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## Tensions in Corporate Creativity

Using the Value Square to Model Organizational Creativity



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## **Abstract**

The standard definition of creativity is based on a tension between originality on the one side and effectiveness on the other side. Borrowing from the wave-particle duality in physics one could say that there is an originality-effectiveness duality at work for creativity. The paper explores how this tension pervades Amabile's (1997) componential theory of organizational creativity. To achieve this, the so called value square ("Wertequadrat") developed by Helwig (1967) and Schulz von Thun (1998) is used which balances a value with its countervalue to analyze the components of corporate creativity. The author identifies tensions of corporate tradition and corporate change for organizational motivation, skills and challenges for work assignment, management by control and management by loss of control for work control as well as organizational efficiency and organizational slack for resources. Additionally implications for resistances to creativity, the flow of creativity, the avoidance of a culture of compulsive control, freedom and autonomy in the workplace as well as resource allocation are discussed.



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## Using the Value Square to Model Organizational Creativity

*Carsten Deckert*

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## 1. Introduction

*“In the creative life,  
you’re always balancing many paradoxes.”  
(Sawyer 2013, p. 225)*

“All innovation begins with creative ideas” (Amabile et al. 1996, p. 1154). Creativity is seen as a key success driver of companies contributing to an organization’s growth and long-term survival (Mathisen & Einarsen 2004, p. 119, Oldham & Baer 2012, p.387). Corporate creativity is the source of innovative products, services and processes leading not only to the profitability of companies, but also to higher prosperity and quality of life. As an essential side effect of innovative activities of companies the general economic productivity increases, new markets and industries are created, and the standard of living for consumers is improved (Ahlstrom 2010).

The crucial factor for creativity in a company, however, does not seem to be the R&D-budget but the organizational climate or work environment with regard to creativity and innovation. The Global Innovation 1000 study by the consultancy Booz & Company (now Strategy&) analyses the 1,000 public companies worldwide that spend the most on research and development (R&D) and could find no relationship of R&D spending and sustained financial performance on a company level over a period of ten successive years (Jaruzelski, Staack & Goehle 2014). On the contrary the study seems to show that strategic alignment and organizational culture foster creativity and innovation (Jaruzelski, Loehr & Holman 2011, p. 2). Other studies seem to confirm this result and show that the innovation capability of a company seems to rely to a large extent on work environment, organizational climate and organizational culture (see e.g. Amabile 1997, Hunter, Bedell & Mumford 2007, Mathisen & Einarsen 2004, Puccio & Cabra 2010, West & Sacramento 2012). Similarly the influences of these factors seem to be stronger than individual influences: “A bad system will beat a good person every time” (Robinson & Stern 1998, p. 29).

Creativity of a person usually is defined as “the generation of a product that is judged to be novel and also to be appropriate, useful, or valuable by a suitably knowledgeable social group” (Sawyer 2012, p. 8). Other, stricter definitions of individual creativity include aspects such as heuristic task, unusualness or unexpectedness of the solution and sometimes even inconceivableness of the solution (Amabile 1996, p. 35, Boden 1992, p. 30). According to Runco & Jaeger



(2012, p. 92) the standard definition of creativity comes down to the two criteria originality and effectiveness. Borrowing from the wave-particle duality in physics one could say that for creativity there is an originality-effectiveness duality at work.

In line with the definition of individual creativity the term organizational creativity can be defined as “the creation of a valuable, useful new product, service, idea, procedure or process by individuals working together in a complex social system” (Woodman, Sawyer & Griffin 1993, p. 293). This definition includes the same general tension between originality and effectiveness as in individual creativity. Robinson & Stern (1998, p. 11) use the term corporate creativity and give the following definition: “A company is creative when its employees do something new and potentially useful without being directly shown or taught.” This definition additionally emphasizes self-initiative and proactivity of the individuals which the work environment conducive to creativity is supposed to stimulate. But nevertheless it leaves the fundamental tension of originality and effectiveness untouched.

The paper focusses on the creative work environment of organizations. To do so the different theories concerning work environment respectively organizational climate are described in chapter 2. The paper chooses the componential theory of organizational creativity and innovation by Amabile (1997) as an object for further analysis. After that the value square is described in chapter 3 as the method of analysis. The method of the value square has already been successfully applied to model individual creativity (Deckert 2015). This method is then applied to the components of organizational or corporate creativity according to Amabile (1997) in chapter 4. The sub-chapters deal with the tensions concerning organizational motivation, managerial practices (especially with regard to work assignment and work control) and resources. The conclusion summarizes the key findings and elaborates on how the tensions in corporate creativity lead to a dilemma of prediction versus creation in companies.



## 2. Work Environment and Creativity

The analysis of creativity in organizations can be done on the individual level, on the group or team level and on the organizational level. On the organizational level research concerning creativity deals with management-related factors such as leadership, knowledge utilization and networks, organizational structure, work environment (including resource availability and organizational climate) as well as external environment (Anderson, Potocnik & Zhou 2014, p. 1302 ff., Mumford, Hester & Robledo 2012). The paper at hand focusses on the aspects of work environment and organizational climate conducive to creativity.

Similarly the term “climate” can be understood on an individual level (psychological climate), on a group or team level (e.g. departmental climate) and on an organizational level (organizational climate). The concept of climate usually describes the employees’ perceptions of their work environment in terms of behavioral patterns such as practices and procedures. Thus, organizational climate is an aggregation of individual perceptions (Patterson et al. 2005, p. 380, West & Sacramento 2012, p. 362f.). The main aim of organizational climate is “to understand how employees experience their organizations”, so that climate can be seen as an “intervening variable between the context of an organization and the behavior of its members” (Patterson et al. 2005, p. 379).

The concepts of organizational culture and climate are closely related but not identical. Organizational culture contains the deep and stable foundations of a company such as values, beliefs and traditions which are hard to observe and change. By contrast organizational climate can be easily observed in the behavioral patterns of an organization. In short: While organizational culture determines “What the organization values”, organizational climate is about “What organization members experience” (Isaksen, Aerts & Isaksen 2009, p. 8). Hence, organizational culture represents the reasons behind the patterns of behavior perceived as organizational climate (Patterson et al. 2005, p. 380).

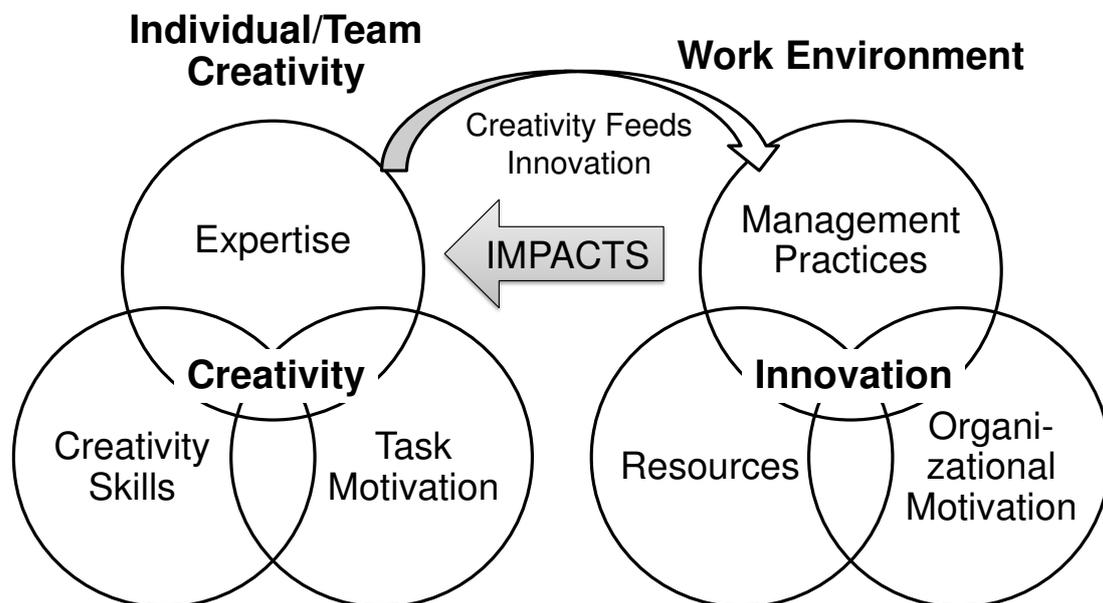
James and his colleagues (James & James 1989) describe the following four dimensions determining the organizational climate in general: role stress and lack of harmony, job challenge and autonomy, leadership facilitation and support as well as work group cooperation, friendliness and warmth. With regard to a work environment conducive to creativity several specific climate models have been proposed many of which have also been elaborated into assessment tools. Overviews of the different approaches can be found in Hunter, Bedell & Mumford (2007), Mathisen & Einarsen (2004) and Puccio & Cabra (2010). From their



analysis of 42 existent climate models for creativity Hunter, Bedell & Mumford (2007, p. 74) developed an integrative climate taxonomy with the following 14 dimensions: positive peer group, positive supervisor relations, resources, challenge, mission clarity, autonomy, positive interpersonal exchange, intellectual stimulation, top management support, reward orientation, flexibility and risk-taking, product emphasis, participation as well as organizational integration.

