Guiding behavior favoring sustainable enterprise innovation capability (SEIC)

Development of knowledge workers dealing with complexity

Authors

Sabrina Schork, Rendeler Straße 53, 60385 Frankfurt am Main

Prof. Dr. Orestis Terzidis, Karlsruher Institut für Technologie (KIT), Lehrstuhl für Entrepreneurship und Technologie-Management, Fritz-Erler-Straße 1-3, 76133 Karlsruhe

Abstract

The purpose of this paper is to recapture and enrich existing primary research on how leaders can favor sustainable enterprise innovation capability (SEIC) via the development of knowledge worker capabilities leading to an innovation-supportive enterprise culture. Knowledge work which is based on analytical, communicative and reflexive actions is becoming especially important for enterprises located in innovation-driven economies. There is a clear gap on how to achieve sustainable practices for innovation capability (IC) via human resource development, focusing on character-building or stabilizing theories balancing increasing complexity. The method of this study is based on literature review and expert panels obtained from professors and business principals involved in enterprise IC development. Expert panels compromising of one expert workshop with ten participants and eleven expert interviews were taped and transcribed for qualitative analysis. This study identifies theses on behaviors and related pre-conditions that favor sustainable enterprise innovation capability and therefore business success. The structure of this article has four parts. First, based on literature research, a discussion on changes of market and work environment in the 21st century driving the need for SEIC and the development of new competencies for knowledge workers takes place. Then, theories building the foundation for the research framework are introduced. After that, empirical method is build. Finally, research results and conclusions for the entrepreneurial practice are presented.

Keywords

Leadership behavior, entrepreneurship, innovation capability, human development, sustainability

1 Introduction

Enterprises of the 21ˢᵗ century are operating their business in a complex and dynamic world. They are facing shrinking natural resources and climate change leading to an environmental crisis, individualization of markets, digitalization giving employees and customers more power, demographic change supporting war for talent as well as a symbiosis of life and technology (e.g. integration of cyber-physical systems within industry) (Vielmetter & Sell, 2014, pp. 10-11). Those drivers lead to uncertainty on business and individual level. Time becomes a critical factor. Speed management asks for productive interaction, flexibility and changing human resource systematics. Rapid shifts in the division with labor, parallel short-term project delivery, team work, stakeholder networks, and decentralization are becoming the standard. Variations in career, coordination and control paths become more important. Companies compete with unique strategies focusing on service, design and quality. Live-long learning is a must because of the fast obsolescence of knowledge. Systemic behaviors must be changed sustainably. This requires new leadership models (Papmehl & Tümmers, 2013, pp. 224-226). Due to that firms invest heavily in the continual training and upgrading of their workforce (Porter, Sachs, Schwab, & McArthur, 2002, p. 18).

Innovation is the result of unique interaction between external market opportunities, internal firm-specific capabilities, and knowledge bases (Zhang, Garret-Jones, & Szeto, 2013, p. 3). Innovation is the outcome of individual, team and organizational new ideas (Denti & Hemlin, 2012, p. 2) that result in sustainable changes (Trantow, Hees, & Jeschke, 2011, p. 4) and create new business models, new processes as well as new products and services (Dervitsiotis, 2010, p. 907).

Innovation is considered to be key factor to handle current work environment changes. Innovation strengthens sustainable enterprise innovation capability (SEIC) (Hansen, Hees, & Trantow, 2010, p. 54) and therefore secures economy and business success (OECD, 2013, p. 1). Sustainable innovation is the most important source for growth and wealth within innovation-driven economies[1] and top priority of the Europe 2020 Strategy (EC, 2014). Innovation depends on macroeconomic stability, interdependent factors such as quality of governance,

---

[1] Germany is one of the 26 innovation-driven countries in the world next to Latin Trinidad, Tobago, Israel, Japan, Korea, Singapore, Taiwan, Belgium, Czech Republic, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Slovenia, Spain, Sweden, United Kingdom, Norway, Switzerland, Canada, United States, and Puerto Rico. Currently Germany is currently moving within the last fifth of innovation-driven economies (Amorós & Bosma, 2013, p. 10).

societal capacity to advance technological capability, modes of competition, and evolving forms of firm organizational structure. This requires a direct government role in fostering a high rate of innovation through investments in research and development or higher education, and improved capital markets as well as regulatory systems (Porter, Sachs, Schwab, & McArthur, 2002, p. 19).

LfI + EC + ES + R + C + P + E = SEIC

Paper focus

Sustainable enterprise innovation capability (SEIC) comprises the complex interrelationships between the human, organizational and technological requirements to continuously induce and realize new ideas that contribute to sustainable changes. New ideas leading to changes within processes, business models, products and services count as intellectual capital. Leaders are responsible to create the context for a systemic approach leading to systematic innovation creation. The enablement and empowerment of knowledge workers as well as the formation of an innovation-supportive culture are key.

Legend: SEIC= sustainable innovation capability; LfI= leadership for innovation; EC= enterprise culture; ES= enterprise structure; R= internal and external resources for innovation; C= customers participation for innovation; P= partner participation for innovation; E= employee participation for innovation

Figure 1: Definition of sustainable enterprise innovation capability (SEIC).[2]

Enterprises need to become capable of sustainable innovation (see Figure 1). The ability to stay competitive is becoming synonymous with the ability to innovate. This situation leads to an innovation pressure on the business level. Enterprises within 21st century have to deal with the circumstance that internal dynamics have outgrown human capacity of rational cognition and change is the only constant. In this stormy environment, innovation is the new and old magic formula to survive, act and compete efficiently in the long run. Enterprises need to find their individual balance between sustainability such as responsible handling of tangible and non-tangible resources as well as performance and competition (Trantow, Hees, & Jeschke, 2011, p. 4). Sustainable enterprise innovation capability (SEIC) has a positive effect on enterprise performance, if delivered sustainable - which means not depending on a single person, securing enterprise future growth (Zhang, Garret-Jones, & Szeto, 2013, p. 1). SEIC depends on actor behavior, their relationships and the environmental circumstances (DIW, 2007, p. 22). Enterprise context such as technology, human competency and organizational structures play a decisive role in the genesis of innovations (Hansen, Hees, & Trantow, 2010, pp. 56-61). Investments in knowledge-based capital are inevitable to increase SEIC (OECD, 2013, p. 1).

---

[2] (Bailom, Matzler, & Tschemernjak, 2013, p. 106); (Dervitsiotis, 2010, p. 908); (Trantow, Hees, & Jeschke, 2011, p. 105).

Systematic innovation creation demands new knowledge. Systematic innovation is a specific function of entrepreneurship, aiming for purposeful focused change by extracting internal and external opportunities (Drucker, 1985, p. 72). Thus stakeholder needs are taken into account, industry as well as enterprise orthodoxies are being challenged and resistance is overcome (Chen & Pallister, 2011, p. 3). Innovations emerge from the complex thinking, acting and interacting of people going about their everyday work under certain framework conditions (Trantow, Hees, & Jeschke, 2011, pp. 2-3). The creative process developing value from human interaction becomes more important (Hill, Brandeau, Truelove, & Lineback, 2014, p. 98). Systemic innovation creation is hard knowledge work, including analytical, communicative and reflexive actions (Garcìa-Morales., Lloréns-Montes, & Verdú-Jover, 2008, p. 302).

