percent of respondents agree with the statement "I always know where I stand in life" (Q25_2; evaluation change event "very positive": 83 percent, "very negative": 53 percent). If we take into account the results for the individual life events, we find below average values for school/training/studies (56 percent), unemployment and accident/health-related episode (both 64 percent). Above average agreement, between 91 and 94 percent, can be observed for parents, self-employed persons and retirees. Among the occupational groups, students (49 percent) attain clearly below average scores. With respect to age groups, a constant increase is to be observed from a rejection of 60 percent for the 18–29 year olds up to 87 percent for the 60–70 year olds.

79 percent of respondents agree with the statement "I always succeed in recognizing the major challenges in my life" (Q25_6; evaluation change event "very positive": 83 percent, "very negative": 47 percent). With regard to the results for the individual life events, somewhat lower values are found for accident/health-related episode (65 percent), unemployment (66 percent) and school/training/studies (69 percent). Greater agreement, between 81 and 84 percent, can be observed for self-employment, moving to a new home, retirement and parents. With respect to age groups, a constant increase is to be observed from 69 percent for the 18–29 year olds up to 86 percent for the 60–70 year olds.

There is almost complete agreement (92 percent) for the statement "I always want to understand how things are connected" (Q25_7). The evaluation of the change event as "positive" or "negative" displays no significant differences in response behavior. The search for meaning even appears to be reinforced by certain "difficult" life events. Minimally greater agreement is to be observed for the events having a child, self-employment and marriage, but also for moving to a new home and school/training/studies (around 94 percent). The peak value is attained by the life event bereavement. Minimally lower values, around 90 percent, are apparent for unemployment, accident/health-related episode and

retirement. With respect to age groups, there is a constant increase from 88 percent for the 18–29 year olds up to 97 percent for the 60–70 year olds.

90 percent of respondents agree with the statement, "If I'm going to commit to something, it has to have meaning for me – not only for the moment, but also beyond it" (Q25_9). Here too, the evaluation of the change event as "positive" or "negative" displays no significant differences in response behavior. If we consider the results for the individual life events, lower values are to be found for relationship (82 percent) and unemployment (85 percent). Greater agreement, between 94 and 96 percent, can be observed for marriage, moving to a new home, and retirement. With respect to age groups, the 18–29 year olds (85 percent) are not at the bottom end of the scale. A constant increase is apparent from the 30–40 year olds (82 percent) up to the 60–70 year olds (96 percent).

Summary: Like in the personal assessment of meaningfulness in section 5.1.1. ("Guiding Principles and Visions"), in the self-assessment of knowing where one stands and recognizing major challenges (Q25_2 and 6), a strong dependence on life events and their evaluations is manifest, as well as on increasing life experience. The other points, on the other hand, exhibit little to no dependence here. A similar response behavior is to be found for ability to accept criticism (Q25_1) as for goal orientation (5.1.1.): slightly greater agreement than for the questions on personal assessment of meaningfulness, only marginal impact of the evaluation of the change experience or of particular life events.

   The attitudes of wanting to understand connections and wanting to be committed to something that has meaning for them are shared by the participants almost without exception. Like for goal orientation (5.1.1), the evaluation of the change experience does not have any impact on the response behavior. In the question on commitment (Q25_9), deviations from the average for individual life events, as well as for the youngest age group, could point to lived degrees of self-determination and room for shaping circumstances: it is possible that retirees feel freer in making decisions than students do. Presumably, the youngest age group sees more opportunities for shaping their lives than the following group of 30–40 year olds. In the search for interconnections (Q25_7), increasing agreement appears to be found where new room for shaping one's circumstances is being opened up – for instance, in the cases of self-employment, moving to a new home and school/training/ studies – or where a meaningful context has to be recreated after a caesura, like in the case of a bereavement. Overall, it can be supposed that creating a meaningful context is a life goal – hence the increasing agreement over the lifespan, up to the remarkable 97 percent agreement among the oldest group of participants.

5.1.4   Ability to Navigate

In the competence field of orientation, ability to navigate marks the decisive bundle of competencies when making the transition to action and implementation. The IZZ model of change competence formulates its key features as "making unclear and contradictory phenomena of the outer and inner world manageable by way of abstraction and opera-

tionalization, by way of the reduction of complexity focusing on what is important for the capacity for action, recognizing change processes and assessing possibilities for shaping them." In the next sub-section, we present results on the assessment of the capacity to focus (Q24_4), of comprehensibility and manageability in the context of sense of coherence (Q24_3, Q9_1 and 4)[16], and of self-efficacy or belief in an internal/external locus of control (Q24_6 bis 9). An essential moment of action orientation is thus given greater concreteness. But, as the concluding sub-section 5.1.5. will show, in order to have a comprehensive picture of the ability to navigate, it is advisable also to take into account guiding principles and knowledge competence.

86 percent of respondents agree with the statement "Because it is not possible to solve all problems, I focus on the most important ones" (Q24_4). The evaluation of the change event as "positive" or "negative" does not lead to significant differences in response behavior. If we take into account the results for the individual life events, lower values are apparent for school/training/studies (76 percent). Greater agreement can be observed for accident/health-related episode and retirement (both 92 percent). With respect to age groups, a constant increase is to be observed from 78 percent for the 18–29 year olds to 92 percent for the 50–59 year olds; the 60–70 year olds fall minimally to 91 percent.

On the five-point scale for determining the sense of coherence, 38 percent of respondents indicate that at the time point of the survey, as compared to 2012, they more rarely have the feeling of finding themselves "in unfamiliar situations in which I do not know what I should do" (Q9_1). 41 percent choose "unchanged." This is to say that 79 percent move within a frame that is characterized by stability or increase in assurance. In the case of those who evaluate their life event as "very positive", the number is 85 percent (44 percent "more rarely," 41 percent "unchanged"). Among those who evaluate their life event as "very negative," on the other hand, it is only 53 percent (19 percent "more rarely," 34 percent "unchanged"). Hence, 47 percent of this second group experience an increase in disorientation. If we take into account the results for the individual life events, a clear division without any intermediate position is shown. Accident/health-related episode (30 percent), relationship (31 percent), unemployment (32 percent) and bereavement (33 percent) are below the average of 38 percent for the total sample ("more rarely"). Divorce/separation (40 percent), having a child, school/training/studies, self-employment, moving to a new home and retirement (all around 42 percent), and also marriage (44 percent) are above it. With respect to age groups, a slight constant increase is to be observed from 32 percent for the 18–29 year olds up to 43 percent for the 60–70 year olds; only the 50–59 year olds exhibit a decline (to 38 percent) vis-à-vis the next youngest group.

16　The factor "feeling that one is a loser" (Q9_6) in the determination of the sense of coherence was discussed in section 4.2. ("Life Satisfaction and Personal Growth").

46 percent of respondents indicate that they "lose perspective" more rarely (Q9_4). Here too, 41 percent choose "unchanged." This is to say that 87 percent move within a frame that is characterized by stability or increase in orientation. Among those who evaluate their life event as "very positive," the number is even 90 percent (51 percent "more rarely," 39 percent "unchanged"). Among those who evaluate their life event as "very negative," agreement falls to 70 percent (28 percent "more rarely," 42 percent "unchanged"). Due to the high stable share, the difference between the values for "very positive" and "very negative" change events is considerably less than that observed in the large gap for Q9_1. If we take into account the results for the individual life events, a broad intermediate range becomes visible. Only bereavement (37 percent) and accident/health-related episode (40 percent) are appreciably below the average for the total sample; self-employment (57 percent) is considerably above. With respect to age groups, the picture is inconsistent and shows little differentiation: slightly under the average are to be found the 30–39 year olds and the 50–59 year olds (43 percent); slightly over, the 60–70 year olds (49 percent).

88 percent of respondents agree with the statement "I'm in control of my own life" (Q24_6; evaluation change event "very positive": 94 percent; "very negative": 65 percent). With regard to the results for the individual life events, lower values are apparent for unemployment (72 percent) and accident/health-related episode (80 percent). Greater agreement, between 93 and 94 percent, can be observed for marriage, relationship, moving to a new home, divorce/separation and retirement. With respect to age groups, the 18–29 year olds (88 percent) attain the second highest value for agreement. Thereafter, a slight constant increase can be observed from the 30–39 year olds (85 percent) up to the 60–70 year olds (92 percent).

84 percent of respondents agree with the statement "If I make an effort, I will also have success" (Q24_7; evaluation change event "very positive": 90 percent, "very negative": 53 percent). If we take into account the results for the individual life events, lower values are apparent for unemployment (63 percent), accident/health-related episode (71 percent), retirement (72 percent) and divorce/separation (78 percent). Appreciably greater agreement, between 90 and 92 percent, can be observed for relationship and moving to a new home. With respect to age groups, the picture is inconsistent with a small spectrum of variation.

73 percent of respondents agree with the statement "There are often things that turn out differently from the way I imagine" (Q24_3; evaluation change event "very positive": 66 percent, "very negative": 85 percent). If we focus on the results for the individual change events, we find a group with an interesting composition among the low values: marriage (65 percent), unemployment (63 percent), self-employment (61 percent) and, at a considerable distance, retirement (48 percent). We can only speculate here that the respondents, in each case, started from different assumptions that they found were confirmed to a comparatively large extent (for example, negative expectations in the case of unemployment). Considerably greater agreement – hence, increased confrontation with unexpected developments – is to be observed for the experience of a bereavement (90

percent). Among the age groups, slightly below average agreement is to be observed for the 60–70 year olds (69 percent).

Only 29 percent of respondents agree with the statement "No matter whether in the private domain or professionally: my life is largely controlled by others" (Q24_8; evaluation change event "very positive": 26 percent, "very negative": 43 percent). If we take into account the results for the individual life events, appreciably higher values – indicating an above average feeling of external control – are only apparent for unemployment (35 percent). Lower values, indicating greater self-determination, are to be observed for self-employment (18 percent) and retirement (11 percent). With respect to age groups, a slight increase is to be observed from the 18–29 year olds (33 percent) to the 40–49 year olds (36 percent); agreement falls dramatically among the 50–59 year olds (25 percent) and then falls again to its lowest level among the 60–70 year olds (18 percent).

"My plans are often thwarted by fate" (Q24_9) – half of the respondents are of this opinion (evaluation change event "very positive": 41 percent, "very negative": 83 percent). With respect to the results for the individual life events, higher values are apparent for the more negatively evaluated life experiences unemployment (58 percent), bereavement (65 percent) and accident/health-related episode (68 percent). Lower agreement is to be observed for marriage (42 percent), self-employment (41 percent) and retirement (37 percent). With respect to age groups, the picture is inconsistent and little differentiated.

Summary: A similar response behavior is apparent for focusing ability (Q24_4) as for goal orientation (5.1.1.): no impact of the evaluation of the change events, but an increase with life experience. The limited agreement in the case of school/training/studies and the high agreement in that of retirement is consistent with this last point. It can be assumed that over the course of a life, concentration on that which each individual regards as important increases (cf. Brandtstädter 2015; Brandtstädter 1999). The emphasis on focusing ability in the cases of the life events accident/health-related episode and self-employment could point to a feeling of increased demands for problem-solving among the persons concerned. This can be interpreted as an indication that particular competencies are activated, when coping with change processes requires them.

On the other hand, hardly any increase in orientation thanks to life experience is to be observed for the answers on comprehensibility and manageability (Q24_3, Q9_1 and 4) and those on perceived internal or external locus of control (Q24_6 bis 9). Instead, a clear relationship is apparent both to the evaluation of the change processes and to particular life events. It would, however, be premature to conclude from this that there is a unidirectional impact of experience on the feeling of orientation. It is equally possible that suffering disorientation substantially contributes to the evaluation of a life event as negative, whereas personal growth can give a positive turn even to a "problematic" process. Considering oneself as "jinxed" can be the result of negative learning experiences or a temporary assessment in a difficult phase; but it can also indicate a psychological disposition. Further studies are required to investigate this relationship in a nuanced way.

As in the case of life satisfaction, in the area of orientation, we find mostly positive self-assessments as an expression of successful coping: 86 percent believe they are able to focus (Q24_4); over 80 percent believe that they have control of their lives (Q24_6) and that their efforts will also yield success (Q24_7). 87 percent have the feeling that they have "perspective" or have kept or even gained increasing perspective in recent years (Q9_4). In addition to the tendency toward a positive shift (cf. section 4.1. "Life Events and Life Satisfaction"), the decisive importance of belief in an internal locus of control for coping with change processes is apparent here. This already plays a fundamental role on the level of orientation: individuals will only become active to the extent that they regard themselves as capable of shaping their circumstances.

In light of the predominantly positive tendency, it is interesting to note the differing rates of agreement to three statements that, on first glance, appear substantively close. This comprises a further indication of the nuance and context adequacy of the responses of the participants. 50 percent of respondents are of the opinion that their plans are more frequently "thwarted by fate" (Q24_9) – hence, considerably more than in the case of external control (Q24_8: 29 percent) and considerably less than in the case of the non-confirmation of expectations (Q24_3: 73 percent). This gradation among the levels of agreement corresponds to an increasing loss of belief in an internal locus of control. The fact that one's own assumptions do not produce any fit with reality is a component of exploratory action, with which most of the respondents are evidently familiar and which does not necessarily have a negative impact on their self-perception. The image of an adverse fate more involves an opposing actor who shows the active ego its limits, whereas in the third step control is outright externally situated. There appears to be strong resistance in the active ego to admitting external control. Even in the case of life events that are evaluated as "very negative," the rate of agreement does not exceed 43 percent. A gap between "very positive" and "very negative" change experiences opens up to differing degrees for the other two statements. 66 percent of those with "very positive" experiences can still agree that things turn our differently than they imagine. Only 41 percent here are of the opinion that their plans are thwarted by fate. People with "very negative" change experiences, on the other hand, largely agree in both cases (85 and 83 percent).

5.2   Competence Field: Stabilization

In their everyday lives, individuals are not only responsible for producing their own orientation, they also have to undertake to "stay on the ball," to "keep fit" and to "keep going." What is at issue is linking individual commitment to projects that are consistent with one's own values and goals – and preserving this link when confronting obstacles and course corrections. Techniques of self-regulation and resource preservation are required to this end. Complex dynamics that extend over longer periods of time, like change processes, can only be mastered with the help of accompanying stabilization processes. A balance between adaptation and stability proves decisive for personal development, as does the re-establishment of an inner equilibrium following experiences of adversity or even failure.

In developmental psychology, this competence is known as resilience (cf. Fröhlich-Gildhoff & Rönnau-Böse 2015; Yates & Masten 2004).

The IZZ model of change competence categorizes the abundance of individual competencies required for stabilization into four overriding thematic fields: (1) optimism and enthusiasm, (2) self-regulation and self-efficacy, (3) resource orientation, and (4) resilience. In what follows, we present an overview of the most important results for the individual thematic fields.

5.2.1 Optimism and Enthusiasm

In order to study the competence to "develop a positive basic attitude and to integrate negative experiences in a positive way or to block them out, as well as to make solutions and goals one's own and sustainably to invest them with emotional significance," respondents were asked about optimism/pessimism (Q29_1 and 3), goal pursuit (Q29_4[17], 5 and 6, Q32_2) and confirmation (Q35).

The statement "For me, the glass is always half empty and never half full" (Q29_1) is regarded by 65 percent of respondents as not accurate ("not so right," "not right"). If the change event is evaluated as "very positive," rejection rises to 69 percent. Among those who qualify their change event as "very negative," it falls sharply to 42 percent. If we take into account the results for the individual life events, below average rates of rejection become apparent for unemployment (53 percent), divorce/separation (54 percent) and accident/health-related episode (58 percent). Above average rates of rejection are to be observed for retirement (73 percent). With respect to age groups, a constant increase of a basically optimistic attitude is to be observed from 56 percent for the 18–29 year olds to up to 72 percent for the 60–70 year olds.

67 percent of respondents regard the statement "If something is going well, I expect something bad to happen soon" (Q29_3) as not accurate (evaluation change event "very positive": 73 percent; "very negative": 41 percent). If we take into account the results for the individual life events, considerably under average rates of rejection are apparent only for accident/health-related episode (56 percent); above average rates of rejection are to be observed for marriage (73 percent), self-employment (74 percent), and retirement (81 percent). When we break down the data by age groups, clear differences become apparent: a continuous increase of a basically optimistic attitude from 56 percent for the 18–29 year olds up to 80 percent for the 60–70 years olds.

62 percent of respondents regard the statement "Sometimes I accept responsibility for something and then lose my drive" (Q29_5) as not accurate (evaluation change event "very positive": 67 percent, "very negative": 52 percent). If we consider the results for

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17 The responses to the statement "Even if I'm not really convinced by a solution to start off with, I make a real effort to put it into practice" (Q29_4) also belong here. They are not, however, analyzed in what follows.

the individual life events, considerably under average rates of rejection are apparent for relationship (50 percent), moving to a new home (51 percent) and school/training/studies (52 percent); over average rates for marriage, self-employment (both 70 percent) and retirement (86 percent). With respect to age groups, a constant increase of perseverance is to be observed from 50 percent for the 18–29 year olds up to 78 percent for the 60–70 year olds.

"I always have new goals in mind, for it is always possible to do something better than before" (Q29_6) – 75 percent of respondents agree with this statement ("somewhat right," "exactly right"; evaluation change event "very positive": 78 percent; "very negative": 62 percent). With regard to the individual life events, lower rates of agreement are manifest for unemployment and bereavement (both 65 percent); over average rates for retirement (79 percent). The picture for the age groups is little differentiated and inconsistent with values around the average.

56 percent of respondents regard the statement "When things were not going well, I had difficulty motivating myself and continuing on the chosen path" (Q32_2) as not accurate (evaluation change event "very positive": 63 percent, "very negative": 32 percent – i.e. 68 percent in this case do experience motivation problems). With regard to the results for the individual life events, considerably below average rates of rejection are found for accident/health-related episode and divorce/separation (both 47 percent), unemployment (44 percent) and bereavement (42 percent); above average rates for marriage (61 percent), having a child (63 percent) and especially retirement (86 percent). Substantial differences become apparent among the age groups: the range for strength of motivation goes from 48 percent for the 18–29 year olds up to 71 percent for the 60–70 year olds.

The statement "I feel that my abilities have been confirmed and I would always take the path of change" (Q35_3) was one of three retrospective descriptions of the completed change process that were available to be chosen. It is, above all, interesting, because it was chosen so often: namely, by 59 percent of the participants. This is to say that 1,150 respondents feel that their abilities have been confirmed. 27 percent opted for "Why didn't I do this earlier?" (Q35_2) and only 14 percent for "If I had known what was coming, I would have never taken this path" (Q35_1). One reason for this could, of course, be that for some change events the option of undertaking the process earlier or not at all did not exist. But a rate of 0.2 percent "no answer" for this complex of questions indicates that the response behavior does not reflect any notable feeling that something is awry.

Among those who evaluate their change event as "very positive," a slightly higher number opted for options 3 (abilities confirmed: 66 percent) and 2 (done earlier: 30 percent). The share for option 1 (never taken: 4 percent) is extremely small. Among those who qualify their change event as "very negative," only 44 percent choose option 3 (abilities confirmed); option 1 (never taken: 41 percent) is at almost the same level here and option 2 (done earlier: 14 percent) falls to last place.

If we take into account the results for the individual life events, below average values for the choice of option 3 are apparent in the cases accident/health-related episode and relationship (both 44 percent), unemployment (35 percent) and divorce/separation (32 percent). Above average values are to be observed for the events having a child (69 percent), marriage, school/training/studies (both 67 percent) and retirement (70 percent). With respect to age group, a slight constant increase is apparent in the choice of option 3 from 55 percent for the 18–29 year olds up to 60 percent for the 50–59 year olds, and then the value jumps to 71 percent for the 60–70 year olds.

Summary: At approximately 65 percent, the share of respondents with a basically optimistic attitude is high (Q29_1 and 3). We deliberately chose not to use a positive formulation (e.g., "For me, the glass is more half full than half empty"); but it can be presumed that if we had, the share would have been even higher. Optimism appears to be noticeably dampened by a negative evaluation of the change process, as well as by certain life events such as accident/health-related episode. On the other hand, optimism increases, on average, with life experience. Accordingly, retirees and the life event retirement have a more positive overall result.

The subject of goal pursuit was examined by way of how respondents deal with a loss of drive (Q29_5) and goal generation (Q29_6). Both are influenced by a negative evaluation of the change process and by certain life events, but less so than optimism. The generation of new goals appears hardly to be dependent on personal development; perhaps it is a matter of a basic disposition. In the case of overcoming a loss of drive by way of perseverance, the data points to the role of learning processes and life experience.

The feeling of confirmation that individuals achieve thanks to successful coping processes is an essential characteristic of continuing personal development. The significance for those concerned is made clear by the high proportion of respondents who choose option 3 ("abilities confirmed," Q35). The reinforcing impact of successful change processes on the anticipation of upcoming coping challenges was already apparent in the pilot study (cf. Brenner 2019, 3.4 "Lasting Impact of Positively Evaluated Changes"). The positive effect is considerably less apparent, if a change process is experienced as negative. Or put the other way around: such a process is experienced as negative, if it offers little opportunity for self-confirmation. As already discussed, however, determining what such confirmation may consist of is dependent on an interpretive accomplishment of the persons concerned. Accordingly, over the course of the lifespan, there appears to be, above all, a clear increase in the last age group, the grounds for which remain to be investigated. One explanatory hypothesis could be the shift from a more externally oriented perspective to a focus on personal reflection and development (cf. Brandtstädter 2015; Kruse & Wahl 2009, 149 ff.).

5.2.2 Self-Regulation and Self-Efficacy

In order to study the ability "to direct oneself, to give oneself confirmation along the way, and to do without immediate gratification[18]," as well as the "basic attitude of shaping one's own life," respondents were asked about perseverance/ambition (Q28_3)[19] and expectation of self-efficacy (Q28_9)[20]; as an example of emotional management, they were also asked about coping with stress (Q28_2 and 5)[21].

An overwhelming majority of 89 percent of respondents agree with the statement "Goals that I have envisaged, I also want to reach, even if the path is rocky" (Q28_3; evaluation change event "very positive": 92 percent, "very negative": 79 percent). If we take into account the results for the individual life events, lower rates of agreement are apparent for divorce/separation (77 percent) and unemployment (81 percent). In comparing age groups, a constant increase is to be observed from 85 percent for the 18–29 year olds up to 94 percent for the 50–59 year olds. The rate of agreement for the 60–70 year olds falls minimally to 93 percent.

87 percent of respondents agree with the statement "I can cope well with most problems on my own" (Q28_9; evaluation change event "very positive": 91 percent, "very negative": 65 percent). With regard to the individual life events, lower rates of agreement are found for accident/health-related episode (77 percent) and divorce/separation (79 percent); above average rates for self-employment (94 percent) and retirement (92 percent). With respect to age groups, a constant increase is to be observed from 83 percent for the 18–29 year olds up to 93 percent for the 60–70 year olds.

"If I get stressed or have to deal with strain, I often suffer from health problems" (Q28_2) – 49 percent of respondents affirm that this is the case (evaluation change event "very positive": 42 percent, "very negative": 71 percent). If we look at the individual life events, appreciably higher rates of agreement are apparent for unemployment (71 percent); appreciably under average rates for self-employment (33 percent) and retirement (36 percent). With respect to age groups, the 18–29 year olds (49 percent) come in near the average, and then a constant decrease is to be observed from the peak value among the 30–39 year olds (54 percent) to the 60–70 year olds (38 percent).

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18 The results on deferred gratification are not very informative. It can be presumed that respondents had trouble understanding the formulation "Sometimes the opposite of the well-known saying applies: two birds in the bush are worth more than a bird in the hand, after all" (Q28_7).

19 The rates of agreement and rejection for the statement "I'm not satisfied with small successes" (Q28_6) belong here, but will not be analyzed in what follows.

20 The results with respect to the statements "Only I am responsible for my life" (Q28_7), "In difficult situations I can rely on my abilities" (Q28_8) and "As a rule, I am even able to solve arduous and complicated tasks" (Q28_10) belong here, but will not be analyzed in what follows.

21 The statement "If I don't understand what is going on, I try to take a short break" (Q28_4) belongs here, but the rates of agreement to and rejection of it will not be analyzed in what follows.

80 percent of respondents agree with the following statement (Q28_5): "When I am under too much pressure, then I let off steam, give myself encouragement or consider matters rationally – depending on what is required" (evaluation change event "very positive": 82 percent, "very negative": 73 percent). A look at the results for the individual life events shows somewhat lower rates of agreement in the cases of unemployment, accident/health-related episode and school/training/studies (all around 74 percent) and above average rates for bereavement and divorce/separation (both around 87 percent). With respect to age groups, a constant increase is to be observed from 75 percent for the 18–29 year olds up to 83 percent for the 60–70 year olds.

Summary: Competencies are apparent under the topics of self-regulation and self-efficacy that seem to be only marginally dependent on external circumstances such as particular life events or on increasing life experience. The perseverance involved in pursuing a goal even when the path is rocky (Q28_3) proves to be a basic attitude, which, in the first place, retains its dominance across all age groups and life events. It is only in the second place that positive change events and life experience have a reinforcing effect. Much the same applies for the expectation of self-efficacy (Q28_9), even if learning experiences and negatively evaluated events exhibit a somewhat stronger influence.[22]

Not surprisingly, the example of coping with stress shows that respondents are very familiar with this phenomenon. Almost half know of adverse health consequences from their own experience. The connection to negatively evaluated change processes is clear. Without going into the broad field of stress research here, in the context of life stages, it presumably makes less sense to assume increasing competence thanks to life experience than different everyday demands (e.g. the multiple burdens of the middle generations in bearing responsibility for children, parents and job). Coping with stress appears to be favored both by having one's own scope for shaping circumstances (self-employment) and by the lightening of one's burden (retirement). It remains to be noted that 80 percent of respondents dispose of self-reflexive mechanisms in dealing with stress. This means that they have the ability to use situationally required compensation mechanisms for the purpose of emotional self-regulation. Disposing of this competence does not mean, however, that too much pressure in everyday life does not lead to negative consequences.

5.2.3　　Resource Orientation

For the purpose of studying the competence "to preserve one's own strengths, to develop sustainable social contacts and to find support in personal relationships," respondents were asked about involving their social milieu (Q30). Further topics relating to the cultivation of resources are treated elsewhere in this chapter: coping with stress (5.2.2), as well as communicative ability and social competence (5.4.2. Practice).

22　See too the responses for the related concept of belief in an internal locus of control in section 5.1.4. ("Ability to Navigate").
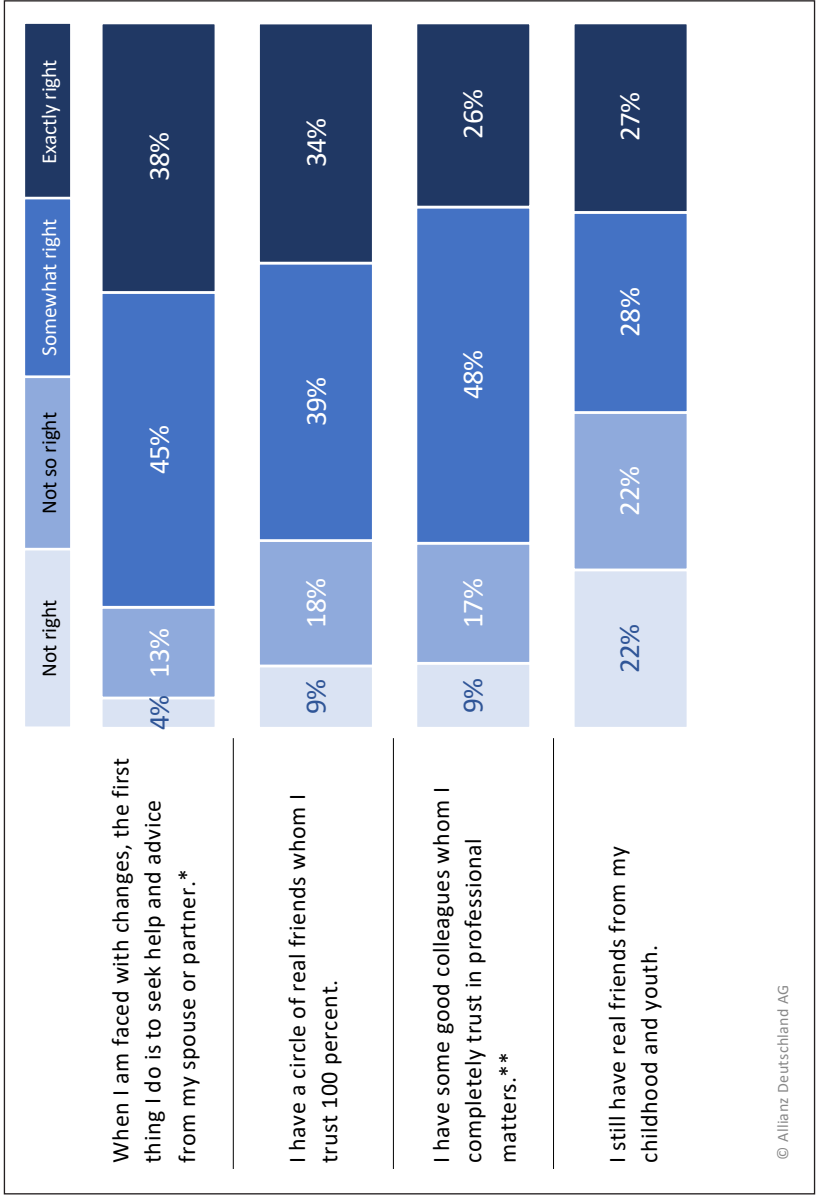
Fig. 9 Resource Orientation

Question: "How much do you depend upon partners, friends and family for orientation in new situations? Please categorize your behavior." (Q30). Population from 18 to 70 years of age, n = 1,951. *Statement filtered: if in relationship (n = 1,214); **statement filtered: if employed (n = 1,134). All figures in percent.

The point of departure for examining participants' ways of dealing with social resources was the question "How much do you depend upon partners, friends and family for orientation in new situations?" The statement "When I am faced with changes, the first thing I do is to seek help and advice from my spouse or partner" (Q30_1) was only presented to those who indicated that they are married or in a relationship (n = 1,214). Of these, 83 percent agree with the statement (evaluation change event "very positive": 89 percent, "very negative": 75 percent; the lowest value is attained by the group with the evaluation "somewhat negative": 71 percent). Overall, the spread is not very large. If we take into account the results for the individual life events, below average rates of agreement are apparent for unemployment (66 percent), divorce/separation (70 percent) and self-employment (72 percent); above average rates, as would be expected, for relationship (87 percent) and, above all, marriage (93 percent). For the age groups, moderate differences of up to six percentage points are apparent at higher levels. The lowest values are to be observed for the 50–59 year olds (80 percent); the highest, for the 60–70 year olds (86 percent).

"I have a circle of real friends whom I trust 100 percent" (Q30_2) – 73 percent of respondents agree with this statement (evaluation change event "very positive": 79 percent, "very negative": 55 percent). A look at the results for the individual life events reveals lower rates of agreement in the cases of unemployment (57 percent), bereavement (68 percent) and accident/health-related episode (69 percent). Consideration of age-groups yields an inconsistent, little differentiated picture.

The statement "I have some good colleagues whom I completely trust in professional matters" (Q30_3) was only presented to those who indicated that they work (n = 1,134). Of these, 74 percent agree with the statement (evaluation change event "very positive": 80 percent, "very negative": 53 percent). Above average rates of agreement are apparent for the life events having a child, self-employment and moving to a new home (all around 79 percent), as well as school/training/studies and marriage (both 82 percent). Below average rates are to be found for divorce/separation, accident/health-related episode, unemployment (all around 66 percent) and, above all, bereavement (53 percent). With respect to age groups, a constant slight decrease (!) is to be observed from 78 percent for the 18–29 year olds to 71 percent for the 60–70 year olds.

55 percent of respondents concur with the statement "I still have real friends from my childhood and youth" (Q30_4; evaluation change event "very positive": 59 percent, "very negative": 47 percent; as in Q30_1, the group with the "somewhat negative" evaluation attains the lowest value: 43 percent). Looking at the results for the individual life events, above average rates are found for self-employment, school/training/studies, moving to a new home, retirement (all around 58 percent) and, above all, having a child (60 percent). Lower rates of agreement are found for unemployment, relationship, accident/health-related episode (all around 48 percent) and, above all, divorce/separation (32 percent). In relation to age, three groups are apparent: with a constant decrease from the 18–29 year olds (65 percent), by way of the 30–49 year olds (59 percent), to the 60–70 year olds (47 percent).

Summary: Drawing on social resources plays a major role for all respondents. Overall, it is apparent that the evaluation of their importance depends on the proximity to the innermost circle of the private sphere: hence exchange with spouses or partners obtains the highest rate of agreement. Over the course of a life, this relation undergoes typical changes: presumably more as a result of changing circumstances than as a result of increasing life experience. Friends play an important role for young people; later, partners or spouses assume the greater part of support. Colleagues become slightly less significant with advancing age; they are not called upon to the same extent in personal crises like illnesses or a death in the family, and, at least in some cases, they fall entirely out of the picture when one loses one's job.

The loss of social support (unemployment, bereavement) is a clear symptom of crisis and presumably, at the same time, a criterion for evaluating a change process as negative. On the other hand, there is an apparent tendency to demand more social support in the case of greater strain (hence the higher rate of agreement in the case of "very negative" as compared to "rather negative"). The extent to which the responses on friends from childhood and youth (Q30_4) allow us to derive an impact of attachment behavior (cf. Bowlby 1988) on coping with particular change events will have to be clarified in further studies.

5.2.4   Resilience

In order to study the competence for "withstanding contradictions and lack of clarity, dealing with failures and disappointments, and using the latter as the point of departure for personal development," respondents were asked about how they deal with disruptions (Q26[23], Q27_1 to 4) and excessive demands (Q29_2, Q37_2), as well as their tolerance of ambiguity[24] (Q28_1). Developmental processes such as are involved in personal growth, are difficult to grasp in a quantitative cross-sectional study. Conclusions regarding the development of individual resilience can be derived from respondents' retrospective consideration of the emotional impact of change process (Q9_7[25], Q36).

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23 The four statements on setbacks in the process were presented in section 3.3 ("Degree of Burden"). Here some additional points: Agreement with the statement "Actually, it all went smoothly" (Q26_1; 34 percent for the total sample) rises to 48 percent among those who evaluate their change event as "very positive." Among those who qualify their change event as "very negative," it falls to three percent. Conversely, agreement with the statement "There were setbacks that made me doubt I had chosen the right path" (Q26_4; eight percent for the total sample) falls to three percent among those who evaluate their change event as "very positive." Among those who qualify their change event as "very negative," it rises to 42 percent.

24 The subject of tolerance of ambiguity is also covered under the competence field of practice (Q34, 5.4.1.).

25 The responses to "In comparison to 2012, I can today overcome difficulties in important situations" (Q9_7) were presented in section 4.2. ("Life Satisfaction and Personal Growth"). In general, an increase in the sense of coherence, in particular in the face of adverse circumstances, is to be regarded as a sign of high resilience.

The statement "Every path involves highs and lows and one has to be able to deal with both" (Q27_2) was one of four responses available to be chosen to the question "How did you motivate yourself, in order not to abandon the path of change? Which statement best describes your situation?" It was the response that was chosen most frequently: namely by 65 percent of participants. 19 percent opted for "I always only saw the goal and blocked out everything else" (Q27_1). The two other options, which can be regarded as variants of option 2 (highs and lows) with slightly different emphases, trail far behind with 8 percent for "I pursued the goal with such enthusiasm that I was easily able to put up with small defeats" (Q27_3) and 7 percent for "I learned from failures and made even greater efforts thereafter" (Q27_4).

Among those who evaluate their change event as "very positive," agreement with option 2 (highs and lows) falls somewhat; instead, a slightly higher number decided for options 1 (goal orientation: 22 percent) and 3 (enthusiasm: 10 percent). The share for option 4 (learning effect: 7 percent) is identical with the average for the total sample. Among those who qualify their change event as "very negative," the share deciding for option 2 (highs and lows) remains at the average level. There is marginally less agreement with option 1 (goal orientation: 16 percent) and, as would be expected, fewer votes for option 3 (enthusiasm: 4 percent). Instead, the share for option 4 (learning effect: 14 percent) climbs sharply.

If we take into account the results for the individual life events in considering the choice of option 2 (highs and lows), the only events that stand out are school/training/studies (54 percent), by virtue of a particularly low score, and bereavement (79 percent), by virtue of a particularly high score. The influence of increasing life experience is presumably to be seen here. Accordingly, three stages of growing agreement are to be observed among the age groups: the 18–29 year olds (55 percent), the 30–49 year olds (65 percent) and the 50–70 year olds (70 percent).

"Sometimes I just want to pull the covers over my head and be left alone" (Q29_2) – 58 percent of respondents agree with this statement (evaluation change event "very positive": 48 percent, "very negative": 85 percent). With respect to the individual life events, higher rates of agreement are to be found for bereavement (65 percent), unemployment (67 percent), accident/health-related episode and moving to a new home (both 68 percent), divorce/separation (70 percent) and school/training/studies (71 percent). Considerably below average agreement is found for marriage (50 percent), self-employment (41 percent) and, above all, retirement (33 percent). Among the age groups, three stages of decreasing agreement are to be observed: the 18–39 year olds (67 percent), the 40–59 year olds (56 percent) and the 60–70 year olds (40 percent).

Only 35 percent of respondents agree with the statement "If things go other than as planned, then I feel defeated and would like just to disappear" (Q37_2; evaluation change event "very positive": 30 percent, "very negative": 54 percent). If we consider the results for the individual life events, we notice lower rates of agreement for unemployment (30 percent), marriage (29 percent), self-employment (22 percent) and retirement (21 percent); above average values, on the other hand, for school/training/studies, moving to a new home and bereavement (all around 42 percent). With respect to age, a constant decrease from 47 percent for the 18–29 year olds to 20 percent for the 60–70 year olds is to be noted.