The paper at hand chose to use the work environment model of Amabile and colleagues (Amabile et al. 1996, Amabile 1997) for further analysis because of the following two reasons: Firstly, the model links individual and organizational creativity (see fig. 1) and, thus, complements the author's previous research (Deckert 2015). Secondly, the model has been operationalized as the assessment instrument KEYS and seems to be the most widely validated model concerning organizational climate for creativity (West & Sacramento 2012, p. 364).

**Figure 1: Componential Theory of Organizational Creativity**



Source: Amabile 1997, p. 53

The model of Amabile in an earlier version comprised five categories (Amabile et al. 1996, p. 1159) which were re-arranged into the three categories Organizational Motivation, Resources and Management Practices in a later version (Amabile 1997, p. 52ff.). The work environment impacts individual



creativity by influencing the components expertise, creativity skills and task motivation of individual creativity whereby task motivation is immediately and directly affected. Vice versa individual creativity fosters the innovation activities in a work environment (see fig. 1) (Amabile 1996, p. 83ff., Amabile 1997, p. 52ff.).



### 3. The Value Square

A method to describe and analyze tensions of values is the so called value square. The value square (“Wertequadrat”) was developed by Helwig (1967) to describe different characters. It was later used mainly by Schulz von Thun (1998) to show dialectical structures in the intervention into communication. The main idea of the value square is that each positive value not only has a negative exaggeration but also a positive complementary countervalue. Value and countervalue have to be balanced as they represent dialectical opposites which complement each other. A failure to balance a value results in a negative exaggeration of this value (Helwig 1967, p. 65 ff., Schulz von Thun 1998, p. 38 ff.). Schulz von Thun (1998, p. 40, own translation) writes that “in the value square the notion of an optimum ledger has been abandoned and replaced by the notion of a dynamic balance [...]. The notion of a yin-yang-relation of the upper values is also appropriate: They permeate each other, and each contains already a trace element of its opposite pole.”

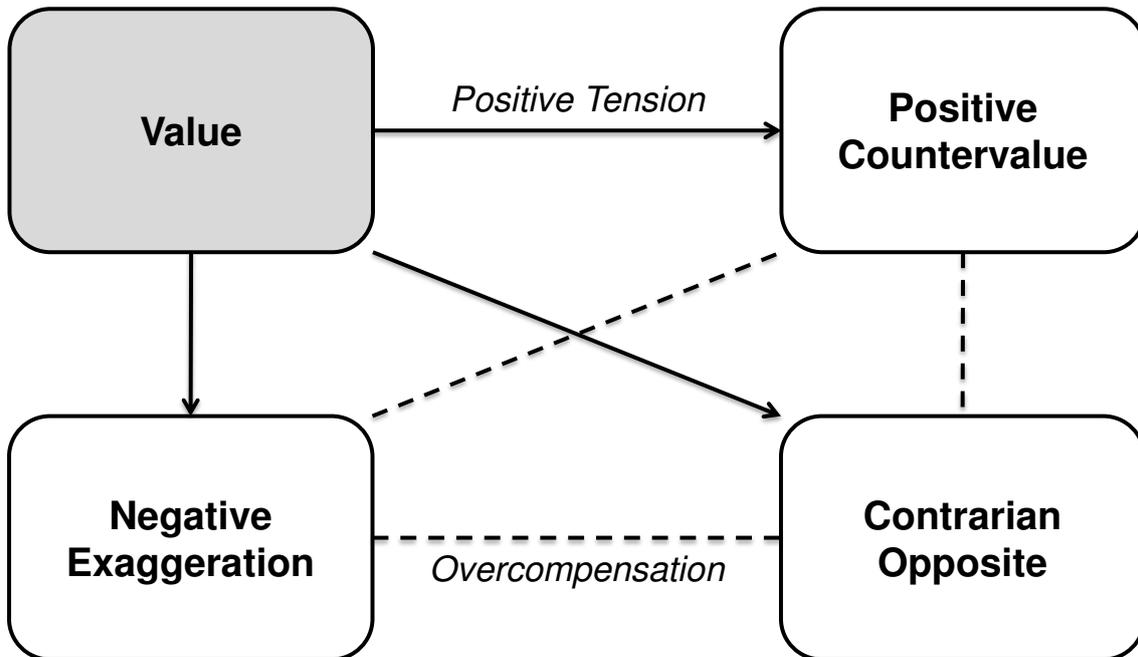
The origin of the value square can be traced back conclusively in Western philosophy (Schulz von Thun 2015). But the underlying philosophy of the value square can be linked to the yinyang concept of early Chinese philosophy which distinguishes between two great forces of the universe: yin (the negative, dark, and female element) and yang (the positive, light, and male element). In this concept yin and yang are more than a mere dualistic reflection of independent pairs of opposites. Rather this concept includes a “multiplicity of relations” between the two elements which contains contradiction and opposition, interdependence, mutual inclusion, interaction or resonance, complementary and mutual support as well as change and transformation (Wang 2012, p. 7ff.).

The central idea of the value square is that there can be too much of a value which is the reason why a value should be equilibrated with a countervalue. This is a phenomenon which Pierce & Aguinis (2011, p. 313) call the too-much-of-a-good-thing effect (TMGT effect). The TMGT effect supposes that “beneficial antecedents (e.g. predictor variables) reach inflection points after which their relations with desired outcomes (i.e., criterion variables) cease to be linear and positive. Exceeding these inflection points is always undesirable because it leads either to waste (no additional benefit) or, worse, to undesirable outcomes (e.g., decreased individual or organizational performance)” (Pierce & Aguinis, 2011, p. 315). With the notion that too much of a good value can be counterproductive the prevalent “creativity and innovation maximization fallacy” is avoided: “all



creativity and innovation is good; and the more, the better” (Anderson, Potocnik & Zhou, 2014, p. 1319).

**Figure 2: Value Square**



Source: Schulz von Thun 1998, p.41 (own translation)

The value square is constructed as follows (see fig. 2): From the value on the upper left side one moves to the positive countervalue on the upper right side. This upper line represents the positive tension of the two values which together constitute the desired dynamic balance. If one moves from the value on the upper left along the vertical line downwards one arrives at the negative exaggeration of this value. The diagonal leads to the contrarian opposite which at the same time is the negative exaggeration of the countervalue. The lower line represents the overcompensation of the negative values when one goes from one extreme of negative exaggeration to the other extreme (Helwig 1967, Schulz von Thun 1998). The value square is not only a means to describe dialectical structures of values. It also offers the possibility for improvement and can be seen as a developmental path depending on the current position. When one is in a position of negative exaggeration, one can choose a contrarian opposite as a developmental goal. A developmental path, thus, typically leads from a negative exaggeration along the diagonal to the opposite positive value on the upper line while avoiding the trap of overcompensation (Schulz von Thun 1998, p. 47).



#### **4. Components of Corporate Creativity**

Amabile's Componential Theory of Organizational Creativity and Innovation contains the following three main components (Amabile 1997, p. 52ff.):

- Organizational Motivation,
- Management Practices and
- Resources.

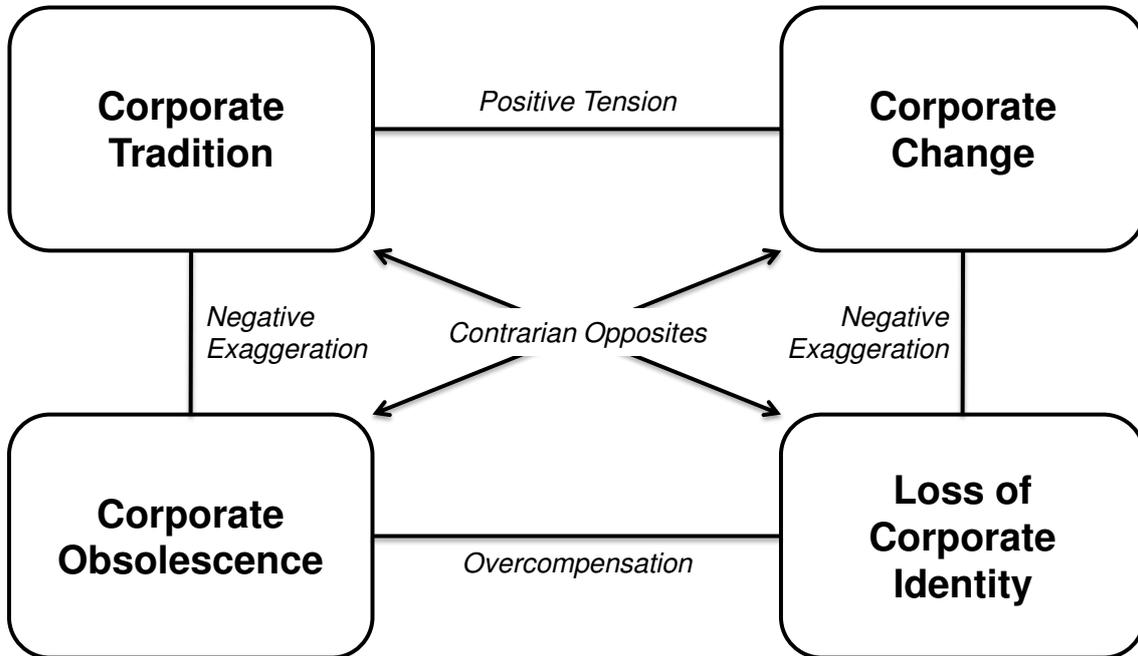
##### **4.1. *Tension Concerning Organizational Motivation***