Innovation guides are entrepreneurs across all leadership levels, that are responsible to manage personnel and setting up the context for systematic innovation creation, so that teams are able and willing to create innovations. Innovation guides act as change agents creating a new context, in which innovation creation is possible. Guiding behavior becomes a shared task depending on collective talent, energy and skills integrated within a team (Hill, Brandeau, Truelove, & Lineback, 2014, pp. 97-102), trying to handle complexity (Zhang, Garret-Jones, & Szeto, 2013, pp. 3-11). Complexity such as changing nature of the work, rapidly shifting work roles, increasing work pace drive psychosocial health diseases (Leka & Jain, 2010, pp. 30-59). Sustainability oriented innovation guides support the stabilization of the self (Ottomeyer, 2014), preventing growing health problems and form an innovation-supportive culture (Bailom, Matzler, & Tschemernjak, 2013, p. 95).

Achieving SEIC demands new competencies among knowledge workers. "It requires knowledge, ingenuity and focus as well as commitment, persistence and diligence to create innovations" (Drucker, 1985, pp. 68-72). Reasonable risks have to be taken to secure future growth of the enterprise (Yukl, 2012, p. 68). Enterprises trying to achieve sustainable innovation capability depend on the ability and willingness of their employees to engage in the innovation creation process (Zhang & Bartol, 2010, p. 67). Enterprises therefore need to enable knowledge workers innovation engagement which current education system in Germany seemingly fails to garner (Wagenhofer, 2013).

2   Research gap

Recent primary research discovered that innovation guiding behavior depends on the innovation-oriented mindset of a person (Puggel, 2012, p. 27). If an innovation guide is convinced that innovation and therefore change is necessary, guiding behavior can create an innovation-supporting culture including artifacts (Bailom, Matzler, & Tschemernjak, 2013, p. 92) and hence SEIC (Cerne, Jaklic, & Skerlavaj, 2013, p. 76). Besides culture,

enterprise structure (Denti & Hemlin, 2012, p. 11), internal and external resources such as technology or time as well as stakeholder participation (Dervitsiotis, 2010, p. 908) act as moderating variables (see Figure 2).
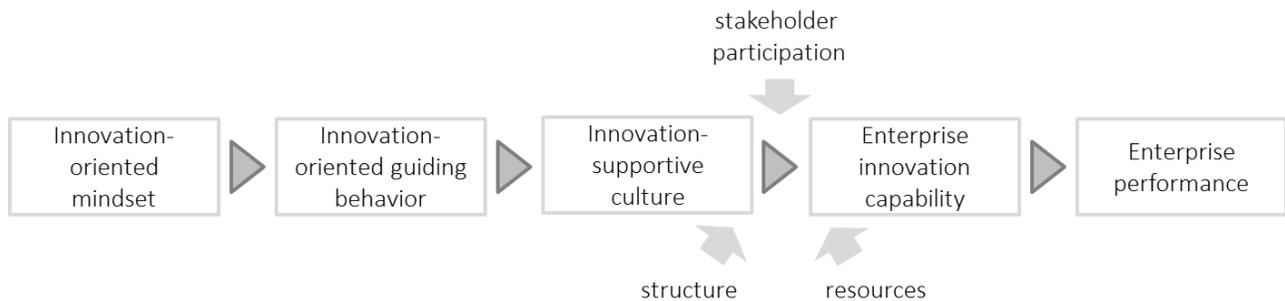

Figure 2: Research connections.

There are peer-reviewed papers on leadership and innovation including aspects of entrepreneurship as well as papers on leadership and innovation capability. Each contribution ads some new bits to the overall picture which has not been painted yet, and will be developed within this study (see Figure 3). Scientists in this field are not yet focusing on approaches to achieve SEIC via knowledge worker development. As well, most papers research on dedicated leadership styles although it was already revealed that a person can make use of different leadership styles, depending on the situation (Sohm, 2007, p. 13). This paper focuses on the question "how innovation guiding behavior can favor sustainable enterprise innovation capability via the development of knowledge worker capabilities leading to an innovation-supportive enterprise culture". To answer this question we build an overall guiding behavior approach, also focusing on favoring pre-conditions (see Figure 5).

3   Theoretical background

To approach the mentioned research gap, it takes three steps. First, the creation of an understanding of the enterprise as a complex and adaptive system including network effects. Second, theories helping to understand, how self-development can decrease stress levels and therefore increase SEIC. Third, the activitiy of decision making and creativity processes.

Complex adaptive systems, culture and leadership

The theory of complex adaptive systems (CAS) is one of the more recent types of system theory, and is mainly driven by John H. Holland. CAS are systems that involve many components that adapt or learn as they interact. CAS are systems that have a large number of diverse components, often called agents, which interact and adapt or learn at all levels. Effect context is therefore non-linear. Based on agent interaction new structures emerge. The system is open and adapts to changes in the environment. Calm conditions lead to agent specialization,

chaos fosters the opposite (Holland, 2006, pp. 1-8). *Culture in CAS* is giving agents a structure within changing environments. Agents are interlinked with the dynamics of life, consciousness and communication. Values, forming a culture, are the outcome of the interaction of life, consciousness and communication. Culture is a notion which describes the human involvement and engagement within a self-organized network. To be engaged within culture means to reach across disparate self-organized systems for referencing without denying their existence (Baecker, 2009, pp. 272-282). Cultures define an organization's "implicit" rules, governing what individuals and teams do and say when no one is watching (Chen & Pallister, 2011, p. 3). *Guiding behavior in CAS* is an emergent action, an outcome of dynamic relational interactions among agents combined into collective venture. During interactive actions, knowledge, preferences and behaviors change, thereby provoking an organization to become adaptive. Participants jointly decide who they are (Lichtenstein, Uhl-Bien, Marion, Orton, & Schreiber, 2006, p. 2).

The stabilization of the self in the context of complexity

The stabilization of the self has a lot to do with self-awareness about own feelings, management of emotions, the ability of the mind to see itself, and the ability to shape the feelings of others while interacting with them (Goleman, 2011, pp. 12-13). Three capabilities are pre-conditions being able to create innovations: (1) the ability of clean analytical and intellectual thinking (intellectual competence), (2) the ability to feel with others and to realize the perspective of another person (emotional competence), (3) and the willingness to let go of old intentions as well as to enable new intentions (spiritual competence) (Scharmer, 2013, p. 68). Mindfulness can be one practice to stabilize the self (Kabat-Zinn, Davidson, Jha, & Paulson, 2013, pp. 90-100).

Creativity process to create innovations

Given those three capabilities IQ, EQ and SQ, a person can engage in an circular c*reativity process to create innovations*: (1) slow down, open up and observe the current moment without judging it, without being attached to the past or future or sticking to old thought patterns and identify problems, then (2) set up a connection to the situation encoding new thinking without cynicism. Based on that compress new ideas or alternatives to form a prototype and test the new concept in the field. Finally (3) start a silent dialogue (reflection) enabling to connect to the self from where ideas relevant for the future can be perceived. Then realize those ideas with courage, irrespective of the uncertainty on their success. Collective discussion including opposing ideas guides and energizes the whole process (Scharmer, 2013, pp. 56-74).