77 percent of the respondents are in agreement with the statement "Even if I'm not able to explain all the interconnections in my life, I still stay calm" (Q28_1) (evaluation change event "very positive": 83 percent; "very negative": 49 percent). If we take into account the results for the individual life events, a clear division becomes apparent. Above average rates of agreement are found for the events having a child and moving to a new home (both 80 percent), marriage and self-employment (both 83 percent) and, above all, retirement (87 percent); there are below average rates for school/training/studies (72 percent) and divorce/separation (68 percent), as well as unemployment and accident/health-related episode (both 66 percent). The only life events at the average are bereavement and relationship. A look at the age groups makes clear a continuous increase from 69 percent for the 18–29 year olds up to 86 percent for the 60–70 year olds.

Six responses were proposed to the question "Looking back now at your change event, what impact did it have on you?" Each response was supposed to be evaluated on a four point scale going from "not right" to "exactly right." In what follows, the rates of agreement to statements Q36_2 and 3 are presented.[26]

87 percent of respondents agree with the statement "It made me stronger" (Q36_2; evaluation change event "very positive": 96 percent, "very negative": 43 percent). Taking a look at the results for the individual life events, values even above the already high average are found for having a child (96 percent), marriage (95 percent) and relationship (93 percent). Below average rates of agreement are found for retirement (80 percent), divorce/separation and accident/health-related episode (both around 74 percent), unemployment (70 percent) and bereavement (67 percent). The different age groups all move at the level of the average, with the exception of the 50–59 year olds, who are two percentage points below it.

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26 The rates of agreement to the statement "It gave me wings" (Q36_1) largely coincide with those for Q36_2 – understandably, with an outlying extremely low value for the life event bereavement (25 percent). The rates of agreement to the statement "It gave me self-confidence" (Q36_5) largely coincide with those for Q36_3. Among those who qualify their change event as "very negative," the rate falls to 29 percent. Here too, the different age groups move at the level of the average, although with the exception of the 40–49 year olds, who are three percentage points above it, and the 50–59 year olds, who are three percentage points below it. The rates of agreement to the statements "It made me thoughtful" (Q36_4) and "It provoked regrets about missed opportunities" (Q36_6) will not be covered here.

The statement "It made me feel more secure" (Q36_3) was regarded as accurate by 80 percent of respondents (evaluation change event "very positive": 95 percent, "very negative": 20 percent). Here too, values above the already high average are found for the change events having a child, marriage and relationship (all 91 percent). Below average rates of agreement are found for retirement and moving to a new home (both 75 percent), divorce/separation (62 percent), unemployment (58 percent), accident/health-related episode (57 percent) and bereavement (54 percent). The different age groups move at the level of the average, with the exception of the 18–29 year olds and the 40–49 year olds, who are three percentage points below it.

Summary: More than half of the respondents have known phases in which they clearly feel overwhelmed ("would like to pull the covers over my head" Q29_2); only one-third, however, experience such situations as damaging for their self-image ("would like to disappear" Q37_2). Instead, we can observe a general tendency to use change events of all sorts for personal growth or to consider them in the context of an overall result ("made me stronger" Q36_2). That a higher level of insecurity ("made me feel more secure" Q36_3) does not automatically undermine the sense of one's own capacity for action can be seen from the difference between the rates of agreement to Q36_2 and Q36_3. Individuals' efforts to preserve and further develop their own strength and security is the only factor in this section that does not exhibit any evolution over the course of the life span. This indicates that what is involved here is a kind of general factor.

In all other areas – dealing with excessive demands, highs and lows, serenity – increasing life experience is observed to result in an optimization. This is why young people, above all, need support in developing their resilience. Each individual's life experience is, of course, marked by his or her most important change experiences – and here crucial differences are apparent. Change contexts that are marked by a high degree of self-determination (self-employment), a high degree of security thanks to social scripts (marriage, having a child) and burden-relief (retirement) evidently offer favorable conditions for coping with stress and the development of serenity and personal strength. Life events that are characterized by the loss of one's partner in life, one's health or one's job signify a greater burden and provide less orientation. They undermine the feeling of one's own efficacy and security and lead to a more acute feeling of being overwhelmed. It is important to note here that even difficult life events are not perceived as negative 100 percent of the time (divorce/separation: 38 percent negative, unemployment: 46 percent negative, bereavement: 80 percent negative): this is to say that the effects listed above under "very negative" are to be found for that segment of the persons concerned who have not (yet) succeeded in coping with the chosen change event or who are faced with irrecuperable losses.

80 percent of participants deal actively and consciously with obstacles and failures (sum of Q27_2, 3 and 4). They understand that "every path has highs and lows." Knowledge about one's own capacity for action even in difficult situations (Q27_2) and focusing on the goal pursued (Q27_1) are key stabilizing factors. If the change process runs "smoothly,"

the individual's own enthusiasm (Q27_3) acts, in addition, as a reinforcing moment. If the process is characterized, above all, by setbacks and obstacles, the persons concerned shift the focus to the learning effects to be achieved (Q27_4) or, in other words, the aspect of personal development and confirmation. In this way, three-fourths of respondents overall (and still half of those who evaluate their change event as "very negative") manage to preserve their serenity even in the face of uncertain expectations (Q28_1). This is to be regarded as an indication of their resilience.

5.3   Competence Field: Problem-Solving

A large part of the psychological literature on adaptive behavior focuses on the classical theme of problem-solving. In his overview of the subject, the German psychologist Joachim Funke provides the following summary: "As part of human action regulation, problem-solving thought is responsible for non-routine situations in which obstacles block the path to one's goal and effective action has to be reconsidered. In contrast to blind trial-and-error learning, problem-solving thought is a knowledge-based activity" (Funke 2003, 38; cf. Frensch & Funke 2014). Already in 1972, the pioneers of cognitive psychology Alan Newell and Herbert A. Simon distinguished three interacting stages in the process of problem-solving: (1) understanding – an internal representation of a problem area is produced by identifying initial situation, goal and the operators to be applied, (2) seeking – operators that serve to reach the goal are sought in the familiar action repertoire, (3) application – an action set is selected and applied and the individual verifies whether the desired success comes about.[27] In the present approach, the third phase is dealt with in the competence field of practice.

The IZZ model of change competence categorizes the abundance of individual competencies required for problem-solving into four overriding thematic fields: (1) diagnostic competence, (2) creativity and capacity for innovation, (3) decision-making ability and (4) planning ability. In what follows, we present an overview of the most important results for the individual thematic fields.

5.3.1   Diagnostic Competence

To study the competence for "identifying possible solutions and options for action," respondents were asked about their analytical ability in recognizing and selecting goals (Q31, Q33_1 and 3).

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27 Cf. Newell & Simon 1972. Similarly, Betsch, Funke & Plessner (2011) distinguish five stages of the problem-solving process: (1) problem identification, (2) goal and situation analysis, (3) plan creation, (4) plan execution, (5) evaluation of results; in the present IZZ approach, stages (4) and (5) are covered in the competence field of practice.

The statement "The path to the goal was clear to me right away, so that I did not think much about the path" (Q31_1) was one of four available responses to the question "What model did you follow in taking the path for your process of change?" It was the response that was chosen most frequently: namely, by 37 percent the participants. 26 percent opted for "I thought through different paths for reaching the goal and then decided for one of them based on my gut feeling" (Q31_2) and 17 percent for the variant "I thought through different paths for reaching the goal, considered possible risks, and then chose the most secure path" (Q31_3). 20 percent did largely without planning and instead depended on trial and error: "I did not think much about the path, proceeded step by step and followed my gut feeling" (Q31_4).

For those who evaluate their change event as "very positive," agreement with option 1 (goal clear right away) is considerably higher (47 percent) and, accordingly, from three to four percentage points lower for all the alternatives. If the change event is qualified as "very negative," the rate of agreement for option 1 (goal clear right away) falls dramatically (17 percent). Instead, there is considerably greater agreement with option 3 (weighing-up goals, security: 22 percent) and especially with option 4 (trial and error: 33 percent). The share for option 2 (weighing-up goals, gut feeling: 27 percent) remains the same as in the total sample.

If we consider the results for the individual life events for the choice of option 1 (goal clear right away), accident/health-related episode (26 percent), unemployment (20 percent) divorce/separation (17 percent) and, above all, bereavement (5 percent) stand out by virtue of particularly low values; self-employment (41 percent), having a child (44 percent) and marriage (45 percent), on the other hand, by virtue of particularly high values. There are not marked differences among the age groups – which, in the context of the present analysis, is an unusual finding.

Considering the individual life events for the choice of option 4 (trial and error) results in an inversion of the picture: unemployment (22 percent), accident/health-related episode and divorce/separation (both 24 percent) and especially bereavement (57 percent) stand out by virtue of above average values; and having a child and marriage (both 15 percent), by virtue of below average values. Self-employment (19 percent) remains in the intermediate range for this statement; retirement (11 percent) attains the lowest rate of agreement. With respect to age groups, two stages of increasing agreement are to be observed: the 18–49 year olds (at 17 percent) and the 50–70 year olds (25 percent).

For the two options that assume the weighing-up of different goals, the life event unemployment attains above average values (option 2, weighing-up goals, gut feeling: 34 percent; option 3, weighing-up goals, security: 24 percent). Relationship (33 percent) and moving to a new home (34 percent) attain above average values for option 2 (weighing-up goals, gut feeling); agreement remains considerably below average in the case of retirement (15 percent). Above-average values for option 3 (weighing-up goals, security) are to be found in the cases of accident/health-related episode (27 percent), divorce/separation and retirement (both 35 percent); marriage and moving to a new home (both

around 12 percent) remain considerably below the average. With respect to age groups, the picture for both options shows little differentiation with values around the average.

80 percent of respondents agree with the statement, "When problems and disruptions arise I'm usually quick to identify the right path to a solution" (Q33_1; evaluation change event "very positive": 84 percent, "very negative": 65 percent). Two groups are apparent with regard to the individual life events. Marriage, self-employment and moving to a new home (all around 83 percent), having a child (88 percent) and retirement (90 percent) are above the already high average. Below average rates of agreement are found for relationship (75 percent), unemployment (74 percent), divorce/separation and accident/health-related episode (both 72 percent), as well as school/training/studies (70 percent). The only life event at the average is bereavement. Among the age groups, a constant increase is to be observed from 70 percent for the 18–29 year olds up to 88 percent for the 60–70 year olds.

There is also 80 percent agreement to the statement (Q33_2) "I often see several different paths that lead to the goal" (evaluation change event "very positive": 82 percent, "very negative": 65 percent). Taking into account the life events, marriage and moving to a new home (both 83 percent), retirement (85 percent), self-employment (87 percent) and bereavement (88 percent) are above the already high average. Below average rates of agreement are found for accident/health-related episode (72 percent) and unemployment (66 percent). The life events having a child, relationship, divorce/separation and school/training/studies are around the average. When broken down by age groups, an increase from 75 percent for the 18–29 year olds up to 85 percent for the 60–70 year olds is to be noted. The continuous rise is only interrupted by a drop to 80 percent for the 50–59 year olds.

"When several paths lead to the goal, I quickly recognize the one that is most likely to be feasible" (Q33_3) – 78 percent of respondents agree with this statement (evaluation change event "very positive": 84 percent, "very negative": 59 percent). If we take into account the results for the individual life events, having a child, marriage and retirement (all 82 percent) are above the average. Below average rates of agreement are found for unemployment (66 percent), divorce/separation (67 percent) and accident/health-related episode (69 percent). With respect to age groups, an increase is to be observed from 72 percent for the 18–39 year olds, by way of 81 percent for the 40–59 year olds, up to 84 percent for the 60–70 year olds.

Summary: A clear picture is apparent, across all the questions, for the ability to identify possible solutions and options for action: respondents are confident that they have a high degree of competence and this self-confidence rises slightly along with life experience. Differing scopes for shaping circumstances among the different life events stand out as an additional influencing factor.

Accordingly, the assessment of respondents' own diagnostic competence under Q_33 (1. troubleshooting, 2. goal attainment options, 3. feasibility) is different for the various change events: (1) Below average rates of agreement for all three questions are found in the cases

of accident/health-related episode and unemployment. For troubleshooting and feasibility, divorce/separation also forms part of this group. (2) Above average rates of agreement are found for all three questions in the cases of having a child, marriage and retirement. In his contribution, Stephan Duttenhöfer notes that socially pre-shaped solution models exist for this second group, whereas in the case of the loss of health, a relationship or a job, individual strategies have to be developed (cf. Duttenhöfer 2019, the section titled "How Do Changes Arise?"). This means that the experience of an individual's own diagnostic competence takes place in a social context of proposed solutions – however detailed or viable they may be – or the lack thereof.

This situation is also reflected in the responses to Q_31, which, at the same time, place the emphasis elsewhere. For option 1 (goal clear right away), accident/health-related episode, unemployment, divorce/separation and bereavement all attain rates of agreement that are ten to 30 percentage points below the average. This suggests that in these cases, there are no social scripts available to be called up. Moreover, in the case of the experience of losing a family member, there is ultimately no "solution" to the "problem" at all. This is why this life experience likewise does not produce any tangible response behavior for troubleshooting, goal achievement and feasibility (Q_33). Here, the persons concerned evidently shift the focus to emotional coping strategies and remaining options for action. Given this background, the choice in favor of option 4 (trial and error) also appears plausible. When the persons concerned do not have any goal in mind, the decision to "proceed step by step" offers a solution for preserving one's own capacity for action. To this extent, the four proposed options for taking the path of change represent solutions on the level of action, which evidently enter into the evaluation of the individual's own ability to find possible solutions and options for action – without having here already to address "external" problems of everyday life or the social environment.

In the results for Q_33, a fundamental search behavior for exploring problem areas is apparent, and this behavior appears not to depend much on increasing life experience. If the possibility of deciding for option 1 (goal clear right away) is seen, the interest in alternatives falls and the process is positively evaluated. If option 1 is eliminated, the change process is experienced as more difficult and is more negatively evaluated. Someone who has the problem of having to choose between different goals, can decide for either option 2 (weighing-up goals, gut feeling) or option 3 (weighing-up goals, security). The context of different life events evidently plays a role in this choice: relationship and moving to a new home allow more for trust in one's own gut feeling; accident/health-related episode and divorce/separation trigger more a need for considerations of security. Persons who are unemployed move in both fields. For those who initially are not able to develop any goal perspective, option 4 (trial and error) remains. In this way, at least short-term next steps are made possible. The overriding action objective, under which all four options are arrayed, is clearly to avoid the threat of paralysis due to a lack of orientation or decision-making problems and, instead, to set in motion a search behavior, which decides for solutions or at least potentially moves toward them.

5.3.2   Creativity and Capacity for Innovation

To study the competence for "changing perspective out of a sense of inner independence and curiosity and finding new solutions," respondents were asked about transference capacity and eagerness to experiment (Q39_9 and 10). The subjects of risk aversion and tolerance of ambiguity (Q34_2, 3, 4 and 5) are covered under the competence field of practice (5.4.1. Flexibility).

Almost all respondents (91 percent) agree with the statement (Q39_9) "The best way to find solutions is by looking outside of the box" (evaluation change event "very positive": 93 percent, "very negative": 86 percent). Among the individual life events, having a child (92 percent), moving to a new home (94 percent) and self-employment (96 percent) obtain above average values. Below average rates of agreement are found for divorce/separation (89 percent) and unemployment (85 percent). With respect to age groups, a constant increase from 85 percent for the 18–29 year olds up to 96 percent for the 60–70 year olds is to be observed.

78 percent of respondents agree with the statement "The solution to a problem often occurs to me when I am actually dealing with something totally different" (Q39_10; evaluation change event "very positive": 80 percent, "very negative": 72 percent). Among the individual life events, having a child (80 percent), self-employment (83 percent), relationship (85 percent), bereavement and retirement (both 86 percent) are above the average. Below average rates of agreement are to be found for moving to a new home (75 percent), accident/health-related episode (73 percent), school/training/studies and unemployment (both 70 percent). With respect to age groups, an increase from 74 percent for the 18–29 year olds up to 80 percent for the 50–70 year olds is to be observed.

Summary: In the case of both questions, the very high level of agreement and the limited differences across life events, occupational and age groups do not permit many conclusions to be drawn – only that the majority of respondents are familiar with the experience of transference and the spontaneous finding of solutions. In addition, Q39_10 speaks to the reliance on intuition. The two top performers are striking. But an explanation could be provided by the search behavior (Q31) discussed in the previous section. The life event bereavement attains high values for the choice of option 4 (trial and error), relationship for option 2 (weighing-up goals, gut feeling). Both are obviously good bases for intuitive solutions.

5.3.3   Decision-Making Ability

To study the competence for "choosing goals and possible solutions and connecting them with one's own motivation, recognizing the need for change and then also bringing it about," respondents were asked about their decision-making ability in the face of disruptions (Q32_3) and several alternatives (Q34_1), as well as their ability to change decisions (Q34_6).

61 percent of respondents reject ("not so right," "not right") the following statement (Q32_3): "Everyday life and change were in the way of each another, and it was always difficult for me to take a clear decision for change" (evaluation change event "very positive": 68 percent, "very negative": 36 percent). If we consider the results for the individual life events, appreciably below average rates of agreement are found for marriage (32 percent), having a child (31 percent), self-employment (25 percent) and, above all, retirement (17 percent). Appreciably above average rates of agreement are found for divorce/separation (52 percent), accident/health-related episode (54 percent), bereavement and unemployment (both 56 percent). Whereas 51 percent of the 18–29 year olds agree with the statement, among the 60–70 year olds, only 26 percent do.

54 percent of respondents reject the statement "If there are several alternatives, I often find it hard to choose a solution" (Q34; evaluation change event "very positive": 60 percent, "very negative": 41 percent). Differentiating by life events reveals considerable differences: appreciably below average rates of agreement for having a child (41 percent), marriage and self-employment (both 38 percent). Appreciably above average rates of agreement are found for accident/health-related episode (49 percent), relationship (51 percent), moving to a new home (53 percent), school/training/studies, divorce/separation and bereavement (all 54 percent). With respect to age groups, a constant decrease is to be observed from 58 percent for the 18–29 year olds to 34 percent for the 60–70 year olds.

"Letting go is difficult for me" (Q34_6) – 45 percent of the respondents agree with this ("somewhat right," "exactly right"; evaluation change event "very positive": 50 percent, "very negative": 39 percent). When looking at the individual life events, above average rates of agreement are to be found for school/training/studies (50 percent), self-employment (53 percent) and retirement (59 percent). Appreciably below average rates of agreement are found for unemployment (37 percent), bereavement (35 percent) and divorce/separation (33 percent). The age groups move around the average.

Summary: In a shifting of emphasis vis-à-vis the diagnostic competence addressed in 5.3.1., what is at stake in decision-making ability is appropriating the choice made into one's own action program. The "negative" formulation of the questions presumably had a strong influence on the responses given: it is evidently not so easy to reject "behavioral weaknesses." Conscientious participants are tempted to ask themselves if they have to admit to them. In contrast, agreeing to strategies that are regarded as appropriate and successful appears to be less problematic. Obtaining information about the ability to change decisions (Q34_6) proved to be especially difficult. Agreement and rejection balance out; no influence of increasing life experience is apparent. On the one hand, this could be because abandoning goal pursuit is more difficult to comprehend and to situate than changing goals or strategies; on the other hand, it is also possible that the participants were simply confused about the formulation of the question.

A clearer response profile was exhibited by decision behavior when faced by several alternatives (Q34_1) and, above all, decision-making ability when confronted by disrup-

tions (Q32_3). Entirely in keeping with the results on diagnostic competence (Q33), clear effects of increasing life experience and different life events are apparent. Here too, the loss scenarios divorce/separation, accident/health-related episode, bereavement and unemployment have a more negative overall result. Decision-making problems are a marker for change events that are experienced as negative.

5.3.4 Planning Ability

To study the competence for "setting goals, defining intermediate steps and necessary resources, and finding concrete action strategies," respondents were asked about how they deal with plannability (Q32_4), intermediate objectives (Q32_4) and required resources (Q33_5).

"Life is by and large plannable" (Q32_4) – 60 percent of respondents agree with this (evaluation change event "very positive": 69 percent, "very negative": 29 percent). With regard to the results for the individual life events, the following picture is apparent: above average rates of agreement are attained by the events having a child (68 percent), moving to a new home (69 percent), marriage (70 percent) and retirement (76 percent); appreciably below average rates are found for unemployment (48 percent), accident/ health-related episode and bereavement (both 45 percent), and divorce/separation (40 percent). Among the age groups, a constant increase from 55 percent for the 18–29 year olds up to 67 percent for the 60–70 year olds is to be noted. Only the 50–59 year olds (59 percent) attain lower rates of agreement than the group that comes after them in terms of age.

73 percent of respondents agree with the statement "It was important to me that I had intermediate objectives, which gave me a sense of security for the remaining path" (Q32_1). In this case, the evaluation of the change event displays almost no impact. If we have a look at the life events, relationship (78 percent), accident/health-related episode and bereavement (both 80 percent) are above the average. Below average rates of agreement are to be noted for school/training/studies (69 percent), self-employment (63 percent) and moving to a new home (58 percent). Among 18–29 year olds, the rate of agreement is 65 percent; it rises to 78 percent among the 60–70 year olds.

The following statement goes in a similar direction: "If I would like to reach a goal, I establish reachable intermediate steps" (Q33_4) – 79 percent of respondents agree here. Here too, the assessment of the change events exhibits little impact ("very positive": 80 percent; "very negative": 71 percent). If we take into account the results for the individual life events, marriage and bereavement (both 84 percent) are above the average, as is retirement (89 percent). Below average rates of agreement are found for accident/health-related episode (77 percent), relationship and self-employment (both 76 percent), moving to a new home (75 percent) and school/training/studies (71 percent). With respect to the

age groups, three stages of increasing agreement are to be observed: the 18–39 year olds (71 percent), the 40–59 year olds (81-83 percent) and the 60–70 year olds (86 percent).

88 percent of respondents agree with the statement "If I want to reach a goal, I think about what abilities and support I need to reach it" (Q33_5). Yet again, the evaluation of the change events exhibits hardly any impact (89 percent in the case of a "very positive" evaluation, 83 percent in the case of a "very negative" one). There are slightly above average rates of agreement for the life events self-employment (89 percent), having a child and bereavement (both 90 percent), and marriage, school/training/studies and retirement (all 92 percent); below average ones for unemployment (85 percent), accident/health-related episode (84 percent), relationship (80 percent) and divorce/separation (78 percent). With respect to age groups, an increase from 83 percent for the 18–29 year olds up to 91 percent for the 50–59 year olds is to be observed. The 60–70 year olds (89 percent) fall by two percentage points in relation to this highpoint.

Summary: The ability to set goals and to define appropriate intermediate steps has a special status in the analysis so far, since hardly any effects of different life events and their evaluation are apparent. The influence of increasing life experience, at ten to 15 percentage points, is also moderate. It seems legitimate, then, to take these responses as indication of a globally operative factor: All of the respondents move within a field of action that stretched between goals and intermediate steps. The question concerning plannability (Q32_4), on the other hand, more strongly affects the competence field of orientation and displays the corresponding effects: above all, in the clear impact of negatively evaluated change events. Here too, the influence of life experience is relatively limited: this is to say that the perception of fundamental plannability is less tied to age than to the concrete change experiences.

5.4   Competence Field: Practice

Found solutions have to prove themselves in practice. The same applies for the individual's own orientation and motivation. The circle of the competencies required for successful change behavior is only brought to a close when what has been provided by the other three competence fields gets verified and adapted in the course of action. This is why the present approach emphasizes the significance of a reality check by establishing a corresponding competence field. Implementation is the decisive part both in actual problem-solving and in personal development. Planning, goals, wishes and impulses for action must be sufficiently sturdy and stable to facilitate consistent action. But they must also be sufficiently flexible and sensitive to the environment to permit the action to be successful. It is precisely the checking of conceptions and strategies against reality that creates potential for learning experiences and personal growth.

The IZZ model categorizes the abundance of individual competencies required for practicability into four overriding thematic fields: (1) Flexibility and Willingness to

Compromise, (2) Communicative Ability, (3) Willingness to Learn, and (4) Ability to Implement. In what follows, we present an overview of the most important results for the individual thematic fields.

5.4.1   Flexibility and Willingness to Compromise

To study the competence for "undertaking corrections and adjustments, appreciating intermediate successes, and avoiding perfectionism," respondents were asked about accommodative flexibility and tolerance of ambiguity (Q34_2, 3, 4, and 5), changing of perspective (Q38_1), goal fixation and perfectionism (Q38_2, 3 and 4[28]).

43 percent of respondents agree with the statement "I love new situations in which I'm not 100 percent sure what is going to happen" (Q34_2; evaluation change event "very positive": 48 percent, "very negative": 26 percent). If we focus on the results for the individual life events, the events having a child, relationship, moving to a new home (all around 46 percent), self-employment (50 percent) and retirement (53 percent) are all above the average. Appreciably below average rates of agreement are found for school/training/studies (39 percent), accident/health-related episode (34 percent), divorce/separation (33 percent) and bereavement (32 percent). With respect to the age groups, there is an interesting distribution: a slight increase can be observed from the 18–29 year olds (41 percent) up to the 40–49 year olds (48 percent). The two oldest groups, the 50–59 year olds and the 60–70 year olds, then fall again to 41 percent.

As compared to Q34_2, the statement "I enjoy looking for solutions in confusing situations" (Q34_3) has considerably higher rates of agreement. 62 percent of respondents agree here (evaluation change event "very positive": 69 percent, "very negative": 39 percent). The life events having a child and moving to a new home (both 66 percent), marriage and retirement (both 68 percent), and self-employment (72 percent) attain above average rates of agreement. Below average rates of agreement are found for school/training/studies (59 percent), accident/health-related episode (52 percent), bereavement (44 percent) and divorce/separation (42 percent). With respect to age, two groups are apparent: the 18–39 year olds (55-57 percent) and the 40–70 year olds (63-67 percent).

"It upsets me when I get into a situation where I don't know what to expect" (Q34_4) – almost half of the respondents agree with this negatively formulated statement: namely, 48 percent (evaluation change event "very positive": 43 percent, "very negative": 65 percent). If we compare the results for the individual life events, we find appreciably below average rates of agreement – hence, an increased keeping of composure – for retirement (40 percent) and self-employment (37 percent). Values considerably above the average

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28   43 percent of respondents agree with the statement "for me the only thing that counts is the goal, not the path" (Q38_4). But the response behavior does not permit much of a pattern to be perceived. This suggests that the paradoxical formulation of the question created difficulties for the participants. Hence, the corresponding results are not presented or used here.

are apparent for moving to a new home (53 percent), divorce/separation (55 percent) and bereavement (58 percent). Interestingly, unemployment (50 percent), accident/health-related episode and school/training/studies (both 51 percent) are only two to three percentage points above the average. With respect to the age groups, a constant decrease is to be observed from the 18–29 year olds and the 30–39 year olds (55 and 57 percent respectively) to the 60–70 year olds (37 percent).

There is large agreement with the statement "Routine and proven solutions give me a sense of security" (Q34_5): 87 percent. The evaluation of the life events exhibits hardly any impact; the highest value is attained by those who evaluate their change event as "somewhat negative": 89 percent.[29] If we take into account the results for the individual life events, above average rates of agreement are found for moving to a new home, retirement and accident/health-related episode (all around 91 percent). Values below the average are apparent for school/training/studies and divorce/separation (both 84 percent), as well as self-employment (81 percent). With respect to age groups, a constant increase from 80 percent for the 18–29 year olds up to 90 percent for the 60–70 year olds is to be observed.

"If there seems to be a risk of failure, I look at the problem from a different perspective" (Q38_1) – 83 percent of respondents agree with this statement (evaluation change event "very positive": 87 percent, "very negative": 75 percent). If we focus on the individual life events, two groups are found. Self-employment and marriage (both 86 percent), having a child (88 percent) and retirement (94 percent) are above the average. Below average rates of agreement are found for relationship and moving to a new home (both 80 percent), divorce/separation (79 percent), school/training/studies (76 percent), unemployment (75 percent) and accident/health-related episode (74 percent). Bereavement is the only life event that displays results around the average. Among the age groups, a constant increase from 75 percent for the 18–29 year olds up to 91 percent for the 60–70 year olds is to be observed.

"If the goal is not attainable with certainty, then I don't even start" (Q38_2) – only 32 percent of respondents agree with this. The evaluation of the change event has little impact in this case ("very positive": 29 percent, "very negative": 39 percent). If we consider the individual life events, relationship and having a child (30 percent), self-employment (29 percent), bereavement (22 percent), and retirement (16 percent) are below the average. Above average rates of agreement are found for moving to a new home (35 percent). divorce/separation (39 percent), unemployment (42 percent) and school/training/studies (44 percent). With respect to age groups, a constant decrease from 38 percent for the 18–29 year olds to 22 percent for the 60–70 year olds is to be observed.

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29   This group involves 225 people or twelve percent of the respondents. As compared to others, the group is particularly affected by the themes accident/health-related episode (24 percent) and bereavement (25 percent).

There is even less agreement with the statement "Anyone who adjusts their goals has already lost the game, as far as I'm concerned" (Q38_3): 23 percent. Here too, the evaluation of the change event exhibits little impact, but there is one particularity: the highest rate of agreement is found for those who evaluate their chosen event as "positive" (25 percent, 24 percent for "very positive"); the lowest rate, for those who qualify it as "somewhat negative" (18 percent, 21 percent for "very negative"). With respect to the results for the individual life events, retirement (21 percent), moving to a new home (20 percent), school/training/studies (19 percent), self-employment (18 percent), divorce/separation (17 percent) and, especially, bereavement (11 percent) are below the average. Above average rates of agreement are found only for relationship (28 percent). With regard to age groups, a constant decrease is apparent from 32 percent for the 18–29 year olds to 16 percent for the 60–70 year olds.

Summary: In the case of the wish for "routine and proven solutions" (Q34_5), there is a very high level of agreement, hardly any impact of the evaluation of the change event and only a moderate rise with increasing age. The response behavior here thus appears to indicate a globally operative factor. On the other hand, the ability to keep one's composure in the face of the unexpected (Q34_4) attains a considerable increase in the older age groups. Half of the respondents are familiar with the experience or the fear of being overwhelmed by such situations. Negatively evaluated life events are associated with less serenity and, in the case of the following two points (Q34_2 and 3), with less openness. Despite the search for routine and the fear of the unexpected, the participants are, on average, surprisingly open vis-à-vis new situations: above all, when it is a matter of finding solutions (Q34_3). Completely open situations represent a greater challenge (Q34). Here, the agreement falls considerably. In both cases, there is no apparent effect of more life experience; exploration and tolerance of ambiguity appear to be drivers more for the 18–39 year olds.

A rigid goal fixation and perfectionism (Q38_2 and 3), which as fear of failure can inhibit action, also exhibit hardly any impact of the evaluation of the change event and only a moderate decline with increasing age. Agreement is, however, limited here (23 and 32 percent, respectively). In contrast, moderate effects of positively and negatively evaluated life events, as well as a considerable rise with increasing life experience, are apparent for the ability "to see things from a different perspective" (Q38_1). Accordingly, students as the youngest group do not do so well, whereas the retirees, as the oldest group, and the self-employed, as persons who are able to act relatively autonomously, attain the highest values. At over 80 percent agreement for the total sample, this core competence of flexibility attains a clear majority.

5.4.2 Communicative Ability

To study the competence for "getting others involved, in order to tackle projects together and to obtain feedback and support," respondents were asked about social competence, empathy, power to motivate and conflict management (Q39_1, 3 and 4).

"I have a good sense of how friends and colleagues are feeling" (Q39_1) – 84 percent of respondents agree with this (evaluation change event "very positive": 88 percent, "very negative": 78 percent). If we take into account the results for the individual life events, having a child and marriage (both 87 percent) are to be found above a strong middle range (relationship, moving to a new home, bereavement, retirement). Below average rates of agreement are found for self-employment (81 percent), school/training/studies (80 percent), divorce/separation (77 percent), accident/health-related episode (74 percent) and unemployment (72 percent). With respect to age, two groups are apparent with little difference between them: the 18–49 year olds (around 83 percent) and the 50–70 year olds (around 86 percent).

80 percent of respondents agree with the statement "I can get other people excited about a project that I myself believe in" (Q39_3; evaluation change event "very positive": 84 percent, "very negative": 66 percent). If we consider the results for the individual life events, two groups are to be found. Self-employment and having a child (both 84 percent), divorce/separation and marriage (both 87 percent) are above the average. Below average rates of agreement are found for school/training/studies (73 percent), accident/health-related episode (69 percent) and unemployment (62 percent). Among the age groups, a slight constant increase from 74 percent for the 18–29 year olds up to 83 percent for the 60–70 year olds is to be observed.

74 percent of respondents agree with the following statement (Q39_4): "Good solutions often occur to me for how a dispute between two persons or parties can be resolved" (evaluation change event "very positive": 76 percent, "very negative": 67 percent). Among the individual life events, above a strong middle range (having a child, self-employment, marriage, divorce/separation), there are to be found accident/health-related episode and relationship (both 78 percent), as well as retirement (81 percent). Below average rates of agreement are found for bereavement and school/training/studies (both 70 percent), moving to a new home (68 percent) and unemployment (63 percent). 73 percent of the 18–29 year olds agree; this number rises to 80 percent among the 60–70 year olds. The 30–39 year olds (67 percent) exhibit the lowest value and do not fit in this progression.

Summary: There is very high agreement for the question concerning one's own empathy (39_1), hardly any impact of the evaluation of the change event and only a very minimal increase among the older age groups. This indicates a globally operative factor. Even if it is legitimate to have doubts about whether "putting-oneself-in-the-other's-place" really succeeds as well as claimed, the responses show how important an orientation toward others is for the participants and that this essentially takes place intuitively. Understandably, the ability to transmit one's own motivation to others (Q39_3) is – with a similarly high level of agreement – more dependent on the individual's own stabilization competence. In addition to empathy, the ability of resolve conflicts (Q39_4) also requires problem-solving capacity and follow-through. Thus, the level of agreement falls somewhat. In both cases,

those persons are at a slight disadvantage who experience their change process as negative. Increasing life experience, on the other hand, has a slightly positive effect.

5.4.3   Willingness to Learn

To study the competence for "ongoing feedback and self-criticism, as well as repeated testing of realism, in order further to develop problem-solving strategies and one's own competencies," respondents were asked about ability to accept criticism (Q25_1[30], Q39_6), error correction (Q39_8), feedback (Q39_2 and 5) and verification (Q39_7).

Only 37 percent of respondents agree with the statement "When others criticize me it feels like a defeat" (Q39_6; evaluation change event "very positive": 32 percent, "very negative": 49 percent). If we look at the individual life events, two groups are found. Self-employment and having a child (both 34 percent), marriage (31 percent), bereavement (27 percent) and retirement (20 percent) are below the average. Above average rates of agreement are found for relationship (40 percent), accident/health-related episode (41 percent), unemployment (42 percent), divorce/separation (43 percent) and school/training/studies (48 percent). With respect to age groups, a constant decrease from 52 percent for the 18–29 year olds to 21 percent for the 60–70 year olds is to be observed.

Likewise, only 37 percent of respondents agree with the statement "I find it hard to correct decisions that prove to be mistakes" (Q39_8; evaluation change event "very positive": 33 percent, "very negative": 46 percent). If we take into account the results for the individual life events, two groups are to be found. The rates of agreement to this negative statement are below average for accident/health-related episode and having a child (both 34 percent), marriage (31 percent), self-employment (27 percent) and retirement (14 percent). Above average rates of agreement are found for bereavement (38 percent), moving to a new home (40 percent), relationship (45 percent), divorce/separation (49 percent) and, especially, school/training/studies (51 percent). With regard to age, a constant decrease from 50 percent for the 18–29 year olds to 25 percent for the 50–70 year olds is to be observed.

"I use the experiences of friends and acquaintances, to make better decisions" (Q39_2) – 74 percent of respondents agree with this statement (evaluation change event "very positive": 76 percent, "very negative: 68 percent). If we consider the individual life events, relationship, moving to a new home and school/training/studies (all 76 percent) are slightly above the average. Below average rates of agreement are found for bereavement (71 percent), divorce/separation (70 percent), accident/health-related episode (65 percent) and unemployment (64 percent). With respect to age groups, a decrease is to be observed from 80 percent for the 30–39 year olds to 66 percent for the 60–70 year olds. The 18–29 year olds (75 percent) exhibit the same value as the 40–49 year olds and do not fit in this progression.

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30   The ability to accept criticism was already examined in section 5.1.3. ("Self-Reflexivity"). The results for Q25_1 largely coincide with those for Q39_1.

A clear majority of 85 percent agree with the statement (Q39_5) "I can readily accept tips from others and use them to achieve my goals" (evaluation change event "very positive": 87 percent, "very negative": 82 percent). If we look at the individual life events, above average values become apparent for self-employment (87 percent), having a child, marriage and bereavement (all 88 percent), and also retirement (91 percent); and below average rates of agreement, for unemployment (82 percent), relationship (78 percent), divorce/separation (76 percent) and accident/health-related episode (75 percent). Among the age groups, there is a constant increase: from 79 percent for the 18–29 year olds up to 88 percent for the 60–70 year olds.

83 percent of respondents agree with the statement "When changes are underway, I check again and again if I'm on the right path" (Q39_7; evaluation change event "very positive": 85 percent, "very negative": 74 percent). The life events having a child and accident/health-related episode (both 85 percent), school/training/studies (87 percent), bereavement (88 percent) and retirement (89 percent) correlate with above average rates of agreement. Below average rates of agreement are found for self-employment (79 percent), relationship (75 percent) and unemployment (72 percent). With respect to age groups, a continuous increase is to be observed: from 74 percent for the 18–29 year olds up to 87 percent for the 60–70 year olds.

Summary: For all the statements on learning ability, the life events and their evaluation exhibit hardly any marked differences, even if tendencies toward above average or below average agreement can still be recognized. This could be an indication that learning experiences are possible in all different contexts.[31]

A lack of the ability to accept criticism (Q39_6) and error correction (Q39_8) – like perfectionism and goal fixation (cf. 5.4.1) – obtain little agreement and exhibit parallel response behavior. Increasing life experience exercises greater influence than the life event. The response behavior for one's own ability to use communication for goal attainment (Q39_5) and decision-making (Q39_2) are also partly parallel. With respect to age groups, different profiles are apparent. A slight increase with rising life experience can be detected for goal attainment. There is no coherent progression for decision-making. Instead, the importance of this competence appears to be more or less pronounced in different stages of life: the oldest group depends less on friends' advice, whereas the 30–39 year olds find it particularly valuable. Both abilities obtain a high level of agreement, although decision-making is a full ten percentage points below goal attainment. It is possible that a decision is, after all, regarded more as an act that individuals have ultimately to undertake themselves. The willingness to undertake verification during the process (Q39_7) also obtains a high level of agreement. Here too, the life events do not exhibit any great difference; whereas

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31 See too the remarks on "Shift of Focus from Problem to Solution" and "Shift of Focus to Proving Oneself and Personal Growth" in section 3.6.

a slight increase of this core competence of learning ability can be observed with rising life experience.