The component Organizational Motivation contains the two aspects "basic orientation of the organization toward innovation" and "supports for creativity and innovation throughout the organization". Organizations differ in organizational encouragement and organizational impediments (Amabile 1997, p. 52). Similarly Robinson & Stern (1998, p. 125) deem strategic alignment necessary for corporate creativity: "Strategic alignment requires clarity about what the key goals of the organization are, commitment to initiatives that promote them, and accountability for actions that affect them."

The central tension of a company concerning this strategic alignment is between corporate tradition and corporate change. The tradition of a company defines its core business with its core competences and competitive advantage in its current business model. By ignoring its tradition a company risks losing its corporate identity. Corporate change is a necessary feat to adapt to changing market and technological conditions, to secure the company's future competitive advantage and to generally grow the business. By ignoring innovation and technological development the company risks its competitiveness and faces the danger of corporate obsolescence. Thus, tradition represents the effectiveness side and change the novelty side on the scale (see fig. 3). So while innovation activities are generally seen as positive, too many such activities which do not take the company's history and tradition into consideration can lead a company into financial trouble as e.g. the case study of Lego suggests (Robertson & Breen 2014).



**Figure 3: Tension Concerning Organizational Motivation**



Source: Own illustration

This general dilemma can also be described as a tension between core and periphery. Every company has its core business which it needs to strengthen and develop to stay competitive. Yet, many innovative activities – especially radically new ones – take place at the periphery of the business and not necessarily near the core. So to focus on the core too much can become a liability in times of technological changes in the industry. „Companies must develop a peripheral vision that allows them to see beyond their immediate focus and escape the bounds of their cognitive frames” (Nicholas, Ledwith & Bessant 2013, p. 34). Many companies, however, find it hard to develop their business beyond their core competences. As Christensen (2011, p. xxvi) expresses it: “An organization’s capabilities define its disabilities”. All the worse companies often interpret changes in terms of the mental models they are used to from their core business, fail to recognize business opportunities or threats beyond their industry boundaries or respond to such threats with inappropriate measures. Anthony (2012, p. 68) calls this tendency the “the sucking sound of the core business”.

With regard to novelty the innovation management literature usually makes a distinction between incremental and radical innovation. Incremental innovation deals with cost or performance improvements of existing products or services. Radical innovation, however, is the development of completely new lines of



products or business fields which are based on new ideas, new technologies or substantial reductions in cost or increases in performance (Leifer et al., 2010, p. 4ff.). Thus, incremental innovation takes place in the traditional business of a company, while radical innovation explores new possible business ventures. These new ventures can be adjacent to the traditional business or completely new with no or few connections to the core business. According to Nagji & Tuff (2012, p. 66ff.) companies allocate on average 70% of their resources to innovations in the traditional core business fields, 20% in adjacent business fields and 10% in completely new or transformational business fields. Of course, these values fluctuate according to the specific industry a company operates in and the type of organization (e.g. established company or start-up company). The notion of core and periphery is also expressed in the different search processes for innovation opportunities: exploitation (i.e. development of existing market and technological potentials) and exploration (i.e. development of new market and technological potentials) (Nicholas, Ledwith & Bessant 2013, p. 27).

There are several obstacles which prevent a company from making the necessary shift away from tradition to more innovation. Firstly, there seems to be a general aversion concerning new and unconventional ideas: Mueller, Melwani & Goncalo (2011) have shown that people implicitly reject creative ideas although they explicitly state that they favor creativity. They call this phenomenon the „Bias against Creativity“. Reasons for the rejection of creativity lie in the uncertainties inherent in new and unconventional ideas. On the basis of their results the researchers come to the following conclusion concerning corporate creativity: “If people hold an implicit bias against creativity, then we cannot assume that organizations, institutions or even scientific endeavors will desire and recognize creative ideas even when they explicitly state they want them. [...] In addition, our results suggest that if people have difficulty gaining acceptance for creative ideas especially when more practical and unoriginal options are readily available, the field of creativity may need to shift its current focus from identifying how to generate more creative ideas to identifying how to help innovative institutions recognize and accept creativity” (Mueller, Melwani & Goncalo 2011, p. 11).

According to the Rensselaer Radical Innovation Research Project (Leifer et al., 2010, p. 16ff.) radical innovation projects do not only have a higher uncertainty concerning the technology to be developed and the market to be addressed in comparison to incremental innovation projects. They also lead to additional uncertainties concerning organization and resources. Organizational uncertainties arise due to the lack of a corresponding business unit for a totally new product and lead to frequent changes in responsibility for the project.



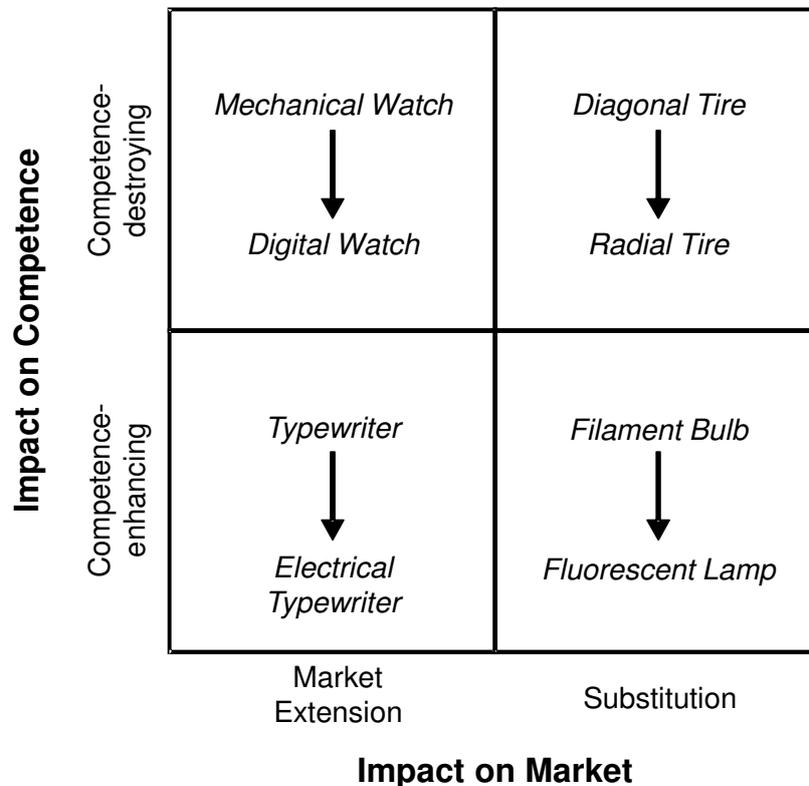
Resource uncertainties occur because the project team does not have all the necessary skills and competencies to successfully accomplish the project target and are usually revealed by the fact that the funding of the project comes from different sources and fluctuates over the duration of the project. This all explains why radical innovation projects are not conducted in one go but are frequently interrupted and sporadically continued in changing constellations. Thus, radical innovation projects are not well predictable and schedulable.

Radical innovations are often caused by technological discontinuities which lead to a new dominant design in a given industry. „A dominant design of a product class is, by definition, the one that wins the allegiance of the marketplace, the one that competitors and innovators must adhere to if they hope to command significant market following” (Utterback, 1996, p. 24). Tushman & Anderson (1986, p. 442) distinguish between competence-destroying and competence-enhancing technological discontinuities. Competence-destroying discontinuities lead to the devaluation of the current skills and competences of a company. From these discontinuities new product lines and business fields derive. Competence-enhancing discontinuities do not render the existing skills and competences of a company obsolete, but lead to fruitful combinations of old and new competences. These combinations usually lead to substantial reductions in product cost or increases in product performance. Furthermore Utterback (1996, p. 204ff.) distinguishes between technological discontinuities which lead to a mere product substitution and ones which lead to market extension.