Decision-making processes in the context of innovation

Decision making in the context of innovation is called effectuation and is recommended for entrepreneurs. This process is actor dependent. At the beginning of the process there are only some means or tools given. It is excellent on exploiting contingencies. The actor thinks about given circumstances that can be extracted. The environment is perceived as dynamic and non-linear. The overall focus lies on controllable aspects of an unpredictable future. New markets are created through alliances and cooperative strategies. The actor is choosing between many possible effects using a particular set of means. By continuously listening to the stakeholders such as partners, customers, employees, offering emerges. The original idea causing the start of an effectuation process, does not imply a single strategy universe. The effectuation process allows to create one or more effects, irrespective of the generalized end goal with which the process was started. Effectuation enables the realization of several effects and gives the opportunity to change goals over time, using contingencies. In practice a person i.e. extracts its own personality, its own knowledge and its own contacts and combines them instead of developing an idea and trying to find resources for it (Sarasvathy, 2001, pp. 245-252).
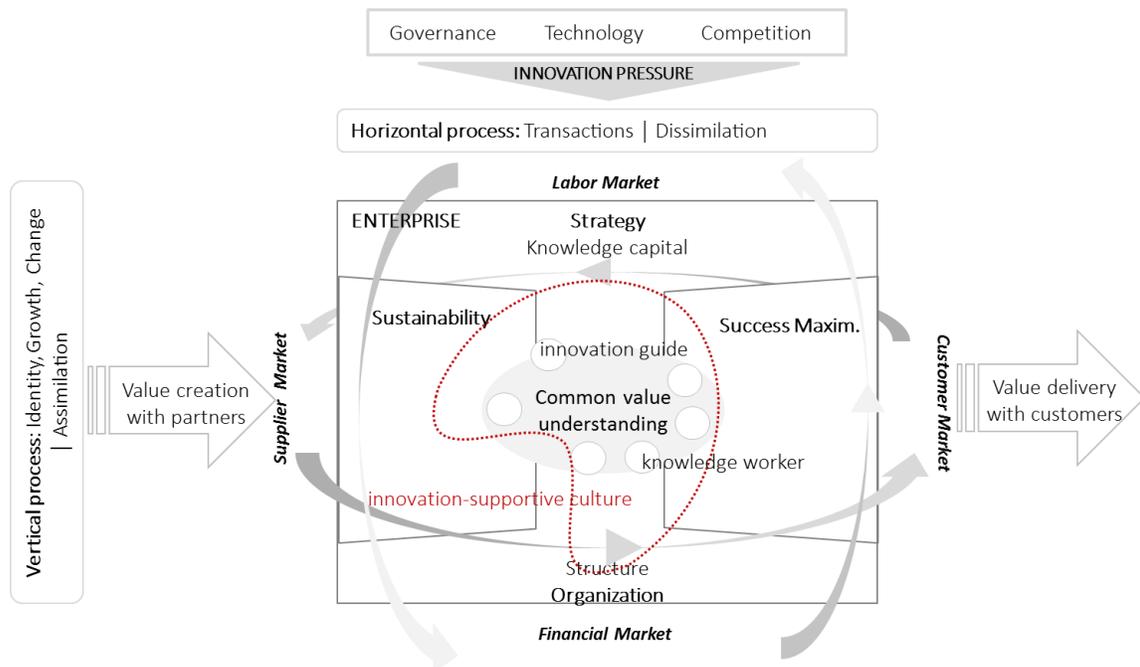
Context model

Figure 3: Context model for enterprises trying to achieve innovation capability.

Our context model (see Figure 3) connects the dots for enterpriseses trying to achieve sustainable innovation capability. Basis build current readings presented in Chapter 1 and 2. Current market situation such as governance structure and strategy, new technologies and competition among companies regarding capital,

labor, customers and partners increase innovation pressure on enterprises, trying to achieve innovation capability. Innovation capability implies balancing of sustainable knowledge capital development and business success maximization. Each enterprise forms an individual value proposition which means finding an individual position within described stress field. To achieve innovation capability aiming for enterprise growth, a systematic innovation process including stakeholder participation needs to be developed (see Chapter 1). Tangible assets such as structures, technology or work spaces can support this process. Networked enterprises learn and adapt within internal and external interaction leading to systemic change an growth (assimilation). Culture defines how knowledge worker engage and involve in self-organized networks. Within knowledge worker interaction, existing human capabilities are exhausted and produce new energies for value creation (dissimilation).

4   Methods

Setting

The study goal is the development of a model, explaining professionals working within knowledge intensive fields, "how innovation guiding behavior can favor sustainable enterprise innovation capability via the development of knowledge worker capabilities, leading to an innovation-supportive enterprise culture". To develop a rich concept, we take six research steps (see Figure 4).

This paper focuses on research steps one to three and presents the development of the research framework, defining variables for upcoming field research. Further research steps and results will be published in an upcoming paper, including multiple case studies and an the result of an online survey.

The starting point of our study is a journal review on interdisciplinary primary research dealing with «leadership and innovation», «entrepreneurship and innovation», «leadership and innovation capability», «leadership of the 21st century». Sources are cross-databases such as google.scholar, UB Frankfurt or KIT Plus, also examining academic journals as well as expert recommendations. In addition, congress material from DMS Expo 2013, Enterprise 2.0 Summit 2014 and Know Tech 2013 have been examined. The intention is to create on the one hand a context model for enterprises trying to achieve innovation capability, showing micro- and macro-level connections (see Figure 3) as well as to create hypothethis on innovation favoring guiding behavior focusing on the development of knowledge worker to create an innovation-supportive culture (See Chapter 4.1.). Reflections on hypothethis happened within several peer-discussions.