5.4.4   Ability to Implement

To study the competence for "remaining goal-oriented and capable of action in light of uncertainty, obstacles and surprises," respondents were asked about problem-solving orientation, ability to improvise, proactive and exploratory action (Q37_1, 2[32], 3, 4 and 5).

"If things go other than as planned, then I try actively to clarify what is going on (Q37_1) – 85 percent of respondents agree with this statement (evaluation change event "very positive": 89 percent, "very negative": 75 percent). With regard to the individual life events, two groups coalesce. Self-employment and divorce/separation (both 88 percent), having a child (90 percent) and marriage (92 percent) are above the average. Below average rates of agreement are found for relationship (83 percent), school/training/studies and bereavement (both 82 percent), moving to a new home and unemployment (both 80 percent), and also accident/health-related episode (79 percent). When arranged by age, three groups are found: the 18–29 year olds (76 percent), the 30–49 year olds (84 percent) and the 50–70 year olds (92 percent).

81 percent of respondents agree with the statement "If a plan B is suddenly required, I quickly know what I need and where to get support" (Q37_3; evaluation change event "very positive": 86 percent, "very negative": 59 percent). If we take into account the results for the individual life events, only marriage and having a child (both around 86 percent) are above the average. Below average rates of agreement are found for bereavement and retirement (both 78 percent), school/training/studies (75 percent), unemployment (71 percent) and accident/health-related episode (69 percent). With respect to age groups, a slight constant increase, from 74 percent for the 18–29 year olds up to 86 percent for the 60–70 year olds, is to be observed.

There is 69 percent agreement with the statement (Q37_4) "If I want to attain a goal, then I focus on it completely and everything else recedes into the background for a certain time" (evaluation change event "very positive": 70 percent, "very negative": 59 percent). If we take into account the results for the individual life events, the resulting picture shows little differentiation. Only moving to a new home (76 percent) and retirement (77 percent) are appreciably above the average; only bereavement (60 percent), appreciably below it. The picture with respect to age groups is inconsistent and displays little differentiation.

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32   The question of being overwhelmed in such a situation (Q37_2 "I feel defeated and would like just to disappear") has already been covered under 5.2.4. ("Resilience").

The statement (Q37_5) "One learns by taking action: sometimes the only option is to give a try and to see if it brings you closer to your goal" obtains a very high level of agreement of 89 percent (evaluation change event "very positive": 91 percent, "very negative": 85 percent). If we look at the results for the individual life events, marriage (92 percent), moving to a new home (95 percent) and retirement (97 percent) are situated above a broad middle range (having a child, relationship, divorce/separation, self-employment, school/training/studies, bereavement). Below average rates of agreement are to be noted only for accident/health-related episode (82 percent) and unemployment (80 percent). With regard to age, the picture shows little differentiation with variations of around 5 percent.

Summary: Like in the previous section, for the basic attitude of striving for clarification in the case of disruptions (Q37_1), the by now familiar patterns of positively and negatively evaluated life events, of occupational groups with greater or lesser security or, respectively, scope for shaping circumstances, and of optimizing effects due to advancing life experience are all to be observed – and again they are to be observed within a conspicuously narrow range of differentiation. The influences are noticeable, but, nonetheless, not decisive.

This also applies, in principle, for the question concerning the implementation of alternative solutions, when a change of strategy is required (Q37_3). In this case, however, the evaluation of the change event becomes massively apparent – and indeed plays a far stronger role than the different life events themselves. It would be worth testing whether the barrier to implementation represented by the lack of a viable alternative when a disruption occurs is a strong marker for the process in question being experienced as negative.

As compared to the other questions, agreement with the statement that action is determined by a very far-reaching focus on the goal is relatively reserved (69 percent). We saw in the section on diagnostic competence (5.3.1) that change processes with unambiguous goals were perceived as positive; similarly, under Q37_4, the lack of a goal orientation points to a negative experience of change. However, only two-fifths of respondents report "smooth going"; the others have to resort to the weighing-up of goals or trial and error (5.3.1.). Accordingly, the pragmatic modus operandi "Sometimes the only option is to give a try and to see if it brings you closer to your goal" obtains almost complete agreement – agreement that is, moreover, largely independent of life events, their evaluation, occupational groups and age groups. The core competence of the ability to implement – "one learns by taking action" – appears to point to a universally shared consensus.

6   Discussion of the Results, Context and Outlook

The mission of the Change Study was to analyze the willingness to change of the German population and to acquire knowledge about how change is learned, lived and implemented. The target group succeeds in this far beyond what could have been expected – namely, in

the area of personal life management, which respondents themselves circumscribed. In their own retrospective consideration of events, the respondents prove to be successful, resilient and highly competent in dealing with change processes and open situations that demand clarification, pragmatism and courage. The experiences and abilities acquired here are potentially transferable to other life situations and challenges. Whether and to what extent those concerned actually do this, however, will be investigated by the IZZ in studies that follow up on the foundational research, in order to develop practically applicable concepts of how people can be supported in this process of transference.

6.1   Results and Findings

Change is the ultimate challenge. Changes are all around us. It is of vital importance for human beings (like for all living beings) to find suitable responses to changes. Hence, they are permanently involved in perceiving, analyzing and anticipating changes in themselves and around them. Humans have no other option than to adapt their thoughts, feelings and actions to constant change (cf. Weller 2019, part 1. "Change").

Changes have first to be understood. The perception of changes always take place from an individual perspective, which is stamped by the individual's needs, expectations and attitudes and is affectively colored in keeping with them. These are interpretive accomplishments, even if they happen "automatically." This is why it is not unusual for two people in "one and the same" situation to come to highly different conclusions concerning existing change processes, their relevance and the measures to be taken (cf. Weller 2019, part 1. "Change").

Change is experienced and shaped by way of life events in the individual's immediate personal environment. The respondents perceive change, first of all, in the form of their own life events. Change processes that occur slowly and in steps (incremental change) are often only recognizable in retrospect. In the case of a sudden confrontation with strong pressure to adapt (disruptive change), the transformation is much more likely to become conscious, but also to be experienced as burden and crisis. The changes with far-reaching influence on their lives that were mentioned by the respondents refer to classical transitional situations: the expansion of the individual frame of reference in a relationship or a family (marriage, relationship, having a child), the beginning of a new stage of life (school/studies, moving to a new home, change of occupation, retirement), coping with burdens (accident/health-related episode) and loss (separation, unemployment, bereavement) (3.1.).

Coping with change demands tremendous effort. To bring it about, those concerned need time, energy and psychological resilience. The process of adaptation in connection with key life events lasts, on average, between one year (e.g., change of occupation, moving to a new home) and two years (e.g., having a child, divorce/separation). The average period required for dealing with an accident/health-related episode (124 weeks), retirement (155 weeks) and

bereavement (179 weeks) is considerably greater. For the question "How much effort and energy did the change process require from you?" (Q40), 60 percent of respondents chose the top 2 places on the eleven point scale. Above all when they demand decisive consequences, like the key life events mentioned, profound changes affect those concerned in their whole personality, as well as in their structure of social relationships. Action routines that provide a sense of security have to be abandoned, and new ones have to be found. The adaptation of basic outlooks and attitudes touches the individual's own self-image, and earlier goal conceptions may have to be revised. The strong inner dynamics create uncertainty, even when the life event in question, e.g., having a child, is evaluated as very positive. If a negative life event, like loss of a job or bereavement, has to be dealt with, then the limits of the bearable strain are quickly reached. In addition, changes have to be integrated into everyday life and communicated to the individual's social milieu. Here too, a broad field of innovation and development opens up, but also of opportunities for failure (3.3.).

Change events are evaluated emotionally. The evaluation of change processes is not to be understood primarily as retrospective adding up of individual factors like benefit or effort. It is rather embedded in the dynamics of the active development of an individual's life and takes place on a meaningful horizon and in the context of the individual's complete biography as he or she conceives it (3.6.). This explains the striking differences in the perception of burdens and obstacles between life events that demand a great expenditure of energy, but are differently classified. Four factors enter into this overall judgment: (1) the type of change event, (2) the benefit attributed to it, (3) the degree of burden it creates, and (4) the assessment of whether the impetus for change came from within the person in question or to him or her from an external source (3.3. and 3.4.). The evaluation and weighting of the four factors is dependent on individual perception and interpretation. The statement "The change had a positive emotional impact" (Q15_3) is decisive for the overall result (3.5.).

Existing solution models facilitate the change process. Whether social conventions or scripts can be drawn upon or individual solutions have to be developed has significant influence on the perceived degree of burden (cf. Duttenhöfer 2019, section titled "How Do Changes Arise?"). This means that the experience of an individual's own problem-solving competence always takes place in a social context of proposed solutions or the lack thereof. Against this background, three clearly distinguished types of change experience are found, which are perceived as increasingly negative: (1) Among four proposed statements, 37 percent of respondents opt for "The path to the goal was clear to me right away, so that I did not think much about the path" (Q31_1). (2) If this option is eliminated, there remain the options of weighing-up goals per one's gut feeling (overall: 27 percent) and weighing-up goals from the point of view of security (22 percent). (3) Those who do not have any goal in view have to resort to trial and error (33 percent; 5.3.1).

The persons concerned first look for solutions on the level of action. When there is not any goal in mind, the decision to "proceed step by step" offers a solution for preserving one's

own capacity for action. A fundamental search behavior, which is largely independent of life experience, becomes clear for the exploration of problem areas: The overriding action objective consists of avoiding the threat of paralysis due to a lack of orientation or decision-making problems and, instead, remaining active and thus, at least potentially, moving toward solutions. If this succeeds in happening, it is regarded as confirmation of the individual's own ability to find possible solutions and options for action – without having here already to address "external" problems of everyday life or the social environment (5.3.1.). The barrier to implementation represented by the lack of a viable alternative when a disruption occurs (Q37_3) is a strong marker for the process in question being experienced as negative (5.4.4).

More than half the respondents have experience with setbacks and being overwhelmed. 49 percent complain about harmful effects of stress on their health (Q28_2), even though 80 percent indicate that they have self-reflexive mechanisms for dealing with burdensome situations (Q28_5) (5.2.2). 66 percent of participants report setbacks in the process (Q26), whereby 40 percent qualify the latter as "bearable." Among four statements provided to choose from, 65 percent opt for "Every path involves highs and lows and one has to be able to deal with both" (Q27_2) (5.2.4.).

The persons concerned try to shape the change process in a constructive manner. They employ all their resources to this end. They focus on positive effects (certain "gratifying" life events, benefits achieved) and their own opportunities for action (successes, personal growth). Apart from practical coping, retrospective reflection and interpretation also offer scope for constructive shaping of the change process. If neither benefits nor successes can be registered, focus is placed on personal growth in difficult times. On the whole, we can observe a pervasive tendency to use change events of all sorts for personal growth (3.6 and 4.2). The effort to preserve and further develop one's own strength and security (Q36_2 and 3) does not exhibit any evolution over the life span, but acts rather a kind of general factor (5.2.4.).

Evaluation is itself part of coping. Moving from a problem or "stroke of fate" (external impetus) to a self-directed adaptation (internal) and, insofar as this is possible, integrating setbacks as parts of the process appears to be an essential characteristic of successful coping. The Change Study identifies the following strategies of the persons concerned: shift of focus from problem to solution, temporal framing in prospective and retrospective comparisons, shift of focus to proving oneself and personal growth, and reinterpretation of external events as internal coping tasks (3.6.). Within such a framework, a changed perception is also then possible, in which benefit appears as maximized and burdens as minimized. The fact that, in the end, even difficult life events are not evaluated as (somewhat and very) negative 100 percent of the time is consistent with this finding (divorce/separation: 38 percent negative, unemployment: 46 percent, accident/health-related episode: 55 percent, bereavement: 80 percent) (4.2.).
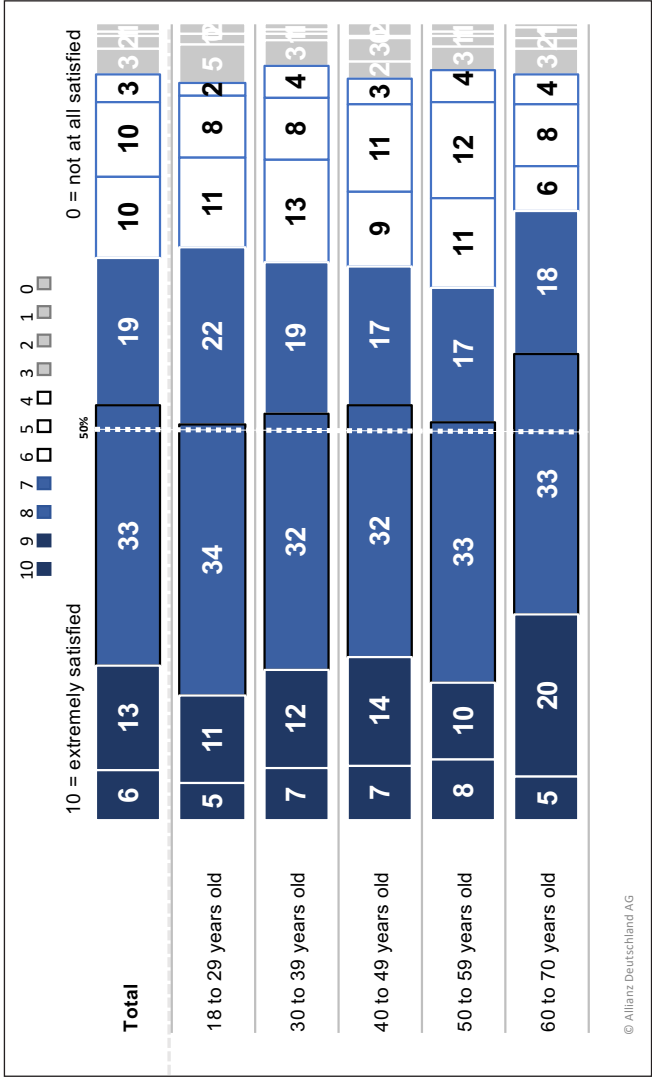
Fig. 10   Life Satisfaction

Question: "All in all, how satisfied are you with your life as a whole? Please answer on a scale of 0 to 10." (Q6). population from 18 to 70 years of age (by age group), n = 1,951. All figures in percent.

The goal is as high a level of life satisfaction as possible – and the respondents also achieve this (4.; see Fig. 10). To the question "All in all, how satisfied are you with your life as a whole?" (Q6), 85 percent situate themselves in the upper half of the scale; 52 percent choose the three highest positions in the "extremely satisfied" range. Overall, a positive shift can be observed on various levels (4.1.). We can assume that, in the final analysis, a fundamental "survival mode" is visible in this, from which, at the same time, a key everyday heuristic derives: "as long as individuals manage to keep their life satisfaction in the positive range, no profound changes have to be undertaken."

A majority of respondents see themselves as optimists. Despite all the challenges and setbacks, between 65 and 75 percent of the participants consider themselves optimistic and look to coming challenges with self-confidence, whereby a lead group emerges here that oscillates between 18 and 31 percent. 65 percent reject the statement "For me, the glass is always half empty and never half full" (Q29_1; 31 percent "not right"). Likewise, 65 percent reject the statement "If something is going well, I expect something bad to happen soon" (Q29_3; 31 percent "not right"). 75 percent agree with the statement "I always have new goals in mind, for it is always possible to do something better than before" (Q29_6; 18 percent "exactly right") (5.2.1.).

A majority of respondents dispose of self-efficacy and belief in an internal locus of control. 87 percent agree with the statement "I can cope well with most problems on my own" (Q28_9; 24 percent "exactly right"); 88 percent, with the statement "I'm in control of my own life" (Q24_6; 42 percent "exactly right"). The respondents are confident that they have a high degree of competence to shape their circumstances, and this self-confidence rises with life experience and the scope for gathering experience of their own efficacy (4.2.). This is why certain occupational groups and life events (e.g., self-employment) promote such confidence.

A majority of respondents prove to be resilient. This is to say that they see themselves as being in a position to endure contradictions and lack of clarity, to process failures and disappointments, and to be able to use them as a point of departure for personal development. 77 percent say: "even if I'm not able to explain all the interconnections in my life, I still stay calm" (Q28_1; 19 percent "exactly right"). 89 percent agree with the statement "Goals that I have envisaged, I also want to reach, even if the path is rocky" (Q28_3; 30 percent "exactly right") (5.2.4.).

Empathy and social support contribute significantly to success. There is very high agreement for the question concerning one's own empathy (39_1), hardly any impact of the evaluation of the change event and only a very minimal increase among the older age groups. This indicates a globally operative factor (5.4.2.). Regardless of whether all of them really succeed so well in putting themselves in the place of the other, the responses make clear that orientation toward others is extremely important for the respondents. Drawing on social resources (Q30) plays a major role for all respondents. Overall, it is apparent that

the evaluation of their importance depends on the proximity to the innermost circle of the private sphere: hence exchange with spouses or partners obtains the highest rate of agreement (83 percent for people who have a spouse or partner). The loss of social support (e.g., in the cases of unemployment, bereavement) is a clear symptom of crisis and presumably a criterion for evaluating a change process as negative. At the same time, effects are apparent that involve demanding greater social support when under a greater burden (5.2.3.).

Solutions are reached by following strategies of goal pursuit. All of the respondents situate themselves within a field of action that stretches between goals and intermediate steps. The ability to set goals and to define appropriate intermediate steps has a special status, since hardly any effects of different life events and their evaluation are observable and the influence of increasing life experience is also very modest. 79 percent work with intermediate objectives (Q33_4); 77 percent are also able to adjust their goals (Q38_3) (5.3.4. and 5.4.1.).

In practice, the respondents move amidst a field of tension between routine and flexibility. In the case of the wish for "routine and proven solutions" (Q34_5), there is a very high level of agreement, hardly any impact of the evaluation of the change event and a rather limited rise with increasing age. Nonetheless, the participants regard themselves to be open vis-à-vis new situations: above all, when it is a matter of finding solutions (Q34_3). Completely open situations represent a greater challenge (Q34). Here, the level of agreement falls; exploration and tolerance of ambiguity appear, above all, to be drivers for the 18–39 year olds. In contrast, the ability "to see things from a different perspective" (Q38_1) displays moderate effects of positively and negatively evaluated life events, as well as a considerable rise with increasing life experience. At over 80 percent agreement for the total sample, this core competence of flexibility attains a clear majority (5.4.1.).

An important set of action competencies increases with life experience: value orientation (5.1.1.), positional self-awareness (5.1.3.), focus (5.1.4.), optimism, perseverance, strength of drive (5.2.1.), coping with stress (5.2.2.), serenity (5.2.4.), decision-making ability (5.3.3.), keeping composure, change of perspective, pragmatism instead of perfectionism (5.4.1.), ability to accept criticism and to correct mistakes (5.4.3.).

Successful change gives one confidence. Trying something out creates learning experiences. The balancing of the desirable and the doable generates orientation. Experiencing one's own capacity for persevering and problem-solving behavior results in self-recognition. Remaining true to oneself across different situations, contexts and stages of life creates identity. The inner and outer achievement of finding responses to the dynamics of life provides an arena for personal development (4.1.). This is consistent with the finding of the pilot study that people who have successfully dealt with a profound process of change look to further changes with optimism and self-confidence (cf. Brenner 2019, 3.4 "Lasting Impact of Positively Evaluated Changes").

The respondents are open to learning experiences and exploratory action. The statements on the ability to learn obtain high rates of agreement (Q39_2: 75 percent, Q39_5 and 7: 85 percent) and are only marginally influenced by the life events and their evaluation. This could be an indication that learning experiences are possible in all different contexts. The pragmatic modus operandi "Sometimes the only option is to give a try and to see if it brings you closer to your goal" (Q37_5: 89 percent) obtains almost complete agreement – and this agreement is indeed largely independent of life events, their evaluation, occupational groups and age groups. The core competence of ability to implement – "one learns by taking action" – appears to point to a generally shared consensus (5.4.4.).

There is high degree of ability to change. On their own account, a large majority of around 80 percent of the respondents dispose of basic competencies like planning ability, problem-solving orientation, conflict and stress management, self-reflection, and social and communicative competencies. A majority likewise appear to dispose of the personality traits required for active, flexible problem-solving. The results for inhibiting factors like perfectionism, overly strong goal fixation and a lack of a sense of coherence oscillate around 20 percent (Q_9, Q38_2 and 3, Q39_6). A clear finding of both the pilot study and the representative survey is that the experience of one's own possibilities for action (successes, personal growth) increases the willingness to tackle further change processes and optimism about being able to do so. 86 percent evaluate their change process, finally, as a positive experience that made them stronger (Q36). "Why didn't I do this earlier?" 27 percent ask themselves, and 59 percent say: "I feel that my abilities have been confirmed and I would always take the path of change" (3.6., 4.2. and 5.2.4.).

Change competence is the capacity for individual navigation. The essential insight of the Change Study consists of the finding that – regardless of generally available information and solution concepts – in the end, individuals have themselves to navigate, decide and to learn through experience. No one can give them their own impetus to act. The IZZ understands the key concept of the study, change competence (cf. Weller 2019, part 2. "Change Competence"), as the individual ability to act that gets manifest in the fact that from the nearly infinite reservoir of action possibilities, the individual, in different contexts and processes, activates precisely those that are appropriate to the situation and to his or her own goals and resources.

Change competence is learned by way of practical life experience. What is decisive is linking one's own goals and personal development to the action possibilities that the environment offers in the given case. There is no doubt that an abundance of individual competencies can be practiced and optimized: stress management, planning ability, communication, etc. What is essential are overarching action competencies (cf. Weller 2019, part 2. "Change Competence," section titled "Change Competence as Action Competence") like self-efficacy, self-reflection and learning ability, which individuals can only develop on their own through real experience.

What are favorable framework conditions for change? Change processes require conditions and environments that are both sufficiently stable, to ensure orientation and support, and sufficiently flexible, to provide the individual latitude and to enable new solutions and dynamics. What this means concretely needs to be studied, discussed – and, ultimately, tried out. The interviews for the pilot study show that the support of partners or spouses, family and friends – but also, for instance, of social security systems – plays an essential role in coping with existential life events. The quantitative study shows that the stability of personality factors, social relationships and also socially prescribed action patterns and roles helps individuals to cope with change processes. At the same time, it is apparent that, at least in the area of personality patterns, rigid structures (neuroticism, goal fixation) render the change process more difficult. It becomes clear, above all, that assembling positive change experiences increases confidence and self-assurance.

6.2   Context and Outlook

Amidst all the positive results, the focus of respondents on challenges that directly and personally concern them is striking. Social, economic and technological topics like globalization, digitization and demographic change – which evidently seem more "abstract" and with respect to which the options for individual action strategies remain unclear – appear more as a sort of background process and are initially bracketed. On the other hand, they do turn up in the hopes and fears that respondents formulate with regard to the future.

At the end of the questionnaire, following the conclusion of the questions on the concrete life events and before a section covering information on household, place of residence, income, etc., the participants were asked two questions on their expectations for the future. The first concerned the assessment of future need for change in six areas of life: "Looking to the future: In which of the following areas do you personally need to develop further?" (Q44; see Fig. 11).

For five of these thematic areas, mid-range values are apparent for agreement ("somewhat more," "a lot more") without any major effect of the evaluation of the change event experienced: education/training (50 percent), family/relationship (53 percent), ecological conduct (47 percent), social and societal activism (41 percent) and dealing with new technologies/digitization (53 percent). Following Allmendinger, in the WZB Berlin Social Science Center's Legacy Study, such mid-range values can be interpreted as signs of uncertainty: respondents do not quite know what is to come, and they answer cautiously (Allmendinger 2017, 68).

The exception and top performer for the accepted future need for change is the sixth area of life: life planning (Q44_4: 62 percent). Respondents are aware that in the future they will have to make an effort to gather information for actively shaping their lives. The responses with respect to the different age groups are particularly interesting. Thus, young people (18-29 years old) regard the topics of education, relationship and social activism
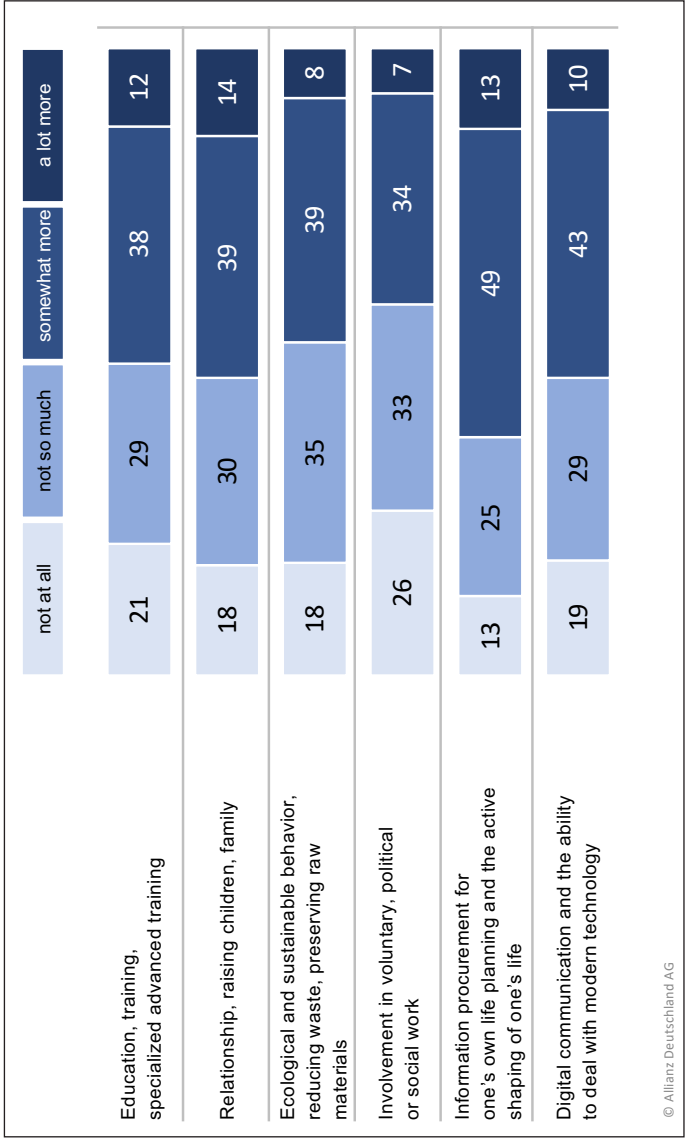
Fig. 11 Future Need for Change

Question Q44: "Looking to the future: In which of the following areas do you personally need to develop further?" Population from 18 to 70 years of age, n = 1,951. All figures in percent.

as especially important; on the other hand, they do not see the topic of digitization as a challenge – presumably because they feel at home here. For people over 50, the topics of education and relationship recede into the background. For them, on the other hand, the topic of digitization is foregrounded (cf. Duttenhöfer 2019, section titled "The End of One Change is the Beginning of the Next One"). We can conclude from this that what is of concern for the respondents is not primarily outlining a societal future of whatever sort (prognosis), but rather conceiving their own next stage of life (prospection) (cf. Weller 2019, section titled "Anticipation, Planning, Goals"). This is in keeping with the formulation of the question. At the same time, it is apparent that such prospective consideration works better when it is linked to already perceptible challenges.

The second question on participants' expectations for the future (Q45) was "grounded" in an everyday situation and a relatively short-term time frame. "Imagine the nightly news five years from today. What top story would you be happy to hear, so that you can say: 'That's the world in which I would like to live!'?" As compared to the responses on change behavior, with their proximity to everyday concerns, the freely formulated wishes for the future mark a leap into the social and the utopian. (Presumably, watching the current news broadcast served as a powerful trigger for picturing a desired alternative version.) The distribution of responses (including the possibility of choosing multiple answers) yields the following picture:

Peace, no wars, no terror, etc.	69 percent
No more poverty, malnutrition, etc.	14 percent
Social security, equality of opportunity, etc.	12 percent
Saving of the environment	11 percent
Improvement of political systems	9 percent
Economic security	6 percent
Curing of diseases	3 percent
Religious renewal	3 percent

Whereas a certain consensus was already to be observed for the choice of the most important life event, the consensus is even greater here. Like in the WZB's Legacy Study, a kind of return to the collective is also to be observed for the questions regarding the future in this case too (cf. Allmendinger 2017, 65). The wishes for the future – which, apart from reflecting worries, above all reflect core values – appear to be largely consistent. At the same time, topics come up here that were not touched upon previously. Though it must be said that in outlining their wishes and expectations for the future, the respondents make a stereotypical impression. The pragmatic level of implementation is left out.

How are the results of the Change Study to be evaluated against this background? The analyzed responses represent an intrinsic snapshot based on *self-perception* and *retrospective consideration* of successful experiences of change. This is to say: when respondents

reflect on what they have accomplished, they are also confident about being able to deal with the next challenges that come their way. The interesting question is how individuals can manage to extend this optimism into the future. Other studies suggest that looking forward beyond concrete planning horizons tends to result in skepticism and that thinking is then stamped by risk aversion (cf. Baumeister 2016).

But in the results of the Change Study, we also find clear indications of the significance of a future reference for concrete coping behavior in the present. The personal histories recorded in the pilot study make it possible to situate the snapshots of the representative study in a longer-term temporal process. As the qualitative study has shown, even the, as a rule, positively evaluated decision to change occupation or to become self-employed is, in part, preceded by suffering and pressure for change – which, however, presumably only reinforces the positive overall judgment. On the other hand, it can be assumed that where there is a lack of future prospects, this lack has a major impact on the evaluation of the current life situation. This is likely one of the reasons for the fact that the life events bereavement, unemployment and accident/health-related episode are, in comparison with others, more negatively evaluated. This is to say that an evaluation is always situated in a before-and-after comparison and this comparison can shift and change in the course of the process (3.6.). The evaluations of change events differ, finally, in their predominant temporal reference and its "coloring" by fear or hope. Education, moving to a new home and a change of occupation are focused on temporally limited challenges with a strong relation to the present. In the cases of marriage, partnership and children, it can be presumed that current fulfillment is confidently extrapolated into the future. Someone who suffers from a separation, a loss or an illness will be preoccupied by the restoration of the status quo ante and will tend rather to fear a prolongation of current burdens in the future.

All coping processes offer one option for the future in common, regardless of what life event they respond to: the change competence that has been acquired or expanded can be experienced as personal development and provide the feeling of being better prepared for further changes to come. This result is also already apparent in the pilot study (cf. Brenner 2019, 3.4 "Lasting Impact of Positively Evaluated Changes"). Successfully coping with change processes reinforces individuals' belief that they are well-equipped to confront coming challenges.

In the Change Study, people look back at successfully completed change processes. Creating meaning and context in retrospect is indispensable and valuable for the individual's work on his or her own biography. But how can the knowledge and experience acquired be applied in a precautionary and anticipative manner? From the point of view of Psychological Future Management, there are, above all, two obstacles that have to be overcome:

1. For individuals, processes of transformation that cannot (yet) be translated into personal action (like digitization and globalization) are presumably not at all "tangible" and manageable. How people deal with such "change noise" and how they can expand their scope for planning and exploration would be an interesting question for further studies.

2. Change processes have a considerable temporal extension, in the course of which different phases of pressure to change, search for orientation, exploratory action, implementation, adjustment and summation are passed through. Precaution, anticipation and planning for the future are a necessary part of the initial phase of a change process of whatever sort. This phase is marked by pressure to change and search for orientation; it is not yet possible to draw upon concrete solutions and experience. Here, the factors of global orientation and confidence in one's own capacity for action become decisive for whether the individual has a basically optimistic or a basically pessimistic attitude.

As already discussed, there is a fundamentally high degree of willingness to change. The pilot study shows, however, that following a phase of coping with change, individuals evidently have a need, at least temporarily, to reach a "calm plateau." To this extent, different phases of pressure to change, coping with change, and the desire for at least temporary stability are to be expected. In these phases, the degree of willingness to change will vary. It is imperative that these psychological positionings be taken into account. The participants express a high level of need for support with respect to the question of how they can themselves actively plan and shape their lives. The Change Study provides basic building blocks for such an autonomous acquisition of change competence and shows where the persons concerned have to be met.

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Phases and Strategies for Coping with Biographical Experiences of Transformation
Results of the Qualitative Study
"Patterns of Coping with Change"

Daniel Brenner

Abstract

This article covers the pilot study for the IZZ survey on change behavior. The interview material of 30 participants, whose personal life includes one or more successfully mastered changes in the areas of work, digital progress, migration, family/children, old age/retirement and sickness/disability, is presented in terms of four main topics. (1) Recognizing changes: the participants describe their change processes in the context of experiences of loss, fulfilment, a burden or a new start, in a field of tension between stability and dynamics as well as under the influence of internal or external impetuses for change. (2) Experiencing changes: the pressure for change, duration and patterns of change processes are discussed. (3) Evaluating changes: participants' assessments depend largely on their initial expectations being met. However, phases of ambivalent interpretation and a – mostly positive – subsequent reinterpretation can also be detected. (4) Implementing changes: on the basis of case studies, this section considers how well the competencies used cover the four competence fields of the IZZ concept of change competence. It also discusses the significance of the social environment, and obstacles in the change process. Six different change-related personality types are generated from the accounts the interviewees give of their lives: duty-conscious, planners, sufferers, new starters, visionaries and exploring pragmatists. Overall, it is evident how deep and long-term change processes affect the self-image and everyday life of those affected and how those affected control their coping processes by interpretation and by integration or segregation of external impetuses. It also becomes evident that positively assessed change processes increase the anticipated willingness to change.

Against the background of a public debate marked by pessimism, particularly in the wealthier European societies, the IZZ Institute for Psychological Future Management has set out to discover how individuals can overcome their current fears for the future and their problems with orientation, and reconfigure these with a more optimistic attitude

toward the future. Is change competence something that can be acquired? To answer this question, the IZZ began by devising the qualitative survey presented in this article as a pilot study, in collaboration with the department for Customer Insights & Experience at Allianz Deutschland AG and with the support of the market research institute Harris Interactive AG. The idea was to test preconceptions and survey instruments connected to change-related behavior, in order to develop an exploratory questionnaire for the subsequent quantitative study. This large-scale representative online survey, which was then carried out in March 2017, is the topic of Stephan Duttenhöfer's and Christian Weller's articles in this volume.

For the pilot study, 30 individual interviews were carried out from December 2016 to January 2017, at various locations in Germany: Berlin (n = 9), Hamburg (n = 7), Leipzig (n = 6), Cologne (n = 4), Karlsruhe (n = 2), and Nuremberg (n = 2). People were selected whose subjective reality included successfully mastered changes in one of the following areas: (1) old age/retirement/care, (2) work, (3) family/children, (4) disability, (5) migration, and (6) digital pioneering/trendsetting. On the basis of intensive interviews, each lasting two hours, hermeneutic methods of analysis were used to gain in-depth insights into how the need for change is recognized, experienced, evaluated and implemented. Half the interviews took place in a studio, the other half at the home or workplace of the respondents. They followed a deliberately rough guideline, ensuring that the respondents had the opportunity to talk in detail about their experiences, perceptions and assessments in connection with the changes. The result was a total of 1,145 pages of transcriptions. The following article will analyze the interview material from the pilot study in terms of four key topics: (1) recognizing changes, (2) experiencing changes, (3) evaluating changes, and (4) implementing changes.

1   Recognizing Changes

1.1   Retrospective and Coping with Crises

In order to approach the object of investigation, it is helpful to begin by looking at what specific events or experiences of the respondents are included in the concept of change. At the beginning of the interview, the participants were asked to represent the most important change events in their lives in a sketch, and then use this sketch to explain them. In total, 17 different changes were mentioned and described in the interviews. These are almost all related to the private sphere, and can be heuristically categorized as follows (with the number of mentions in parentheses):

Changes relating to a loss:
- bereavement (9)
- unemployment (4)
- separation/divorce initiated by partner (2)

Changes relating to fulfilment:
- birth of a child (13)
- marriage (6)
- experiences of self-realization (for example travel, achieving time sovereignty) (5)

Changes relating to a new start:
- starting work, changing job or occupation, or retiring (22)
- education and training (17)
- moving to a new home/buying a home (within Germany) (10)
- separation or divorce initiated by respondent (8)
- moving out of parents' home (6)
- geopolitical caesurae (e.g. the fall of the Berlin Wall) (4)
- migration (3)

Changes relating to a burden or strain:
- accident/illness (7)
- conflicts within the family or circle of friends (6)
- family members falling ill or needing care (4)
- debt (2)

The interviews often ended with a comment from the participants suggesting a gain in self-knowledge, which sometimes resembled the result of a therapy session. Interviewee 17 remarks, for example: "That was a proper therapy session – in a positive sense." This makes it clear that change processes are often only recognized as such in retrospect, after conscious reviewing or explicit questioning.

Changes are omnipresent, and a constant component of our lives. Although we are forced to deal with changes from the first second of our lives, we usually do not notice our feats of adaptation. We mainly become aware of changes in two contexts: in a deliberate, conscious retrospective or self-reflection (see above), and when coping with a crisis. The latter is always the case when we are unable to "automatically" cope with change processes, and are confronted with disruptions or obstacles to our adaptation. The interviewees therefore have no trouble recognizing crises and resource-sapping challenges such as an accident, a change of job, or a move to a new home as change events. In contrast, they do not mention adaptations that occur largely automatically and without exertion.

It appears that changes are usually only recognized in phases where the individual is insufficiently challenged or overchallenged. Constant change is an essential part of being alive, something we only realize when we are deprived of stimuli. Conversely, we are particularly likely to notice change processes if they cause us stress, and if they strike us as challenges that will be hard to overcome.