The two distinctions of Tushman & Anderson (1986) and Utterback (1996) can be displayed as a matrix with the two axes impact on competence and impact on market (see fig. 4). The competence-axis can be divided into competence-enhancing and competence-destroying; the market-axis can be partitioned into substitution and market extension (Deckert 2014, p. 5).



**Figure 4: Competence-Market-Matrix**



Source: Deckert 2014, p. 5

Thus, the four fields in the matrix indicate four different types of discontinuities:

- Discontinuities which are competence-enhancing and lead to a market extensions (e.g. from typewriter to electrical typewriter).
- Discontinuities which are competence-enhancing and lead to mere product substitution (e.g. from filament bulb to fluorescent lamp).
- Discontinuities which are competence-destroying and lead to a market extensions (e.g. from mechanical watch to digital watch).
- Discontinuities which are competence-destroying and lead to mere product substitution (e.g. from diagonal tire to radial tire).

By means of this matrix the resistance of a company to a certain radical innovation can be explained. It can be reasonably expected that a company has a higher resistance to competence-destroying discontinuities than to competence-enhancing discontinuities since an innovation based on a competence-destroying discontinuity does not fit the current competences of the company. Similarly it can be anticipated that a company will show more resistance to a discontinuity with product substitution than to one with market



extension since a radical innovation based on a discontinuity with product substitution will to a high degree cannibalize its own existing core business without the expectation of future business growth (Deckert 2014, p.5).

A special case of competence-destroying discontinuities are the so called disruptive technologies according to Christensen (2011) (In later works Christensen (2003, 2015) calls them “disruptive innovations”): “Disruptive technologies bring to a market a very different value proposition than had been available previously.” (Christensen 2011, p. xviii). They usually have a lower performance than existing technologies – at least at the beginning – and initially serve the lower end of the market or totally new niche markets turning nonconsumers into consumers (Christensen, Raynor & McDonald 2015, p. 47). Through additional advantages such as simplicity, convenience, affordability or accessibility they can – after some time in which they develop a “good enough”-quality – take over the mass market (Anthony, 2012, p. 148ff.). Those disruptive technologies or innovations lead to additional resistances since companies typically do not allocate resources to the lower end of the market but to the upper end, are not interested in small niche markets since they do not fulfill their growth needs and shy away from markets which cannot be analyzed because they do not yet exist (Christensen 2011, p. xxiii ff.).

Thus, to stay competitive in a changing environment requires companies to “think outside the box” as the common saying goes, i.e. to explore outside the restrictions of the current core business. But as De Brabandere & Iny (2013) rightly observe one should rather say “Thinking in new Boxes” than “Thinking outside the Box” since a company needs to explore a new business opportunity and, thus, create a “new box” which it can develop and exploit.

#### **4.2. *Tensions Concerning Management Practices***

The component Management Practices comprises “management at all levels, but most especially the level of individual departments and projects” which is the main factor which distances this concept from Organizational Motivation. The scale for distinguishing different climates are challenging work, work group supports, supervisory encouragement and freedom. The two fostering mechanisms which are frequently confirmed by other researchers are challenging work (“appropriately matching individuals to work assignments”) and freedom (“considerable degree of freedom and autonomy”) (Amabile 1997, p. 54).



Challenging work and freedom can be linked to Task Motivation in the componential model of individual creativity (see fig. 1) and the “Intrinsic Motivation Hypothesis of Creativity”: “the intrinsically motivated state is conducive to creativity, whereas the extrinsically motivated state is detrimental” (Amabile 1996, p. 107). The intrinsic motivation of the individual is used for leveraging creativity by assigning them purposeful and demanding tasks as well as giving them freedom and autonomy in pursuing those tasks. Similarly Murray (2003, p. 391ff.) in his historical analysis of human accomplishment identifies two motivational aspects – or in his terms “Sources of Energy” – driving the achievements of humans across different times and cultures: Purpose and Autonomy. This has the following consequences for work assignment and work control.

#### *Work Assignment*

The motivational sources of creativity can be derived under the paradigm of positive psychology from the two strength components passion for the work and meaningful purpose of the activity engaged in (Nakamura & Csikszentmihalyi 2014, p. 198ff.). From these motivational sources Csikszentmihalyi (2008, p. 71) derives his concept of “flow” which he calls the “optimal experience“ and defines as “a sense that one’s skills are adequate to cope with the challenges at hand, in a goal-directed, rule-bound action system that provides clear clues as to how well one is performing”. The concept of flow has inspired a new line of research in positive psychology and led to the development of several methods and instruments to operationalize and measure the flow state (Delle Fave, Massimini & Bassi 2011).

In his study of exceptionally creative individuals Csikszentmihalyi (1997) found out that these creative individuals are all intrinsically motivated concerning their creative fields although they differ in many other ways. This means that creative people are not so much driven by extrinsic motivation such as fortune or fame but simply love what they are doing. Csikszentmihalyi’s (1997) findings concerning the creative personality are in accordance with the findings of Amabile (1996) concerning the intrinsic motivation hypothesis.

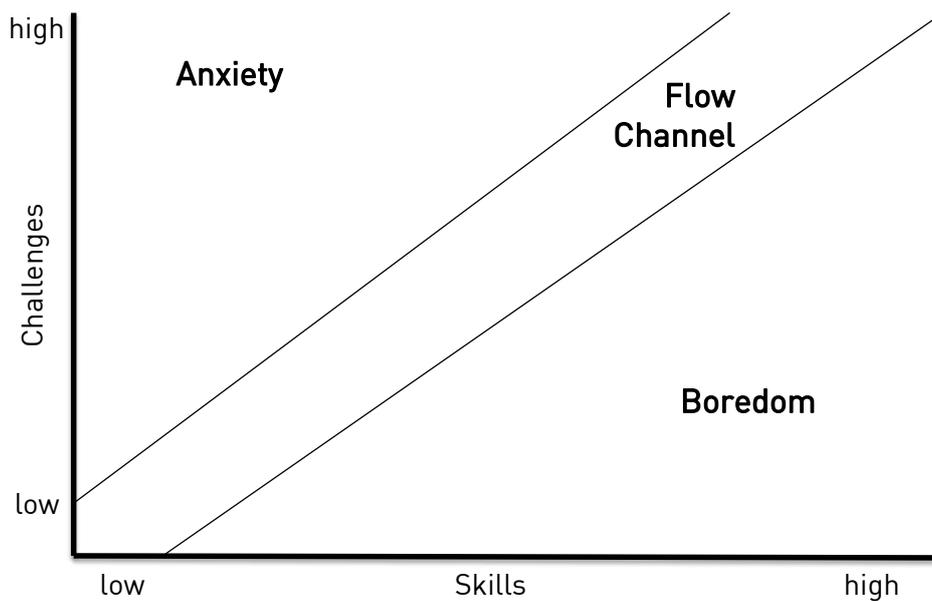
Csikszentmihalyi (1997, p. 110) called this experience the flow in creativity “because many of the respondents described the feeling when things were going well as an al-most automatic, effortless, yet highly focused state of consciousness”. The flow in creativity is achieved when the task at hand requires a balance between challenges and skills. Furthermore the task should have clear goals, provide immediate feedback, and can be done under exclusion of



distractions. The flow in creativity leads to a merging of action and awareness, the forgetting of self, time and surroundings and is generally seen as an autotelic activity meaning an activity which provides joy for its own sake (Csikszentmihalyi 1997, p. 110ff.).

The central quality of flow is a balance between skills of the individual and challenges of the task. Csikszentmihalyi (1997, p.74) constructs this balance as a chart (see fig. 5) with challenges and skills as the two axes. The flow channel is the area where the right level of skills meets the right level of challenges. When the challenges of the task are too low for the individual's skills boredom sets in and the individual will seek higher levels of challenge. When the challenges are too high anxiety sets in and the individual will either try to avoid the task or to improve his skills to match the level of challenge.