Research framework validation and enrichment of derived assumptions take place in an four hour audio-documented and transcribed expert panel with ten interdisciplinary participants (see Table 1, No. 1-10). To ensure data quality, the results are examined with participants via an online platform.
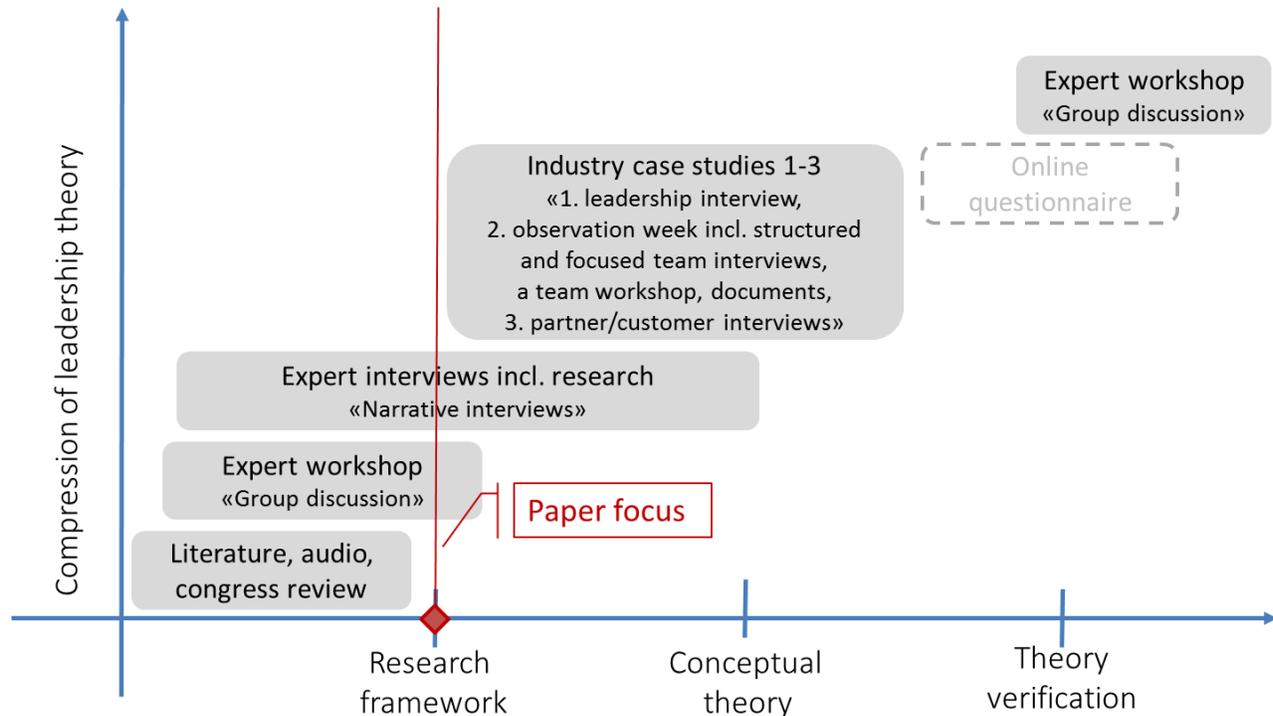

Figure 4: Process of theory development.

To further enrich, challenge, and deepen the examined workshop results, eleven audio-recorded and transcribed repetitive interdisciplinary narrative expert interviews have been conducted (see Table 1, No. 11-21). Interview duration ranged between 45-90 minutes. Narrative interviews enable to gather expert experiences in retrospect, including underlying behaviors and attitudes within a social context. The researcher specifies a gross topic and receives the fluency, whereas respondents openly tell their personal stories (Schnell, Hill, & Esser, 2013, p. 379).

Hypothethis reflections happened with an experienced leadership coach. Also, expert statements were aligned with scientifc research (Leedy & Ormrod, 2013, p. 91).

Analysis

The research framework directing workshop and interviews, is modeled in lean on grounded theory that has already been discussed in scientific A+-VHB-ranked journals (Langley, 2013) and was adopted in the context of leadership theory (Hoflund, 2013). Grounded theory is a theory generating method, based on a hermaneutic

understanding process as well as on a variety of data sources. Unlike the content analysis mainly driven by the German researcher (Mayring, 2014), categories are the result of an inductive analysis and are thus developed out of the material. Coding procedure are based on guiding principles (Strauss, 2007, pp. 11-55). Transcripts, notes and protocols as well as memos have been stored, coded and connected within atlas.ti.

5 Results

5.1 Hypothesis based on literature comparison

Innovation-favoring enterprise context

Innovation is based on intellectual and emotional challenges. An enterprise context favorable to innovation is based on learning including passion for disagreement within the collective, which fosters tension and chance-oriented pressure instead of fear-oriented pressure (Kotter, 2014). This demands a dedicated enterprise context (Hill, Brandeau, Truelove, & Lineback, 2014, pp. 97-98). Structures and processes change continuously in order to strengthen IC whilst achieving objectively measurable success. Clear, focused strategies and open processes focus on social and organizational innovations (Hansen, Hees, & Trantow, 2010, p. 60) such as de-formalized, de-centralized, flat and networked structures. They make learning as well as agile adaptability possible and innovation such as easier (Denti & Hemlin, 2012, p. 11). Innovations are made through actions and interactions of stakeholders (employee, customer, and partner) (Sarasvathy, Dew, & Forster, 2012, p. 26). The existence of internal and external resources such as technology, autonomy, responsibility or time have a positive effect on enterprise IC (Trantow, Hees, & Jeschke, 2011, p. 1). Enterprise members need to find a shared innovation mission, need to understand it, and need to find their role in order to change the as-is situation (Zhang & Bartol, 2010, p. 111). Places, where common understanding of the system, where reflection and listening are possible as well as prototypes can be developed, favor innovation thinking and enable innovation-oriented action (Scharmer, 2013, p. 72).

Hypothesis 1: Enterprise context is key to nourish innovation capabilities of knowledge workers. Adaptive networked structures and processes, a passionate culture for self-organized learning, teaming and disagreement, stakeholder interaction, provision of internal and external resources such as technology and time or spaces for reflection favor innovation.

Innovation-friendly mindset

The mindset of a person is based on attitudes and values which change over time and result out of life-experiences and their reflections (Hinterhuber, 2010, p. 21). An innovation-friendly mindset with a positive attitude towards innovation and a recognition of the need for change is a pre-condition for innovative thinking and innovation-oriented action (Puggel, 2012, p. 30). An innovation-friendly mindset is based on the beliefs and

values such as optimism, diversity, unorthodoxy, curiosity, and participation instead of resistance, control, opportunistic thinking or arrogance (Hill, Brandeau, Truelove, & Lineback, 2014, p. 99).

The mindset of a person depends on the self. The desire for self-development is more likely if a person seeks out to work autonomously and engages pro-actively to work goals. The desire to control situations and focus on dedicated goals instead of letting them emerge can lead to resistance and stagnation. Innovation guides can empower an innovation-friendly mindset which is manifested in four cognitions: meaning, competence, self-determination, and impact. A person needs the willingness to change the self and the willingness being empowered from the outside instead of trying to control the situation (Zhang & Bartol, 2010, pp. 108-111). Also, internal and external interactions can stimulate the mindset of a person (Hill, Brandeau, Truelove, & Lineback, 2014, p. 97).

Hypothesis 2: An innovation-friendly mindset is a pre-condition for innovative thinking. An innovation-friendly mindset is based on unorthodoxy, diversity, willingness to learn and engage, passion for change, mutual trust, respect, humility, optimism, and curiosity. It is not based on opportunistic thinking including information hiding, resistance or arrogance. The mindset of a person depends on the inner self. Interactions with others can influence the mindset if a person is open for change.

Innovative thinking

Innovative thinking is based on an openness and mindful confrontation of the current micro- and macro-context without judging it. As well, it is encoding of new thinking without cynicism and the silent dialogue with oneself (self-reflection). Being able to think innovative depends on the IQ, EQ and SQ of a person, which may be partially developed through human development programs and leadership empowerment for change. To enable innovative thinking, context creation is key. Places in the work environment where a common understanding of the system, where reflection and listening as well as prototyping is possible, promote creative thinking (Scharmer, 2013, pp. 68-72).

Hypothesis 3: Innovative thinking is a pre-condition for innovation-oriented action. Innovative thinking depends on intellectual, emotional and spiritual capabilities of a person. Innovative thinking can be supported via context creation, complexity management and empowerment for change.