1.2   Relationship between Dynamism and Stability

In phases where people subjectively perceive themselves as insufficiently challenged or as overchallenged, there seems to be a disturbance in the balance between dynamic and stabilizing tendencies which is necessary for individual well-being. Sometimes there is a lack of stimulation and novelty (insufficient challenge), sometimes it is security and order that are lacking (excessive challenge); the crucial thing is that both cases ultimately lead to change processes. For example, we find a change springing from a phase of insufficient challenge in the case of interviewee 7, who – unlike the majority of the respondents with children – experienced her (sudden and unplanned) motherhood not as fulfilling, but mainly as a curtailment of her freedom, restricting her scope for spontaneity, flexibility and creativity, and thus leading to a build-up of inner dissatisfaction. This painful experience triggered her separation from her husband, which she describes in retrospect as "the most important decision in [my] life." It meant a departure from what she felt to be entrenched structures ("breaking out of dull, suburban life"), allowing the respondent to refocus on her real passion and "source of strength" – her love of music. While the birth of the child can lead to phases of insufficient (intellectual) challenge, especially for people with a strong urge for freedom, in other cases the dominant experience in the context of this life event is of being overchallenged. Interviewee 14, for example, mother of two now-adult children, associates the birth of her first child with great hardship and challenges. In view of the "unfavorable timing" of her motherhood, at the beginning of her studies, the respondent felt she had no choice but to place the child in the care of her parents for the first three years of life, in order to give her own life order and structure. Similar phases of excessive challenge associated with parenthood are apparent in a few other interviews. Financial and psychological burdens are mentioned, leading in some cases to stress, a lack of time and relationship crises.

It can be noted, then, that changes show two specific features. On the one hand, they are a constant, unavoidable, and important element of life, though we usually only realize this in retrospect or in phases of crisis. On the other hand, changes always have a dialectic relationship to structure. It can be assumed that every mentally healthy person has both a striving for stimulation and novelty (change/dynamism) and a need for security and order (structure/stability). As shown by the examples outlined above of the respondents with children, the level of need for stimulation and stability can vary considerably from one phase of life to another, and from one person to the next. Interviewee 24, whose everyday working life as an IT security expert is marked by constant changes, illustrates the "bipolar" interplay between stimuli and anchors of stability as follows: "I have the feeling that if you stop moving and are satisfied with yourself, then you get a bit lazy. It's particularly vital in my industry to keep on evolving all the time. You can't say: I've studied for years and now I've reached a point where I don't need to do any more. You have to keep setting yourself goals, because development doesn't stop. [...] In my leisure time, on the other hand, I can take it easy. I need an opposite extreme, I need to be able to just let the day be." This makes it clear that a highly flexible and dynamic life requires ongoing inner stabilization – as much or more so than other lives.

We can put forward the hypothesis that the individual has, on the one hand, a flexible tendency to adapt and evolve, and on the other hand, a conservative tendency for self-preservation and stabilization. In an ongoing but probably largely unconscious feat of integration, we establish what feels like the right balance between the different tendencies.[1]

1.3   Forms of Pressure to Change: Intrinsic vs. Extrinsic

Developmental psychology distinguishes between assimilation and accommodation, a division that highlights two different aspects of individual change competence: (1) a reactive feat of assimilation as a response to disruptive changes, and (2) a (pro-)active strategic competence in the sense of anticipatory design. Reactive change behavior follows a specific extrinsic pressure, which is felt to be very strong and often negative, for example the outbreak of war, a diagnosis of cancer, or the loss of a loved one. In these cases, the trigger for our own change processes is not a process itself, but occurs suddenly and unexpectedly; the change as a whole is experienced as coming from the outside, or even as being forced upon us. (Pro-)active change behavior, on the other hand, has a more intrinsic motivation, and often follows life experiences that are perceived as painful, or seeks to prevent them from happening. As will be shown in more detail in the following discussion, the trigger for a self-initiated change seems to be, in most cases, the emergence of a contradiction between wish/self-image and reality.
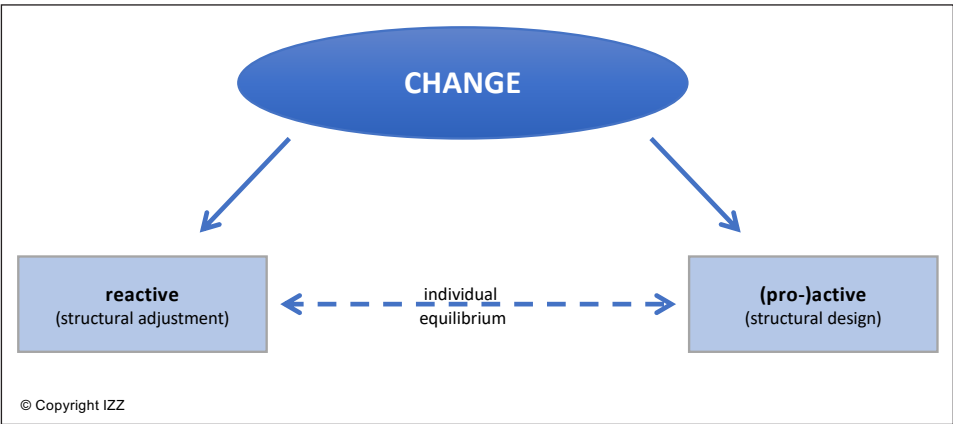
Fig. 1   Reactive and (pro-)active changes

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1   Recent sociological "macro-micro theories" or modern theories of socialization also assume a similar interplay between action (individual) and structure (society). Anthony Giddens, for example, speaks of a "duality of structure," and understands structure both as the basis and the result of social action. The actors refer to the given structure in their actions, and thereby change this structure.

The distinction between reactive and active changes can be illustrated with the following example: in the list and categorization at the beginning of this section there is one change that is categorized firstly as a change relating to a loss, and secondly as a change relating to a new start. This is separation/divorce, in the first case (loss) initiated by the partner, and in the second case (new start) initiated by the respondent himself or herself. If our partner leaves us – perhaps unexpectedly – then we perceive our own actions as reactive. But if we ourselves decide to separate or divorce, we may perceive this as a (pro-)active step toward shaping or designing our life.

In the interviews, both forms of change are constantly in evidence. Interviewee 12 illustrates this with the following words: "Let's assume I start a job, I build everything up within a year, and it's going well, then something has to change, I want something new. Either because it becomes monotonous, because I've mastered it, and it's no fun anymore, that is, I'm getting more ambitious [active change], or because the conditions change and I can no longer do what I actually wanted to do [reactive/disruptive change]."

The reasons and triggers for change thus lie in the tension between the "self" and the "environment," as the following ideal-typical list shows:

Change processes that can be attributed more to the "self":
- change as a diffuse path to a dream ("I have a dream as a goal"; "Passion and willpower are more important than a plan")
- change as a plannable step toward a goal ("I know what I'm capable of and what I want"; "I plan changes")
- change as a "normal" component of life ("My life is change"; "I'm always searching for something new")
- change as a way out of crisis ("I can't live like this anymore"; "My old life was making me ill")
- change as the only possible action ("I don't want anything permanent")

Change processes that can be attributed more to the "environment" :
- change as a reaction to diverging self-image and an undertaking to return to the "self" ("My previous life, that wasn't me anymore")
- change as a conscious consequence of certain circumstances in life ("It has to work, so I changed that"; "That follows automatically")
- change as the consequence of a moment that changes everything ("The accident changed everything"; "Now I know that life is transient")
- change as an undertaking to resolve contradictions ("There's something there that doesn't fit"; "I have no influence on this anymore")

Changes that can be attributed to the environment result from an extrinsic pressure to change, that is, from newly arising circumstances coming from the outside. The respondents make a clear distinction between such changes and self-initiated changes. An example is the following statement from interviewee 27, a retiree, comparing the extrinsic pressure

often experienced in his working life with his own motivation to become a fully-fledged member of an amateur choir: "Well, my work often involved building projects that weren't approved or were only approved subject to conditions. I put in a lot of effort, and of course the opposite party wasn't very happy if they had to live with restrictions. And if the opposite party was represented by the mayor, then of course I got opposition via my own boss. And in such cases I'm aware that I can be like a dog with a bone. But in the case of my hobby [music] I see things differently now, I put pressure on myself, I say: by a certain point in time I want to be a fully-fledged member of this group. So I feel good myself."

As is already implied in the quote, and will become even clearer in the following sections, the differentiation between reactive and active changes goes hand in hand with differences in the way changes are experienced, evaluated and implemented.

The (pro-)active changes follow a more intrinsic pressure to change. At various points, the interviews indicate the existence of a point – different for each individual – at which a growing discrepancy between wish/self-image and reality is clearly no longer seen as tolerable, and a need for change is therefore recognized. An example is interviewee 1, who evokes the image of the last straw, or interviewee 13, who says: "Well I think sometimes you just have to let things develop, and when you feel the time has come, then you have to do it."

The final authority when it comes to deciding that circumstances are no longer tolerable seems to be people's own self-image or concern for their personal well-being. This becomes clear, for example, in the statements from interviewee 2, who left his job as a long-haul truck driver: "Ultimately it's the same throughout the industry: there's more and more pressure, the pay is getting worse and worse, and at some point I said: now you have to make a clean break [...]. I was just about at the end of my tether, I'd probably have thrown it all in from one day to the next and gone to the doctor, taken sick leave […]. Today we'd probably talk about burnout. More and more often, I'd sit at home with my wife and say: 'I'm fed up, I don't want to do it anymore, I can't carry on.' And she'd say: 'Well go to the doctor, take sick leave.' And I'd say: 'Well OK, this week I'll keep driving. Maybe it'll get better again.' [...] In the end it built up over the years, you'd notice you were getting more and more miserable, your physical health was declining. I'd come home, then sometimes I'd sleep for 14 hours at a stretch. I had nothing to give my wife. [...] By changing jobs I gave my life meaning again." The respondent succeeded in doing this by strategically deploying individual structural connections in his life to set the system as a whole in motion. In contrast, in other situations in life it can be advantageous to reinforce certain tendencies to resist change.

The opposition between reactive and (pro-)active change behavior is often more subtle in practice than in theory. In many cases it is possible to observe a more complex interplay between the two forms among the respondents. A prime example is the above-mentioned interviewee 2, who, as a truck driver, initiated and completed a change of occupation. In order to fulfil his desire for more free time and more secure prospects, he strategically looked for (and eventually found) a position as a janitor in the public sector. At first glance, this change seems very much intrinsically motivated. In the course of the interview, however, it became apparent that the crucial impetuses for the change came more

from the outside: for example, the respondent states that he wants to fulfil his partner's desire to spend more time together; in passing he mentions an increasing deterioration in working conditions in the transport industry. So in this case the impetuses for a change initially came from the outside, but he also describes warning signs from his own body, which ultimately motivated him to act. Thus by understanding his own development he was able to transition to a self-directed adjustment. This ability to integrate appears to be an essential characteristic of successfully coping with change. It will therefore be revisited and more closely examined in section 4.

This example also shows a motif that constantly recurs in the interviews: as a rule it is pressing problems in the respondents' current situation in life which make a change seem necessary, but in a number of cases the actual step of finding the courage to implement this change is linked with a sudden insight into the limited number of years they have to live. This effect appears in the case of interviewee 13, for example. Like the truck driver from the previous example, she came to the inescapable realization that she was risking her health by continuing with her usual lifestyle and work habits. Suddenly people are reminded that protecting their physical integrity and making full use of their own precious years of life are the highest values – and this triggers a cascade of re-evaluations and decisions. A growing awareness of the passing of time in the lives of loved ones has a similar effect. Interviewee 13 would like to be there for her grandchildren, and to be more help to her mother, who needs nursing care; interviewee 3 wants to make the most of the coming years with his teenage daughter, before she goes her own way. It can be concluded that insight into the passing of time – be it in our own life or that of loved ones – is a key driver of change.

2   Experiencing Changes

2.1   The significance of the Pressure to Change

As already set out in the previous section, the interviewees distinguish clearly between planned, self-initiated steps on the one hand (cumulative changes / (pro-)active change behavior) and new circumstances arising from the outside on the other (disruptive changes / reactive change behavior). This is associated with significant differences in the way change processes are experienced.

As a rule, (pro-)active change processes are seen as more positive, since the person feels involved from the start. An example is interviewee 4, founder of a start-up company, who emphasizes the positive experience of playing a pioneering role, consciously distancing himself from the supposedly directionless majority: "It really is interesting to see how the world is changing, and that you're part of it, right at the forefront, as one of the few people who actually realize how things are developing. And then when you go into companies like Siemens or Airbus and they look at you in amazement, it's pretty good really."

In comparison to cumulative and (pro-)active change processes, disruptive change events and behavior in response to them is usually experienced as more burdensome and much more passive; often they are initially met with indifference, and in some cases resignation. As shown above, changes that are not actively brought about are often not even recognized as change processes. Interviewee 7, who came to Germany from Turkey at the age of ten, describes, for example, the initially severe psychological burden associated with migration: "For me it was a shock, because even as a child I loved freedom. In Turkey I could go out and play, with whoever I wanted, for as long as I wanted, and here that wasn't the case." Interviewee 14, aged 63 at the time of the interview, describes the sudden loss of her job as follows: "I was 58 and a half, and I felt like I'd fallen into a deep hole. Nobody needed me anymore, all I had left was housework, and I didn't like that at all. I felt like I'd been pushed out into the cold, and it was awful, awful, awful."

2.2   The Process of Change as a Perceived Burden

The course of a change process is generally experienced by the interviewees as crisis-like and strenuous, and in some cases as painful. As the above quotes have highlighted, this is especially true of unexpected changes with external origins. But it is also a feature of self-initiated change processes. At the time of the interview, interviewee 11 is going through a work-related change mainly initiated by himself. He comments: "The journey I'm on, the new direction in my career – it's possible that I'll fail. If I don't succeed in the change that I've started, then it will take a lot of strength to apply again somewhere else. It's like a house of cards when it collapses." Although the goal for change is, in this case, self-initiated and clearly formulated – the aim is a step up the career ladder, with greater responsibility and a higher income –, the direction and path of the change are still unclear. In general terms we can say that the change process is open-ended in nature and subject to a continuous dialectic, which is usually seen as burdensome: the person making the change – be it actively or reactively – is constantly vacillating between movement and immobility, hope and despair, self-efficacy and a sense of being driven. In keeping with this, some respondents tell of a phase of disorientation, which is often viewed as necessary and logical in retrospect (in this context there were numerous mentions of periods of time defined by immobility, such as phases of orientation after school or training, which often gave the respondents greater clarity in the end), but is obviously experienced as very burdensome in the situation itself. Interviewee 13 sums it up as follows: "The bad thing was that during this phase you didn't know whether it would end well."

The burden or strain articulated here, which comes from the open-ended nature of the change, is also reflected in the fact that the respondents often, in retrospect, blame themselves for not having overcome this phase sooner. Some even go so far as to categorize the periods in question as irrelevant to their biography, completely excluding them from their own development. Changes thus require a high ambiguity tolerance, i.e. the ability to remain serene and confident, or to act serenely and confidently, in unclear situations.

The less this competency is present, the more burdensome the change process will be felt to be. The respondents' statements make it clear that changes per se – that is, the actual process necessary to implement them – constitute a major challenge, if our own ambiguity tolerance is under-developed, if changes come to us from the outside and we feel externally controlled, if they do not fit into our plans for life, if they make us feel overchallenged, or if too many changes affect us at once.

2.3   The Time Factor, and the Ideal-Typical Steps in the Process

The term "process" already implies that a certain time is always needed for changes. "For me it's obvious that not everything can succeed straight away, that you sometimes need a bit longer, and that you have to do something to get there," says interviewee 21, who successfully fought her way back to life after an accident and subsequent disability. So coping with change generally does not happen from one day to the next – in the case of serious illnesses, for example, there is mention of periods of up to ten years – but is a process that takes up considerable time and energy, in which internal processing and external implementation and communication interlock in complex ways, and different time orientations take effect. A feeling of unease in view of the status quo, or shock at a change in this status quo, often initially leads to (1) a phase of paralysis or denial (repressing the change or the need for change). This is followed in the ideal-typical sequence by the phases of (2) gradual awareness (the change forces itself into our consciousness, but our thoughts still mainly revolve around the past), (3) reorientation (nostalgia for the past decreases, and thoughts become more hopeful again), (4) active engagement (the need for change is accepted and "work" is done to implement it), and lastly (5) new equilibrium (past experiences are largely left behind, the focus is on the future). In everyday life, the individual phases do not seem to be clearly demarcated; for example some processing steps are repeated more than once; several change processes with different time sequences are interconnected and must be mastered in parallel.

Nonetheless, this ideal-typical process can be traced in our transcript material, for example in the case of interviewee 29, who is disabled and has taken early retirement because of a road accident, and who now seems to have come to terms with the situation:

1. Phase of paralysis or denial: the respondent, now aged 40, was 18 when he was involved in a car accident, and was the only one of the four occupants of the car to be severely injured. Over a period of seven years, he had to undergo a total of 25 operations. At first he was particularly troubled by his "disfigured" face, something that he deliberately tried to repress: "And in the hospital the doctors removed everything that was made of glass, so I couldn't see my reflection. For the first half year I didn't even know what it looked like. My friends were also urged not to say anything to me when they came to visit. And of course you felt it a bit, but you didn't see it anywhere. And I didn't get a mirror […]. There was a psychologist who prepared me for it. Then the shock came when

I was allowed to go to the toilet normally for the first time – the simplest things can be so good when you've missed them. But they forgot to take down the mirror there, and that's when I saw myself for the first time. It was a huge shock, and it brought back my thoughts of suicide. It was really hard."

2. Phase of gradual awareness: the interviewee mentions a period of one or two years after the accident, in which he was plagued by severe depression, sometimes with suicidal thoughts (see above). It was only after about three years that things began to improve. From the third or fourth year after the accident he began to go on outings with his friends again, though he sometimes experienced painful setbacks: "And once we went to a fair. But it was terrible for me. My disfigured face hadn't yet been reconstructed, it took forever for them to build it up, bit by bit. We were at this fair, in a wheelchair, and the awful thing was the adults who were gaping. Not looking, but gaping. That really hurt me at the time."

3. Phase of reorientation: in the context of the experience at the fair, the respondent talks about the important support he received from his friends: "And then my friends went up to the people who were gaping and said: 'You want a punch in the face?' Of course that gave me positive affirmation from my friends." He also tells of a "kind of vision" he had in his hospital bed: "It was in the hospital, I don't know how to describe it. It was like balancing on a knife-edge. I saw it, literally, me walking along the edge of the blade, and I knew: if I stumble now and fall to the left, then it's over, then I'll be suffering all my life. And somehow I stumbled and tipped to the right, and that was the side that meant seeing it through, fighting. Obviously there was a lot of support too, the psychologist, friends, my girlfriend at the time…. of course that was positive too." The interviewee refers to this point as a "cut," since it led to a fundamentally new way of thinking. "Before, I only went by appearances," says the respondent, "then the accident happened to me," and since then it is other values that have mattered to him.

4. Phase of active engagement: after the "cut" in his late twenties the interviewee disengaged from his parents, with whom he had always had a fairly tense relationship, mainly because of his father's aggressiveness, and "took control of everything himself." For example he fought to get insurance payments, did low-paid, part-time or short-term jobs, travelled, and started a (patchwork) family. "Of course there were low points now and then, but they were comparatively small things. From that point on, the general trend was positive, with highs and lows like everyone has."

5. Phase of new equilibrium: today the interviewee can even discern positive aspects in the consequences of the accident; he claims that it has made him a "new person": "The accident was the crucial point which separated my life from my previous life, all the sport, picking up girls. Instead there were all the positive qualities that my psychologist and my friends and so on brought out, so I would stay the distance. At some point my willpower kicked in and I said: life is just too short, and too good." Among other things, he emphasizes a skill acquired from the experience he has gathered: the ability to adapt to changed circumstances in life better than many other people. He expresses great satisfaction with his current situation in life. "It works, and it's getting better and

better, as far as my attitude to life is concerned," the interviewee notes. It seems he has found a new inner equilibrium, which he is continuing to consolidate at the time of the interview. For example, he says that recently he has been working successfully on a largely "normal" relationship with his parents, since "[you] can't just ignore this issue your whole life and no longer have any contact. You'd regret it on your deathbed, so you have to make contact before that, and find a way to reach some kind of normality."

2.4   Adaptation without Psychological Stress

The example of interviewee 29 makes it clear that change processes – both reactive and active change behavior – are generally associated with phases of suffering of varying duration. These experiences of suffering can be physical, but mostly it is the unclear or open-ended nature of the change process which imposes a strain (cf. section 2.2). The respondents often regard this experience of suffering as an obligatory component of life, in some cases even an important one. For example interviewee 7, a singer, says: "Artists need freedom, I've only just noticed this, at 45. It might sound funny, some people will even laugh, but a happily married singer is a bad singer. Or she has to have a lot of empathy, because the lyrics I sing are heartbreaking. If I had a big fat Daimler from my husband, enough money and this and that, the usual, what happens to powerful emotions? But when I imagine Ella Fitzgerald or Billie Holliday: what they suffered in their lives."

In individual cases, however, adaptive behavior can be observed (virtually) without psychological stress. If we analyze these cases, we can identify the following factors or competencies which lower the psychological stress of a change process: favorable circumstances in life, the ability to relativize, and the ability to actively shape one's own life.

Favorable circumstances in life: change processes are always seen as imposing little or no strain if adaptation to the new circumstances is largely automatic and unproblematic (cf. also section 1). An example is interviewee 2, who was aware of the caesura created by the fall of the Berlin Wall in 1989, and describes it accordingly, but had no problem coping with it – unlike many other contemporaries – because he "happened" to live near the border: "You know, in 89 all our lives were disrupted, regardless of how old we were. I was in my mid, late 20s, I had totally different plans, I wanted to continue my job, start a family, build a house – that was possible in East Germany too. A lot of people didn't survive it, especially older people or people living in areas where unemployment was very high, but here in Berlin it was all right. You could go and work in West Berlin, and then you earned West German money even before the monetary union. In other regions, a lot of people didn't cope. They'd worked all their lives, then they lost their jobs, all of a sudden they weren't needed anymore. I had a softer landing, you know? Because I happened to live in Berlin, and I found something straight away. And then I was able to say: well, it'll all work out somehow."

In some cases, paradoxically, it is the high demands often associated with a disruptive change event that help to make the process feel less burdensome. In the words of interviewee

1: "I had to turn half my life inside out in the space of a few minutes. That was when my mother became ill; she had to go to a care home, and at the same time my company gave me my notice. Within four weeks I had to find a place in a nursing home, clear out the apartment etc. At the time I didn't fall into a black hole, because I had to hit the ground running and give it 200 percent." "Jumping in at the deep end," or, in very demanding situations, having no opportunity to think things through, can evidently be helpful for adapting to a change.

The ability to relativize: change processes are felt to be less burdensome if we see them as part of larger, sometimes "fateful" contexts, and so ascribe "meaning" to them. "Well I learnt from my husband that there's always a reason for everything, whether it's positive or negative. For example he said to me: 'There'll be a reason why I didn't get the job in B.'," explains interviewee 5. For interviewee 21, sport is a central element of her life and helps to give her strength and purpose when coping with the consequences of an accident: "I didn't think: 'Oh God, oh God,' but more: 'Well, I'll just have to get through this'. It also helped that the family and all my friends stood by me and encouraged me: 'Look, you can do this and that, and how about we give that a try?' Straight after rehabilitation I started to play basketball, that really gave me something where I could see: OK, this is sport again, the way I like it, I can get a proper workout, I can also play competitively, it doesn't match the picture a lot of people have: you end up in a wheelchair and that's that."

The ability to shape one's own life: the more we feel we can control or influence change processes ourselves, the less burdensome they seem. This is the case, for example, if changes are understood not so much as a threat but as a stimulating and potentially even pleasurable challenge. For interviewees 3 and 24, both IT security experts, the need to constantly keep up with technical developments is not regarded as a constraint. Interviewee 27 sees it as "exciting to be drawn out of my comfort zone now and then." And interviewee 3 says: "IT is what I'm interested in, I enjoy it, I don't have to force myself to sit down and read something or keep up to date. It's fun, it happens automatically, and that's why it's easy for me, I don't have to force myself to be up to date, I enjoy it."

Another thing that helps people to adapt positively to new circumstances is anticipating them in good time, and thus having a chance to prepare for or preempt changes. Interviewee 11, for example, makes this observation with regard to his children's puberty. Interviewee 12 notes, in this context: "The simplest way to avoid friction is to adapt, sacrificing your quality of life, or to break out. I decided to break out, and I can say that in my case it worked. Well, some of the changes of job that I deliberately initiated were motivated by the justified feeling that I had to do something. Because I don't have a permanent position with the car manufacturers, I'm always dependent on their favor, of course; as soon as they stop selling cars, they chuck out all the external workers. So you have to have a sixth sense for it: when will it happen? Because once the wave has been unleashed, and suddenly everyone is applying for jobs on the labor market here, then I don't have a chance either. So I have to get in first. And I've always managed that quite well so far."

3 Evaluating Changes

3.1 Importance of Subjective Experience

For the retrospective evaluation of change processes and events, the rule is: the more intensely the change is experienced as it is happening, the more positively the completed change is evaluated afterwards – provided that that target state aspired to, or a new state of equilibrium, has been fully or almost fully attained. An example is interviewee 7: after separating from her partner, she had a rocky road as a single parent on the way to her "vocation" as a singer: "When my son was one, I noticed that I wasn't happy. I wasn't making music, I only existed for my child, shopping for food, cooking, washing, the things most mothers have to do. And a voice inside me asked: What about me? As an artist. And I'd become unhappy with my husband too. That went on for two years. I always thought: have patience, maybe it'll get better. But my dream wasn't that it would get better, my dream was to make it onto the stage again. And then I said: I'm unhappy, I want to separate. Things went back and forth for another six months, and then I set a time, and he moved out. As a little girl born in deepest Anatolia, who had nonetheless turned out well, I said: 'Now I'm going to go it alone, I don't need you.' And then he went, and I survived brilliantly, and I'm very happy with my son. In retrospect I'm happy that I made that decision, it was the most important decision in my life."

The differentiation between more rational and more emotional aspects is especially apparent in the case of interviewee 1. The respondent rates the self-initiated divorce from her partner very positively in terms of the freedom, independence and self-determination she gained from it (emotional level), but from a financial point of view she regrets having decided on a divorce instead of just a separation (rational level): "I don't want to get too private here. We'd been married for 25 years, I couldn't carry on, I couldn't stand it any more. It took several years: sometimes he was living with me, sometimes I threw him out and sent him to his girlfriend's. If I'd decided at the time to separate, I'd now be in a great financial position. At the time my husband worked for a good company and he passed away shortly after the divorce. If I hadn't got divorced, I'd have a very good widow's pension now."

Overall, the respondents' statements show that the evaluation of changes seems to be closely connected to the – subjective and interpretation-dependent – experience of setbacks or obstacles to the coping process, and to the assessment – also interpretation-dependent – of whether the impetus for change came more from the inside or from the outside. The quotations also indicate that the respondents' own struggles and their overcoming of obstacles are interpreted as successes (cf. also section 4.3).

3.2 Forms and Structures of Evaluation

A change always seems to be evaluated as positive if the target state aspired to has been reached (to the greatest possible extent, or in the sense of an interim target), if (where
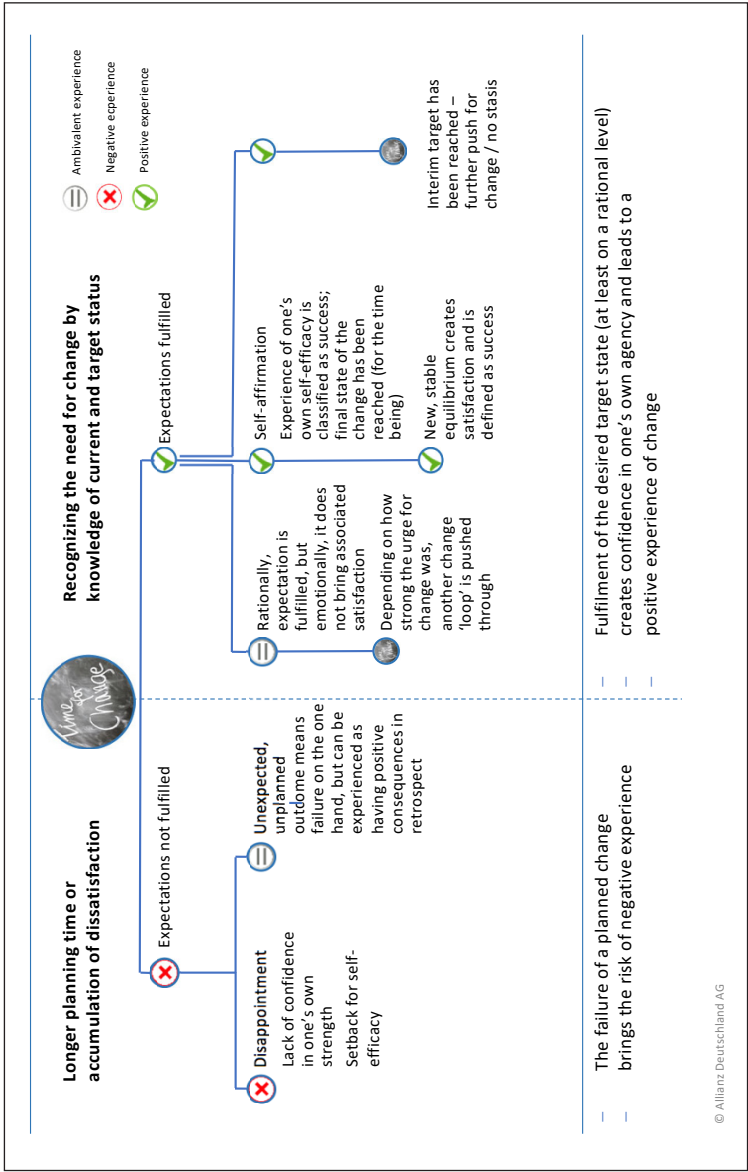
Fig. 2 Evaluation of Changes

relevant) the previously existing contradiction has been resolved, and if a (new) inner equilibrium has been created or restored. In contrast, a change is rated as negative, causing disappointment and doubt in one's own strength, if the expectation is not fulfilled. In this case, the confidence in one's own agency which is necessary for a positive experience seems to be lacking (cf. fig. 2).

As well as the examples of positively evaluated changes mentioned above, further examples are provided by interviewees 5 and 23. Interviewee 5 managed to resume her career after the birth of her children: "I just didn't want to always have someone wanting something from me. I love my children more than anything, no question, but I just wanted to get out, talk to adults, and get affirmation for doing what I've learnt, what I enjoy." Interviewee 23 talks about taking up a voluntary position in her retirement, and says that helping gives her life meaning and content.

In contrast, examples of negatively evaluated changes are found in the case of interviewees 4 and 6. Interviewee 4 was left by his partner: "I wasn't prepared for her decision to leave me, that is, from one day to the next I was faced with a massive question mark, didn't know what was going on, and was completely overwhelmed by the situation." Interviewee 6, after the death of her grandfather, was confronted with her grandmother's need for nursing care: "I cared for my grandmother, in her home, I went there two or three times a week. During my pregnancy it was feasible timewise, I was able to reduce my hours. But it was definitely a psychological burden. And this year I had to clear out her apartment within three months, I had the children with me, they weren't yet at daycare. Grandma was already in the care home, she didn't have a chance to say goodbye to the apartment. That was actually the worst year, in terms of intensity and suffering."

3.3   Changeability of Assessments

The examples cited above show that the evaluation of changes is always a process of interpretation, which depends on a number of factors. One example is retirement, which some describe positively as a liberation (cf. interviewee 27), and others negatively as an exclusion (cf. interviewee 14). This process can itself be subject to change in subsequent reevaluations: for example, some interviewees state that they "simply enjoyed" the initial period of the retirement phase, but that over time they suffered increasingly from "cabin fever," and had to seek new fields of activity. Not every fulfilled expectation automatically brings emotional satisfaction, then; sometimes it gives the stimulus for a new change project. Conversely, an unexpected and unintended outcome, which is initially seen as a failure, may later be perceived or interpreted as positive in its consequences.

There are numerous examples of change events that are viewed with ambivalence or reevaluated. Interviewee 3 tells of the death of his father: "My dad's death changed a lot in my life, especially my attitude. I don't get so stressed anymore, I try not to quarrel over small things. I see my lifetime as limited. As a result, a lot of things have become less important. Money no longer plays such a big part. Some colleagues are constantly comparing

themselves with others: he works less than me, but has a bigger car, that sort of thing. For me things like that have become trivial. I'm content with what we have, I'm glad we're all healthy, and I've developed a different view of life since it happened."

For interviewee 12, a supposedly wrong choice of university subject eventually led to a good professional position: "For me the choice of course was easy, because I'd decided: if they're constantly searching for people who can do this, then that's what I'll study. In terms of effect, it was probably wrong in the end, because being a specialist engineer would probably have suited me better, interest-wise. But I made that decision, and I have to live with it. On the other hand, if I'd studied a different course I wouldn't have the ability to assess what's going to happen in the world in future, in terms of financial policy, and how that will affect the ability to sell cars. So somehow everything happens for a reason." Interviewee 14, looking back on her own working life, actually regards the fact that she once stuck to a job she disliked as "extremely fortunate," since despite the change in system from the GDR to the Federal Republic she was able to avoid gaps in her employment history, and her professional situation even took a turn for the better: "It's unbelievable that I managed that, I wasn't unemployed for a single day. I didn't even have to apply for a new job, I just got them one after another. That really was a good change. Even today I'm still glad I didn't leave the Staatsbank, although I didn't like it at all to start off with."

For interviewee 21, a disability caused by an accident led to inner strength: "Maybe that's the crucial thing, that after the changes I saw that I could still cope and that it worked. It simply makes you more relaxed, stronger, because somehow in spite of it all life goes on. It gives you security, you're less afraid of the future." Similarly, interviewee 15 does not evaluate his hearing impairment in purely negative terms; he sees it as allowing him to operate in "two worlds" and build bridges: between the deaf, the hard of hearing, and the hearing.

Bereavement also has ambivalent aspects, as interviewee 27 reports: as well as grief, it can also mean the end of a major burden of support and care. "My mother then passed away, more or less from one day to the next. She was always ill, though, with extremely limited mobility. We had a care service visiting three times a day, but I was responsible for all the everyday errands, for every screw that was loose. My mother could have gone on living for a long time, but then she had a fall, and you don't recover so well from a fracture of the femur at 88. She then passed away within a short space of time. Mmmh. At first it was a bitter blow for me, but on the other hand I have to say that it wouldn't have gone on like that for much longer, because I was getting to the end of my tether. I was totally exhausted, the energy that was left."

3.4   Lasting Effect of Positively Evaluated Changes

In each of the cases cited above, where changes were viewed with ambivalence or reevaluated, what becomes apparent is that previous experiences of change – that is, people's interpretation of change processes they have experienced – clearly have a formative effect on their perception and assessment of processes of change that are still to come. If individuals

succeed in imposing a positive shape on changes, or in accepting or reinterpreting them, this seems to strengthen their own change competence and willingness to change, or their optimism about change, in the long term. Change is then experienced as a personal process of transformation, or as a chance for people to prove themselves, revealing resilient qualities of their own character and, where relevant, their support network. The ego emerges from the crisis strengthened and more sure of itself, as the statements of numerous interviewees demonstrate. Three will be quoted here as examples:

"Not everything that I've ever undertaken has worked, but so far I've always achieved a very, very large proportion of my goals, and of course that gives you courage for the next change, even if you can never be sure that it'll work," says interviewee 3. And interviewee 28 summarizes her experiences as follows: "No task is too difficult to tackle and master. I know that somehow I always manage, that I can make things work out well for me. And that I can learn a lot from it. I've understood that I can only rely on myself, and that's a good feeling."

Past changes that are evaluated as successful are associated with a sense of optimism about future changes. This becomes especially clear in the case of interviewee 30: "When I was pregnant with my oldest daughter, I still lived with my parents, I was only 17. And I made a resolution: somehow you'll manage in spite of the baby, you'll look for an apartment, you'll be a decent mother, you'll find work and earn your own living. And I'm damn proud that I managed to do it. Then the second one came along – the two big ones have different fathers –, and I said to myself: you're going to carry on exactly as before. You've managed with one child, you'll manage with two. And then came the next goal: finding the right man, so we'd become a family. And that worked too. If you want something, you can achieve it."

Optimism alone – as other interviews show – is not a sufficient criterion for coping positively with changes. Nearly all the respondents try to give an optimistic interpretation. Some, however, gave an impression of unresolved contradictions even in the context of the interview. The members of the interview team thought that the optimism seemed "artificial." One example is interviewee 14, who, despite multiple experiences of failure, maintains an energetic, purposeful attitude, but ignores and represses obvious problems of social attachment and integration, both in professional and private life, so that self-perception and reported life story seem contradictory to the observer. Further examples are interviewees 4 and 10, whose self-assessment as successful businessmen diverges considerably from reality, and seems to serve primarily to maintain a positive self-image. Another example is interviewee 16, whose constant, seemingly driven, work-related changes can be understood – taking into account his specific socialization – as the expression of a particularly intense striving for recognition, self-awareness and self-experience (cf. section 4.2). In these cases, where integration has probably been only partially successful, there are signs of repression, rationalization, or even somatization (interviewee 4, for example, reports recurring phases of not being able to think clearly). The preservation of an underlying optimism, the successful quest for affirmation, and the stabilization of self-worth are not automatically relevant to change, but only insofar as they are accompanied by individual feats of integration or a well-developed sense of reality. As the examples show, an illusory

self-perception or an unreflecting attachment to (obsolete) habits are among the things that can stand in the way of a positive shaping of change.

4   Implementing Changes

4.1   Competencies for Successfully Coping with Change Processes

Based on the results of the qualitative study discussed in this article, the team at the IZZ has developed a concept of change competence, which is presented in detail in the article "Change, change competence, and personal growth" by Christian Weller in this volume. In the following section the 16 individual competencies making up this concept, divided into the four competence fields of orientation, problem-solving, stabilization and practice, will be drawn on to illustrate the use of competencies, looking at four exemplary cases from our survey. The aim is to gain insights into which specific individual competencies are needed in order to cope successfully with particular kinds of life event. Referring back to the categorization presented in section 1 (into changes relating to loss, fulfillment, a new start, and a burden or strain), and focusing on unemployment (reaction to a loss-related change) and self-initiated change of occupation (proactive change related to a new start), two exemplary, positively completed cases from the survey will be briefly presented.