**Figure 5: Flow Channel**



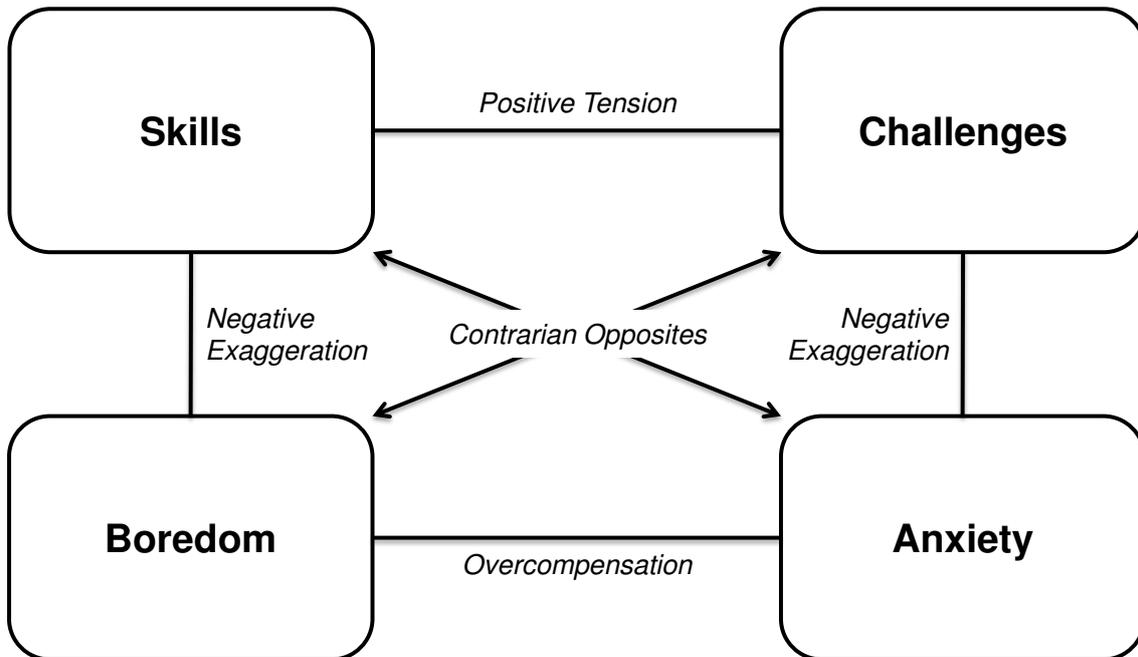
*Source: Csikszentmihalyi (2008, p. 74)*

The same set of facts can be constructed as a value square (see fig. 6) with skills as the effectiveness side and challenges as the originality side. If work is assigned with too much focus on existing skills then employees will be bored by the tasks. So a more challenging task which stretches the skills might be a solution. If – on the other hand – the assigned work is too demanding with regard to the skill level the employee will respond most likely with anxiety. So work



assignment should take an adequate balance of skills and challenges into consideration to reach the flow channel.

**Figure 6: Tension Concerning Work Assignment**



Source: Own illustration based on Csikszentmihalyi (1997)

For managers of innovation activities this means that they need to assign tasks with the right challenge to skill balance and that they need to constitute teams with a diversity of skills to tackle challenging tasks. Furthermore good planning and feedback as well as clear communication and support should enhance the flow in creativity (Amabile 1997, p. 54). To ensure enough challenge for corporate creativity Lafley & Charan (2008, p. 12) propose “stretch goals” for innovation activities which should be demanding yet achievable. Another possibility for work assignment is to let employees choose innovation projects according to their own interests and skills, e.g. through a project veto or a project tender with applications by employees for the project. This way not only the balance of skills and challenges is achieved, but also the intrinsic motivation of employees is addressed (Meyer 2011a, p. 181).

#### *Work Control*

According to Robinson & Stern (1998, p. 123ff.) two essential elements of corporate creativity are self-initiated activity and unofficial activity. Self-initiated activities are necessary since “the majority of creative acts in companies are self-



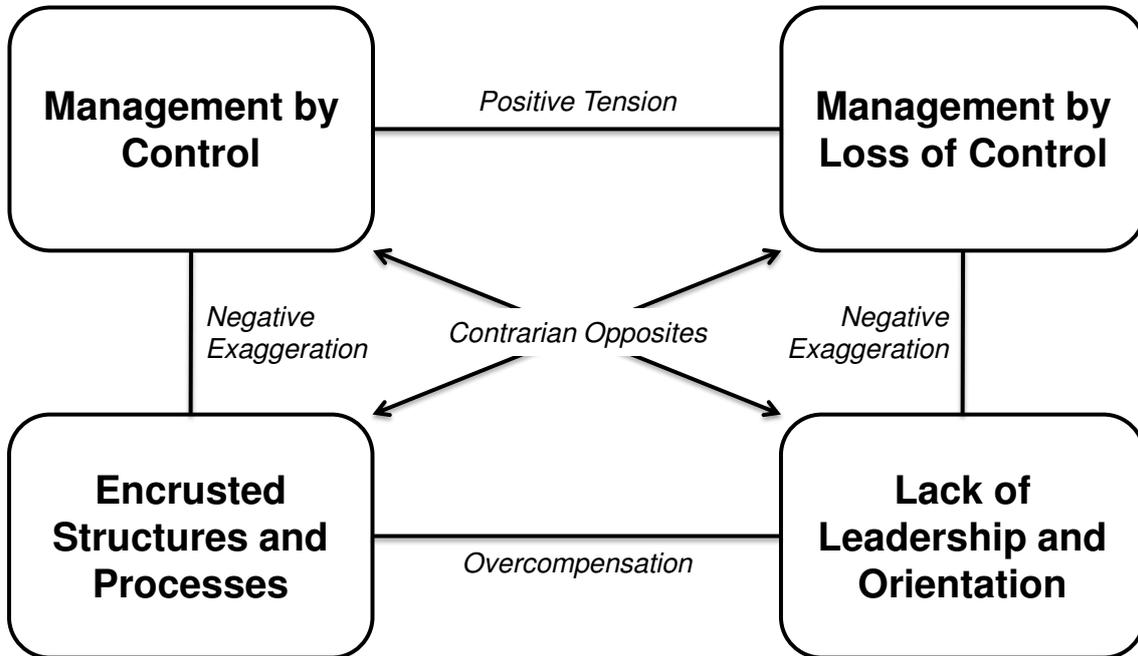
initiated” and, thus, “unanticipated by management”. For this reason leaders should promote self-initiated activity (Robinson & Stern 1998, p. 148). Unofficial activity is “work done without direct official support” (Robinson & Stern 1998, p. 174). Many new ideas are strange and maybe even offensive at first and need some time to show their full potential. For this reason they have to be removed from corporate control at first. Additional advantages are that unofficial activities activate employees’ intrinsic motivation, circumvent official boundaries and are much less resource-intensive than official projects (Robinson & Stern 1998, p. 174). This approach has some overlaps with the intrapreneurship approach by Pinchot & Pellman (1999, p. ix) which focuses on the promotion of intrapreneurs (short for *intra*corporate *entrepreneurs*), i.e. “people who turn ideas into realities inside an organization”. The targets of the intrapreneurship approach are “providing a focusing vision that guides the intrapreneurial energy of the organization” and “liberating the intrapreneurs to achieve that vision” (Pinchot & Pellman 1999, p. 12). Advice to improve the organizational climate with regard to the second target – such as “Tolerance for risks, mistakes, and failure”, “Decision making by the doers” and “Discretionary time” – leads to self-initiated and unofficial activities by entrepreneurial employees (Pinchot & Pellman 1999, p. 117ff.).

Parts of the leadership approach behind work control for corporate creativity have already entered mainstream management literature. Sutton (2007, p. 134) calls his approach “Managing by Getting out of the Way” and Meyer (2011a, p. 173) refers to it as “catalytic leadership” (“katalysatorische Führung”) in analogy to chemistry where the manager does not set strict rules and procedures but creates a work environment which enables employees to be creative. Lafley & Charan (2008, p. 251) come to the conclusion that a manager’s job during innovation is communication rather than control.

Some of the guidelines of corporate creativity have already been transformed into practical approaches by companies. Examples are the creative time where developers can spend a certain percentage of their working hours on projects of their own choice (20% rule at Google or 15% rule at 3M) or projects outside the usual control framework of a company called “stealth innovation”, “submarine projects” or “skunkwork projects” (e.g. development of BMW X5 or Apple MacIntosh) (Miller & Wedell-Wedellsborg 2013, Pillkahn 2011, p. 266ff.).



**Figure 7: Tension Concerning Work Control**



Source: Deckert & Scherer (2013, p. 14)

Work control for corporate creativity can be modelled as a positive tension between managerial control and managerial loss of control (see fig. 7). Managing by control in this model represents the effectiveness aspect of creativity. Managers want to make sure that their R&D-budget is well-spent and they get a high return rate of innovations for their budget respectively a high R&D-productivity. Furthermore they want to know, if innovation activities are still aligned to their innovation strategy (see chapter 4.1 on Organizational Motivation). But too much control can impede innovation activities by squeezing them into rigid and encrusted structures and processes. This can happen when control is employed in a similar way as in a production environment where outcomes are clearly defined in contrast to innovation. On the other hand managing by loss of control respectively managing by trust represents the originality aspect of creativity. As Robinson & Stern (1998, p. 124ff.) observed self-initiated and unofficial activities can lead to highly creative and unanticipated outputs. This happens when employees are given enough freedom and autonomy to follow their intrinsic motivation and, thus, managerial control over the creative process is lost to a certain extent. Of course this state has to be balanced to a certain extent by control and strategic alignment so that it will not transform into a laissez-faire state. Otherwise a lack of leadership and orientation for the employees will be the result when managing by loss of control is negatively



exaggerated. So the dilemma of work control for creativity can be described as a “controlled loss of control” (Deckert & Scherer 2013, p. 13) and “requires an almost Zen-like ability to control without controlling” (Sawyer 2013, p. 247) by the manager.