Innovation-oriented action

Innovation-oriented action is the engagement of a person or a group within creativity process. It takes over responsibility for innovation creation. Knowledge workers collaborate and challenge each other with passionate disagreement (Hill, Brandeau, Truelove, & Lineback, 2014, p. 97). The outcome of this process are ideas leading to process, business model or service and product innovations. The creative process is based on a con-

tinuous challenge of the existing micro- and macro context with joy and passion. It includes problem identification, information searching and encoding as well as idea generation (Zhang & Bartol, 2010, p. 107). Problems get tackled from different angels, e.g. by applying new ideas from other fields, thinking outside-the-box, experimenting with new ideas to create new opportunities (Hill, Brandeau, Truelove, & Lineback, 2014, p. 100).

Role identity is a self-view ascribed to the self with respect to the specific role. Knowledge worker role identity leads to intrinsic motivation favoring pro-active innovation action. Role identity can be shaped by empowering guiding efforts favoring collective creativity engagement. Innovation guides can support knowledge worker innovation actions via complexity management. This contains the highlighting of work-meaning, the provision of decision-making autonomy, removing hindrances to performance such as bureaucratic constraints, and building confidence in others (Zhang & Bartol, 2010, pp. 109-111).

Hypothesis 4: Innovative action is the engagement of a person or group within creativity process. The creative process is based on a continuous challenge of the existing. It includes problem identification, information searching and encoding as well as idea generation. Innovation guides can favor the willingness of innovative actions with enhancement of work meaning, provision of greater decision-making autonomy, confidence building, and removing hindrances to performance.

Innovation-supportive culture

The concept of enterprise culture is highly relevant in the context of systematic innovation creation (Bailom, Matzler, & Tschemernjak, 2013, p. 92). If the enterprise culture supports innovative behaviors, innovation can occur systemically, involving a range of various processes and methods. A systemic approach to innovation is more sustainable when embedding innovation DNA within the enterprise culture instead of creating dependencies on individuals. Agents are able to anticipate and adapt to trends instead of responding to crisis. If some of the culture's elements, such as situational decision-making (Sarasvathy, 2001, p. 249), reasonable risk tolerance or co-creation, are non-supportive, innovation will never happen systematically (Chen & Pallister, 2011, p. 3). Innovation-supportive culture creates communities that do have a sense of purpose and shared values. Agents accept diversity (Hill, Brandeau, Truelove, & Lineback, 2014, p. 97) and treat each other as enterprise property (Hansen, Hees, & Trantow, 2010, p. 57). Everyone understands the innovation direction. Innovation is key priority. Relationships are based on trust, emotional safety and honest communication (Yukl, 2012, p. 73). People share viewpoints openly and are willing to take reasonable risks as well as accept uncomfortable challenges within experimentation phases. Judging, fear or cynicism can hinder innovative thinking (Scharmer, 2013, p. 71).

Hypothesis 5: Committed innovation-oriented behavior is essential building a systemic innovation-supportive culture leading to systematic innovation. An innovation-supportive culture is based on reasonable risk-tolerance, respectful confrontation, emotional safety, autonomy, transparent communication, trustful collaboration and learning in the collective. Judgments, cynicism, and negative pressure becomes sanctioned.

Innovation guiding behavior

The process of innovation is born in highly uncertain or ambiguous situations (Hazy, 2006, p. 61). Leaders need to invest time to guide the system through innovation which means change (Puggel, 2012, p. 29). Personal interactive behavior helps to give direction, instead of trying to control. The cooperative-delegating way, using the verbal, para-verbal and non-verbal communication becomes more important. Especially in times of uncertainty when structures are missing, leadership can give orientation and respond to fear or helplessness (Drucker, 2006, p. 152).

An innovation guide can nourish innovation-oriented action of knowledge workers. Success depends on the ability to balance several stress fields. First, foster experimentation and learning as well as performance. This could happen within well-defined decision criteria and conscious channeling of an individual's energy towards new ideas. Secondly, support the individual and the group. Thirdly, support and confront. Fourthly, promote improvisation and structure. Fifthly, show patience and urgency. Sixthly, encourage bottom-up initiative and intervene from top-down if necessary (Hill, Brandeau, Truelove, & Lineback, 2014, pp. 98-100). Seventhly, allow self-organization and build cues (Hazy, 2006, p. 70).

Essential behaviors to build SEIC, are (1) context creation including structure, stakeholder involvement, and resources supporting organizational learning and innovation (Garcìa-Morales., Lloréns-Montes, & Verdú-Jover, 2008, p. 301), (2) the empowerment of others towards change (Zhang & Bartol, 2010, pp. 109-111), (3) the management of complexity such as stress fields (see former Section), (4) the management of relationships and expectations including soft skills such as listening, transparent communication, consistent action, reflected collaboration, coaching, and expectation management (Hill, Brandeau, Truelove, & Lineback, 2014, pp. 100-102), as well as (5) a real understanding of decision-making processes (Sarasvathy, 2001, pp. 245-252), self-stabilizing effects (Goleman, 2011, pp. 12-13) and creativity processes (Scharmer, 2013, pp. 56-74).

Hypothesis 6: Innovation guiding behavior can increase enterprise innovation capability. Pre-conditions are an innovation-friendly mindset, the abilities for innovative thinking and engaged innovation-oriented action. Innovation guiding behavior includes the areas context creation, empowerment of others towards change, complexity, expectation and relationship management. Behavior success depends on personal capabilities as well as on experience towards decision-making, self-stabilization and creativity. Hence it can be learned and developed.

The following Figure 5 aggregates our findings based on hypothesis aggregated within a research framework.
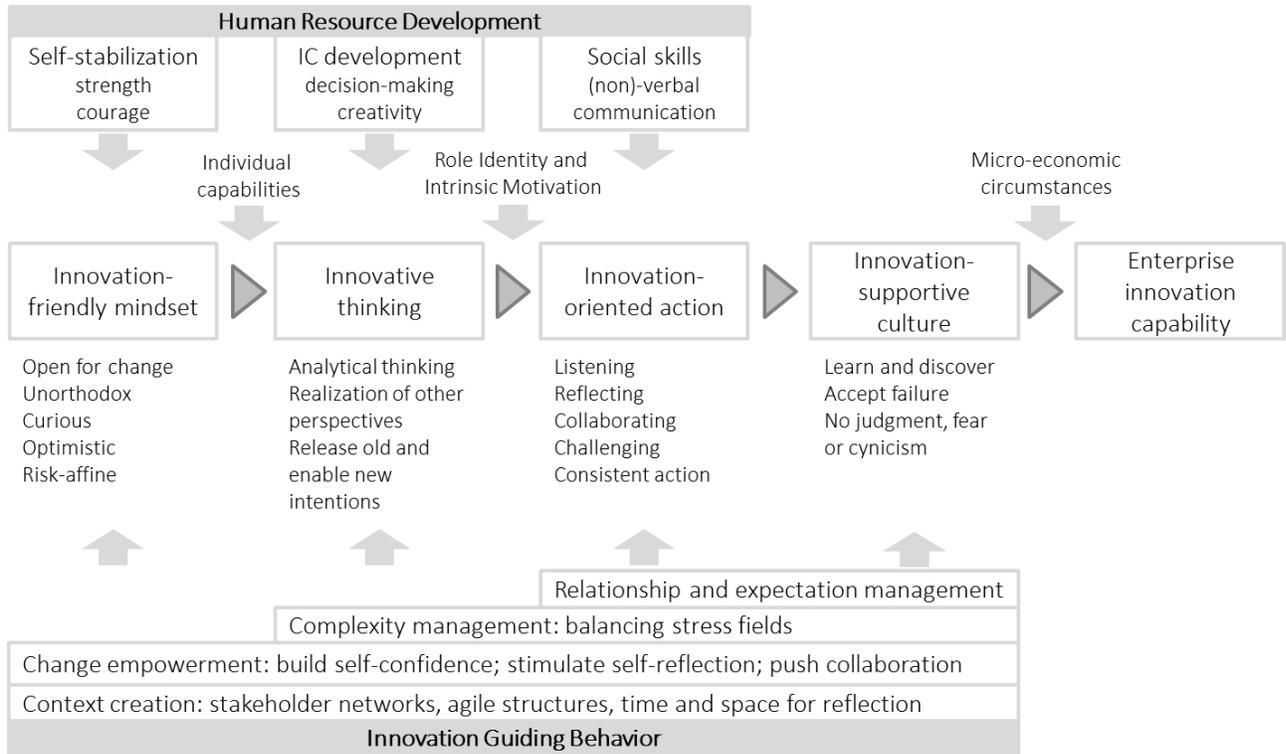
Figure 5: Research framework