Interviewee 15 – a qualified media designer, male, aged 31, hearing-impaired from birth – and interviewee 19 – retiree, female, aged 71, involved in voluntary work – have both been affected by unemployment in the course of their working lives. The interviewees describe this sudden experience of loss as dramatic and at first very negative; in the end, however, both managed to cope with this phase in a positive way.

Change related to loss I: interviewee 15 began by analyzing his specific situation, comparing his formal education and training with the general labor market situation (→ diagnostic competence), and came to the conclusion that in order to successful reenter the workforce he needed additional training (→ ability to plan), which he then actively requested at the job center, a request that was approved after initial resistance (→ decision-making ability; resilience). The interviewee ascribed his tenacity partly to the upbringing received from his parents (→ self-reflexivity), who showed through their example that "there's always a way" (→ optimism), and partly to his own inner motivation never to be poor and/or unemployed (→ formation of guiding principles). He successfully completed the further training he had fought to receive (→ ability to implement; willingness to learn), which proved to be the foundation for his current, positively evaluated situation in life (→ self-efficacy).

Change related to loss II: interviewee 19 lost her job as a secretary at the age of 60, and was able to retire at 63 because of a 50-percent disability. These favorable circumstances made it considerably easier for the interviewee to accept the change and cope with it successfully (cf. section 2.4). She began by evaluating her situation realistically – at that age, a new start in the workplace is extremely difficult – (→ diagnostic competence) and

therefore focused instead on financial protection from the welfare state up to retirement age (→ ability to plan). In order to do this, she strategically sought and obtained information (→ information and knowledge competence), took out an insurance policy before it was too late, and went through a complicated bureaucratic process which was necessary to obtain unemployment benefit (→ ability to implement). To fill in her free time, and also to supplement her benefits, she took part in (among other things) market research projects (→ self-regulation; ability to compromise). In the end she came to accept this situation, and – not least because of a life-threatening illness of her husband, which made her more aware of "higher" values – she managed to enjoy the free time (→ optimism). Alongside this, however, she continued to actively seek a new job, and even placed 'work wanted' advertisements on her own initiative. These efforts were unsuccessful, but in retrospect she interprets this as an advantage, enabling her to take up the voluntary work which she now carries out and experiences as positive (→ formation of guiding principles, ability to compromise).

Both interviewee 7 – single mother, aged 48, from a migrant background – and interviewee 25 – married, father of three children, aged 50 – decided on a work-related change, though from different motives.

Change related to a new start I: for interviewee 7, the main concern is self-realization, "making up for something I hadn't managed to do in my previous life," specifically pursuing her passion for singing and making music (→ formation of guiding principles). Because she could not find any time for her "vocation" in her well-paid job for a large auto manufacturer, she decided to give up this work. In order to receive unemployment benefit, she initially asked her employer to give her notice (→ diagnostic competence; decision-making ability). This was declined, whereupon the respondent resigned, on the basis of a "gut feeling," risking an insecure material future (→ optimism and capacity for enthusiasm; ability to implement). Thanks to favorable circumstances – the financial blow was cushioned by her partner at the time, with whom she had a child about one year after her resignation (→ resource orientation) – the respondent coped successfully with this situation (cf. section 2.4). Today she works part-time in retail, earning considerably less than in the past, but manages to make ends meet. Overall she is very satisfied with her situation in life, since she finds time and space for music: among other things, she works as a self-employed singing teacher, and she also receives bookings for performances (→ flexibility; self-reflection).

Change relating to a new start II: interviewee 25, in contrast, is much more security-oriented, and ascribes his position as a civil servant to personal character traits such as discipline, respect, and conformity to rules (→ self-reflection). Nonetheless, after 20 years of service he decided on a work-related change (→ decision-making ability). The reasons he cites for this step are a lack of appreciation from his superior, and the desire for new challenges (→ capacity for enthusiasm). After consulting with his wife (→ resource orientation; communicative ability) and processes of deliberation (→ diagnostic competence), the respondent decided to move to another government agency. He emphasizes the favorable circumstances which were important for this step, that is, the security provided by the status of public servant: "I have nothing to fear, except saying that I'll just stay sitting there. A

totally different situation than for other people, who have to fear for their jobs. And that's a privilege." After initial small problems, which the respondent was able to solve by means of self-attributed abilities such as knowledge of human nature, the ability to listen, and analytical ability (→ self-reflexivity; communicative ability), he now feels comfortable in his new work environment, and claims to have found new motivation and thus attained his goal (→ self-regulation and self-efficacy).

The specific types of life event – as shown by the cases outlined above – entail specific coping strategies. It also becomes very clear that individual change competence is not so much a clearly demarcated, homogeneous characteristic, but rather a cluster of characteristics, skills and motivational dispositions, which interact in complex ways in relation to a change, and are closely linked with the specific circumstances and the biography of the people involved.

4.2   Significance of the Social and Societal Framework

None of the total of 16 individual competencies is, taken on its own, absolutely essential for the positive implementation of changes, so the lack of one competency does not necessarily constitute a barrier. Nonetheless, certain individual characteristics – interacting in a very specific and therefore not generalizable way – are central for successfully coping with change. At the same time there are individual problems, mentioned at the end of section 3 (illusory self-perception, unreflective attachment to obsolete habits), which are highly likely to stand in the way of a positive shaping of one's own future. What applies to the individual can also be transferred to the levels of social life. Family and friends, people we work with and spend our leisure time with, social security systems and art: all these are influencing factors, which can simultaneously appear as a resource or as a barrier to coping with change, as the following examples from the survey show.

Family as a Resource

In two respects, family can prove to be a key resource for coping positively with change. On the one hand, in terms of everyday practice, family members are an important source of advice and/or support in certain change processes. In line with this, some respondents emphasize the role of the family: "My family and friends helped with all the decisions; you ask people for advice," says interviewee 3. And interviewee 30 reports: "My parents gave me lots of support. If I hadn't had them, I wouldn't have been able to do much. […] They helped me again and again, and took my daughter if I had to work or if something else came up. They supported me financially when things got tight, they were always there."

On the other hand, the family is also a resource in terms of values and basic attitudes imparted in early childhood, which are connected to the specific change competence of the individual. Parental upbringing is essential for the development of ego strength, that is, for each person's level of self-esteem and self-assurance, and a secure attachment in childhood fosters social competence and confidence, resilience in the sense of emotional

stability, and also the capacity for self-regulation. The interviews provide evidence that respondents' emotional attachment to their parents, and the work ethic their parents model, can have a formative and positive influence on their change competence.[2] This is expressed, for example, in the following quotes from particularly change-competent subjects: "My parents are both very hard-working people, and conscientious and punctual, and they really set an example for me. They were good role models for me. I learnt from them: 'You only earn money if you do something for it,'" recounts interviewee 13. Interviewee 24 sees the influence of the family in similar terms: "Yes, I think you're shaped by your family. We had this goal orientation: you can influence your life yourself, you have all the opportunities in the world. And not: we're lacking in financial resources, you have no chance at all. I was always told: the opportunity is there, you just have to do a lot for it, and even in the most difficult situations there's always a way to get out."

Family as a Barrier

The example of interviewee 11 makes it clear that family can also be a barrier for the implementation of certain change processes. For example, the interviewee states that he (initially) decided not to pursue advanced secondary school education or university study purely out of consideration and love for his father: "I trained as an electrician because my father said: learn a trade. I said: OK, I'll do it for your sake, but it wasn't the path I wanted to take." The respondent later achieved his original wish via the arduous route of 'second chance' education, but in retrospect he regrets taking the detour imposed by his father.

In other cases, problematic parental figures or relationships coincide with later deficits, and it can be observed that a lack of stability, order and security in the parental home can lead to an exaggerated need for change and expansion, reflecting an overly intense striving for recognition, self-awareness, and self-experience. This is shown very strikingly, for example, in the case of interviewee 16, whose childhood was characterized by the lack of a close attachment to his parents, and by numerous changes of address. This instability is perpetuated – though now of his own choosing – in the career of the respondent, who claims to need a change in job or occupation at least every five years for fear of monotony and boredom. Here change presents itself as a kind of obsession, demonstrating that the (pro-)active willingness to change can also be taken to extremes.

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2   In some cases, however, opposite tendencies can be observed: often the respondents – including some of those classed as particularly change-competent – emphasize, for example, the strong work ethic of their parents, and deliberately distance themselves from it. Interviewee 3: "We don't want to wait until something really happens to us, and as I said I see this a bit differently because of my dad's death, he really did just work all his life, that was his thing, but he didn't see the world, for example. And we want to give ourselves a bit more time, we know how fast it goes by." Interviewee 7: "Well [my parents] really just worked their whole lives, worked themselves to the bone for a car, a house, a piece of land [...] well I laugh about it now, but that's not how I imagine my life, working for a fat Daimler or something like that." The possible connection posited above would therefore need to be reexamined in a larger-scale study in order to make reliable statements.

Colleagues as a Resource

Social networks among colleagues can encourage processes of change, for example through the exchange of information, the use of synergies, and the exploration of better working conditions. Interviewee 4, for example, talks about a company founded and managed with a friend and colleague, in which the roles are clearly divided and each person's competencies complement the other's: "We thought about how products could be developed, and then went into app development. I was more concerned with how the user would approach it, he dealt more with the technical side. And then we realized that it would be interesting to develop new technologies. This firm came into being as a result of my curiosity and his urge to play around with technology, and the combination actually works pretty well."

Colleagues as a Barrier

On the other hand, workplace networks can also preserve the status quo, even in astonishingly stressful scenarios, for example by allowing people to share complaints and thus support each other. Interviewee 13 may be quoted as an example: "And at work we had a team, where we could have a good moan to each other. Because it was the same for everyone. And then we encouraged each other to hang in there: come on, we'll just give it a go and it'll all be fine, and so on. But in the end that just wasn't true. And I didn't like going to work anymore. That was the most awful thing for me: I didn't like getting up in the morning anymore." Or people continue to work in the same occupation and miss the chance to make long-lasting changes because colleagues are always helping them to find new jobs. For a long time this was the case for interviewee 2; it was only when certain physical warning signs were noticed that he decided on a major career change.

Social Security Systems as a Resource

In numerous cases, the interviews underline the fact that basic material security fundamentally strengthens confidence in the manageability of change. Interviewee 16 states: "It does give confidence: I have the feeling that I'm not stupid, I have a relatively broad knowledge base, and I'm not uncommunicative, and with those abilities you'll always find something. The worst thing that can happen to you is death. And for everything else there's a solution, somehow. I'll find a job and I'll be able to make a living. And even if that weren't the case, for whatever reasons, in Germany you have absolute security. If I had an accident, an illness, if I couldn't work any more, I'd have my rental income as security, and then the disability benefit. And if all else fails I'd get a basic security benefit, I'd have something to eat, a roof over my head, the state would look after me." Thus awareness of a social safety net, ready to catch people if the worst comes to the worst, provides security and can definitely foster the willingness to change (cf. section 2.4.5).

Social Security Systems as a Barrier

In individual cases, the social security system can lead to over-reliance on the social safety net, and thus become a barrier to the implementation of changes. Interviewee 29 describes

the following case from his family environment: "Well my brother… it's sad: same age, good-looking, but can't be bothered. Hasn't worked for six or seven years, gets Hartz 4 [unemployment benefit]. Well for me he's a negative example. I could stop working but I keep working nonetheless. Because it gives life meaning. And because I want to earn a bit of extra money. I don't want to be financially dependent on the welfare office, I don't want to keep having trouble with government agencies and that sort of thing. Even if it sounds harsh: he really needs to be left to fall flat on his face so he can pick himself up again. Because if you never fall, you never learn to get up again."

Interviewee 20, an entrepreneur, also emphasizes that awareness of material security can be an obstacle to the initiation of change processes. He observes that many people "need their secure job, and never move into self-employment, because they're too afraid." Interestingly, he admits to needing this feeling of security himself too: "I make plans and also consider what can happen in the worst case scenario. The worst case scenario with self-employment would be that it doesn't work, I don't get my old job back, and I don't have an income. But my wife still has her job. And we've done the calculations, we'd be all right for a few years."

4.3   Importance of Obstacles and Ways of Dealing with It

Barriers or obstacles can hinder the implementation of change processes on various levels of social life. At the same time they also function, in some cases, as drivers of change, setting changes in motion or allowing them to progress. As has been shown in section 1.1, a need for change is often recognized when a growing discrepancy between wish/self-image and reality is no longer seen as tolerable. This action-driving function of opposition or obstacles is expressed very directly in individual cases. Interviewee 9, for example, saw the notices of rejection from her health insurance fund as a challenge, encouraging her to claim her rights. Remarkably, the years spent in appeal procedures against a seemingly unassailable bureaucratic system did not discourage the interviewee, but on the contrary, strengthened her commitment.

Similar observations can be made with other respondents, for example interviewee 11, in whose case it was mutual competition with his friends that encouraged him to undertake higher education and training: "My two best friends were getting ahead, and I didn't want to stay put. Just working in the tourism industry, selling trips to Majorca, wasn't enough for me, my aim was to reach a position that satisfied me, and I have my friends to thank for that." The desire to prove one's own abilities is a strong driver; this is also apparent in the case of interviewee 22, who would have been very embarrassed if she had reversed her move from Russia to Germany. Even aggressive tendencies such as anger, the striving for dominance, or the desire for revenge can potentially be factors conducive to change. This is reflected, for example, in the case of interviewee 20, who was subjected to considerable criticism after moving to a smart part of town: "There are lots of people, even in my circle of friends, who say: 'I'd never move there, it's awful.' And sometimes that does hurt,

because I think: you fight for this for years, and now everyone just thinks it's awful. But then I hope they're at least jealous."

Persevering in the face of obstacles – as these examples underline – strengthens the resilient qualities of one's own character. As interviewee 21, for example, emphasizes, parental upbringing is one factor that has a decisive influence on this: "I think that staying power comes if you haven't always achieved everything immediately in your life, if you've always had to struggle a bit. No doubt it also comes from your upbringing. I have people in my circle of friends who just have to blink and Mommy will buy anything. And with those people you see that they often don't have the same staying power."

Analysis of individual ways of dealing with obstacles confirms the assumption expressed by interviewee 21: that this is interrelated with the specific socialization of the respondents. Those subjects who state that they were largely left to their own resources from early on in life are more likely to cope with obstacles alone than those with strong family integration. Interviewee 7 states: "I still don't have a real connection to my parents. I was one and a half when my mother had to leave me. Then when I was nine and a half I came to Germany too. That was a very long time in which she didn't experience us growing up, and we didn't experience her. So we didn't manage to find a way to connect. For example, my mother doesn't know what dreams I have. For a long time I used to dream of having a wonderful person next to me who would protect me. My dream did come true, but today I say: 'That's enough, I don't need so much protection any more, now I want something different, I want my life to change.'"

Respondents who have always had close family ties, on the other hand, generally rely more on external support – mostly from their partner or close relatives or friends, but also in some cases from professional coaches or certain (for example religious) role models. An example is interviewee 11: "Without my wife and our joint decision I wouldn't be where I am now. For me it's completely normal for someone to have an apartment or start a family. I don't see that as a special achievement. In my children's school, half of the parents are single or divorced, and that shocks me, that it's not a given that a family lives together. For me it is a given. That's what I saw with my father, and that's why it's a given that I discuss joint steps with my wife." Regardless of whether obstacles are coped with alone or with support from third parties – in both cases, a successful resolution helps to strengthen the individual's self-confidence and change competence, and gives a lasting boost to his or her optimism about change (cf. section 3.4).

4.4   Change-Related Personality Types

On a fundamental level, the respondents deal with obstacles in very different ways. For some, opposition or obstacles constitute an insurmountable barrier, or one that can only be overcome with great difficulty; for others – as we have seen – they are more of an additional impetus. Still other participants integrate setbacks or obstacles as parts of the change process, and thus succeed in making the transition from a "stroke of fate" (external

impetus) to a self-directed adaptation (internal process) (cf. section 4.5). Reflecting this wide range of behaviors, the IZZ used the interview material to develop a heuristic model with six different change-related personality types, which are summarized in figure 3.

The way people deal with and shape change plays out within a matrix between extrinsic and intrinsic motivations, and between emotional and rational approaches. The corresponding change-related personality types within this matrix usually cover several subdimensions and may overlap; it can therefore be assumed that real people are often a mixture of forms, and that many people will go through several of the types described below in the course of their lives.
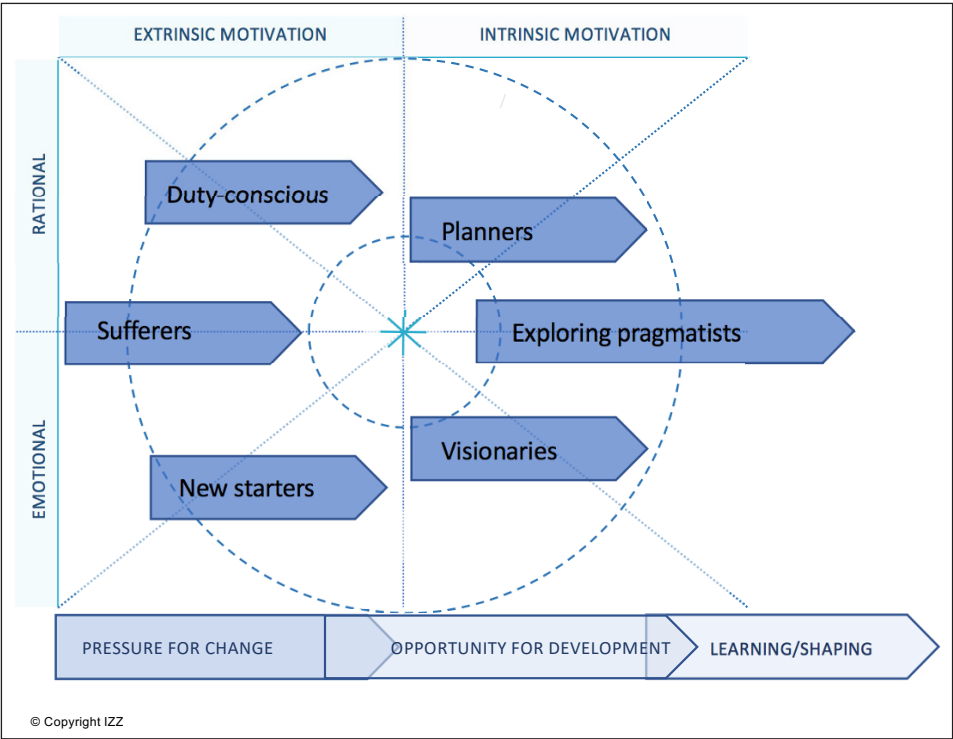
Fig. 3   Change-related Personality Types

Characteristics of the six change-related personality types

The duty-conscious
▶ Face the facts and systematically work their way through tasks
▶ Often have to overcome their own resistance before putting things into practice

Planners
▶ Are characterized by rational goal orientation
▶ Show a strong practical orientation

Sufferers
▶ Are tenacious characters, who are prepared to wait and see
▶ Stick with what they are accustomed to

New starters
▶ Undertake a complete reorientation (e.g. after a disruption in their environment)
▶ May experience a feeling of independence as a result of constant change

Visionaries
▶ Usually follow a goal intuitively, based on a "gut feeling"
▶ Show a strong ego-orientation

Exploring pragmatists
▶ Prefer a step-by-step, testing and adaptive procedure, incl. exploratory action
▶ Balance out the levels of doing and reacting

All change-related personality types allow a potentially positive shaping or experiencing of the future, but in different ways and with different levels of cost and risk. For the sufferers, for example, a change process takes place very slowly and is accompanied by strong feelings of reluctance (cf. section 2.2). Thus if paralysis sets in, they face a higher risk of failing to achieve the ego-integration essential for coping positively with change processes. This also applies to new starters, for whom change can become an addiction or an escape.

Ego-integration, and the associated understanding of change as a developmental opportunity, works particularly well for exploring pragmatists, who thus prove to be a particularly change-competent type. Here an external event (extrinsic) is often "included" in a person's own sphere of life, allowing new insights, with which the individual identifies from then on (intrinsic). The external impetus leads, in its consequences, to the gradual establishment of a new inner equilibrium.

Besides their ability to integrate or segregate (more on this under 4.5) particular external impetuses, a key characteristic of exploring pragmatists – in comparison to the planners or visionaries, for example – is that they incorporate the competencies of other change-related personality types in a dynamic history of change.[3] They take the step into

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3   Although no generalizable statements are possible, given the small number of cases and the decision not to systematically request sociodemographic data, exploring pragmatists evidently tend to have a

practice, and complete the processes of correction, learning and development that this involves. Through the ability to accept criticism, the willingness to learn, and pragmatism, they optimize problem-solving approaches and adjust goals. In keeping with this, cases of exploratory action, step-by-step approaches and goal adjustments are frequently found among the exploring pragmatists. Here are a few examples:

Interviewee 21 tells of the importance of internships he completed, which led to inner clarity and corresponding decisions, which he evaluates positively in hindsight: "Beforehand I didn't really know what I could do with a degree in sports science on its own, and everyone said that the job prospects were poor. But then I did a few internships in sports therapy, and then I realized that was my thing."

Since his retirement, interviewee 27 has deliberately used the option of "taster sessions" to gather experience in various areas of recreational and voluntary activity: "For example, there's a drop-in center that gives information about the groups offered by the church. [...]. I want to do a taster session there. In the past I was fully occupied fulfilling my obligations. And now I'd like to pick and choose a bit. But I know myself: if I agree to come to a group and then stop coming after the third time, I feel bad. I end up feeling guilty again. And so I need to give it some time before I say yes. I examine it first, from various sides, and have a look at what else is on the market."

Proceeding step-by-step is also typical:

Interviewee 12 is characterized by a continuous striving for progress, and a sense of reality. This is reflected, for example, in the fact that he does not expect any "great leaps," and is instead satisfied with "small career steps": "What I really don't want is to sit on the same chair until retirement. But as long as I can change something, small steps are enough for me, I don't need any big steps upward. I want to feel that I'm making progress."

Interviewee 21 believes that her experiences in sport have given her the strength and stamina to overcome, one after another, the obstacles that often confront disabled people in everyday life: "Where do I get it? I've always needed new challenges and new goals. If you know where you want to go, then you say: OK, for my next step I want to hit the basket from such and such a distance, that's my next goal, I'll train for that. You do pay attention to the direction you want to go in, but in small steps."

As becomes clear with several interviewees, the exploring pragmatists are able to undertake goal adjustments:

Interviewee 3 experiences a shift in his core values and attitudes to life after the unexpected death of his father shortly after retirement. From then on, he is better able to appreciate the (limited) life span available, and resolves to invest a little less energy in work and spend more time with his family: "You become aware of such things, for example, if you're having health problems, if you notice: OK, I'm nearly at the point of burnout here. That's why we jokingly call our time-outs 'burnout prevention'. On Saturdays we sometimes go to brunch, and then call it 'burnout prevention'. But seriously: we don't want to wait until

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higher formal level of education. In contrast, there are no striking findings for other factors such as income or region (East, West).

something really does happen to us. My perspective has changed as a result of my dad's death, he really did just work all his life, that was his thing, but he didn't see anything of the world. And we want to give ourselves a bit more time. We know how fast it goes. My daughter is 17 now – and I feel as though she was four years old just a moment ago… So time together, more free time, a bit of travel, those are the goals."

A similar change of perspective occurs in the case of interviewee 24, partly because of a serious illness of his partner: "Over time, more and more family-related priorities have developed, I'm married and we have a daughter. My career is still an important component, but the center of my life is the family, we like going on trips together, activities, that sort of thing."

4.5 Integration and Segregation of External Impetuses

Close analysis of successfully completed change processes shows that besides the above-mentioned feat of integration there is also a second successful but apparently opposite coping strategy, which can be referred to as a feat of segregation: in this case an external event is categorized as not critical for individual well-being, and thus "excluded" from one's sphere of life on the basis of a conscious decision and an act of balancing-out of one's inner equilibrium. The external impetus does not detract from one's inner balance, or only does so to a small degree or for a short time.

We will begin with a few examples of coping by means of integration: for interviewees 2, 13 and 27 it is the steadily worsening working conditions that constitute the starting point for implementing a change process (external impetus). Interviewee 2, working as a long-haul truck driver, experienced a great deal of stress, uncertain prospects, and a growing inner dissatisfaction: "In the end it built up over the years, you'd notice you were getting more and more miserable, your physical health was declining [...]." Interviewee 13, as an office worker, found herself in a similarly burdensome work situation, and particularly complained about the increasing pressure felt as a result of constant job cuts: "I was in the same company for over 20 years. When the downsizing started, people would say: they're not there any more, they've been downsized. And it was a strange feeling, because you never knew: is it your turn next? And then you had to travel about a lot more, because the work of the people who weren't there anymore was spread over those who stayed." Interviewee 27 was satisfied with his job as a civil engineer, a job he had done for many years, until he agreed to a change in his area of responsibility: "And then came the bad tidings from our top boss: Could I imagine doing something different? And it was more of a rhetorical question. After that, I always had a sort of a swamped feeling. I never got back to the level of satisfaction I'd had before. I never felt comfortable with my new duties."

All three interviewees put up with this psychological stress for a remarkably long time – interviewee 13 for four years, interviewee 2 for eight years, and interviewee 27 for ten years – before noticing physical warning signs which made them realize that they had to take practical action. Interviewee 2 tells of dangerous hallucinations he had at the wheel of

his truck. Interviewee 13 speaks of stomach problems and the feeling of imminent burn-out: "I felt like a hamster on a wheel, there was always something where you thought: oh no, you haven't managed that today either. More and more often I had stomach problems, and it wasn't clear where they came from. And then I thought: there's only one possible explanation – that all this internal dissatisfaction, all this external stress are having phys-ical effects." Interviewee 27 talks mainly about psychological consequences: "Sometimes I was a bit depressed, yes."

These signals from the body and mind are turning points for the respondents, leading to the insight that something has to change, as a matter of urgency, to restore their physical and mental well-being. Ultimately this indicates a feeling of responsibility toward their close family and friends, and especially toward their own health and their own lives – and therefore the major intrinsic motivation which sets a process of change in motion (cf. sec-tion 1.3). Interviewee 13 recounts: "I was simply under too much strain to make the extra effort to be kind to my mother, who needed care. And at some point I thought: What have you become? That wasn't me anymore!" Interviewee 27 remembers: "After a certain point it became unbearable. I realized that somehow life was no longer worth living like this, and that I had to see where I could make changes."

Let us now consider, in comparison, coping via segregation. As in the cases described above, of interviewees 2, 13 and 27, work conditions gradually deteriorated for interviewee 12, a 34-year-old industrial engineer. His approach differs, however, from the examples above. At the time of the survey the interviewee is working for a large auto manufacturer, but is only employed as a contractor and is therefore very much dependent on market cy-cles. If demand for the manufacturer's products declines, this means the respondent is in immediate danger of losing his job. Furthermore, interviewee 12 would like to work less with people: "I've had enough of getting suppliers to agree to something I know they can't actually deliver, for example because they simply don't have the facilities. There's too much work that doesn't lead anywhere, you do it because you have to. I'd like to do more with figures again, process analysis, process optimization, without it necessarily being about people; I'd really like to achieve something again, move something forward." His approach to this doubly burdensome situation (current dissatisfaction and uncertain prospects) seems relaxed, however, and there are no signs of heightened psychological stress: "Well, it's not that bad." Knowing that he has material security regardless of his employment, he relativizes the fundamental importance of paid work for his own life: "Of course I've made sure that there was an income, but I've also thought: OK, if the four of us calculate a Hartz 4 [unemployment benefit] rate, we won't be missing much. We do want to work. But security was never the problem." Furthermore, he sees the obstacles mentioned above more as a competitive challenge, and shows – not least because of positive experiences in the past – a high degree of confidence in his own abilities, and optimism about his subsequent professional development: "Well, so far I've always been quite successful in looking for something new." The respondent equates constant work-related change and the associated challenges with personal development, in a positive sense: "Each time it has brought a lot of changes, but also a lot of knowledge. I do think that I've evolved in the

process." He also emphasizes his striving for progress: "I really like learning, that's why I've always made sure that I don't keep sitting in the same chair, but always do something new. After three years at the most, probably more like two, you reach a limit where you're not learning anything anymore, and then either you go on as before or you start something new and go up another level."

In contrast to the three cases outlined above, involving a change of occupation or retirement after several years of suffering (interviewees 2, 13 and 27), the respondent maintains an inner detachment from these work-related developments, and acts proactively by constantly monitoring economic developments, enabling him to preempt the threat of termination. This has a positive effect on his well-being. He describes the situation as an enjoyable "challenge," which does not constitute a threat to his livelihood if the outcome is negative, but generates a sense of self-efficacy if he succeeds.

The positive reinterpretation of work-related challenges as opportunities for personal development and for experiencing self-efficacy and enjoyment is also apparent in the case of the two interviewees working in the field of IT security, 3 and 24. The constant changes associated with this occupation are accepted as an inevitable component of technological development. For interviewee 3 they constitute a fun factor, in the sense of positive competition with rival companies: "It's fun being better than the others." Interviewee 24 also sees this as a stimulating challenge, and finds it "exciting to be drawn out of my comfort zone now and then."

At the same time, both respondents succeed in maintaining their inner equilibrium, in an ongoing balancing process: "I try to stay above the problem, not to quarrel with people, and not to attach too much importance to minor details. It's about standing back a bit, for example not accepting every assignment, and not wanting to solve everything 100 percent all at once. So far I haven't noticed any inner imbalance, healthwise or whatever. Fortunately nothing's happened yet. But I can see that there are more and more customers, and it's getting harder and harder to satisfy them, and then I'm not satisfied with that either. I need two more technicians so the customers are satisfied, so I can manage my work and spend a bit more free time with my family," says interviewee 3.

Both go about their work with much enjoyment and commitment, but ultimately see it more as a means to an end, and subordinate it to other values such as family and free time. The following statement from interviewee 24 makes this clear: "I decided not to take the career path from staff member to team leader to departmental manager. I didn't want to go through these levels in the hierarchy, because I knew there'd be no time left for my family. I experienced that with colleagues who didn't see their own children growing up. For me it was a conscious decision to do it differently. That's why I developed my skills more on the technical level." This conscious effort to maintain detachment means that professional challenges are given a relative status in a value system, and not viewed as critical for the respondent's own well-being. In this context it must be pointed out that both respondents – like interviewee 12 – are largely free of major material cares. Interviewee 24, for example, states: "Even if things didn't go so well career-wise, what's the worst that could happen? You lose your job and look for something new. I do have this basic positive

attitude. Even if I were thrown out tomorrow, with the knowledge I've acquired I'd have no trouble getting something somewhere else anytime."

As the example of interviewee 21 shows, even after events that cause severe physical limitations, it can be possible to "segregate" these in a positive sense from one's own physical being, in order to maintain an inner equilibrium. The respondent, now aged 32, had an accident at the age of 24, and has been physically disabled since then. Even while in hospital, she realized that she would still be able to follow her passion, sport, despite her physical limitations, and she began to play basketball straight after rehabilitation: "The first advice I would give to others in the same situation is this: don't think so much, don't hang on to things that aren't possible anymore, but look for new challenges. The crucial thing is to feel that life goes on, and that you can still do something yourself." Today she even sees the way she processed things after the accident as advantageous for her own change competence (cf. section 3.4), and feels it has given her strength.

5   Conclusion

The overarching aim of the Change Study was to find out how change is learnt, lived, and put into practice. The analyses of the pilot study and of the quantitative cross-sectional study show that it has been possible to gain a number of insights in the area of personal life management. For this personal area, which was in each case delimited by the respondents themselves, deeper insights emerged into how people recognize, experience, and evaluate the need for change, and how they translate this need into action. The results of both phases of the Change Study corroborate each other in essential points (cf. also the articles by Stephan Duttenhöfer and Christian Weller in this volume); at the same time the life stories recorded in the pilot study make it possible to integrate the snapshots from the large-scale study into the longer-term time progression of the individual life span.

The final authority for recognizing the need for change is our own self-image or concern for our personal well-being. Often certain habits or attitudes are only questioned and corrected if our self-image seems to be in acute danger, or if our personal well-being is already impaired. A critical reason for the observable tendency to resist change is that coping with profound change processes is generally experienced as highly burdensome. In order to adapt to changes, we need both a certain amount of time and the challenging ability to deal with the unclear and open-ended nature of the related processes. If these efforts at processing and shaping change are successful, and if completed changes are evaluated as positive overall, then this increases our willingness to change and optimism about change in the long term.

A look at the results of the quantitative cross-sectional study shows that there is a wealth of experience here which is worth examining in terms of transferability and relevance for the future: most of the respondents cope successfully with difficult life events, and thus prove highly competent in dealing with the specific challenges of key life events. The analysis of

the qualitative interviews demonstrates, furthermore, that particularly change-competent individuals are often distinguished by exploratory action, a step-by-step approach, the ability to adjust their goals, and the capacity to integrate or segregate external impetuses.

A striking finding – both in the qualitative interviews and in the quantitative survey – is that the subjects focus on challenges that affect them directly and personally, while ignoring societal, economic or technical issues that seem more abstract, such as demographic change, globalization or digitalization. The experiences and competencies acquired in the personal domain could potentially be transferred to other such challenges and situations in life. An interesting follow-up question to the present study would be why the respondents only do so very hesitantly, and how they could be encouraged to broaden their horizon.

The Cognitive Workbench:
Using Artificial Intelligence in the Content Analysis of Change Experiences

Ramin Assadollahi

Abstract

In the context of the Change Study of the IZZ Institute for Psychological Future Management, ExB Labs GmbH continued the development of the tool "The Cognitive Workbench." The following article gives a short summary of this collaboration. Part 1 explains the background, objectives and state of research of the Cognitive Workbench, and locates the data analysis in relation to the IZZ Change Study. Part 2 gives an outlook on the further development of the Cognitive Workbench and further possibilities for collaboration with the IZZ.

1   Automatic Data Analysis on the Basis of the Interview Transcripts from the IZZ Pilot Study

The conventional procedure of interviewing humans is a cost-intensive task. The quality of the outcome depends on the study design, the amount of output produced by single subjects, and the interpretations of the people running the study (which make it partially subjective). Furthermore, we can distinguish between structured interviews (or even questionnaires) and more informal, semi-structured interviews, where the moderator's main function is to give direction to the monologues of the interviewees. While the former yield more precise answers or quantifications to precisely formulated *ex ante* hypotheses, their outcome is determined by the amount of thought invested by the study designers. Precision can be further enhanced by exactly pre-defining the population being investigated – at the risk of "looking in the wrong place" (education, profession, etc.). The latter (i.e. non-formal interviews) can potentially yield insights that go well beyond the initial intentions, and can be used for broader, more explorative information-gathering, which may uncover causal relationships that were not articulated in the design hypothesis. This comes at a cost, however: the humans interpreting these interviews may make decisions or interpretations that a different human interpreter would have made differently. These

studies are also more expensive, as it is more laborious to work through text, categorizing, quantifying, and structuring information.

The IZZ Change Study took a tried and tested approach to offsetting these disadvantages, running an explorative pilot study with unstructured interviews before developing a formalized questionnaire. However, one disadvantage cannot be eliminated by this procedure: both ways of obtaining structured information through human questioning limit the number of people who can be interviewed (and thus the validity of such studies) simply because of the limited definition and/or the cost and time involved. In the present paper we have tested a third variant, exploring a new way of automatically turning relatively unstructured text into explorable structure. The source material was the interviews of the IZZ pilot study, which are subjected to a content analysis in Daniel Brenner's contribution to this volume. The two projects ran independently of each other and with different objectives. While Brenner elaborates on the basic themes of the Change Study and compares the qualitative with the quantitative part of the study, this article examines methodological questions and gives an outline of the future possibilities of automatic content analysis.

The goal was not so much to produce quantifiable values for particular aspects, but to make the collected data accessible and navigable within a single interview and across many interviews. If such a tool were to produce valuable insights, it would be very easy and cost-efficient to massively increase the numbers of interviews across different cohorts. A very important advantage of automatic extractions is that researchers can go back and repeat them, redefining hypotheses, quantifying new aspects, and looking deeper into newly uncovered connections between data points. In short, the value of collected data would be multiplied using computers. There is another advantage of automatic extractions, namely objective (or rather: inter-subjective) validity, which we will discuss later in the article.

More recent developments in the field of artificial intelligence make it possible to produce deep, flexible and high-quality language analysis for a specific domain or task. The interview transcripts we used contain a large variety of topics concerned with the biography of the interviewees, and thus provide an excellent playground for explorative analyses.

1.1   Tool and Methods

The goal of the present, automated analyses of interview transcripts was to understand in what detail computers can extract what kind of conceptual categories. For this task, we used the Cognitive Workbench, a software produced by ExB Labs GmbH. It is a customizable and trainable system, which we used to define a set of experimental categories to cover autobiographic elements. Among other things, the tool produces three different analyses:

- recognizing *Named Entities* (i.e. to find a company, a product, a city or a person's name)
- recognizing *Relations* between such entities ("Tim Cook *is the CEO of* Apple Inc.")
- and putting such relations into a what is called a *Knowledge Graph* (where the nodes in the graph are Named Entities and the Relations are edges connecting these)

It is worth describing some properties of these technologies as well as how they were (mis) used in the present project. A Named Entity Recognizer (NER) is a tool that can spot named entities in a text. However, such names may comprise not just one word but several ("New York," "International Business Machines – IBM"), they may include common words ("celiac disease," "Alzheimer's disease"), or describe even more complex, modified or even "cryptic" concepts in the human world ("my BMW" = "my car," "my blue car," etc.). Thus a Named Entity Recognizer may be interpreted as a "concept spotter." From this perspective, it becomes evident that the technology cannot simply hold a list of names (for example all known first names or all company names, which would also entail the never-ending task of managing them), but really is a technology that looks at the words, grasps the core concept described in them, and can identify their grammatical subclasses and the relevant linguistic contexts in which they are being used, etc.:

	POS	uPOS	sem	case	…	
case	NN	128	8	lc	…	o
of	IN	287		lc	…	o
Zidovudine	NNP	156	67	InitCap	…	drug
induced	VBD	241	54	lc	…	o
anemia	NN	156	99	lc	…	disease!
and	CC	287		lc	…	o
bone	NN	156	67	lc	…	disease
marrow	NN	156	67	lc	…	disease
aplasia	NN	156	99	lc	…	disease
in	IN	7		lc	…	o
a	DT	129		lc	…	o
patient	NN	156	67	lc	…	o
infected	VBD	145	67	lc	…	o
with	IN	287		lc	:::	o
HIV	NN	194	131	AllCaps		disease

Fig. 1 Example of a multi-feature, context-based extraction of a disease ("anemia")

In the Cognitive Workbench, the NER can be trained in what is called an Active Learning paradigm. Suppose you wanted to train the category "fruit," you would import a few texts, for example blogs, cookbooks, recipes etc. You would then give a few examples like "strawberry," "banana," "mango." The system would then use these positive examples to learn in the texts how such concepts are used, and what they look like (company names often start with upper case letters, etc.), and would derive a model for that category. It would then start proposing words that it deemed to belong to the intended category, such as "apple," "grapes" and "cucumber." The human trainer or expert would correct some of the non-fitting proposals (cucumber is a vegetable, so it is semantically close but not actually a fruit), while the other proposals would be confirmed as correct. In the text, the human may also add more concepts that were simply missed to give the system more examples.