Too much focus on work control leads to an organizational culture which can be termed “culture of compulsive control” (Deckert & Scherer 2013, p. 13, Deckert & Scherer 2014, p. 113). This type of culture seems to be prevalent in German companies. The study “Erfolgsfaktor Innovationskultur” (“Success Factor Innovation Culture”, own translation) of the German consultancy Ideeologen (Meyer 2011b) asked about 200 persons with a job related to innovation management about their company’s organizational climate. The result was that the majority of the companies use strict processes and rules to control their innovation activities leading to prolonged decision processes and cumbersome approval procedures. The climate is characterized by a low esteem of creativity, low support for experimentation, very strict innovation rules to be followed, low acceptance of unconventional ideas and generally a risk avoidance mind set. This leads to a climate which allows innovation only in the frame of the status quo according to the motto: “Breaking new grounds – as long as they are exactly as the old ones” (Meyer 2011b, own translation).

When it comes to radical innovation there seems to be something like an “Organizational Ironic Effect” similar to “ironic effects of mental control” (Wegner, Ansfield & Pillof 1998, p. 196). In mental control “processes that undermine the intentional control of mental states are inherent in the very exercise of such control” (Wegner 1994, p. 34). This leads to such effects that one cannot *not* think about a white bear when told not to think about it (Wegner 1989, p. 2), but also that one will very likely perform a simple action when one is trying too hard not to do it (Wegner, Ansfield & Pillof 1998, p. 199). In work control too much control of creative activities can lead to a reduction in corporate creativity. So the more managers try to control radical innovation approaches the less radically new ideas they will get and likely see implemented. Harry Hammerly, Executive Vice President at 3M, is cited as follows on the topic of work control: “In the early stages of a new product or technology, it shouldn’t be overly managed. If we start asking for business plans too early and insist on tight financial evaluations, we’ll kill an idea or surely slow it down” (3M 2002, p. 78). Or as Slingerland (2014, p.180) expresses the dilemma: “Pervasive suspicion is as paralyzing as blind trust is open to abuse.”



### **4.3. Tension Concerning Resources**

The component Resources includes the scales sufficient resources and low work pressure. Resources for creativity include according to Amabile (1997, p. 53-54) “sufficient time for producing novel work in the domain, people with necessary expertise, funds allocated to this work domain, material resources, systems and processes for work in the domain, relevant information, and the availability of training”.

This indicates that corporate creativity needs some kind of organizational slack. Organizational slack can be defined as “resources that are in excess of what the organization actually needs to fulfill its operations” (Leitner 2009, p. 1). This excess can refer to different types of resources such as investments in equipment, human resources and intangible resources (e.g. know-how) (Krcal 2009, p. 2). Organizational slack can be viewed as dysfunctional or functional. While dysfunctional slack is seen as waste to be reduced through efficient resource reallocation, functional slack opens up new entrepreneurial possibilities and broadens the scope of action. It is generally viewed as a factor fostering creativity and experimentation in companies (Krcal 2009, p. 14ff.).

Overviews on the relation between organizational slack respectively slack resources and creativity and innovation can be found in Anderson, Potocnik & Zhou (2014, p. 1313), Damanpour & Aravind (2012, p. 502) and Leitner (2009, p. 118ff.). The results are inconclusive as positive, negative and U-shaped relations are found in different studies. Reasons for these contradictory results are differences in the definition and operationalization of slack resources as well as unclear distinctions between innovation and other dependent variables (e.g. risk or performance) (Leitner 2009, p. 122).

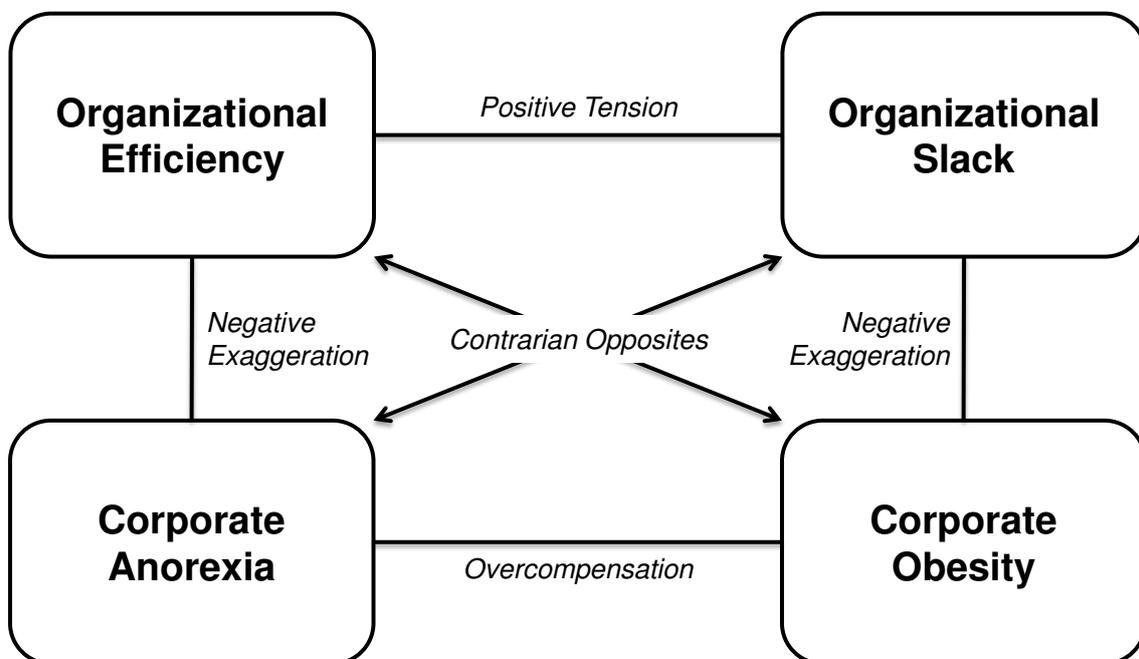
Generally a positive effect for short-term unabsorbed resources is recognized. Krcal (2010, p. 8ff.) describes a concave U-shaped relation between unabsorbed slack and innovation in a company. This relation is caused by a tension between discipline and experimentation. Finally he concludes that “Efficiency and slack, thus, do not seem to constitute a contradiction with regard to innovation management, but seem to be of complementary quality” (Krcal 2010, p. 10, own translation).

So the tension concerning resources can be constructed as a positive tension between organizational efficiency and organizational slack (see fig. 8). Usually companies try to allocate resources efficiently. When they identify a surplus in



resources they usually start programs for lean management and downsizing to reduce the excess. But too much downsizing leads to an undersized slack which limits the scope for action concerning creativity. Hamel & Prahalad (1996, p. 12) even call downsizing the “equivalent of corporate anorexia” which in itself does not set a company back on a path to competitiveness. On the other side too much slack can lead to undisciplined spending and even a reduction in creativity, since constraints often spur creative solution-finding (Boden 1992, p. 82). Following the diction of Hamel & Prahalad this negatively exaggerated state can be termed “corporate obesity”.

**Figure 8: Tension Concerning Resources**



Source: Own illustration

According Robinson & Stern (1998, p. 175ff.) serendipity and diverse stimuli are two essential factors for corporate creativity. Serendipity is the combination of a fortunate accidental experience and sagacity to get a creative idea. The term was originally coined by the British author Horace Walepole in the 18th century, and the phenomenon is claimed to be a significant source of discovery by many renowned scientists (Merton & Barber 2006). Fortunate accidents and especially sagacity are fostered by “expanding the company’s human potentials beyond its immediate needs” (Robinson & Stern 1998, p. 192), in other word by allowing organizational slack in terms of time and human resources. Diverse stimuli provide employees with fresh insights or new research directions and generally



feed the process of serendipity. So according to this approach organizational slack promoting corporate creativity should be slack to get diverse stimuli and to follow the path of serendipity. Additionally slack to start self-initiated and unofficial activities to leverage the intrinsic motivation of the employees is useful (see chapter 4.2, work control).

Organizational slack in the form of creative time where the company allows researchers to spend a certain percentage of their working hours on projects of their own choice has already been described in chapter 4.2. Other forms of organizational slack already in use at various companies are innovation labs to experiment in, limited research budgets without application restrictions for notable employees (e.g. Fellow-Program at Intel) and “patient money” at 3M (3M 2002, p. 77ff., Pillkahn 2011, p. 266ff.). Ron Baukul, Executive Vice President at 3M, is cited on “Patient Money” as follows: “You just know that some things are going to be worth working on and that requires technological patience. [...] You don’t put too much money into the investigation, but you keep one to five people on it for 20 years, if you have to. You do it because you know that, once you crack the code, it’s going to be big” (3M 2001, p. 78). Another possibility to assign slack resources to innovation activities is to offer employees to conduct research projects on a limited basis concerning time and budget in times of low order intake (Personal conversation of the author with a participant of one of his innovation scouting seminars).