5.2 Common expert workshop results (see Table 1; No. 1-10)

Results concerning context model (see Figure 3)

The 21st century market and work environment changes presented in Chapter 1 were fully confirmed by all participants. Competitive pressure and new social technology were highlighted as main driving forces. Overall, it was stated that innovation pressure currently increases across industries, irrespective organization type or size.

The innovation definition of this paper was confirmed (see Chapter 1, Section 2). In that context, internal focus on key competencies as well as outsourcing of non-existant capapabilities within strategic partnerships seem to become more relevant.

SEIC was confirmed to be key factor, securing the future growth of enterprises within innovation-driven economies. Practitioners did not agree on a common definition, but linked up on the statement that SEIC should not depend on single individuals, instead be embedded within enterprise culture DNA. Besides, experts stated that SEIC is about the balancing of sustainability and performance (see Chapter 1, Section 4). Individual beliefs and values, industry context and funding situation seem to affect SEIC orientation and focus. Stakeholder interests were perceived to gain more attention. The sustainable aspect of innovation is rooted

within human interaction. Focus lies on identity and relationship management, behavioral as well as communication rules, and quality assurance of individual contributions. Experts did not have an answer on "how to measure SEIC performance". Opinions on the question "if SEIC measurements should ever happen", were diverse. Human interaction and capabilities as well as cultural context were identified as key favoring factors of SEIC. Flat agile and networked structures, supporting resources such as time and technology were perceived as mediators.

Our definition of systematic innovation creation was confirmed (see Chapter 1, Section 5). Based on expert opinions, knowledge work is based on open information sharing and complex thinking within cultural context. Knowledge work can not be replaced by a machine. Due to complexity, intuition gains importance within decision-making processes and emotional intelligence within relationship management. Creativity education within Germany was perceived as lacking. A development on enterprise level was highly recommended.

Innovation pressure increases stress levels, demanding new work environments and a healthy work-life balance. Experts called out for new work models aligned to individuall life plans. Additionally, new capabilities on leadership and knowledge worker level should be developed to achieve SEIC.

Innovation guiding behavior was defined as a skill which does not depend on hierarchy level or functional orientation. Experts were convinced that not everyone wants to become an innovation guide. Some individuals prefer less responsibility. Also, from their perspective not everyone can be an innovation guide due to comptetency limitations. Self management seems to be important due to the fact that only the fittest survive. Experts stated that innovation guiding behavior should happen in the team.

The job of innovation guides was described with the four areas complexity, relationship, change and context management. Expectation management across stakeholders gained attention. Work-life-balance, creation of work meaning or positioning as a great employer in the market were hotly debated. Protection of contribution quality due to increasing pulse generators became more relevant.

The stabilization and management of the self was seen as important. Experts stated self-stabilization as responsibility of the individuum. It was mentioned that some enterprises already support self-responsible work management with policies regulating that employees do not need to be always accessible or the provision of individual time contigents for free thinking (e.g. Goolgle). Experts call for new documentation systems, catching up with self-dependent work management.

Results concerning hypothethis (see Figure 5)

Hypothethis 1 was fully confirmed. The knowledge worker mindset, the provision of innovation-favoring resources such as time and spaces for reflections as well as the creation of a innovation-supportive cultural context were highlighted as key drivers for SEIC. Technology and flexible networked structures were perceived as supporting elements. Self-organization in small teams was perceived as relevant. No discussion on change-oriented versus fear-oriented pressure emerged. "How middle management will position in future" was seen as one of the key challenges.

Hypothethis 2 was partly confirmed. It was highlighted that an innovation-friendly mindset is a pre-condition for innovation-oriented behavior of knowledge workers. An innovation-friendly mindset was associated with the willingness to learn and engage, to take reasonable risks and to build trust. It was common sense that everyone in the firm is responsible to empower innovation. It was recommended to tolerate failure. There was no emerging discussion on how self-development or empowerment could look like in practice. It was highlighted that courage and strength becomes more important, especially when it comes to admit error or change course of innovation-oriented action.

Hypothethis 3 was partly confirmed. Intellectual intelligence was seen as highly relevant within innovation creation process. One participants mentioned the buzzword "emotional intelligence". No-one referred on spiritual intelligence. It was common sense that enterprises need to provide time and space so that creative processes can emerge. Participants did not develop a clear picture on how those creative spaces could look like. There was no discussion on how innovative thinking could be stimulated by innovation guides.

Hypothethis 4 was partly confirmed. It was common sense that knowledge workers need to engage in creative processes, so that innovations can be produced. No-one brought up ideas how an creative process could look like. One participant mentioned the SCRUM method. It was highlighted that the creation of work meaning and the provision of greater decision-making autonomy becomes more relevant. No discussion on confidence building or removal of performance hindrances took place. It was highlighted that innovation demands self-reflective and questioning workers.

Hypothethis 5 was confirmed. Achieving SEIC takes the challenge for innovation guides to form enterprise culture and take over responsibility for innovation creation. All participants convinced the thought that it is the job of leadership across levels to form an innovation-supportive culture. This culture should be based on reasonable risk-tolerance, emotional safety, autonomy, transparent communication, trustful collaboration and learning in the collective. No discussion on how innovation guides can reach this goal emerged. Focus on

solution instead of goal orientation was highlighted. Respectful confrontation wasn't seen as pre-condition to achieve innovation capability.

Hypothethis 6 was partly confirmed. Discussed innovation favoring guiding skills were transparent communication, listening skills, emotional intelligence, intellectual competencies, ability to create meaning, balancing of customer and employee interests, team engagement, coaching skills, creation of agile structures, enablement of diversity, increase attractivity of the organization, creation of market procimity, manage identities, create strategic partnerships to cope with complexity. No thoughts on how complexities could be managed or attractivity of an enterprise could be increased in future.