With these refined examples, the system would run a few iterations of such analyses to refine the model. In the end, the model will have "a feeling" for the category and will even find examples that it has never seen before. In other words, the model will identify category members that were not part of the training and not provided by human trainers.

We used the NER training for identifying conceptual categories within biographies in the text, as will be discussed below.

Relation Extractors identify the relation between concepts so that more "information value" can be gained from a sentence or paragraph of text. Relation extraction can be done at various quality levels: co-occurrence based or deep. Co-occurrence-based relation extraction only recognizes that two concepts are associated because they appear together within some defined linguistic distance (a few words, a sentence or a paragraph), but does not recognize which role they play in what kind of relation. Consider a Person Recognizer and a Company Recognizer in "Tim Cook is the CEO of Apple Inc.." Without a deep relation extraction, the system can only deduce within the sentence that Tim Cook *somehow* relates to Apple Inc. The advantage of co-occurrences is that they can be computed automatically, i.e. without a human trainer. The only thing that needs to be defined is the context within which two concepts have to appear.

The Cognitive Workbench allows for both co-occurrence and deep relation extractions, and can be trained in a similar fashion. The human trainer can give examples of a relation, even without defining dedicated words. For the "is the CEO of" relation, for example, the human may indicate full sentences containing the relation such as "Tim heads Apple," "Tim is the boss of the computer maker," "Cook, the CEO of Apple, stated that…" etc. The resulting extracted relations will be more specific and more sharply defined semantic relations compared to co-occurrence-based relations, i.e. false positives will be greatly reduced.

In the present project however, we concentrated on co-occurrence relations that could be identified easily and without prior hypotheses about what relations might occur in the data. A next step would clearly be to do the same analyses again, recycling the trained NERs but adding Relation Extractors to increase the depth of analysis.

The final component used in the project was the Knowledge Graph. It is a graph database that stores all co-occurrences between Named Entities, their respective frequencies in the texts, and the frequency with which each co-occurrence is found in the texts. This means that statistics can subsequently be computed to reduce the number of connections to those that are statistically significant, and the desired level can be adjusted. In this way, the data navigation makes it possible to interactively reduce the complexity of the graph by showing more or less prominent connections in the data.

Note that graphs can be rendered per interview, per cohort or for the whole set of data. This makes it possible to compare the graphs of two persons, or of different cohorts, or to produce a full graph, which has the greatest statistical power. A graph provides a very compact, yet "objective" representation of relevant aspects of a text, in that only the extracted entities and their relations are visualized. Furthermore, it abstracts the facts given in the text from its linear structure to a non-linear representation. Thus the human explorer does

not have to follow the linear/chronological thoughts of the interviewee, but may concentrate on the aspects that immediately become evident in the graph.

1.2   Defining Semantic Categories

Since we wanted to understand what concepts have influence, we tried to define categories with a certain granularity or semantic coverage. The categories covered in our explorative study were:

- Relationship Status
- Family
- Income / Profession
- Education
- Events / Life Stages / Inflection Points
- Positive Emotions / Motivations / Sentiments
- Negative Emotions / Demotivating Situations / "Decelerators"

The categories were developed independently of the discussions within the research group of the Change Study. They were chosen because they cover a variety of semantics which would enable us to understand how well the system would be able to capture them. You could group them into (Relationship Status / Family) vs (Income / Education) vs (Events) vs (Positive / Negative Emotions). Relationship and Family are similar, sometimes blending into each other over the course of a biography (e.g. marrying one's romantic partner). Income and Education would allow us to confirm conventional findings that higher education (e.g. "studied") leads to higher income ("manager"). Events seem to be a very important category when studying biographies, which is why we defined the category very broadly, to be able to capture many aspects of the respondents' lives. The hypothesis behind Positive and Negative Emotions was that there would be co-occurrences with members of the other categories that could indicate how life planning might be influenced by certain elements that can have positive or negative connotations. For example, a woman might have a different attitude towards men/marriage etc. if she had negative experiences with her father.

All these categories were intentionally defined a little more broadly than conventional scientific standards would allow, to increase the coverage and, more importantly, get the maximum number of co-occurrences of members across different categories. As mentioned above, the Cognitive Workbench can be trained by examples to recognize category members that it has never seen before. The goal was to create a dense Knowledge Graph, to be able to reduce complexity when navigating the data. The hypothesis was that in later experiments we could either add specific relations, add more extractors, or split the extractors into more specific, even in hierarchic ones.

1.3   Insights and Learnings

This section is not so much about the results of the analyses in terms of sociological learnings, but more about what can be learned about the computational aspects of such a tool, i.e. what kind of concepts and associations are well-suited for automatic extractions and which are not? What kind of level or granularity can we apply to what aspects of analyses or extractions?

It turns out that the category "Events" is a fruitful one, which merits further specification in future studies. In the present study, it included concepts such as "economic crisis" (*Wirtschaftskrise*), "au-pair period" (*Au-Pair-Zeit*), "stroke" (*Hirnschlag*), "war" (*Krieg*), "divorce" (*Scheidung*), "teenage years" (*Teenager-Alter*), "childhood" (*Kindheit*), "change of school" (*Schule wechseln*), "public holiday" (*Feiertag*), "birthday" (*Geburtstag*), "school days" (*Schulzeit*). As can be seen, these comprise longer or shorter time frames, special events, and personal or non-personal events.

"Positive Emotions" also comprised broader concepts compared to conventional, so-called "sentiment analyses" (where typically emotions about products or people are extracted, such as "I like these shoes," "poor service quality," etc.). Examples of "Positive Emotions" are "beloved husband" (*lieber Mann*), "gave hope" (*Hoffnung gegeben*), "happy about" (*freue mich*), "my driving force" (*mein Motor*), "motivates me" (*treibt mich*), "achieve" (*auf die Reihe kriegst*), "together" (*gemeinsam*), "nice conversation" (*nett unterhalten*), "miracle" (*Wunder*), "recovered" (*erholt*), "was lucky" (*Glück gehabt*). It should be noted that these are not predicates, adjectives or nouns but in some cases more complex phrases, describing personal positive aspects in subjects' lives.

Finally, "Negative Emotions" included "fear" (*Angst*), "beat up" (*geschlagen*), "brutality" (*Brutalität*), "psychological damage" (*psychische Schäden*), "quarrel" (*gestritten*), "injustice" (*Unrecht*), "physical violence" (*körperliche Gewalt*), "damage" (*Schaden*), "money problem" (*Geldproblem*), "evil" (*böse*).

Particularly at the level of life events and positive versus negative emotions towards them, a number of parallels to the results of the IZZ Change Study are already apparent in this first run. It would be an exciting next step to see what implications our broader categories could have for the investigation of change processes. It would also be interesting to further develop our semantic categories against the background of the findings of the Change Study.

The extraction procedure of our explorative study delivered not only extracted concepts of this kind from the above-mentioned categories, but also the co-occurrence of members of the categories stored in the Knowledge Graph: when two or more informational entities co-occurred within one sentence, they were connected in a graph. As mentioned, this is a fast but non-exact way of describing the relationship between entities: it reveals the existence of a relation between two entities but not its nature.

I will present two examples of life events of individuals. For respondent 23, the analysis results in the following terms: "holiday, parachuting, working life, birthdays, bungee jumping, being 16, socialist times, GDR times, sickness, rehabilitation, spine surgery, graduation, fall of the Berlin Wall, divorce, city trips, severe accident, occupational injury, change of

job, depression, change to self-employment." Even this short, automatically extracted list of events can give an impression about the person's biography: he grew up in the eastern part of Germany, got divorced, used to engage in extreme sports, had a dramatic accident at his job, and coped with a major job-related and health-related crisis. For respondent 17, the analysis results in the following terms: "child, war, holidays, childhood, born in Russia, economic crisis, parents visited Estonia, au pair period, into the world, change of school, birthdays, admission test, crisis, separation, first marriage." What we get here is, in broad brush strokes, the outline of a different life: the war had an impact, she was born in Russia, lived through an economic crisis, changed school, separated from her partner, had at least one marriage. For the next example, we added an extractor for "negative emotions" to the life events of respondent 17. We present the results as a graph (cf. fig. 2).
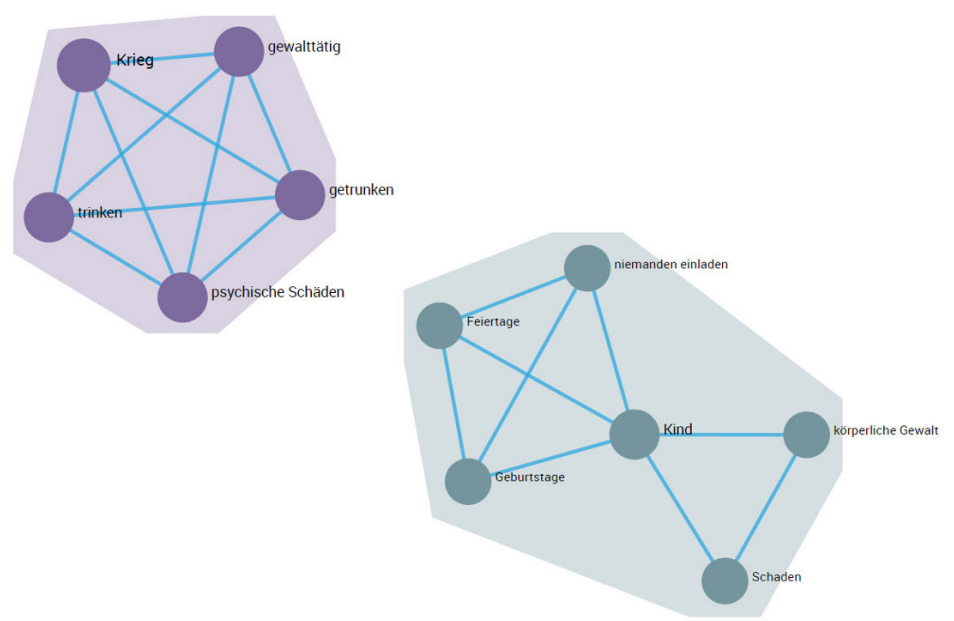
Fig. 2   Life events of respondent 17 with extractor for "negative emotions"

The cluster on the left is about the father who went through war, started drinking and had psychological problems. The cluster on the right describes how the interviewee went through childhood, experienced physical violence, and was not allowed to invite other children to her birthday. The clusters emerge from different passages in the text. It was possible to distinguish these two by means of co-occurrence, as the within-cluster distances are shorter than the across-cluster distances. Even in this relatively simple setup (no relation extraction, just co-occurrence, no hierarchies or sub-categories for NERs, relatively broad

definitions of categories), the graph can reveal that some events were associated with negative emotions. It also extracts two different topic clusters automatically describing negative emotions pertaining to the father who went to war, and the negative emotions of the child, who suffered from the father's traumatic experiences.

The Knowledge Graph (of the whole sample) can be filtered into an Association Matrix revealing the association strength between members of two categories. Figure 3 shows the relations between family members and positive emotions. The present data evidently cover more female than male relatives, e.g. "son" (*Sohn*) vs "daughter" (*Tochter*): 48 vs 70 occurrences. Most loved family members are "child" (*Kind*) and "mother" (*meine Mutter*). Positive emotions in the context of male family members appear to materialize in social activities (*gemeinsam*).

	PARAGRAPHS	SIGNIFICANCE	Freundschaft	gemeinsam	liebe
PARAGRAPHS			7	24	40
SIGNIFICANCE			●	●	●
Kind	114	●	●	●	●
Mein Bruder	40	●		●	●
mein Vater	60	●		●	
meine Eltern	56	●			●
meine Mutter	81	●			●
meine Schwester	15	●		●	●
Sohn	48	●		●	
Tochter	70	●	●	●	
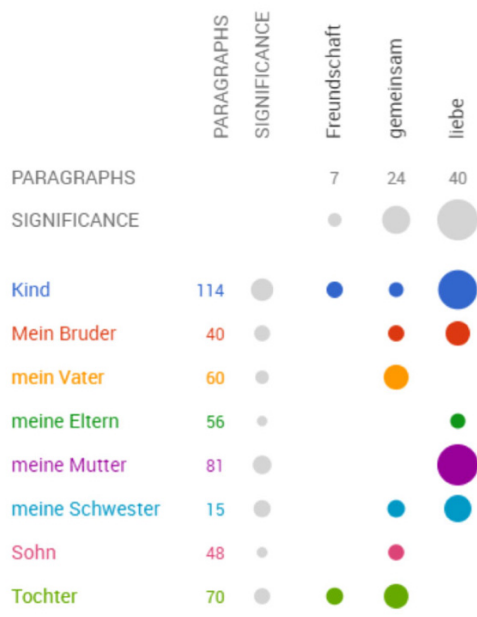
Fig. 3   Association Matrix family members / positive emotions

The next figure shows the Association Matrix of the relations between family members and negative emotions. As can be expected, "fear" (*Angst*) and "death" (*gestorben*) are very salient negative concepts in the data. Fearing the father seems to be more prevalent than fearing the mother.
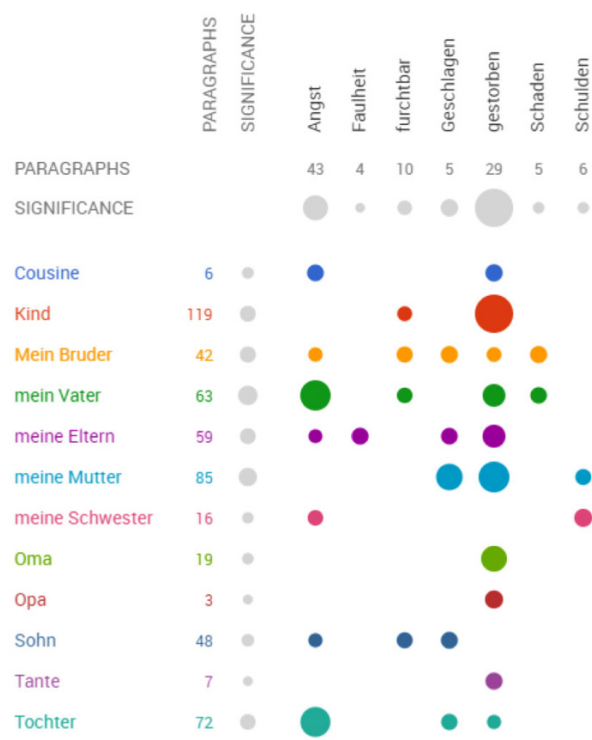
Fig. 4   Association Matrix family members / negative emotions

If we look at educational concepts across the population, the graph (cf. fig. 5) reveals how people can move from elementary school (*Grundschule*) to high-school graduation (*Abitur*) to university studies (*studiert*) and PhD (*Doktor*). But alternative ways of changing between different educational pathways can also be uncovered: from apprenticeship (*Lehre*) to second-chance education (*zweiter Bildungsweg*) to university studies. Since frequencies are also counted, this is a relatively cheap but coarse way (relation extraction would make it more precise) to extract the variance in educational trajectories.
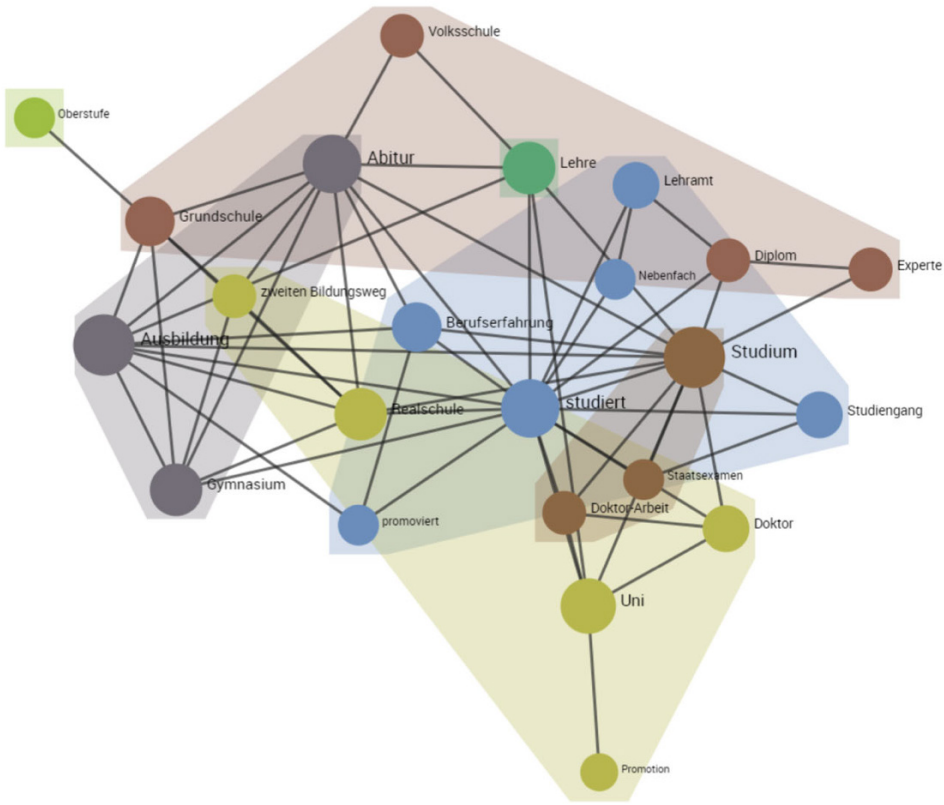
Fig. 5   Educational concepts across the population

2   Outlook

We have shown some examples of how to automatically extract concepts from categories covering relevant parts of human biographies. These concepts are connected within a Knowledge Graph, which can be used to study connections between category members to understand their relations. The technology is relatively independent of the data format. The present study uses guided monologues on the subjects' biographies, which, by their very nature, contain many relevant extractable elements for the experiment. The same data can certainly be used to build such graphs for selected cohorts of subjects, e.g. contrasting male and female subjects.

The same technology can in fact be used to build a Knowledge Graph over dozens, hundreds or thousands of biographies. In that case, the edges of the graph can be weighted by their occurrence. Such convergence or "overlay" can reveal common patterns across

biographies. Another interesting feature of graph-based multi-biography analyses is that they may contain chains that allow the extrapolation of individual lives. A somewhat oversimplified example would be that there may be a person 1 with the events A, B and C, and a person 2 with B, C and D. Because of the overlap of B and C there might be an event D imminent for person 1. Certainly the predictive power can be increased by adding more biographies and studying what kind of information constitutes the contexts. The promising part here is the "emergent" nature of the system, as the members of a category are not defined *ex ante* but only the categories themselves. This increases the explorative power of such automated analyses.

Certainly, the graph can be used to extract more complex information, for example under what conditions people with a complicated childhood were able to recover and live a "normal" life. There may be sensors to detect a complicated childhood, for example sexual abuse, illnesses, tragic loss of parents etc., indicating traumatic phases in life. The second aspect would be to extract "normal" or "positive" phases in later stages of the biography. Whenever these two are given in a single biography, there may be elements in between that could indicate how exactly the trauma turned into a normal life, for example by finding a loving partner, having children, therapy, etc. This kind of analysis could form the foundation for a "crowd-sourced" or "emergent" psychological support system. Such solutions may be suggested for people with similar biographies who have not yet reached the stage of "positive" phases. The system may also suggest multiple pathways for the user to reflect on. Certainly all this may be supported by human psychologists helping people. On the other hand, such "objective," non-human support systems can relieve a "patient" of the pressure to cross the threshold to actually see a psychologist.

In subsequent studies, the processing pipeline applied here can be refined in various ways, for example defining increasingly fine-grained conceptual categories. Extraction methods can also be refined by defining and training Relation Extractors, e.g. "I really loved my mom" would not only translate into "family member" and "positive emotion," but actually into "relationship between subject and mother was positive." This technology would make it possible to decipher more complex relations such as "I really loved my mom but she didn't love me."

At face value, many of the co-occurrences might lead the reader to the conclusion that they are real relations. However, if two concepts simply occur together in a sentence, they may not form a real relation, or it may be different from that imagined by the reader ("Jim" and "book" could mean "Jim read the book," "Jim bought a book," "Jim lent a book"). Valid relations can only be derived from Relation Extractors that have been trained to recognize a relation concept such as "transfer" ("give," "lend," "sell," "export," etc.). Initial experiments with Relation Extractors on the current data set were promising, revealing the relation between education and income. The following relation table (cf. fig. 6) shows how aspects of education lead to job descriptions. For example, the first line was found in the sentence "…studied civil engineering, and I came to the conclusion that I should deal with the construction and real estate business again" *(… in der Fachrichtung Bauingenieurwesen studiert, und den Schluss hab ich dann auch gezogen, kümmer Dich wieder um das Bau- und*

Immobiliengeschäft). The extractions in such relation tables are more precise than from simple co-occurrences, but also need more investment in training.

EDUCATION_LEVEL	INCOME_LEVEL
Bauingenieurwesen studiert	Bau- und Immobiliengeschäft
Praktika	Bibliothekswesen
Psychologie	Pädagoge
Pädagogik	Pädagoge
Refenderiat	Lehrerin
studiert	Englisch unterrichtet
studiert	Kindergarten Englisch unterrichtet
studiert	Privatunterricht gegeben
Wirtschaftsingenieurwesen	Bau- und Immobiliengeschäft

Fig. 6   Valid relations table of co-occurrences on the education and income levels

The intersubjective validity of such a system can be established (as has been proven in many other projects) when multiple experts annotate texts for the system to train on. In this procedure, the system will learn, for example, how many human experts actually agreed, in a particular text, that a particular phrase denotes a positive emotion. This so-called "inter-annotator agreement" reveals the extent to which humans actually concur in their classifications of concepts. Computational systems are then usually measured against the "quorum" of human experts, and it has been shown in many cases that computers can actually outperform single humans compared to the quorum of multiple humans, i.e. they can achieve a better than human performance. So such a system can indeed be used to extract information in human quality, automatically and intersubjectively.

As stated earlier, a very important advantage of automatic extractions is that researchers can go back and repeat them, redefining hypotheses, quantifying new aspects, and looking deeper into newly uncovered connections between data points. For the present study, this means that defining categories to explore the data is the first step; the next step could be to refine the categories as suggested above, e.g. splitting life events into longer vs shorter spans or into personal vs objective events etc., and then do the next round of analyses. Since the effort invested here is independent of the amount of data, the data collection can continue and extend the view on the population, re-using the same recognizers on larger or different datasets.

It would also be possible to map certain social events onto a timeline. For example, nursery precedes elementary school, etc. This would allow the mapping of individual biographies onto common culturally/socially defined timelines or at least conventionalized sequences. From our perspective, one of the most exciting experiments would be to see at what point in life which events and their emotional interpretations lead to profound consequences later on.

In dialog systems (e.g. chat bots), this technology could be used to interactively build up an autobiographical Knowledge Graph: the system could measure the coverage of certain topics or categories, and ask questions on topics that have not been covered enough. The system could calculate the average amount of text on a topic, and then make sure that the interviewee "delivers" enough. All of this is highly experimental, since it is not clear how exactly one would measure the amount of information gathered per topic, but it could be measured by the number of entities extracted or the number of relations understood. In general this would translate into measuring the density of the Knowledge Graph for this particular topic. This procedure would also cover the "collection" side of the data acquisition scaling procedure, as the number of assessments would no longer correlate with the number of interviewers. A second aspect is the complexity of dialog interaction in such a system, i.e. designing questions to open up new topics vs understanding how to ask to get deeper insights. Furthermore, the system must not come across as stupid, but must at least be "warm" enough to motivate users to produce more content. Certainly, the effectiveness of such a system has to be tested, as dialogs with chat bots are currently rather short and goal-driven. However, even the first chat bot "Eliza," created by Joseph Weizenbaum in the 1960s, led to more human-produced content than the inventor had intended…

Study Case Germany:
The Future is the Legacy of Present Change

Thomas Druyen

Abstract

The opening section of this article summarizes the key results, from the perspective of Psychological Future Management, of the study "Life Events and Change Competence" (subsequently referred to as the Change Study). This study was conceived by the Institute for Psychological Future Management (IZZ), in collaboration with the department of Customer Insights & Experience at Allianz Deutschland AG, as a representative survey (n = 1,951) in Germany, and was carried out in 2016–17. The central question is: How change-competent are people in Germany? Section 2 expands the horizon, interpreting these findings against the background of recently published studies on individual future planning in Germany, in particular the Legacy Study (n = 3,000), carried out in 2015–16 by the WZB Berlin Social Science Center, in collaboration with the weekly magazine *Die Zeit* and the Infas Institute for Applied Social Sciences. The question here is: How do people in Germany look into the future? Section 3, lastly, formulates the mission of the IZZ, which arises from the thought process presented: the aim is to help individuals prepare for and navigate the future in a self-directed and self-accountable way, regardless of where they live. This competence is equally indispensable for companies, institutions, parties, universities, and the protagonists of every society.

1   Paradoxical Germany – between Everyday Pragmatism and Fear of the Future

In the last few decades much has been achieved in Germany, and great things have been accomplished. The reunification of East and West is certainly at the top of this list. In the economic sector, being the world's leading exporter is one of the foundations of Germany's extraordinary prosperity. Not least, its difficult but powerful position in Europe makes Germany a potentially very significant case study. Many countries and cultures respect and even admire Germany. So it would not be purely narcissistic if the Germans

were to think well of themselves. Recent population surveys, however, point in a different direction. Fear of the future and uncertainty can be discerned everywhere. At the same time, political blocs and different lifeworlds are increasingly coming into conflict. There are glaring contradictions between rationality and emotionality. Many citizens find that their heart and mind point in different directions. This leads to the following questions: How do the Germans really feel? And in future, how do the Germans want to deal with the importance accorded to them?

A further aspect has to do with the fact that Germany, like other countries, has long since been sucked into a radical and historically unique process of change, whose outcome we cannot foresee. Rapid technological progress has made things possible that we would have thought were nonsense just a few decades ago: libraries, offices and cinemas in our pocket, self-driving cars, houses that can be printed. The utopian – and therefore also the dystopian – is moving into the realm of the feasible. Realistically speaking, digitization has passed a large proportion of society by. In more concrete terms, they have been happy to make use of the technological benefits, but have not given any thought to the broader consequences of artificial intelligence or robotics. It is therefore more important than ever to take this influential country as an example and investigate its capacity for change and its readiness for the future. This process can serve as a model, which can subsequently be used in and for other countries.

Against this background, the IZZ carried out the Change Study to find out how citizens perceive and actually cope with change in their increasingly complex everyday lives. The results are extensive, and have already been presented and analyzed in the articles in this volume by Daniel Brenner, Stephan Duttenhöfer, and Christian Weller. To give a preview: the double-edged findings inspire enthusiasm on the one hand, and suggest an ominous aversion to the future on the other. It seems the Germans are brilliant at reacting, and experts in resilience, but at the same time fanatical about security and somewhat faint-hearted.

1.1   The future Starts in our Heads

Our perceptions and our options for action are directly dependent on the complex and only partially conscious inner model of reality which each of us constructs over the course of our life. Anything that has not found a place here is experienced as a disruption, at best; often we do not notice it at all. The plans and wishes we develop for the future depend very much on how we experience our own scope for planning and action. Anything that lies beyond this horizon of action is seen as fate, as good or bad luck. The Institute for Psychological Future Management (IZZ) investigates, on the one hand, the psychological effects of exponential developments in digitization and the use of artificial intelligence, and the associated emotional and neural overload. On the other hand, we research how the psychological mechanisms by which we perceive ourselves and reality affect our ability to look ahead, make preparations, and shape both our own future and that of our society.

In principle, our neurobiological architecture, our orientation-giving emotionality, and our common sense strive for positivity, reward, and clarity. Regardless of the situation we are in, we always try to make the best of it for ourselves. There is huge potential in this. At the same time, it automatically and inevitably leads to inconsistencies – and to the repression of whatever is "too much" and "does not fit." People have always been caught in this dilemma, but today the contradictions are exacerbated, as never before, by the speed of change and networking. We are incessantly confronted with sudden, profound changes, and we endeavor to assess and classify the new through the lens of the familiar. The question is whether this will continue to work in the near future. The answer is: probably not.

Exploring change is the central research area of Psychological Future Management. As change can only ever be judged retrospectively, it always presents itself as a future and unforeseeable process, both at the moment of its inception and once it has developed an irresistible momentum. This fact suggests that the capacity for change also causes and facilitates future competence. In view of the undreamt-of technical and societal changes that face us, understanding and implementing change is probably one of the most important new tasks, now and in the future. We believe that people – as learning beings, with the capacity for self-reflection and correction – are capable of considerably improving their individual navigation of the future, and thus ultimately improving their quality of life, by means of insight into the underlying mechanisms, education and corresponding training. But there is more at stake here. The big technical platforms and the trillion-dollar companies form their own powerful elite, which is sidelining the political system and reducing people to mere consumers. From their business perspective, this is probably a masterly feat. From our point of view, as autonomous beings, it is an attack on our integrity. This far-reaching passivity of the public can only be overcome if a new, comprehensive campaign of information and education finds a permanent place in our lives. Learning is becoming as necessary as breathing.

1.2   Change is a Real Journey and Requires Navigation

In 2017 the Institute for Psychological Future Management (IZZ), in collaboration with Allianz Deutschland, conducted a representative study on the German population's capacity for change (1,951 respondents, online questionnaire with 50 sets of questions). This was preceded by a pilot study (30 explorative interviews) with people who had coped positively with a profound change. Even in the first phase it became clear that the implementation of change processes in the lives of the respondents demands significant coping efforts and time. This impression was confirmed by the quantitative study: coping with key life events lasts, on average, between one year (e.g. changing occupation or moving to a new home) and two years (e.g. having a child, divorce/separation). The average time it takes to cope with an accident/illness or bereavement is substantially longer (cf. Weller 2019). These, then, are important and pivotal stages of life. They are – even in the case of change processes which are ultimately evaluated as positive – marked by phases of searching for orientation, dealing

with obstacles and the unforeseen, and facing the challenge of continuing to actively follow the path taken. This is clearly evident in the responses of the study participants: two thirds report setbacks in the process, and just as many say that the change process has cost them considerable effort. The life experience of our respondents shows that change processes are not imagined ideal solutions, but journeys that have actually been lived through. Of the four statements offered, 65 percent choose the response "Every path involves highs and lows, and one has to be able to deal with both."

The qualitative interviews of the pilot study give insight into the life histories that lie hidden behind such percentages. We asked people about profound changes they had been through in various areas: working life, dealing with an illness, the transition to retirement, professional self-assertion in an innovative, constantly changing field, or the personal experience of immigrating into a new culture. The respondents' accounts of the changes they have mastered show us that people experience changes to their whole personality – and their entire network of social relationships. Cherished habits which structure everyday routine must be given up, and new ones must be found. The adaptation of fundamental views and attitudes changes people's own self-image. Goals they have focused on for many years fall by the wayside. What is crucial is that the changes are integrated into everyday life and are shared with their social environment. Only then can change be put into practice in everyday life.

A key finding of our study, then, is that respondents see the change process they have experienced as a real stage in their journey through life, complete with highs and lows. Such processes demand stamina. The specific course of action opens up a broad field, in which innovation and personal development become possible. But wherever opportunities present themselves, the risk of failure is usually not far away. For this risky venture, people need the ability to navigate, which we have called change competence. Navigation means safely steering the ship into the next harbor, even if changing winds, currents, and unforeseen obstacles have taken us off course. It means connecting our solitary planning on the map with the actual journey, in a world populated by many other travelers.

The ability to navigate means activating the appropriate resources in a given situation, without losing sight of the big picture of where we are going. To better understand this process from the point of view of the individual, the IZZ has developed a map of change competence. Our study concluded that the ability to master the real journey of a profound change process must prove itself in four different competence fields:

- *Orientation*: making one's own assessment of goals, values, options for action and personal potential.
- *Problem-solving*: finding solutions independently and implementing these in plans and decisions.
- *Stabilization*: staying "on the ball" and on course, being able to persevere or reduce one's burden when faced with obstacles.

- *Practice*: in everyday life solutions can be tried out, inner stabilization can be put to the test, and orientation can be gained or revised. The result is a pragmatic field of learning, in which competence can be acquired and the personality can develop.

1.3 Orientation and Development Opportunities Make the Crucial Difference

What competencies are important for success on this journey? What attitudes help us to navigate through the exhausting process of change – and which ones hinder us? In the questionnaire of the representative study we asked each of the 1,951 participants for their personal assessment of a whole cluster of individual competencies (from ambiguity tolerance to the pursuit of goals) and basic attitudes (from optimism and a sense of coherence to perfectionism and psychological overload). The result was a map of drivers of change and obstacles to change. To find out which ones have the strongest effect on the success of coping efforts, all the data on the 47 individual competencies and nine basic attitudes were subjected to a two-stage multivariate factor analysis. The first step in this process was to identify 27 "process factors" which largely determine change behavior. The second step was to compress these into five key "behavioral factors." The driver analysis makes it possible to assess the effect of each of these factors on the overall result (effect sizes in percentages), that is, the question of whether the change processes experienced had a positive or negative impact on the participants' lives (cf. Duttenhöfer 2019 and fig. 1).
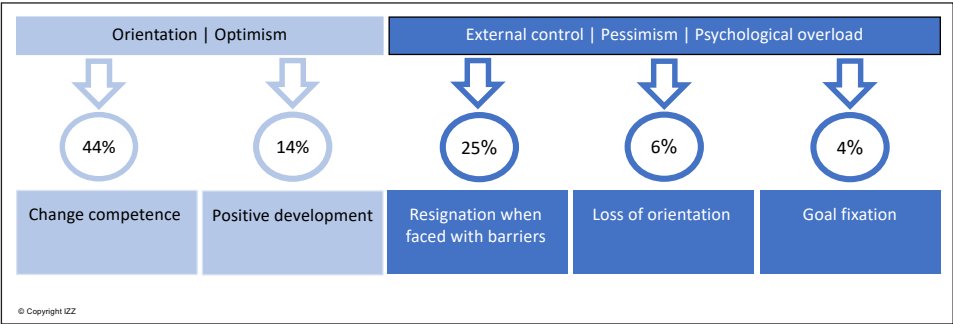
Fig. 1 Orientation vs External Control

Five behavioral factors, based on the multivariate analysis of drivers, and the size of their effect on the question "All in all, did the change you selected as the most important have more of a positive or a negative impact on your life?"

It is striking that the behavioral factor "change competence" has by far the greatest influence on how those affected evaluate their change process. This factor is essentially about having or creating a sense of orientation. It is made up of two components: component 1 is attitudes toward one's own positioning, and toward the general manageability of the world. This includes belief in an internal locus of control and self-efficacy ("If I make an effort I will succeed"), awareness of position ("I know where I stand in life"), and life planning ("On the whole, life can be planned"). Component 2 encompasses competencies for dealing with the unforeseen. These include a focus on implementation ("If things don't go according to plan, I make an active effort to clarify what is happening"), accepting challenges ("I enjoy looking for solutions in confusing situations"), and the ability to plan ("When disruptions arise I'm usually quick to identify the path to a solution").

The counterpart to this positive driver of coping is the behavioral factor "resignation when faced with barriers," which is largely shaped by a sense of external control and fatalism – with attitudes such as belief in an external locus of control ("My plans are often thwarted by fate"), pessimism ("If something is going well, I expect something bad to happen"), and motivation deficit ("Everyday life and change got in each other's way, and I had trouble getting motivated"). In contrast, the behavioral factor "positive development" has a constructive impact: this is the view that the world can be understood and influenced, that is, an intact sense of coherence ("I find meaning in my life"; "I feel joy in my life"). Here those affected manage to integrate even adversities into a scenario of testing and personal growth. A paralyzing counterpart is the behavioral factor "loss of orientation," which indicates a poor sense of coherence ("I lose my perspective"; "I feel like a loser"). Another obstructive behavioral factor is "goal fixation," which points to perfectionism and an inability to change course if disruptions occur. Instead the outcome is more likely to be opting out and retreating. Essentially, the experiences of the study participants are determined by these polarizing forces, between clarity and disorientation, between getting on with the job and giving up, between solving problems and losing heart. Sociodemographics as a whole (age, income etc.) account for only around 7 percent of the question of whether a person sees a change event as having a positive or negative influence on his or her life.

In the attached diagram (fig. 1), the five behavioral factors are combined into two groups which clearly show the opposing poles: on the active side, self-efficacy, the ability to plan and the ability to implement, as well as personal growth, lead to orientation and optimism, and foster a number of competencies useful for everyday life. In our study, these factors have a 58 percent effect on the overall outcome. On the side of disorientation and suffering, the dominant feeling is one of external control. It is accompanied by a decrease in motivation and flexibility, and leads to pessimism and psychological overload. In our study, these factors have an effect of 35 percent on the overall outcome. In other words, the key to positively shaping change is a sense of orientation and efficacy.