## 5. Conclusion

*“Man is truly unique because he has the capability of entertaining the dialogue between something and nothing, and creativity is just that dialogue.”  
(Low 1982, p. 203)*

The paper shows that the value square is a useful tool to display, describe and analyze the qualities of the components of corporate creativity. In this way the author hopes to gain a deeper understanding of the underlying factors which shape the creative behavior in organizations. It is in line with the TMGT effect (Pierce & Aguinis, 2011), the “creativity and innovation maximization fallacy” (Anderson, Potocnik & Zhou, 2014, p. 1319) and the general observation that “Many of the factors that contribute to creativity require optimization” (Runco 2014, p. 415) and not maximization.

Starting from the tension of originality and effectiveness in the definition of individual as well as organizational creativity the author identifies related tensions underlying the components of corporate creativity. For the three components of the componential theory according to Amabile (1997, p. 53) he proposes the following tensions:

- Organizational Motivation: Corporate Tradition and Corporate Change
- Management Practices: Skills and Challenges (Work Assignment) as well as Management by Control and Management by Loss of Control (Work Control)
- Resources: Organizational Efficiency and Organizational Slack

The results of this paper are limited to the main factors of the work environment respectively the organizational climate of a company. Other factors of the work environment such as leadership style (see e.g. Friedrich et al. 2010) might further influence corporate creativity. Furthermore the organizational structure also has impacts on corporate creativity such as effects of centralization, functional differentiation and networks (see e.g. Baer 2012, Damanpour & Aravind 2012).

The paper is strictly limited to the organizational level of analysis. Additionally impacts of the team level also affect creative behavior in a company. Team or group creativity can be defined as follows: “In group creativity, a product is created by a group, a work team, or an ensemble” (Sawyer, 2012, p. 231). The only model focusing on the team level climate (West & Sacramento 2012, p. 363)



and consequently the most studied approach (Mathisen, Torsheim & Einarsen 2006, p. 23) seems to be model of West (1990). This model includes the four factors shared vision, participatory safety, task orientation and support for innovation. Overlap between West's model and the organizational level seem to lie in shared vision and support for innovation. But the model also adds new aspects not covered by the organizational level such as an environment which is non-threatening and in which it is safe to propose new and unconventional ideas.

The tensions underlying Organizational Motivation, Management Practices with regard to work assignment and work control and Resources can help managers of companies to bring about an organizational climate for creativity which is conducive to corporate creativity and at the same time fits their company. That still leaves the company with the dilemma of strategic foresight: Should we predict the future and then adapt accordingly? Or should we rather envision the future we desire and then try to implement this vision? Again the author believes that the positions of deterministic prediction and optimistic creation complement each other and can form a positive tension for a company. So even if we do not fully believe the saying of Abraham Lincoln that "The best way to predict the future is to create it", we should at least take the advice of Mahatma Ghandi that "The future depends on what we do in the present."



## Reference List

- 3M = 3M Company** (2002). *A Century of Innovation. The 3M Story*. o.O.: 3M Company.
- Ahlstrom**, D. (2010). Innovation and Growth: How Business Contributes to Society. *Academy of Management Perspectives*. 24 (3), 11-24.
- Amabile**, T.M. (1996). *Creativity in Context*. Boulder: Westview Press.
- Amabile**, T.M. (1997). Motivating Creativity in Organizations: On Doing what You Love to Do and Loving what You Do. *California Management Review*. 40 (1), 39-58.
- Amabile**, T.M. (2010). A Model of Creativity and Innovation in Organizations. In N. Anderson, A.C. Costa (eds.). *Innovation and Knowledge Management. Volume One: Individual Creativity and Innovation* (123-167). Thousand Oaks: SAGE Publications.
- Amabile**, T.M., **Conti**, R., **Coon**, H., **Lazenby**, J., **Herron**, M. (1996). Assessing the Work Environment for Creativity. *Academy of Management Journal*. 39 (5), 1154-1184.
- Anderson**, N., **Potocnik**, K., **Zhou**, J. (2014). Innovation and Creativity in Organizations: A State-of-the-Science Review, Prospective Commentary, and Guiding Framework. *Journal of Management*. 40 (5), 1297-1333.
- Anthony**, S.D. (2012). *The Little Black Book of Innovation*. Boston: Harvard Business Review Press.
- Baer**, M. (2012). Putting Creativity to Work: The Implementation of Creative Ideas in Organizations. *Academy of Management Journal*. 55 (5), 1102-1119.
- Boden**, M. (1992). *The Creative Mind. Myths and Mechanisms*. London: Cardinal.
- Christensen**, C.M. (2003). *The Innovator's Solution. Creating and Sustaining Successful Growth*. Boston: Harvard Business School Press.
- Christensen**, C.M. (2011). *The Innovator's Dilemma. The Revolutionary Book That Will Change the Way You Do Business*. New York: HarperBusiness.
- Christensen**, C.M., **Raynor**, M., **McDonald**, R. (2015). What Is Disruptive Innovation? *Harvard Business Review*. 93 (12), 45-53.



**Csikszentmihalyi, M.** (1997). *Creativity: Flow and the Psychology of Discovery and Invention*. New York: HarperPerennial.

**Csikszentmihalyi, M.** (2008). *Flow: The Psychology of Optimal Experience*. New York: HarperPerennial.

**Damanpour, F., Aravind, D.** (2012). Organizational Structure and Innovation Revisited: From Organic to Ambidextrous Structure. In M.D. Mumford (ed.). *Handbook of Organizational Creativity* (483-513). London: Academic Press.

**De Brabandere, L., Iny, A.** (2013). *Thinking in New Boxes. A New Paradigm for Business Creativity*. New York: Random House.

**Deckert, C.** (2014). *Innovation Scouting. Auf der Suche nach der radikalen Innovation [Innovation Scouting. In Search of Radical Innovations]*. Working Paper No. 2/2014. CBS Working Paper Series (ISSN 2195-6618). Köln: CBS.

**Deckert, C.** (2015). *Tensions in Creativity. Using the Value Square to Model Individual Creativity*. Working Paper No. 2/2015. CBS Working Paper Series (ISSN 2195-6618). Köln: CBS.

**Deckert, C., Scherer, A.** (2013). The Dao of Innovation. What European innovators can learn from philosophical Daoism. *Proceeding of the 30th annual conference of EAMSA (Euro-Asia Management Studies Association)*. Duisburg: EAMSA.

**Deckert, C., Scherer, A.** (2014). Dao der Innovation. Spannungsfelder der Kreativität im Unternehmen [Dao of Innovation. Tensions of Creativity in the Company]. In Preiß, J. (ed.). *Jahrbuch der Kreativität [Yearbook of Creativity]* (101-113). Mainz: Deutsche Gesellschaft für Kreativität e. V.

**Delle Fave, A., Massimini, F., Bassi, M.** (2011). *Cross-Cultural Advancements in Positive Psychology (Volume 2). Psychological Selection and Optimal Experience across Cultures*. Berlin u.a.: Springer.

**Friedrich, T.L., Mumford, M.D., Vessey, B., Beeler, C.K., Eubanks, D.L.** (2010). Leading for Innovation. Reevaluating Leader Influences on Innovation with Regard to Innovation Type and Complexity. *International Studies of Management & Organization*. 40 (2), 6–29.

**Hamel, G., Prahalad, C.K.** (1996). *Competing for the Future*. Boston: Harvard Business School Press.



**Helwig**, P. (1967). *Charakterologie [Characterology]*. Freiburg im Breisgau: Herder.

**Hunter**, S.T., **Bedell**, K.E., **Mumford**, M.D. (2007). Climate for Creativity: A Quantitative Review. *Creativity Research Journal*. 19 (1), 69-90.

**Isaksen**, S.G., **Aerts**, W.S., **Isaksen**, E.J. (2009). *Creating More Innovative Workplaces: Linking Problem-Solving Style and Organizational Climate*. A CRU Technical Report. Retrieved 15.01.2016 from <http://www.cpsb.com/research/articles/featured-articles/Creating-Innovative-Workplaces.pdf>

**James**, L.A., **James**, L.R. (1989). Integrating Work Environment Perceptions: Explorations into the Measurement of Meaning. *Journal of Applied Psychology*. 74 (5), 739-751.

**Jaruzelski**, B., **Loehr**, J., **Holman**, R. (2011). Why Culture Is Key. *Strategy+business*. 2011 (65), 1-16.

**Jaruzelski**, B., **Staack**, V., **Goehle**, B. (2014). Proven Paths to Innovation Success. Ten Years of Research Reveal the Best R&D Strategies for the Decade ahead. *Strategy+business*. 2014 (77), 2-16.