5.3 Unique outcomes per discipline

Due to the fact that the eleven expert interviews pre-dominantly matched with the expert workshop results, we now focus on dedicated individual statements that were unique across participants (see Table 1).

Table 1: Expert workshop and interview take-aways per discipline.[3]

No.	Company size	Company type	Industry	Function	Individual statement
1	Big	Concern	Technology	Vice President Products	German culture seems to prevent innovation and entre-preneurship compared to US or UK.
2	Small	Consultancy	Technology	Co-Founder	It is important within communication to create transparency of lacking transparency.
3	Small	Consultancy	Innovation	Founder	SEIC means sustainable treatment of the human, instead of acting like a "despot. Not everyone can or wants to become an innovation guide.
4	Big	University	Informatics	Professor	Measurements of SEIC can lead to an adaptation of the system.
5	Big	University	Innovation	Professor	Big enterprises need to experiment with small units enabling innovation.
6	Big	University	Social Media	Researcher	Inspiration and hard work leads to innovations.
7	Big	Concern	Telecommu-nications	Enterprise 2.0 Program Lead	SEIC implementation is determined by the genius quality in use of existing instruments.
8	Big	Consulting	Insurance	Partner Strategy	Enterprise ability to flexibly compile teams becomes key in terms of innovation. Freedom in innovation processes needs to match enterprise performance.
9	Big	Consulting	Cross-indus-try	Senior Principal Digital	Younger generations asks for more self-determination freedom in work design.
10	Medium	Non-Profit Organiza-tion	Human help	Supervisory Board	Non-profit organizations need to orient to capitalistic business models. Nevertheless self-organization without KPIs seems to be an option (Reinhard Mohn Institute).
11	Big	University	Economics	Professor	Heterogeneous teams favor change.

---

[3] Legend for company size: big > 250 employees, medium 51-249 employees, small < 50 employees | European Commission 2003.

					Complexity management is a key challenge for innovation guides.
12	Big	University	Economics	Professor	Motivation theories are important when it comes to innovation creation.
13	Big	Consultancy	Technology	Europe lead	Societal megatrends relevance differs across industries. Monitoring of enterprise decision-making processes becomes highly relevant. Focus on others and their feelings gain importance within knowledge work (Goleman, 2011)
14	Big	University	Social Software	Habilitant	Pressure increases within not outside enterprises. New methods are needed to enable innovation.
15	Big	University	Philosophy	Professor	Failure culture gets lost in current business world, people only communicate gains, no losses. Information flood increases due to non-existing ability to structure information.
16	Big	University	Social psychology	Professor/ dean	Leadership today is based on a good balance between task and human orientation. Each person has an individual way to guide other people, the personal style affects the realization of current leadership frameworks.
17	Big	Consultancy	Cross-industry	Senior Principal	SEIC focus varies across industries. Leadership happens by example.
18	Big	Consultancy	Cross-industry	Partner	Market proximity is key in SEIC terms. Positive stress can be fruitful to team performance, precondition is a supporting and appreciating work environment.
19	Big	Concern	Travels	Change Agent IT	The intelligence of social fields as a source for innovation. The human body can give guiding direction within decision-making processes (Scharmer, 2013).
20	Big	Consultancy	Cross-industry	Board	The interconnection of stakeholder perspectives, internal development programs as well as leadership empowerment are highly relevant in terms of innovation.
21	Small	Human development	Cross-industry	CEO	Authoritarian leadership style still dominates small and medium sized family owned companies. Cultural change often starts when it is the only option for enterprise survival.

6   Conclusions

Our developed context model was confirmed across the expert panel and therefore seems to match the current zeitgeist (see Figure 3).

SEIC was confirmed to be a highly relevant concept to secure business and economic future growth within innovation-driven countries. There was no common definition on SEIC which we developed in Figure 1. SEIC depends on an individual value proposition definition of an enerprise, linked to the values of it's knowledge workers. It is not clear yet how SEIC could be measured without leading to adaptations within the system.

The overarching connections within our presented research framework were confirmed (see Figure 2). In terms of detailed specifications, there is a need for further research (see Figure 5).

One stress field that seems to be more relevant than ever is the balance between assurance of performance versus freedom for experimentation which is linked to the beliefs control versus trust.

Courage and strength is important to cope with complexity, especially when it comes to failure, self management and pressure. Still, people are not able to handle failure openly although research already stated that learning very much depends on experimentation. Also confrontation seems to be deliberatly bypassed, loosing many innovation sources. Scientific research call out for the embeddening of respect within enterprise culture as a relevant circumstance for challenging debates. Practitioners have not yet adopted this thought. Business context still heavily relies on competition.

The development of the self, of innovative thinking and social skills seem to be highly relevant in the context of SEIC. Practitioners still fail to tackle self-development could be supported on an enterprise or team level. It's perceived as a capacity that needs to be trained by the individual-self without external empowerment.

The concepts on emotional and spiritual intelligence has not yet reached business world.

There is a clear gap on innovative thinking within German education system. Individuals do need support and guidance within decision-making as well as creativity processes.

7 Implications for the Entrepreneurship Practice

7.1 Further investigations

Upcoming research should invest in the development of a concept assessing the SEIC status-quo with a clear focus on enterprise culture and human capabilities.

There exists a need for further investigations on how innovation guides and enterprise can support the development of the innovation-friendly self, innovative thinking and innovation-oriented action.

Finally, there is still one answer left, which drives us and is not yet answered "which factors cause a sustainable instead of a short-term driven enterprise approach aiming for innovation capability".

7.2 Next research steps

The developed research framework will be enriched based on literature and discussed with scientific community. As well, we conduct action research with three multiple industry case studies. Study partners are moving in the communications industry, but have a different company size. Based on several interviews with team lead

and team members as well as structured observations, the research context will be further elaborated (see Figure 5). This leads us to a conceptual theory, giving practitioners guidance within SEIC creation process. Deliverables will include a concept to assess SEIC on team level, and suggestions on knowledge worker and innovation guide development.

After that our conceptual theory will be tested within a cross-industry online-survey constructed in lean on either research methods.

8 Literature

Amorós, J., & Bosma, N. (2013). Global entrepreneurship monitor 2013 global report. Fifteen years of assessing entrepreneurship across the globe. *Babson College, Universidad del Desarrallo, Universit Tun Abdul Razak, London Business School.*

Baecker, D. (2009). Systems, Network, and Culture. *Soziale Systeme*(Vol. 15, Issue 2), pp. 271-287.

Bailom, F., Matzler, K., & Tschemernjak, D. (2013). *Was Top-Unternehmen anders machen* (2. erweiterte ed.). Wien: Linde Verlag.

Cerne, M., Jaklic, M., & Skerlavaj, M. (2013). Authentic leadership, creativity, and innovation: a multilevel perspective. *Leadership*(Vol. 9, Issue 1), pp. 63-85.

Chen, G., & Pallister, I. (2011). Systemic innovation: it delivers competitive advantage. *Leadership Excellence*(Vol. 28, Issue 6), pp. 3-4.

Denti, L., & Hemlin, S. (2012). Leadership and innovation in organizations: a systematic review of factors that mediate or moderate the relationship. *International Journal of Innovation Management*(Vol. 16, Issue 3), pp. 1-20.