1.4 Anything That Does Not Seem Manageable Is Blocked Out

But how do we achieve orientation? In order to get our bearings, we first have to comprehend the changes in our own lifeworld. But how can we do this if everything is in flux? Not only are there changes taking place around us all the time, but we ourselves are changing too, partly in response to these processes. It is difficult to even recognize and identify connections and sequences of events. This is particularly true when processes are just beginning – and this applies to nearly everything that has to do with the future. A core dilemma of Psychological Future Management.

What is crucial for our own orientation is whether we succeed in placing the events in a context. Most people have trouble answering abstract questions on their general change-related behavior. This was confirmed in the trial of the questionnaire for our study. We know from research on change processes in companies that the willingness to change only ever translates into reality in specific situations. Even people who are generally in favor of change decide in the specific context whether a prospective change makes sense to them, whether they think those involved are capable of implementing it, and whether the whole thing fits into their own life plan. We therefore included a preliminary section in the questionnaire, in which the participants were first asked to name "the three most important change events in your life" (cf. fig. 2). The second step was to choose the most important of these and to bear this in mind as context when answering the subsequent questions.

The answers show that the respondents mainly perceive changes in the form of classic biographical transitions. A few have already been mentioned. Critical life events are the expansion of the individual framework into a relationship and family (marriage, relationship, having a child), beginning a new phase of life (school/study, moving to a new home, changing occupation, retirement), coping with burdens (accident/health-relate episode) and loss (separation, unemployment, bereavement). These are undoubtedly existentially important challenges which, as the study shows, activate a vast pool of competencies and huge reserves of stamina. It is interesting that a distinction is clearly made between changes "in my life" and "in the outside world." The majority of mentions (over 60 percent) go to life events that directly affect respondents in their private lives (e.g. birth, love, and death), while another 37 percent relate to changes in which the individual's potential to shape events can be proven in a wider context (e.g. moving to a new home, building a house, or changing job).
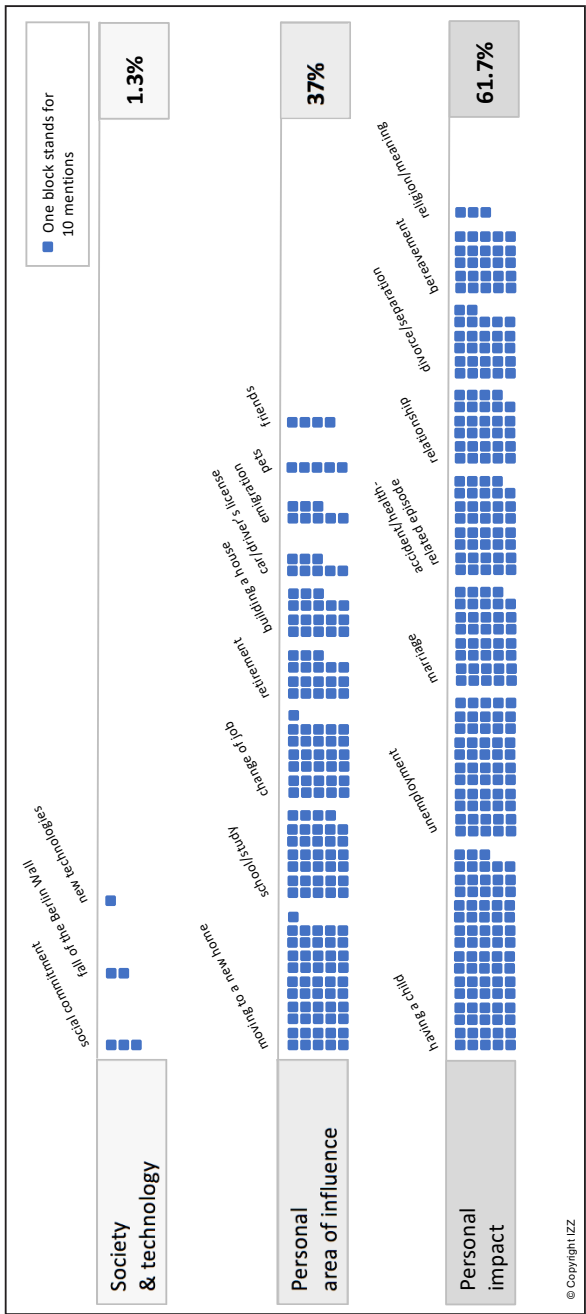
Fig. 2   Focusing on Life Events

Breakdown of responses to the question "What were the three most important changes in your life?" (on average 2.44 changes, total of 4,758 mentions).

Those change issues that were mentioned in the preface, issues such as globalization, demographic change, and digitization, which have dominated the public debate for some years, are virtually invisible within this horizon. Societal and technological changes make up just 1.3 percent of mentions. Perhaps it is reassuring that the often-evoked refugee crisis only receives six mentions (out of almost 5,000), and that these are balanced between fear and empathy. What is astonishing is that the change in political system after the reunification of Germany, from the socialist GDR to the Western Federal Republic, is only mentioned 18 times. 380 respondents live in the former East Germany, and in the interviews for the pilot study the system change was very clearly present for those affected. In the representative survey, the fall of the Berlin Wall has only a shadowy presence, hidden behind changes of occupation, relocations, new relationships and separations. The participants were obviously concentrating on translating such general processes of change into the context of their private lives. However, there is also a kind of selective perception at work here: the extent of its effect is apparent, for example, in the fact that the inexorable rise of the internet, which has undoubtedly changed not only private life but also working life for a huge number of people in Germany, is only mentioned once.

Changes (such as globalization) which cannot (yet) be transferred into the context of the personal sphere, and into personal actions, evidently strike the individual as difficult to grasp or manage. They remain "abstract" and therefore "far away." And there is something rational about this. Self-help books rightly advise us to ignore what are referred to as "gravity problems," which we have no hope of altering or solving, or at least not with our own resources. At the same time, however, the life events mentioned indicate a retreat into the private sphere and into the individual's immediate surroundings. Only a tiny minority of respondents (a fraction of the 1.3 percent) see the sphere of civil-society activity as an area that concerns them personally, or one in which they might act. This is highly relevant. In one of the world's leading countries, the population's perception has shrunk to an individualistic and personal perspective. This is no longer a participatory society. There is not enough energy to commit to higher goals such as peace, sustainability, and global citizenship. This also means, alarmingly, that the way people look outward is changing. People are increasingly coming to see everything – globalization, technological progress, migration – as a threat to their own peace and quiet, and an attack on their own achievements in life, which they wish to defend at all costs. Against this background, external changes are seen as an immense danger.

1.5   Outline of the Results at a Glance

The inner experience of change takes the opposite course to this. The contrast could hardly be greater: within what they themselves define as their scope of influence, most of our respondents are able to successfully shape their own change processes. To do so they deploy all their resources, focusing on positive effects, and on their own options for action. As well as coping on a practical level, they make use of retrospective processing and interpretation

as a space for constructive input. If neither advantages nor successes can be identified, then the focus is on personal growth in difficult times. With this focus and valorization, they actively help to maintain orientation in their lives. Their aim here is to maximize their life satisfaction – and they achieve this. When asked "All in all, how satisfied are you with your life overall," 85 percent place themselves in the upper half of the eleven-point scale; 52 percent choose the three top positions, in the "extremely satisfied" category. The price for this story of success, however, is that those areas of life which people cannot "get to grips with" are blocked out. Since Freud, we have known that topics which are blocked out do not simply disappear, but make themselves felt in symptoms and projections. This is confirmed by other studies carried out by the IZZ in recent years: on the margins of our supposedly intact world, a great unease can be sensed; unresolved problems are – not without justification – projected onto the future, which then becomes a source of anxiety.

Our survey, with its retrospective questions, was clearly focused on change processes that the respondents had already been through and survived. It is important to bear this in mind in order to correctly interpret the extremely positive self-assessment of the respondents. Things always seem clearer in retrospect than when we are looking forward into the unknown. If 80 percent of the study participants state that they have techniques for coping with stress, or 77 percent claim that they are able to preserve their composure even in difficult situations, this is a subjective, independent and perceived truth. But if we observe at the same time that stress rates in society are exploding, and agitation curves are shooting upwards, this is evidence of a serious contradiction. This inconsistency is a significant sign of our times, a universally observable fact, and, at the same time, the recurrent theme of research into Psychological Future Management and future sociology.

After nearly 2,000 survey responses, we have reached the following conclusions: the Germans have an exceptionally high level of persistence, an enormous amount of stamina, and an above-average ability to adapt. 89 percent of respondents do not allow obstacles to deter them from their path. Despite all challenges and setbacks, more than 70 percent of respondents describe themselves as optimists. Overall, the Germans' view of the present is extremely positive. As stated above, the overwhelming majority of the respondents in our study are satisfied with their lives. On closer analysis, however, the fractures also become apparent:

1. External events, even if they assume catastrophic dimensions, such as climate change, are only related to people's personal radius if direct and unavoidable disruptions occur.
2. The Germans surveyed are world champions in adaptation. But they have little desire to engage pragmatically with prevention, anticipation, and forward thinking – and hardly any experience of doing so.
3. The capacity for change proven in everyday life is intuitive, emotional, habit-oriented and spontaneous. But people are not yet able to use it to derive rules and checklists, routine and the confidence to act. Instead there is a repeated cycle of feeling overwhelmed and coping reactively.

4. There is no transferal of the competencies proven in the private sphere to the realm of civil society and politics. Evidently people see too few opportunities for action here.

In conclusion, deep contradictions can be seen. Around us, a radical and accelerating change is taking place. This increasingly generates disorientation and mental stress. And at present the most common behaviors in response to fright are waiting and seeing, repression, and retreating to a supposedly manageable immediate environment. For society as a whole, for individuals and also for companies, administrations and institutions, this behavior is a massive burden and a danger. Our study shows how splendidly humans can apply threatening and complex things to their own circumstances, and fit them into their own everyday lives. This is the great skill of the Germans: the majority are able to maintain their own small, positive view, because they feel confident about how much they can endure and achieve. In this sense, successful blocking out becomes a highly effective program of self-defense. In the long term, this behavior has a disastrous impact, especially in times of radical change. It is tempting to evoke the metaphor of phantom pain here: people suffer preemptively from things that are only produced by their own behavior. This path is a dangerous one-way street.

2 Repression and Fear of the Future in Germany: the Starting Point for the Change Study

The Change Study by the IZZ Institute for Psychological Future Management finds starting and reference points in three preceding studies, which deal with a long-neglected field of research: individual expectations and planning for the future in Germany.

Immediately after its founding, the IZZ carried out two smaller studies itself, in collaboration with Allianz Marktforschung. In 2014–15, the qualitative survey "*Drei Generationen im Gespräch – Eine Studie zum intergenerativen Zukunftsmanagement*" ("Three Generations in Dialogue: A Study on Intergenerational Future Management") (Druyen 2016) brought together 54 respondents from the grandparent, parent and child generations of 18 families in moderated discussions. Here it was fascinating to see how well intergenerational family solidarity worked, and how emotionally stabilizing it was. When the content of the transcripts was analyzed, however, it was striking that a high price was being paid for this jointly created harmony: the exclusion or blurring out of obviously existing conflicts of interest. Between the lines, it was possible to detect a distinct discomfort in view of the diverging expectations for the future.

Comparable findings were made by an analysis of online forums entitled "*Fragen an die Zukunft. Wie junge Menschen sich ihr Alter vorstellen*" ("Questions for the Future: How Young People Imagine Their Old Age"). This involved 100 participants aged between 20 and 30, and was carried out by students of the Sigmund Freud University Vienna under the supervision of the IZZ (unpublished final report 2015). A striking feature of the discussions

between the young adults was that the present was seen in a positive light, but there was a widespread sense of helplessness about the future. Here too, unpleasant or unclear topics were initially not "touched." One result was that markedly fear-driven scenarios of doom were projected into the future – scenarios with little connection to reality, given the social and political security in Germany.

Against this background, the IZZ took a close interest in the Legacy Study (Vermächtnisstudie), carried out by the WZB Berlin Social Science Center with the weekly magazine *Die Zeit* and the Infas Institute for Applied Social Sciences. This innovatively designed representative survey (n = 3,000), published in 2016, focused on three central questions: How are we faring in today's world? What kind of society do we want for future generations? And what do we expect tomorrow's world to be like? These questions on the current situation, the desired future, and the expected future were considered from both an individual and a societal perspective. One key result of the Legacy Study is that people's wishes and visions for the future are always evaluated more positively than the future reality they actually expect.

2.1 The Future as a Darkened Horizon – Against a Surprisingly Bright Description of the Present

According to the Legacy Study, most citizens in Germany feel terrific today. Their wishes for the period ahead are intelligent and based on experience. People are prepared to change, but their expectation for the future is that everything will become more strenuous, and that many wishes and plans will fail. The president of the WZB, Jutta Allmendinger, compiled the important findings and offered a meticulous explanation (Allmendinger 2017). In this section I will examine some of the results from the perspective of Psychological Future Management, and relate them to our Change Study. In comparison to our findings on the capacity for change in Germany, there are some striking contradictions. These are obviously not to be blamed on the Legacy Study team, but highlight a fallacy common to all the respondents: that they confuse their own subjective interpretation with reason-based objectivity.

A comparison across all answers of the Legacy Study shows that the majority of Germans – as in our Change Study – are satisfied with the current situation. They wish for stability, but do not expect this for the actual future. On the contrary, they anticipate massive social changes. The respondents do not associate this change with gloomy horror scenarios and corresponding fears, but with an overall worsening of the conditions existing at present. At least three quarters of the respondents express this kind of worry about the future, and assume that the societal developments which are actually desirable and recommended will not occur. As can already be discerned in this scenario, most citizens are aware that they are involved in a constant process of change, though they tend to fear the changes rather than awaiting them with impatience.

An interesting mechanism identified by the Legacy Study is that the respondents' expectations about the future are primarily an indication of what they project onto other people. They expect, for the future, whatever they believe a majority of their fellow citizens to be capable of. Here the following pattern applies: people are largely satisfied with their own lives, and generally recommend that future generations should carry on in the same way, but they assume that the others will behave contrary to their wishes and ideas. "People understand that there are many things they themselves do not manage well, but they are convinced that they still do things better than the others" (Allmendinger 2017, 226). This conviction diminishes the confidence that changes are worthwhile and that the future could bring a possible improvement in conditions.

The Legacy Study as a whole does not give evidence that people hope for a fundamentally better world, but there are signs of such a hope in some of the areas investigated. Across all sociodemographic characteristics, the Germans see social cohesion, health, and gainful employment as the most important dimensions of society. And respondents expect each of these three things to be eroded. Broadly speaking, what they fear for the future is that cohesion and closeness will become less important, and personal contact will be replaced by digital media. There is also an expectation that in future people will pay less attention to their health and will no longer enjoy life, and that the quality of food will decline. Thirdly, it is assumed that gainful employment will become less important, and that it will be rarer to find work one really wants to do. These commonly held concerns about the future show that any anticipation is unable to compete with the extremely positive perception of the current situation. Since it is difficult to imagine how citizens could be even better off, the conclusion is that things can only get worse.

In relation to work, half of the respondents in the Legacy Study claim that – given the appropriate technology – they could already do their jobs anywhere in the world. However, only three percent believe that their work could ever be carried out entirely by machines or robots, while 90 percent reject this idea. The underlying mood revealed by this study is astonishingly optimistic, and the respondents do not show any major fears about the consequences of digitization for their working lives. Nonetheless, most see a large question mark over the future development of paid work. In this respect the future seems open and uncertain. People are prepared for changes in working life, and are making preliminary concessions: most are resigned to the prospect of doing more work that they do not actually enjoy in future. From the point of view of Psychological Future Management, it is striking how narrowly all the topics are interpreted, combined and adapted from people's individual perspectives. The connection between technology and dependency is also adapted and applied to their own circumstances as needed. This leads to complexities and contradictions in people's personal lives, which are neither emotionally nor intellectually manageable.

Let us take the use of everyday household devices as an example. While many respondents assume that they will be able to reduce the time spent on housework by means of additional digital devices, half of the respondents see manual work as inherently valuable. Over 60 percent believe that the direct experience of things is being lost due to technological progress. On the one hand people recommend using even more technology in the

household in future, and on the other hand they call for a return to manual and analog ways of working. This makes it clear that people notice and appreciate the advantages of innovative leaps in technology, but do not want to be told to or forced to use them. However, there are fears that the future which is actually imminent will bring this kind of technological determinism; technology is then perceived as a threat or a constraint, and people are worried that the changes, though welcome in themselves, will be too broad in scope and too overpowering. What they fear, then, is a kind of over-technologization, and linked with this, psychological overload. They are frequent and enthusiastic users of technology, as long as it fulfils a purpose and serves the individual conduct of life, but they also want alternatives and individual room to maneuver. This attempt to deal with psychological overload makes it clear that digitization is not perceived in its significance as a new platform for living and shaping the world, but more as a marketplace for devices, which ultimately serves the extension of the ego. Yet this translation into an individual logic of consumption prevents a fundamental understanding of the digital and virtual process of transformation. Instead of working on an architecture of the future, people are obscuring their own view and driving their stress levels higher and higher.

Interestingly, it is mainly the "digital natives" – who have grown up with technology and are very familiar with it – who sometimes apply the brakes when it comes to further technological developments. While many older people recognize deficits in their own dealings with technology, and therefore think future generations should make greater use of it, many younger people feel that they are using technology too much. Often they long for a return to "the old days," when things were more straightforward. So in terms of their legacy, both age-groups distance themselves from their own current practice. At the same time this means a new convergence between the generations in this aspect of their visions for the future. This reveals a pattern that is valid for many other areas: present-day lifeworlds are drifting apart, but ideas about what life should be like are converging again. "The legacy connects the people in Germany" (Allmendinger 2017, 65f.). We also see this convergence in the IZZ Change Study, in responses to the following question: "Imagine the *Tagesschau* [the best-known public television news broadcast] five years from today. What top news story would you like to hear, so that you can say: 'That's the world I want to live in'?" Here two thirds of the respondents mention topics relating to personal and political security. The obvious conclusion to be drawn is that the Germans have a shared image of a desirable future society. When it comes to the actual implementation of their visions, however, they prove uncertain and rather pessimistic. The underlying idea seems to be that if things merely remain as they are, then everything will change.

2.2   The Paradoxical Perception of Change

The Legacy Study provided us with extremely useful insights into the contemporary German mindset. In terms of our own mission, the most relevant and influential parts were those related to the future. The study by the WZB Berlin was able to establish unequivocally

that its respondents had a skeptical, uncertain and critical attitude toward the future. In relevant aspects of life such as health, work, children, or closeness and social cohesion, the survey reveals substantial divergence between the present and expectations of the future (Allmendinger 2017, 66 ff.). Around 90 percent of respondents agree that they consider these to be the most important aspects of life today. With reference to the expected future, however, there are huge drops. The vast majority, 88 percent, do not believe that their legacy will be fulfilled (Allmendinger 2017, 74). So there is a widespread expectation and fear of change. Jutta Allmendinger points out that the suppositions about the future do not always have to tend towards the bad, but the overall mood nonetheless shows a paradoxical emotional disposition. "People wish for a different world, but do not expect anything to change" (Allmendinger 2017, 71). In contrast, three quarters of people in Germany are in favor of keeping things as they are.

When evaluating this confusion from the point of view of Psychological Future Management, we should proceed with great caution. It has already become clear here, however, that the Germans have problems both with formulating visions to shape the future and with preparation and prevention. The lines of conflict run between rational calculation and emotional assessment. Rationality and emotionality often contradict each other here. The mood is positive, but there is a suspicion that things will not remain as they are. In the Legacy Study, a striking change can be observed in 90 percent of respondents when it comes to their attitudes toward the experienced present and the expected future. Thus the changes are a perceptible fact, both rationally and emotionally. And yet most statements contain hints of a wistful feeling that actually the future would be nicest if nothing were to change. In the case of work, so important to the Germans, over 90 percent of the respondents want conditions to remain the way they are today (Allmendinger 2017, p. 65).

We should be cautious about premature generalizations, however: "People with good jobs judge the future much more optimistically than people whose work is unsatisfying or unpleasant" (Allmendinger 2017, 101). This perspective is notably higher among those with a university education than in all other socio-structural milieus. This is by no means surprising. Just as understandable is the fact that parents have more positive expectations of the future than childless couples. The desire to look into a constructive future is virtually a necessary self-suggestion from the parental point of view, and coincides with the findings of the IZZ Change Study. Another message of the WZB Legacy Study which has a parallel in the IZZ Change Study is that people with experiences of migration look forward more confidently. In our study, the group with a migrant background (n= 232) or with personal experience of migration (n= 106) is small and young (average age 36 rather than 45). In keeping with the great challenges of migration and integration, those affected more often reply that they lose perspective and sometimes feel like losers. Above all, they state that they cope better with difficulties now than they did in the past, and they show a much higher level of commitment when it comes to insight into future needs for change. The hope of a future full of opportunities is mainly generated by positive examples of successful living. Success in coping with life is therefore based on successful integration, cultural self-discipline, and tolerant observation of society. We can see how wide the range

of attitudes toward change and the future is. The relativity of judgement is inevitably linked with individual circumstances, making generalizations difficult.

The Change Study proves very clearly that the willingness to change is the starting point for any form of action to shape the future. An interesting finding of both the WZB Legacy Study and our Change Study is that successful migrants can be regarded as role models for us all when it comes to change competence and optimism. This finding is also significant for an international evaluation. Successfully integrated immigrants might even turn out to be the more positive Germans, if we allow ourselves a very broad formulation. There is no doubt, however, that immigration and integration work well once reciprocity becomes normal and self-evident. The two studies have a high degree of compatibility when it comes to the Germans' ability to persevere and cope. People's current optimism is largely based not on anticipation of their own vision and creativity, but more on intuitive resilience and the sustainability of the strong work ethic they have already shown. This psychological disposition is one area where our native citizens differ from those born elsewhere. The majority of our population is in the fortunate position of being able to individualize and dissect every challenge, and then cope with it and make it productive within their own radius. This form of willingness to change is not preventative, anticipatory, or prospective, but reactive and concrete. Most citizens have little interest in an abstract future. On the contrary, general changes are mainly experienced as overtaxing. Thus skepticism and uncertainty are the safety rails we hold on to in everyday life, as we feel our way into the darkness of the future, step by step. Of course not everyone is like this, but the "gaping abyss of the future" generates immense anxiety. Looking at the data of the Legacy Study on the respondents' expectations for the future, Jutta Allmendinger observes: "We can tell horror stories and point out that for some questions the rates of agreement drop by a staggering 70 percentage points between the assessment today and the work of tomorrow" (Allmendinger 2017, 100 f.).

In all the phases of our investigation into the readiness for change and the willingness to change in Germany, we have noticed that there is no such thing as a general future which is equally valid for everyone, just as there can be no universally valid atlas of change. People's respective futures correlate with their own conditions and circumstances, and the architectures of change are correspondingly varied. The successfully established standardization and categorization of our society is simply no longer tenable for the future. At this point (since my research over the last two decades has included not just Psychological Future Management, but also wealth studies, cf. Druyen 2011, 2011a) I may be permitted to make a brief comment on the modality of change in relation to the topic of inheritance. Here the Legacy Study also offers unusual insights. If we believe the majority opinion represented in the media, then inheritance seems to be an unpopular topic in Germany, and most citizens take a fairly skeptical view of the inheritance process. The results of the Legacy Study tell a different story, however. An astonishing 75 percent of the respondents clearly express the view that the available property should remain in the family, i.e. that parents should hand their wealth down to their children (Allmendinger 2017, 105). As it is unlikely that large numbers of multimillionaires and billionaires took part in the survey,

this statement is representative of those milieus that are not wealthy. Moreover, the positive attitude to inheritance is an established component of the legacy. 82 percent hope that – in this respect – everything will remain as it is. "Everyone wishes for this: the rich and the poor, the well-educated and the poorly educated, women and men, people from the East and the West, with or without experiences of migration" (Allmendinger 2017, 105). These findings are, first of all, a clear indication that citizens do not want any major changes in the distribution of wealth. These indicators are hardly conducive to the vital debate on inequality or to a correction of the disastrous ratio of wealth to income.

Another surprising discovery relates to the assumption that young people have a sharing culture and are willing to share everything. "Young people, often described as post-material, the generations who successfully launched sharing platforms such as Kleiderkreisel.de, couchsurfing.com, drivy.de and many more, prove to be especially interested in property. They state with great conviction, and much more often than the older generation, that they want to have it all" (Allmendinger 2017, 105). Of course in terms of social psychology and Psychological Future Management, we have to examine these statements in more depth. It is essential to distinguish between the material and the immaterial significance of wealth, ownership and property. On a fundamental level, a large proportion of today's young adults really do have a different understanding of communality, the willingness to share, universality, and openness toward the world. There is no emotional clash between this cultural and psychological openness and the material goals and priorities which make it possible to afford this liberality, this power to give and take. Emotional reality is not about coherence and consistency, but about coexisting contradictions, which must be orchestrated rather than resolved. While the generations up to the baby boomers have tried to overcome oppositions and paradoxes, we are now faced with lifeworlds and emotional subjects who have a much higher tolerance for difference.

Nonetheless, every utterance, every action and every opinion is always focused, first and foremost, on the individual's own mental state and horizon of perception. These individual schemas are the "lenses of reality" through which each person sees the world and the futures differently. This gives rise to a fundamental shift in emphasis: the question of an individual's resilience and capacity for self-discipline is evidently more important than the actual changes in the outside world. In light of these findings, one insight from wealth studies comes as no surprise: it is precisely those people who have a relaxed and detached attitude to material possessions who prove more likely to be self-assured, self-confident, and self-disciplined. It is an irony of fate that the psychological criteria which make owning things not the actual aim of life are also those that are, in my experience, particularly conducive to wealth and success.

2.3 Change Means Being Willing to Change Yourself

The WZB Legacy Study was a rich resource for us, allowing us to formulate initial questions on change competence, and to compare our own results with the causal research present-

ed. Some of the topics which were formulated in the framework of our investigation will be briefly outlined here. I would like to begin with the current debate on the supposedly post-factual era. Analyses in the field of Psychological Future Management leave no doubt that an overtaxed mind no longer has the capacity to deal with rational, reason-based and ethical operations. In situations of stress, when a person feels cornered, in material or emotional distress, action sequences become automatic; they become intuitive, driven by instinct, and radically simplified. The relative weightings of rationality and emotionality shift, often leaving feelings in control. This is not in the least surprising, in a world that constantly plagues us with new technology, new information, political decisions and their retraction, and climate-related disasters. In this confusion, the question of truth or falsity as an assessment criterion almost seems like a random choice. There is hardly the time or leisure to thoroughly test truth content. And so common sense quickly takes over the analysis, and decides what feels true and right, or untrue and wrong. This means that dealing with an excess of information and infinite knowledge ultimately constitutes an emotional overload for the individual.

As a reaction, reality is individualized and linked to private interests. Subjectivity becomes the driver of reality which guides action. This psychological resonance is a worldwide phenomenon. Regardless of which continent we are on and which culture we live in, when people feel cornered, they fall into archaic and defensive patterns of behavior and thought. Here it is important to consider, however, that the symptoms of psychological overload in the individual cultures may have totally different causes. One example is digitization, as our study clearly shows. In German-speaking countries in which the advent of the new exacerbates reactivity and the defense of the old, the unforeseeable provokes fear. In other places such as China or Africa, where the aim is to successfully leave behind the past, a totally different mindset is triggered. Here digitization is associated with massive hopes for the future. We should also bear in mind that for digital natives worldwide, no digital overload occurs, since they have grown up with this technology and have never known the seemingly greater simplicity of a purely analog world.

To return to the Legacy Study: it offers illuminating clues, particularly when it comes to respondents' information processing. When asked what importance information will actually have in the future, 72 percent answer that they have no idea. A second tendency observed in the Legacy Study is that well-informed people are much more afraid than poorly informed citizens "of growing xenophobia in Germany, of climate disasters, of financial and economic crises, and of internet surveillance" (Allmendinger 2017, 139). At the same time, however, 80 percent of the study participants recommend that subsequent generations should definitely acquire knowledge about culture and politics. This sounds like a contradiction, but it is one that can be explained in terms of the time line. Firstly, a third of the respondents change their opinion between the present and the legacy. Among the large proportion remaining, the dominant attitude toward the future is skepticism. Again and again we find that our present is perceived and evaluated, individually, as a very satisfactory period. From the perspective of Psychological Future Management, this indicates a profound change in information and knowledge processing. The euphonious

term "knowledge society" suggests a public appreciation of knowledge and information as the basis for creative power. In the depths of our society, however, this label – while still rationally understandable – no longer seems to be convincing or inspiring. A mountain of knowledge can no longer be climbed, since further elements keep being added. This accumulation, however, is not linear but exponential. Even if this is not obvious to everyone, there is a definite sense that we can no longer do justice to the proliferation of knowledge and information with our own intellectual capacity. Here algorithms and artificial intelligence come into play – and transparency disappears altogether. The information itself is seen as a potential threat and source of confusion. While Socrates was able to calmly state – in a phrase still popular today – "I know that I know nothing," the motto now is: the more I know, the worse it is. Knowing does not mean understanding. We may have accumulated the greatest global knowledge of all times, but on the way we have lost perspective, a broader picture, and understanding. We are caught in a transition, in the transformation from a knowledge society to a society of evaluation. This is clearly a feature of wealthy and industrialized Western societies.

If we want to evaluate something, we have to be able to judge it. All-embracing technology offers us a bewildering abundance of tools for this, all of which provide algorithmic assessment criteria. Nonetheless, it makes a neural and emotional difference whether I have read a book myself, or read a review produced by a critic or a computer program. We are talking about self-efficacy and firsthand experience. Jutta Allmendinger clearly makes the point that personal experience of social and political involvement makes people more willing to engage in further activities. An authentic feeling of self-efficacy is the training ground for the assumption of responsibility. Real political and societal education, and personal courage and self-worth, are only generated by practical experiences. I call this process "Concrethics" (cf. Druyen 2012, 46): only successfully completed actions give us a connection to reality and truth. If action is replaced by mere suppositions or by algorithmically generated prognoses, the future becomes a tunnel that stretches further and further, whose end is unforeseeable. Thus it is not surprising that people, in their longing for clarity and orientation, focus on others in their prospective search. "Now people judge future developments by looking at their fellow humans and projecting their perceived behavior onto the future" (Allmendinger 2017, 142). So our own vision of the future is a projection of the assumed behavior of others. In times of personal satisfaction, political escalation, proliferating crises and increasingly coarse language use, the observation of others offers no relief. As if this were not enough, the Legacy Study also analyzes people's self-doubts, which, when focused on the future, sometimes become self-criticism, because we do not do all the things we should, for example when it comes to health matters. The highest degree of mistrust, however, is revealed in the final assumption that other people are not able to manage or realize their own legacy. With something approaching resignation, we must conclude that while people wish for change, even if they do not know how to achieve it, they do not believe their fellow humans are capable of it. No confidence in others also means no self-confidence. This defeatist attitude, when the German state is at the peak of its economic and competitive powers, requires intelligent intervention to remedy the psycho-

logical imbalance of German society. The Legacy Study found that respondents, regardless of their level of education, saw the future as one big question mark (Allmendinger 2017, 165). This means that a new orientation in life, reliable navigation for the future, and an adaptive drive for change are the ultimate challenges for politics, business, culture and – even more fundamentally – for every individual. In Germany there is no big picture. Fear of the foreign and of foreigners is primarily a fear of no longer being able to compete with the successful practices of the past. The country is still strong, but energies are no longer flowing forward; instead they are flowing toward self-defense. Instead of becoming global citizens, key figures are becoming mired in provincial introspection.

The Legacy Study uses the everyday topic of food to show how much people long for advice and orientation. When asked whether policymakers should ensure "that citizens are given complete and comprehensible product information on all foodstuffs" (Allmendinger 2017, 170), there is an agreement rate of 85 percent. And when asked whether food companies should be more closely monitored, 56 percent say yes. When it comes to their legacy, 90 percent of all study participants recommend that subsequent generations should aim for a better diet in the long term. This impressive support is independent of milieu and education: it is common sense. Yet the sad reality shows that, for social reasons, conditions in society do not allow a constructive change in eating habits. It is a luxury to be able to think about the circumstances in which high-quality food is produced. For people with a high level of education and a good income, this possibility can be taken for granted, for those with a low level of education and a meager income, it is almost inevitably secondary or even unattainable. People are fully aware of this dilemma, which gives the feeling of being excluded from dignified participation. This is something our political establishment urgently needs to address. Free access to comprehensible product information, ethical monitoring of food companies, and comprehensive consumer protection are forms of psychological empowerment, giving people scope for action and change. This idea of "nudging" or boosting rationality was honored with the Nobel Prize in Economics, awarded to Richard Thaler in 2017. A pioneer of behavioral economics, Thaler provided a convincing set of tools for learning ways to make better decisions (cf. Thaler & Sunstein 2008). In this context, the task that falls to political actors is to radically ensure transparency, so that citizens waste no time or money on the path to qualitative judgement. So we can see from the example of food that even if we want to change, this cannot be achieved without certain prerequisites. Even if insight or knowledge is available, the process of transformation is still far from begun. This intellectual situation must seem cynical and absurd to billions of people in the world. While hunger, misery and war are an everyday fact for a quarter of humanity, people in Germany are arguing about descriptions on packaging. But not just here, this is a European issue. Many of these norms will ultimately be deliberated and adopted in the European capital, Brussels. The differences in the global dimensions of life are huge, and the interconnectedness of the world should not obscure this fact.

2.4   From the Blockade of the Future to Sustainable Action

Knowledge and information are extremely important for citizens, then, but only if they specifically answer those questions that are relevant for the individual's life. Otherwise they are random noise, or consumer offerings which have little to do with the great challenge of synchronized life planning. Let us return once more to the key point of the Legacy Study which is important for this study: What do people say about future developments, and what is their assessment? Here there is an extremely wide gap between the very positive evaluations of the present and the suppositions about the future legacy. 70 percent of the participants in the WZB Legacy Study assume that in future their fellow humans will find it far less important than they should to be informed about politics and culture. What does this mean? Are we entering into an age where people feel as though they are flying blind? In any case we are facing a further division of our society. The German parliamentary elections in 2017 already gave an indication of this. For the first time in the history of the Federal Republic, it took more than six months for a government to be formed. The majorities were extremely small, and only a difficult coalition made governing possible. The fact that in the end the two biggest losers were able to form the new government with their share of the votes shows that conditions which seemed stable for many decades have been thoroughly shaken up. In other European countries such as Poland or Hungary, we are observing landslide-like shifts in ideas of freedom and tolerance. There have been massive changes in our society in recent years, though we ourselves are unable to pinpoint or define what has changed. The different positions are simply repeated, and interpreted in contradictory ways, but there is no systemic exploration of their direct connections. To me it seems less a war of ideologies than a confrontation – which is only just beginning – between psychological states and unequal participation. The global phenomenon of injustice, inequality and different conditions of governance is now appearing again, more obviously, in Europe. Even in Germany, the rifts between the milieus are deepening. This is not a good development, as the achievements of civilization are clearly being sacrificed to self-interest. Let us look at some of the causes, such as are evident in the representative survey of the WZB in Germany.

    In around 70 percent of those who are skeptical about the future, it is possible to detect a perceptual barrier, which is expressed in the following assessments: (1) everything is so complex that you can only give up; (2) you can't change anything by being informed; (3) people are, by nature, only interested in themselves (Allmendinger 2017, 212). The mental state of the respondents is characterized by a lack of faith in their own efficacy, psychological overload, and elements of self-abandonment. Thus what we find here is a shift towards the above-mentioned behavioral factor "resignation when faced with barriers," with all the symptoms identified. From other studies, including my own, I can definitely confirm this process of mental detachment. Of course there are also optimistic perspectives, and we made a point of searching for representatives of such perspectives in the Change Study. In the Legacy Study they are always a minority: people who possess self-belief, who take things into their own hands, and do not give up, even in the face of complexity. In view of

their numbers (they make up between ten and thirty percent of respondents, depending on the topic), and their confidence that their legacy will be fulfilled, we cannot refer to them as outsiders. There are a number of people who are stirring here, and we can only hope that their energy will contribute to an urgently needed reversal of the situation. Our study focused on people with this kind of psychological make-up.

Those who have legitimate doubts need support in order to become self-empowered again. This is not an easy task. According to my observations, what we are dealing with here is the crossing of intrapsychological boundaries. Too many new selves must be integrated within a person, be it their digital, virtual, algorithmic or haptic self, to mention just a few of the new facets of identity. People can no longer order and synchronize their own contradictions and the various external ones. Artificial intelligence, robots, exponentiality, the European crisis, the American presidential debacle, increasing life spans and shrinking pensions… the list is endless. And we lack a suitable tool to reassess and reorder this muddle of consciousness. The remit of Psychological Future Management, which we want to consolidate in the Change Study, includes developing the skills, the will, the routine and the practice needed to use the now-necessary future navigation to work, plan, try out actions, and imagine. This is about learning the capacity for change, and navigating through the unpredictable. This remit is not just study-related, and a result of the Legacy Study, but is an indispensable action: after the putative *Homo oeconomicus*, we must finally recognize and attend to the *Homo futurus*.

In Germany we are a very long way from this perspective across society as a whole. Our attitude towards the major upheavals occurring is deeply divided. Sometimes we look toward change with excitement, at other times it appears to be an emotionally inescapable overload. Experience of change cannot be generalized at will, it is dependent on situation, milieu and character. All in all, citizens see the possible disappearance of their work, a new alliance between machines and robots, and Industry 4.0, which seems only concerned with itself, as being right at the top of the list of prospective threats. Faced with this scenario, the wish for continuity and stability does not seem like self-abandonment, but more like a manifesto of common sense. If we have to affirm both parts of a contradiction, our psyche is plunged into agitation and fear. People are open-minded toward the new, but at the same time the impact of constantly accelerating change is a neural and emotional disaster. How am I meant to achieve something I no longer understand? How am I supposed to climb a mountain if I do not know its dimensions? How am I to coordinate the structure and shaping of my life when its architecture is a complete mystery?