**Krcal**, H.-C. (2009). *Das Management des (un)erwünschten Ressourcenüberschusses. Teil I. Funktionen, Zustände und Entstehung des organisational slack [The Management of (Un)desirable Resource Surplus. Part I. Functions, Conditions and Genesis of Organizational Slack]*. Discussion Paper Series No. 482. University of Heidelberg. Retrieved 15.01.2016 from <http://www.uni-heidelberg.de/md/awi/forschung/dp482.pdf>

**Krcal**, H.-C. (2010). *Das Management des (un)erwünschten Ressourcenüberschusses. Teil III. Das optimale Slack-Niveau – Die Bewertung des organizational slack [The Management of (Un)desirable Resource Surplus. Part III. The Optimum Slack Level – The Evaluation of Organizational Slack]*. Discussion Paper Series No. 502. University of Heidelberg. Retrieved 15.01.2016 from <http://www.uni-heidelberg.de/md/awi/forschung/dp502.pdf>

**Lafley**, A.G., **Charan**, R. (2008). *The Game-Changer: How You Can Drive Revenue and Profit Growth with Innovation*. New York: Crown Business.

**Leifer**, R., **McDermott**, C.M., **O'Connor**, G.C., **Peters**, L.S., **Rice**, M.P., **Veryzer**, R.W. (2000). *Radical Innovation. How Mature Companies Can Outsmart Upstarts*. Boston: HBS Press.



**Leitner, J.S.** (2009). *Organizational slack and its impact on innovation in non-profit organizations. A theoretical [sic!] and empirical approach*. Doctoral thesis, WU Vienna University of Economics and Business.

**Low, A.** (1982). *Zen and Creative Management*. New York: Playboy Paperbacks.

**Mathisen, G.E., Einarsen, S.** (2004). A Review of Instruments Assessing Creative and Innovative Environments within Organizations. *Creativity Research Journal*. 16 (4), 119-140.

**Mathisen, G.E., Torsheim, T., Einarsen, S.** (2006). The Team-Level Model of Climate for Innovation: A Two-Level Confirmatory Factor Analysis. *Journal of Occupational and Organizational Psychology*. 79, 23-35.

**Merton, R.K., Barber, E.** (2006). *The Travels and Adventures of Serendipity: A Study in Sociological Semantics and the Sociology of Science*. Princeton: Princeton University Press.

**Meyer, J.-U.** (2011a). *Kreativ trotz Krawatte: Vom Manager zum Katalysator [Creative despite the Tie: From Manager to Catalyst]*. Göttingen: Business Village.

**Meyer, J.-U.** (2011b). *Erfolgsfaktor Innovationskultur. Das Innovationsmanagement der Zukunft [Success Factor Innovation Culture. The Innovation Management of the Future]*. Göttingen: Business Village.

**Miller, P., Wedell-Wedellsborg, T.** (2013). The Case for Stealth Innovation. When it's Better to Ask for Forgiveness than Seek Permission. *Harvard Business Review*. 91 (3), 91-97.

**Mueller, J.S., Melwani, S., Goncalo, J.A.** (2011): The Bias against Creativity: Why People Desire but Reject Creative Ideas, 2011, Retrieved 07.09.2011 from <http://digitalcommons.ilr.cornell.edu/articles/450/>

**Mumford, M.D., Hester, K.S., Robledo, I.C.** (2012). Creativity in Organizations: Importance and Approaches. In M.D. Mumford (ed.). *Handbook of Organizational Creativity* (3-16). London: Academic Press.

**Murray, C.** (2003). *Human Accomplishment. The Pursuit of Excellence in the Arts and Sciences, 800 B.C. to 1950*. New York: Harper Collins.

**Nagji, B., Tuff, G.** (2012). Managing Your Innovation Portfolio. *Harvard Business Re-view*. 90 (5), 66-74.



**Nakamura, J., Csikszentmihalyi, M.** (2014). The Motivational Sources of Creativity as Viewed from the Paradigm of Positive Psychology. In M. Csikszentmihalyi. *The Systems Model of Creativity. The Collected Works of Mihaly Csikszentmihalyi*. Berlin: Springer.

**Nicholas, J., Ledwith, A., Bessant, J.** (2013). Reframing the Search Space for Radi-cal Innovation. *Research-Technology Management*. 56 (2), S. 27-35.

**Oldham, G.R., Baer, M.** (2012). Creativity and the Work Context. In M.D. Mumford (ed.). *Handbook of Organizational Creativity* (387-420). London: Academic Press.

**Patterson, M.G., West, M.A., Shackleton, V.J., Dawson, J.F., Lawthom, R., Maitlis, S., Robinson, D.L., Wallace, A.M.** (2005). Validating the Organizational Climate Measure: Links to Managerial Practices, Productivity and Innovation. *Journal of Organizational Behavior*. 26, 379–408 (2005).

**Pierce, J.R., Aguinis, H.** (2013). The Too-Much-of-a-Good-Thing Effect in Manage-ment. *Journal of Management*. 39 (2), 313-338.

**Pillkahn, U.** (2011). *Innovationen zwischen Planung und Zufall: Bausteine einer Theorie der bewussten Irritation [Innovations between Planning and Coincidence: Components of a Theory of Deliberate Irritation]*. Norderstedt: BoD.

**Pinchot, G., Pellman, R.** (1999). *Intrapreneuring in Action. A Handbook for Business Innovation*. San Francisco: Berret-Koehler.

**Puccio, G.J., Cabra, J.F.** (2010). Organizational Creativity. A Systems Approach. In J.C. Kaufman, R.J. Sternberg (eds.). *The Cambridge Handbook of Creativity* (145-173). New York: Cambridge University Press.

**Robertson, D., Breen, B.** (2014). *Brick by Brick: How LEGO Rewrote the Rules of Innovation and Conquered the Global Toy Industry*. New York: Crown Business.

**Robinson, A.G., Stern, S.** (1998). *Corporate Creativity. How Innovation and Improvement Actually Happen*. San Francisco: Berret-Koehler.

**Runco, M.A.** (2014). Creativity. Theories and Themes: *Research, Development, and Practice* (2nd ed.) London: Elsevier.

**Runco, M.A., Jaeger, G.J.** (2012). The Standard Definition of Creativity. *Creativity Research Journal*. 24 (1), 92-96.



**Sawyer, R.K.** (2012). *Explaining Creativity: The Science of Human Innovation*. New York: Oxford University Press.

**Sawyer, R.K.** (2013). *Zig Zag. The Surprising Path to Greater Creativity*. San Francisco: John Wiley & Sons.

**Schulz von Thun, F.** (1998). *Miteinander reden, Teil 2: Stile, Werte und Persönlichkeitsentwicklung [Being on Speaking Terms, Part 2: Styles, Values and Personality Development]*. Reinbek bei Hamburg: Rowohlt.

**Schulz von Thun, F.** (2015). Von wem stammt das Werte- und Entwicklungsquadrat? [From Whom Originates the Value and Development Square?]. *Schulz von Thun Institut für Kommunikation*. Retrieved 20.12.2015 from [http://www.schulz-von-thun.de/files/wurzeln\\_des\\_werte-\\_und\\_entwicklungsquadrates.pdf](http://www.schulz-von-thun.de/files/wurzeln_des_werte-_und_entwicklungsquadrates.pdf)

**Slingerland, E. G.** (2014). *Trying not to Try. The Art and Science of Spontaneity*. New York: Crown.

**Sutton, R.I.** (2007). *Weird Ideas That Work: How to Build a Creative Company*. New York: Free Press.

**Tushman, M.L., Anderson, P.** (1986). Technological Discontinuities and Organizational Environments. *Administrative Science Quarterly*. 31 (3), 439-465.

**Utterback, J.M.** (1996). *Mastering the Dynamics of Innovation*. Boston: Harvard Business School Press.

**Wang, R.** (2012). *Yinyang: The Way of Heaven and Earth in Chinese Thought and Culture*. New York: Cambridge University Press.

**Wegner, D.M.** (1989). *White Bears and other Unwanted Thoughts. Suppression, Obsession, and the Psychology of Mental Control*. New York: Guilford Press.

**Wegner, D.M.** (1994). Ironic Processes of Mental Control. *Psychological Review*. 101 (1), 34-52.

**Wegner, D.M., Ansfield, M., Pilloff, D.** (1998). The Putt and the Pendulum: Ironic Effects of Mental Control of Action. *Psychological Science*. 9 (3), 196-199.

**West, M.A.** (1990). The Social Psychology of Innovation in Groups. In M.A. West & J.L. Farr (Eds.). *Innovation and Creativity at Work: Psychological and Organizational Strategies* (309–333). Chichester: Wiley.



**West, M.A., Sacramento, C.A.** (2012). Creativity and Innovation: The Role of Team and Organizational Climate. In M.D. Mumford (ed.). *Handbook of Organizational Creativity* (359-383). London: Academic Press.

**Woodman, R.W., Sawyer, J.E., Griffin, R.W.** (1993). Toward a Theory of Organizational Creativity. *The Academy of Management Review*. 18 (2), 293-321.



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