The psychological and self-preserving response to exponential acceleration is to hold on to what is tried and tested – and thus resolve the contradiction, as it were. This totally understandable attitude is the foundation for Psychological Future Management, from which we must perceive change and its processes. The insight into the need for self-discipline, courage and effort is nothing new, but the prospect of a clear shaping of the future seems light-years away from us. The way this dimension of futility is measured has to do with education, social participation and also regional location. In rural areas, the journey into the future is perceived as even longer. Those who lack education see themselves as being

completely excluded from the future demands of work. The IT entrepreneur, on the other hand, is in his element, and is willing to keep picking himself up again, even after defeats. We are in the process of moving into an ark. Only those who can meet the flood of change with their own willingness to change will survive the tsunami of psychological overload.

But what do those people do who have no future-oriented narrative at their disposal? They take their bearings from observing others and projecting. Their expectation of the future is the result of an uncoordinated and random perception of all the clues that evoke the future for them: new technical devices, robots, science fiction films, countless mentions of disruption, pension fears, Google, Amazon, journeys to Mars, immortality, factories without people, and so on and so forth. The future of the others becomes the Armageddon of their own prospects. Thus the distance between their own life and their personal ability to even leave behind a legacy creates a negative dynamic of self-worth. People only see themselves as having a subjective future justification if they can imagine and feel certain of their own sustainability and efficacy. Those who see themselves as poorly trained, excluded and deprived of opportunities, may also perceive themselves, in their own conception of legitimacy, as unworthy to receive an entry ticket for the future – which will obviously be too complex and demanding.

2.5   Justice: Performance or Purchasing Power?

Our own life story is a largely unconscious collection of all the biographical, neural and emotional events we have experienced. It would be wrong to assume that people have a conscious knowledge of this personal diversity in everyday practice. When dealing with questions of Psychological Future Management, we must not forget that the Legacy Study provided a very good description of the mental state of the respondents for the present. And the subsequent analysis also essentially reflects a widespread acceptance of current conditions. When we speak of average Germans, we are dealing, historically speaking, with a social reality which is unparalleled in terms of living standard, life expectancy and quality of life. Jutta Allmendinger rightly points out, however, that this excellent description of the situation does not in any way reflect the question of social justice. And yet it is obvious and absolutely understandable that people, in such a favorable national situation, are reluctant to commit themselves to an unpredictable future. "So people actually want to change and improve many things. But then in the end they do no more than recommend change. And they expect things to get worse in future" (Allmendinger 2017, 226). The Germans are not excessively thin-skinned; they do see that the greatest need for change is in themselves. But this is, as we all know, a huge and intense challenge, and a task for which there are no ready-made solutions.

The theme of social justice, touched on in the previous paragraph, cannot be left unmentioned. It plays an important role, not least when it comes to self-assessment for Psychological Future Management. Those who feel they are not being fairly treated are banished from the network of solidarity. The number of these globally relevant expellees is in the

billions. Those people, wherever they are, who see confirmation of their suspicions that a good life is a privilege that can be bought, a privilege of those who are better off, lose faith in communality. Those who have gained the impression that corporations, politicians and lobby groups can do what they want will believe that democracy is a failure. Thus justice is not only of major significance on a constitutional, legal and interpersonal level, but is also extremely relevant for emotional feelings of coherence and international credibility. After the Second World War, the dominance of the West was based on democratic capitalism. The latter is now dominant worldwide, while the democratic virtues suffer the fate of being frequently mentioned – especially in award ceremonies, announcements and self-portraits – but seldom put into practice. Without justice, commitment, altruism and humility become nothing but "own goals" for society, which are hopefully not forgotten, at least when values and dignity are remembered. Without justice, no emotional cohesion is conceivable. There are, however, various models of justice, such as equity of opportunity and educational equity.

In Germany, as the Legacy Study shows, the dominant model is equity of outcome. The respondents strongly agree that performance is central, and that those who do more or perform better are entitled to have more. This does not really seem to have been understood by the German parties. For the Germans, performance and reward constitute the rational equivalence principle. This calls for personal responsibility, to a much greater extent than most people are evidently aware of. A society which prioritizes equity of outcome will not see it as imperative to make it easier for those who are socially weaker to access education, work and prosperity. The universally respected principle of equality of opportunity is not at the top of the agenda in Germany. Against this background, it is easier to understand why, in Germany, citizens from all milieus consider it important and appropriate to hand down their property and wealth. People see the wealth they have created and accumulated as part of their life's work, which they want to simply and unconditionally pass on to the next generation. A political or ideological debate about capital taxation, though continually evoked in the media or within specific ideologies, is quite out of step with the population.

There is, on the other hand, a direct conflict between the desire for equity of outcome and the wage differential, which is seen as unfair and unacceptable, as well as the absurd disparity between income and wealth. The extreme differences between the lower and upper levels of pay, in which even salaries in the tens of millions are possible, cannot be seen as fair and acceptable. The absurdity is taken to its greatest extremes by fantastic bonuses, which cannot be attributed to either performance or adequate results. This capricious use of power may bring individuals enormous wealth, and confirm them in their corrupt alliances, but it is fatal for a sustainable social structure and a sense of solidarity. The urgent motivation for societal change is eroded by these monetary and one-sided evaluations of performance. When efforts at upward mobility are felt to be futile, this is the breeding ground for self-discrimination and discrimination against others, which, in the end, only generates suspicion and demands. A critical attitude toward the widening gap between the extremes of income and wealth could be a constructive export from Germany to the world. The discrepancy between income and wealth, the impossibility of bridging the

gap between millionaires and billionaires, but especially the new scale of trillion-dollar corporations such as Apple and Amazon, have marked the beginning of a new era. Those who have arrived "up there" are no longer part of the community, but feel like masters of the universe, materially and structurally godlike. This dimension even surpasses the remoteness of emperors and kings; these people are above the material world. This calls for a radical rethinking of the category of justice.

In light of these considerations, it may be surmised that the societal pillar of wealth on its own, without a broad middle class, is not a sustainable construction. Nonetheless, the population has no real problem with the existence of active wealth and of the super-rich. At the same time, there are as yet no global masters in Germany. Something that does have great potential to upset people, however, is unfair enrichment based on elite networks. The Legacy Study shows us, in exemplary fashion, that the Germans set great store by their work. This fundamental attitude is emphatically underlined by the fact that the vast majority of the respondents would still want to work even if they did not need the pay. This is plainly the central focus of their lives, and has not only rational, but also emotional significance, as well as playing a part in their construction of the future. So when we think about the individual's capacity for change, the possible prospects for gainful employment are right at the top of the list. If we link this aspect with the above-mentioned wage differential, it should become clear that wage labor which is insufficient for subsistence, or the lack of any prospect of paid work, substantially weakens the sections of society concerned. The internationally popular cliché that the Germans are particularly focused on performance and work is still clearly true. But if, in future, there are going to be fewer opportunities to put this willingness to work into practice on the market, a social society must provide other options. In this context the unconditional basic income is often invoked as a possible alternative means of subsistence. It is not possible to explore this in depth here, but an idea which is important in this context needs to be mentioned and evaluated. From the point of view of Psychological Future Management, the unconditional nature of the proposed basic income is questionable and somewhat counterproductive. We must remember that the respondents from the Legacy Study favor the principle of performance and reward. A source that is not connected to paid work or other forms of activity serves neither their sense of self-worth nor that of self-efficacy. Emotional dependency contains a tranquillizer, which leads to energy losses and turns change into a threat or a luxury. This would also be sending the wrong signal in terms of future challenges: instead of encouragement and a willingness to develop, a passive and undemanding attitude would suffice.

Another reason why paid work is so highly valued – and not only in Germany – is that it goes far beyond performance and income. It is the central theme of our existence, our system of coordinates and navigation. Alongside family, friends and communities of interest, it is our work, our craft or trade, and our entrepreneurial activities that make up the focus of our lives, providing us with meaning, relationships, knowledge, and contact with others. There is no doubt that it is – in several respects – extremely unsettling to have to do without this. An alternative or a replacement for this way of life is not yet available, or at least not as a serious and comprehensive option. This important insight gives further

impetus to our research mission: to develop Psychological Future Management and future navigation, in order to combat the increasingly widespread transformation of work with a new concept of life, based on anticipation and personal responsibility.

Once again, Jutta Allmendinger provides us with an important insight here. One of the things work always does is offer people a meeting place, a place of communication and relationship networks, a "marketplace," as she calls it. In recent decades it is in this setting that people have spun the threads of social, private, religious or voluntary activity. The marketplace has always stood for an interaction transcending milieus and age-groups. This intersocial aspect is also caught up in a process of radical change. The more these meeting places are maneuvered into the digital realm, the more people choose to meet others from similar lifeworlds, the more neighborhoods come to be dominated by property-related wealth groups, the smaller the common denominator between different strata becomes. This disintegration of intersocial contacts and connections, which is exacerbated by the decline of religious and church affiliation, and by ethnic and wealth-specific segregation in schools, cuts off important points of social orientation. Everyone talks about platforms, and they are fundamental connecting points on the digital level, but in physical human interaction they are becoming rarer. In terms of interpersonal relationships, even military or civilian service is a place where people learn to coexist with others, and to understand other ways of life and life pressures. Those who only operate in virtual spheres or among people from the same milieu lose the ability to exercise tolerance and build bridges of empathy. Their wishes and plans for the future then directly relate to their own interests and advantages, and only to these. Against this background, their fellow humans appear as either helpful or useless. This loss of a social basis would be a disaster, hence the rising pressure on those with political and societal influence to think about the creation of new social marketplaces.

Pragmatic deliberations or visions in this direction all lead to change strategies based on giving up old things and daring to try new ones. This is the leap that change demands, again and again – and this always also involves overcoming one's own resistance. These changes are radical. In relation to new platforms for meeting others, they have implications for house construction, for possible forms of civilian service, and for the provision of care and other support. The notion that we can make a change just by turning a single screw is simplistic, as we can easily see. The individual effects develop their own momentum, creating concentric waves. So it is not presumptuous to say that the capacity for change probably functions as one of society's most important levers. This is about processes of conversion, a prospective transformation; it is about people who do not wait until it is too late, but act, in order to create reality and thereby set agendas for action.

We live in a time of psychological overload, where a rapid succession of innovations and surprises forces us to substantially increase our readiness for change. In such a time, education and professional development are the keys to life. This has been a familiar phrase more or less since my childhood. It has also been an undisputed and influential mantra in the places outside Germany where I have lived and worked, in India, Sri Lanka, South Africa, Kenya, Morocco, the USA, Singapore and Hungary. And the Legacy Study also shows, beyond a doubt, that – for citizens in all lifeworlds – attitudes to life are shaped by

educational background. Since a person's educational pathway and educational options become apparent very early in life, there are countless moments for intervention. The fact that access to education is so terribly limited – even in Germany, but of course much more disastrously in most other countries of the world – raises doubts about the will to bring about changes here. We all know that there is no humane future without education. Thus a knowledge society cannot measure its national and international success by its position as the world's leading exporter, but must consider all those who are given no institutional opportunity to positively change their lives. This also, however, includes the realization that those who receive their opportunity but do not take it – for reasons within their control – lose not their dignity, but their entitlement. One can certainly argue about this in ethical terms, but in a land of equity of outcome, this view seems likely to be supported by a majority. Thus a country's capacity to change and to face the future is very much linked with how well it succeeds in orchestrating and synchronizing educational participation, community building, and self-education. So far we lack any coherent vision for this.

3   From Ignoring the Future to Navigating It

If we are wanting to do something new or thinking about change, we need not only a reservoir of ideas, but also a source of new energy. We have already read how difficult it is to set off into the unknown expanses of the future. Another striking example of a lack of capacity for change has been unmistakably demonstrated in recent decades, when we have had the rare opportunity – one might say the good fortune – to closely observe how a society deals with the future in a specific area. I am referring to the so-called demographic change taking place in highly developed industrial societies. The effects have been known since the 1940s: a rising life expectancy and falling birth rate, resulting in an ageing society with a huge burden on social security systems. Thanks to the unambiguous findings of demographic research, we know decades in advance how age cohorts and generational developments will be distributed. So this is one of the major exceptions, where we are able to assess the future long before it arrives. It is fascinating to see how societies deal with this knowledge of the future. For seven decades, we have been able to document how Germany has behaved in this matter, in terms of everyday practice, despite this knowledge. I myself have been researching and working in this area for over twenty years. I have written books and launched studies about it (for the most recent update see Druyen 2016).

The result is sobering. The demographic caesura in Germany has been foreseeable for decades. If we had taken it seriously as an imminent future reality, we would not now be overwhelmed by unsolved demographic problems. The areas affected by this grave tendency to ignore the future include the whole area of pension provision, the length of working life, lifelong learning, the excessively low birthrate, and not least immigration, as an entirely reasonable way to compensate for a dramatically declining original population. Germany is not a special case here. The demographic caesura exists in all societies as soon

as a certain level of prosperity is reached. The number of children falls when the partners' individual opportunities in life increase. This is a very simplistic account, but the general idea is correct. In Japan, in Italy, in Spain, but also in China, the demographic challenges are huge. Despite the extremely long course of its development, this topic is dramatically relevant today. Particularly in the sciences concerned with age and the generations, basic research and individual studies have been carried out in Germany with a view to prospective use. However, the overwhelming mass of clever ideas, realistic models, and psychological findings is slumbering unused between book covers and in digital clouds. For the present discussion, the main observation to be made is that even a usable and reliable knowledge of the future only occasionally leads to change, prevention, and a reversal in thinking. We have to live with this fact. This example and this field of research are of existential importance for other countries afflicted (now or in the future) by the demographic caesura. So this publication can be understood, in part, as a constructive warning or as a creative hint that we can only shape the future if we take it seriously in good time.

Knowing the future and not making use of this knowledge – this is a fatal paradox. From the point of view of Psychological Future Management, many of the contradictions identified so far can certainly be seen as having a potentially explosive effect on society. Thus their impacts and reciprocal effects have a strong influence on the specific form of democracy in this country and in other countries. In the wealthy circles and nations, concentration mainly serves to preserve status, and thus the naïve wish for a never-ending present. The historian Philipp Blom sums it up: "The great advantage of the wealthy West is also, in a sense, its curse: many people are still simply doing too well to agree to radical changes, which would require them to accept limitations. They see no reason for this, or they deny it, they are not interested, or they accept the reasons and the need to do something, but just not now, please, not here, not personally" (Blom 2017, 187). Savor this sentence: "We're simply doing too well." It is much easier to make this observation from the outside. From the inside, it can be overlooked, or even used as encouragement for resignation and indifference. On the other side, the non-wealthy spectrum, the dominant feelings are – quite justifiably – fear of the future, uncertainty, and the paralyzing sense of having been discarded. But even with this drastically reduced horizon of expectation, change is not seen as an opportunity, but as another abstract threat. Such a calamitous perspective suggests a sense of having no future, and seems to resist any charge of positive energy. In this feeling of desolation, defiance, resentment, and a stubborn focus on the past simply matters and facilitate survival.

It is clearly difficult for the German population to acknowledge that not just consciousness, but also the unconscious, inwardness, and the psychological DNA of our personality have enormous importance for our thoughts, feelings and actions. Hence even the best model, the greatest promise, and the best prospects are not enough of a concrete reason to inwardly convince us. The saying "a bird in the hand is worth two in the bush" (or the German version: "a sparrow in the hand is better than a pigeon on the roof") highlights an exceptionally relevant character trait in Germany. This is a psychological disposition that we really need to overcome, given the irreversible pace of change. The following piece of advice can serve as a motto here: if you cannot change your fate, then change your stance.

But as we know, it is often very hard to maintain a stance, and even harder to rethink and change it. So what we are really lacking is navigation for the future. An individual, societal and cultural architecture of the future. Jutta Allmendinger, in the conclusion to her study, offers very specific advice for society: "So we do not need an extension of working life, but a different ordering of the phases of education, paid work, and retirement, which are still thought of as clearly sequenced. Such working careers, interrupted by care work for children and parents, training and time out for oneself, require new instruments of guidance and finance" (Allmendinger 2017, 238). These proposals also include new life-course counseling and, in particular, a forward-looking training and qualification policy. There is much to be done, then, to establish a creative relationship between the future and ourselves. The team from the Legacy Study developed a typology of different behavior patterns and investigated how common they were (Allmendinger 2017, 22 ff.). For the Change Study, it was interesting and informative to see that the only group that corresponded to the model we were looking for – the change-ready optimist – were the "inclusive modernizers." This term is used in the Legacy Study to refer to people who are fundamentally optimistic and willing to change. In the legacy of the inclusive modernizers, change is virtually indispensable, and people of this type assume that their expectations will be fulfilled in the future. Only around 14 percent of the respondents of the Legacy Study were confident in their assessment of their own legacy and the expected future. Despite the overall positive statements about the present in the Legacy Study, it is quite clear that an eagerness for change and optimism about the future are absolutely not German virtues. For an era which will be plunging headlong into change, this is a paralyzing state, which we urgently need to overcome.

Overall we can see that change, as a complex and multilayered process, is fundamentally connected to our own conduct of life and our own shaping of the future. This insight does not yet seem to have reached the average member of the German population. There is also a near-universal lack of understanding in relation to digitization and disruption. Here it is not so much a matter of understanding technology and appropriating knowledge, but of generating resilient and navigation-capable orientation – and this is indispensable. Without a psychological anchoring of the modules of change, most of the efforts to mediate the new will remain piecemeal. Only when the new is integrated into habits and routines can it have a sustained guiding effect. So in times of extreme acceleration and unforeseeable changes, it is vital to learn prospection, anticipation, prevention, foresight, exploratory action and preparation. This message is universal and is fundamentally helpful in all forms of society, insofar as there is a desire to constructively shape the future.

We all change: now, always, and everywhere. We do so anyway, intuitively, automatically, and largely unconsciously. But we could also do it thoughtfully, deliberately, strategically and with an eye to the future. I am therefore convinced that the time for navigating the future has come. Never was change more necessary to avoid being left behind. Those who want to change deliberately need confidence, imagination and courage. Those who want to implement change need a goal, a plan, and a route. Those who are resolutely making change a systemic component of their lives need a continuous, flexible, feedback-compatible

navigation, which is repeatedly adapted and synchronized. Anyone who gets this far will not be discouraged by difficulties and obstacles.

Another effect we have observed, which is far more than a second-order benefit, is that successful coping makes it possible and easier to move from an external crisis or stroke of fate to an internal, self-directed adaptation. In this way, problems or setbacks are perceived as components of a coping process, which can be influenced by the individual. This problem-solving experience helps people to reach the certainty that prevention, anticipation and exploratory action are reliable components of the conduct of life. Used in this way, the experience of change thus become a competency for resistance and self-preservation, which is absolutely essential in radical changes. Overall, I see an opportunity to use experiences of change to transform the Germans' extraordinary ability to persevere into an anticipatory competency for navigating the future.

The aspects of action mentioned above are not mere theory, but concrete findings of the IZZ Change Study, and therefore the useful result of lived and successful life. The coping processes which we investigated and analyzed have one thing in common, regardless of the nature of the life events: the change competence acquired and adapted is experienced, understood and internalized by the individuals as a personal development. Nearly 60 percent of the respondents state that they feel strengthened in their abilities by the change process they have completed. They therefore face future challenges with self-confidence (cf. fig. 3). From these results, we can conclude that coping successfully with change processes both boosts people's self-efficacy and forearms them for the future. Is this not tremendous, and a real ray of hope for these turbulent times? Anyone who has successfully changed once will do it again (cf. Brenner 2019). Thus the experience of change contains that future competence which we so urgently need. The optimal output, which would lastingly change
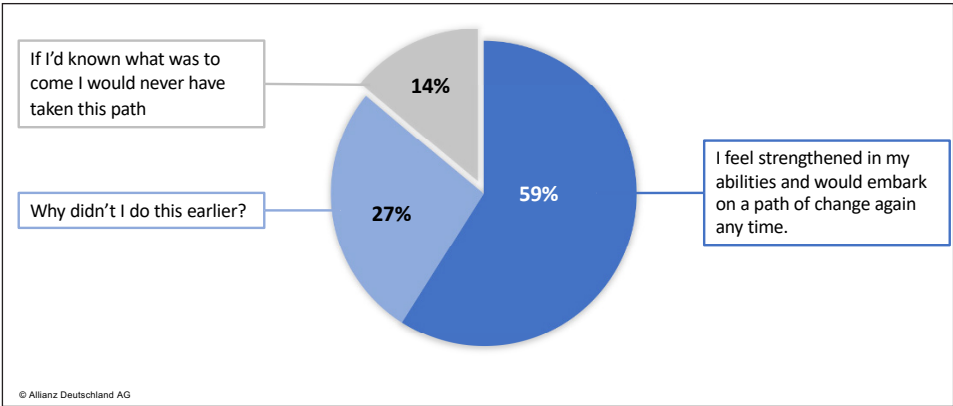
Fig. 3   Coping with Change Gives Confidence

Answers to the question: "If you look at your situation after the process of change, which statement best applies to your thoughts?"

our society and others and make them fit for the future, is ready and waiting. It should also have become clear from the aspects mentioned that, for example, a united Europe will only remain a dream without a shared architecture of change.

3.1   Prevention and Foresight as Life Tasks

The breakneck speed of technological development is forcing us to act. This process cannot be switched off or slowed down on rational grounds. It will not wait until we have developed sufficient understanding. On the contrary, artificial intelligence and the linking of platforms (soon to be joined by quantum computing) are pushing us forward with their own momentum, giving us a premonition that a unique era of human-machine interaction has already begun. How easily we can grasp this perspective depends on the degree to which we are in the know, our knowledge of worldwide development scenarios, and our function in the global competition for the pole position of virtual dominance. Here a further divide has opened up: between linearists and exponentialists, between those still trying to keep up with small steps, and those hastening ahead with great leaps and bounds. Here it is not difficult to venture the prediction that the well-known gap between rich and poor will be overshadowed by this new dimension

No one could have foreseen how quickly and radically Google, Amazon and the smartphone industry would alter our reality. They dominate our communication, our perception, our behavior and our thinking. This total metamorphosis has taken place without any democratic vote, dictatorial command or scholarly recommendation. It is the result of exponential algorithmic processes, coupled with boundless imagination and unfettered entrepreneurship. The platform owners are the vanguard of new visionary billionaires, who increasingly head the rich lists, but view territorial ownership in the internet of things as far more relevant to the future than mere mammon. The new mentality of startups and high-speed consumption is unstoppable, and the platforms which millions and billions of people flock to are turning into serious competition for the nations. These reflections from a sociology of the future serve as an aside, providing a horizon of orientation for the change-related themes dealt with here.

Germany, like other countries, is facing a fundamental challenge. This is about keeping up in the competition for the digital, virtual and neural shaping of life and society. Most importantly, it is about developing a new consciousness, which is able to deal with the actual dynamic of change. Only then can we successfully maneuver ourselves into a position of influence. We have been able to observe that the resilience and adaptive competence in this country is exceptional. At the same time, this intuitive strategy for success seems to reduce the willingness to take a proactive attitude to change. Retreating, catching our breath and switching off are important and legitimate behaviors, as interim steps. They do not offer the solution we need in order to deal with the latest upheavals. We are sitting on an extraordinary psychological treasure trove made up of our experiences of life and of coping. Instead of resting on these laurels, the question now is how we can unearth this treasure and

take a huge leap forward. Plainly the vast majority of the German population is managing to deal with smaller and larger challenges at the moment of their occurrence: people are managing to adapt, to modify the challenges, and to cope with them. Rather than waiting for the threat, crisis or disaster, it must surely be possible to become active earlier, more preventatively, and with more foresight. This is the current challenge, and will probably remain so: in times of rapid changes, of major transformations, exponential acceleration and constant surprises, we need flexible, forward-looking future competence, which enables us to think ahead, play out scenarios, practice exploratory action, and make fast decisions.

A good example of this mental rehearsal, from the point of view of Psychological Future Management, is the advance health care directive. In Germany this is a statement of a person's intentions, in case they are no longer able to express their will independently and effectively as a result of an accident, illness or restriction. This advance directive is enshrined in German law, and relates to all kinds of medical interventions such as the cessation of life-prolonging measures. The exact definition is set out in the relevant national laws. The subject of possible illnesses or accidents crosses our path now and then. With increasing age this occurs more often, and the question of a possible need for care also arises. An advance directive or other precautionary instruments offer a way out of the usual counterproductive emotional short circuit: unpleasant subject – unpleasant feelings – get it out of the way as fast as possible – it'll all be fine one way or another. At the beginning a certain self-discipline is needed, to face up to the risks of the path ahead. Then, however, an advance directive offers an opportunity to clarify things, and to measure out the uncertain space of the future with goals, interim steps, and plans. This intellectual and imaginative exploration shapes neural structures, allows people to approach the topic emotionally, restricts the element of surprise, and permits a safe visualization of options and possible scenarios. Anyone whose parent, grandparent or partner has ended up in nursing care knows that omitting this precautionary measure, and the dignity of self-determination, throws the door wide open to serious and in some cases disastrous effects. Specific and limited precautionary instruments show how we can navigate in the future. They give us the expertise to judge and react more precisely in an emergency. Of course this can also be applied to more optimistic targets such as family, career, or the architecture of a new phase of life. Using the collected force of the coping skill we have acquired to thinking imaginatively into the future, in order to build up a system of coordinates for navigating through life: this is the core of our Psychological Future Management.

In the course of our work we have developed and optimized our interview technique. The more we can get the respondents into a voluntary state of relaxation and mindfulness, the more substantial the results become. Today we are able to go far beyond the previously available results. Imagination becomes fruitful when people are able to disengage from their everyday and biographical burdens or traumas. This is a key prerequisite for our work, and the reason why we have been experimenting for some years with a specially developed future compass. After nearly two thousand test interviews, it now serves to give us extensive and uninterrupted access to respondents' conscious and subconscious minds. Of course people do this themselves, with the help of reflection and fantasy. We have developed a

systematic, preventative and anticipatory catalogue of questions, which invariably causes the participants to think about issues relating the future. This prospective space is reinforced by having the interviews conducted not only by staff of the Institute, but also by robots and avatars. We are assisted here by a robot called Pepper, in collaboration with the company Humanizing Technologies (www.humanizing.com). Pepper knows the questions and can already adapt them to the interview situation to some extent. In addition, I myself conduct the interviews by speaking to the participants as an avatar from a video wall in the office, or digitally from any available computer. The use of avatar technology was made possible by a collaboration with the company Doob (www.doob.com). The avatar impression and the presence of the robot have a powerful effect on those people who are not yet accustomed to these digital dialogues. The unaccustomed atmosphere enables them to free themselves more quickly from stereotypes and burdens of the past, and to fully enter into the future and their imagination. With the future compass, we now have a suitable set of tools for actually implementing future navigation. The first study reports will be presented soon. This imagining of the future serves to give change a direction, an image and a goal.

Our previous analysis of the parameters of change shows that people need specific guidelines, orientation and vision to move forward purposefully. If these intellectual "handrails" are missing, or if the near future is overburdened with loss of direction, worries, and psychological pressure, the mind compensates by filling itself with disquiet, stress, anxiety, aggression, and the inclination to simplify everything and demonize others. In the cases of successful change which we have studied, it can be observed that plans, goals and ideas are marked by a realistic elasticity. People with a capacity for change meet the setbacks, disappointments and surprises which inevitably occur on the path to change with a willingness to adapt and with emotional mindfulness. In contrast, those who are resistant to change, whom we constantly encounter in public debates, are always gathering arguments, reasons and simple proofs of why everything must stay as it is or as it was previously. People who behave in this way defend the status quo by all available means, and fight a hopeless fight to restrict the whole era to their own ideas.

Life itself is a never-ending, substantial process of change. Nonetheless, personal and historical changes are always perceived retrospectively. This means that their description and evaluation are always forms of interpretation. A successful change is undoubtedly perceived as an achievement, a gain, and as confirmation of a person's self-worth. It is the best guarantee that they will keep undertaking this process, again and again. Above all, it gives a sense of self-sufficiency and confidence. Against this background, it is no wonder that the respondents in the Change Study expressed themselves with great positivity. They had had to go through some very dark valleys to reach this point, but they got there in the end.

Changes are mostly initiated from the outside, be it a bereavement or accident, life event or pure chance. Many things are not subject to deliberate volition, but to the ability to accept, integrate, and shape new challenges, and to the experience of doing so. Ultimately it does not matter greatly whether we are aware of the external stimulus, or are already completely focused on our own coping. It is a fairly well-known fact, however, that personal desires for change often fail or fizzle out. New Year's resolutions – to give up smoking, do more

sport, eat more healthily or do more for our own ongoing development – are familiar to us all. Within a few weeks, most resolutions fall by the wayside.

This is not surprising. A voluntary change, driven by willpower, is an elaborate process and requires us to overcome our own resistance. In this context, neural parameters are of exceptional importance, since our brain cannot simply change course without trouble and effort. Here goals, plans, practice and training are called for. If we want to retrieve the potential for change inherent in individuals, and transform the available willingness to react into a willingness to prevent, we must enable them to develop a framework for orientation and action which is tailored to their own situation. For the development of prospective potency, we need a way to navigate the future. This concept, developed by us, is the crux of Psychological Future Management, and the key to its practical implementation.

The present study has shown what concrete contradictions we need to understand and make manageable. Humans are constantly proving their capacity for and experience of dealing pragmatically with change. But they almost never do so before being struck – personally and tangibly – by a transformative development or crisis. Although they certainly could. When it comes to people in Germany, the better off they are materially, the worse off they seem to be psychologically – an utterly incongruous state of affairs. So what needs to be done now is to integrate an already existing and effective change competence into the shaping of life and society, in an active, anticipatory, and forward-looking way. Concrete visions are becoming socially acceptable again. If we look at it in this way, each and every one of us is facing our own startup. Here and everywhere else in the world.

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Outlook.
How do We Manage the Unpredictable?

Thomas Druyen

The study discussed above, about the example of Germany, has clearly shown that this is not a special case. Every country and every culture comes to a point of ultimate necessity, where there is no option but to change. For Germany, for example, this was the Second World War, for Russia the end of communism, for China the overcoming of the Cultural Revolution, and for the Americans it is the presidency of a man totally unsuited to the job. Comparable caesuras can be found in the life courses of individuals. Whether it is during puberty, after the death of a partner, or after massive surprises, nothing remains as it was before. Personal and societal change are two sides of the same coin. The timing of this moment of unavoidable change has to do with personal, social, political, economic and historical conditions.

The explicit and concrete change we are talking about here and now is unique, new, and unprecedented. It is the result of a technological development involving algorithms, artificial intelligence and quantum mechanics, which is currently heading for a state of singularity, where machines help to decide what is possible and what is not. Endless lamenting about this is a waste of time. The turning point has long since been passed. Now the only thing we can discuss – but at least we can still discuss it – is the direction that will be chosen, and the speed that will drive us. Incessant and radical changes are occurring already. And they will accelerate. Many people say that things have always been like this, and in some ways they are right. But never before has everything been turned upside-down with this speed and concentration. Today's knowledge is obsolete tomorrow, and a death sentence the next day.

In light of the extreme shift from cultural to digital platforms for life, we are all displaced and driven. Besides our traditional nationality, we are now also universal netizens, two different identities which pull us in different directions. We cannot simultaneously take a regional, a national, and a global perspective. This serious contradiction is exacerbated by countless other paradoxes, coming thick and fast. On the one hand, many people currently fear a new collapse of the financial markets; on the other hand, Apple and Amazon are the first companies in economic history to rise into the league of trillion-dollar corporations. On the one hand, politics still dominates world events; on the other hand the political protagonists lack the means, the broader view, and in some cases the legitimation to carry out this task. On the one hand, all the objects in the world will soon be connected and able

to speak to each other; on the other hand, a flood, tsunami or any natural disaster can disconnect many or all of them. Bang – out of order. No information, no navigation, no communication. Emergency stop, standstill. Clearly, we are on thin ice. Twenty years ago, no one would have dared to imagine what we are experiencing today. In another twenty years the same will apply, only it will be faster, more unimaginable, and more gigantic.

Nobody has an understanding, an overview, or a big picture anymore, but of course there are dominant interpretations of the world. Those who can transmit their message most powerfully seem to have a great advantage when it comes to ascertaining "the truth." But ultimately there is a bottleneck which everything must pass into and through: our brain. This is the last and most grandiose platform which is not yet owned by others. So this is the thread on which the project of humanity hangs. There are billions of us, and we all have a voice. Thus our opportunities are far from exhausted. Our subconscious, our unformulated thoughts, feelings and dreams, will not be digitized in the foreseeable future. They are fleeting, leave no traces, and so cannot be accessed or stolen from us by machines that appear to be able to read minds. These are the last islands of our privacy, and we should defend them by all available means: with courage, resistance and tenacity.

At the same time, the changes described in this book are a massive and so far unique onslaught on our brains and our processing capabilities. There is no doubt that we are completely overchallenged. There are numerous signs of our increasing disorientation. Depressive illnesses are increasing dramatically. In the social networks, linguistic homelessness is escalating. Hatred, violence and xenophobia are proliferating everywhere. We know more than ever before, but have far less understanding of how things are connected. Technically, we have access to the world's knowledge wherever we are, but in reality, stupidity and shamelessness are hijacking the agenda. Politically, America, China and Russia are dominated by massive confusion. Quo vadis? Europe is sometimes seen as a paradise, but parts of it are collapsing or shearing off, like the ice in Antarctica. Every reader can continue this list from the perspective of his or her own culture. Never before has our brain had to process so many things simultaneously. But the loss of reliable continuity is the real source of the problem; it means that habit, constancy and emotional security no longer have an anchor. Our brains and emotions must engage in constant recalibration. At the IZZ Institute for Psychological Future Management, we see this as the fundamental challenge of the present.

This is why we engage in Psychological Future Management, to analyze the psychological consequences of digitization, artificial intelligence, robotics, and general mental overload. Compiling the current scenarios of threat serves primarily to define the level of neural and emotional burden. As soon as we compare this dark picture with the individual perspective of many hopeful people all over the world, we see, hear and feel that humanity has not yet given up – far from it. What we really lack, however, is a vision, a path, a plan, an inspiring global perspective. Everybody tells us that we have to change, but nobody tells us how. This is why we, at the IZZ, are working on future navigation and the future compass. The results of our change studies are the material needed to explore which path we can take into the future, and what sort of neural and emotional competence we need for this.

In the imagination and in the subconscious of our interviewees, the new world is ready and waiting – in the form of individual hope. We want to unearth these rich resources, connect them and activate them.

The study on which this book is based, on the Germans' capacity for change, gives a relatively clear indication of possible starting points for initiating the necessary changes. A society which, because of its history and culture, tries by all possible means to preserve the present, but is at the same time paralyzed by a terrible fear of the future, must reinvent itself, with a new focus on the future, in order to regain its footing. Simply carrying on with the old would be a declaration of bankruptcy. It is only logical that this should generate fear and insecurity. In Germany, unfortunately, the responsible bodies are failing to tell the people the unvarnished truth and give them a clear picture. This is not malicious, but simply springs from the fact that they do not have a clear picture themselves. Not in the government, not in the opposition, not in the corporations, not in the cultural sphere and so on. Many scholarly offerings which are somewhat more farsighted are, unfortunately, not even noticed. This anamnesis is the object of our Psychological Future Management. Since the German example is representative of the contradictions of the present, and of the need to establish a professional navigation of the future, change studies are becoming indispensable not only for nations and individuals, but also for corporations, companies and institutions. We should know about our fitness for the future in the same way that we measure our state of health.

As soon as we know how ready we are for change, we can begin to train our brain and our will to face the future. When astronauts fly into space or to the moon, they must practice, anticipate and repeatedly go through every movement, every imaginable situation, and all possible sequences of events – for months or even years. They give their brain a pattern, and the actions become flesh and blood. They no longer have to think. Of course one cannot be prepared for everything, but the better the preparation, the greater the courage and the will to master the unpredictable. Experienced Buddhist monks, who are masters of meditation, underwent highly sophisticated CT scans. The results were unmistakable. Their meditative exercises had enabled them to hugely boost and indeed potentiate their ability to concentrate, their mindfulness, and their neural resilience. We frequently observe skiers, before big races, moving their heads as they go through the whole course mentally, skiing it in their minds before doing so in reality. Not only sportspeople and performers practice, we all do: at school, at work, and when pursuing our passions. But when our environment changes with this drastic speed, we have to practice more and differently than ever before to keep up. This does not happen automatically. If the dog on our leash is suddenly a thousand times faster than us, then our previous authority is no longer sufficient. But there are many unfamiliar things and developments that we can focus our attention on in advance. In psychology, we call this exploratory action. In our heads, we go through the job, the relationship or whatever else. We never know what will happen, but we can anticipate many surprises and dangers.

Has the future ever really been correctly predicted? In any case, think tanks, management consultancies, forecasting agencies, trend researchers, and self-proclaimed diviners

of the future have never preserved the world from major disasters. Probabilities are a different dimension from the attempt to help shape the future. The only serious blueprints for a possible future which have actually come true are in the areas of literature, science fiction, and nowadays the gaming community. The Star Wars trilogy, films like *Star Trek*, *The Matrix*, *Ex Machina* and *Blade Runner* have supplied us with images that define our ideas of the future today. The story of the American film *Her*, in which a university lecturer falls in love with the voice and speech of his cell phone, is based on real indications of developments that already exist in rudimentary form. The Sky series *Westworld* anticipates a future with humanoids, a future which is certainly imminent in some form or other. These scenarios are not based on mathematical calculations of the future; instead they spring from the imagination.

It was this insight that inspired us, some years ago, to focus on this particular human gift. The idea of the future compass is nothing other than a continuous training of the mind, the brain, and the imagination. The image of the future as the result of our fantasy and our subconscious, in which our whole life is contained, strikes me as more desirable than the hybrid visions of a few trillionaires, who, for all their good intentions, can never think in the interests of the vast majority. The power with which we overcome psychological overload is imagination, and everything that boosts our creativity. From music, art and play to meditation, imagination and neurofeedback: we need to free our minds. At this point we begin to realize that education itself will have to undergo a one-hundred percent transformation. The founder of Alibaba, Jack Ma, sums it up: we have to learn everything that computers cannot do. The virtual world is not gifted with imagination. This is where our opportunity lies; this is our life, our life insurance; this is where our DNA fits. Seen in this light, the future is full of solutions. The only question is: When will we implement them? Networks and platforms such as Google and Amazon are now unassailable fortresses. Our social, political, philanthropic and cultural networks are, often enough, little amphitheaters for ranters, narcissists and profiteers. Without conscious navigation, humanity will continue to go around in circles.

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