Dervitsiotis, K. (2010, Sep). A framework for the assessment of an organization's innovation excellence. *Total Quality Management & Business Excellence*(Vol. 21, Issue 9), pp. 903-918.

DIW. (2007). *Innovationsfähigkeit: Deutschland weiterhin nur im Mittelfeld.* Wirtschaft, Politik, Wissenschaft. Berlin: Deutsches Institut for Wirtschaftsforschung (DIW).

Drucker, P. (1985). The Discipline of Innovation. *Harvard Business Review*(Vol. 63, Issue 3), pp. 67-72.

Drucker, P. (2006). What executives should remember. *Harvard Business Review*(Vol. 84, Issue 2), pp. 144-152.

EC. (2014, June 29). *Europa 2020 - Prioritäten der Europäischen Kommision*. Retrieved from http://ec.europa.eu/europe2020/europe-2020-in-a-nutshell/priorities/index_de.htm.

Garcìa-Morales., V., Lloréns-Montes, J., & Verdú-Jover, A. (2008). The Effects of Transformational Leadership on Organizational Performance through Knowledge and Innovation. *Bristish Journal of Management*(Vol. 19, No. 4), pp. 299-319.

Goleman, D. (2011, Jun). Emotional Mastery - Seek to excel in four dimensions. *Leadership Excellence*(Vol. 28, Issue 6), pp. 12-13.

Hansen, A., Hees, F., & Trantow, S. (2010). Enabling Innovation: Innovationsfähigkeit von Organisationen vor dem Hintergrund zentraler Dilemmata der modernen Arbeitswelt. *Arbeit*(Issue 1), pp. 53-67.

Hazy, J. (2006). Measuring leadership effectiveness in complex sociotechnical systems. *Emergence: Complexity & Organization*(Vol. 8, No. 3), pp. 58-77.

Hill, L., Brandeau, G., Truelove, E., & Lineback, K. (2014). Collective genius: no longer casting themselves as solo visionaries, smart leaders a rewriting the rules of innovation. *Harvard Business Review*(Vol. 92, Issue 6), pp. 94-102.

Hinterhuber, H. (2010). Führen - die Herzen der Mitarbeiter und Mitarbeiterinnen gewinnen. *werte(haltig)*(1), pp. 20-23.

Hoflund, A. (2013). Exploring the use of grounded theory as a methodological approach to examine the 'black box' of network leadership in the national quality forum. *Journal of Health and Human Services Administration*(Vol. 35, Issue 4), pp. 469-504.

Holland, J. (2006). Studying complex adaptive systems. *China Academic Journal*(Vol. 19, No. 1), pp. 1-8.

Kabat-Zinn, J., Davidson, R., Jha, A., & Paulson, S. (2013, Nov). Becoming conscious: the science of mindfulness. *Annals of the New York Academy of Sciences*(Vol. 1303, Issue 1), pp. 87-104.

Kotter, J. (2014). *Harvard Business Manager.* Retrieved Juni 28, 2014, from http://www.harvardbusinessmanager.de/tipp-des-tages/a-969583.html.

Langley, A. (2013). Process studies of change in organization and management. *Academy of Management Journal*(Vol. 56, Issue 1), pp. 1-13.

Leedy, P., & Ormrod, J. (2013). *Practical Research: Planning and Design* (10th ed.). New Jersey: Pearson Education.

Leka, S., & Jain, A. (2010). *Health Impact of Psychosocial Hazards at Work: An Overview.* Geneva: World Health Organization.

Lichtenstein, B., Uhl-Bien, M., Marion, R., Orton, J., & Schreiber, C. (2006). Complexity leadership theory: An interactive perspective on leading in complex adaptive systems. *Emergence: Complexity and Organization*(Vol. 8, No. 4), pp. 2-12.

Mayring, P. (2014, June 29). *Forum: Qualitative Social Research.* Retrieved from http://www.qualitative-research.net/index.php/fqs/article/view/1089.

OECD. (2013). *Supporting Investment in Knowledge Capital, Growth and Innovation.* Paris: OECD.

Ottomeyer, K. (2014, April 28). Social behavior within capitalism. Goethe Universität Frankfurt am Main, Hessen, Deutschland.

Papmehl, A., & Tümmers, H. (2013). *Die Arbeitswelt im 21. Jahrhundert: Herausforderungen, Perspektiven, Lösungsansätze.* Wiesbaden: Springer Gabler Verlag.

Porter, M., Sachs, J., Schwab, K., & McArthur, J. (2002). *The Global Competiteveness Report 2001-2002.* New York: Oxford University Press.

Puggel, A. (2012). *Die Wirkung der organisationalen Absorptionsfähigkeit auf die Innovationsbereitschaft von Führungskräften. Modell und empirische Überprüfung im Kontext von Prozessinnovationen.* Chemnitz: Dissertation Technische Universität.

Sarasvathy, S. (2001, Apr). Causation and effectuation: toward a theoretical shift from economic inevitability to entrepreneurial contingency. *Academy of Management Review*(Vol. 26, Issue 2), pp. 243-263.

Sarasvathy, S., Dew, N., & Forster, W. (2012, Jan). Reflections on the 2010 AMR Decade Award: whither the promise? Moving forward with entrepreneurship as a science of the artifical. *Academy of Management Review*(Vol. 37, Issue 1), pp. 21-33.

Scharmer, C. (2013). *Theroie U: Von der Zukunft her führen* (3. unver. ed.). Heidelberg: Carl-Auer Verlag.

Schnell, R., Hill, P., & Esser, E. (2013). *Methoden der empirischen Sozialforschung* (10. überarb. ed.). München: Oldenbourg Wissenschaftsverlag.

Sohm, S. (2007). *Zeitgemäße Führung - Ansätze und Modelle: Eine Studie der klassischen und neueren Management-Literatur.* Gütersloh: Bertelsmann Stiftung.

Strauss, A. (2007). *Grundlagen qualitativer Sozialforschung: Datenanalyse und Theoriebildung in der empirischen soziologischen Forschung* (2. ed.). München: Wilhelm Fink Verlag.

Trantow, S., Hees, F., & Jeschke, S. (2011). Innovation Capability - an Introduction to this Volume. In S. Jeschke, I. Isenhardt, F. Hees, & S. Trantow, *Enabling Innovation. Innovation Capability - German and International Views.* (pp. 1-8). Berlin; Heidelberg: Springer Verlag.

Vielmetter, G., & Sell, Y. (2014). *Leadership 2030. The Six Megatrends You Need to Understand to Lead Your Company into the Future.* New York: Amacom.

Wagenhofer, E. (Director). (2013). *Alphabet* [Motion Picture].

Yukl, G. (2012, Nov). Effective Leadership Behavior: What We Know and What Questions Need More Attention. *Academy of Management Perspectives*(Vol. 26, Issue 4), pp. 66-85.

Zhang, J., & Bartol, K. (2010, Feb). Linking empowering leadership and employee creativity: the influence of psychological empowerment, intrinsic motivation, and creative process engagement. *Academy of Management Journal*(Vol. 53, Issue 1), pp. 107-128.

Zhang, J., Garret-Jones, S., & Szeto, R. (2013, Apr). Innovation capability and market performance: the moderating effect of industry dynamism. *International Journal of Innovation Management*(Vol. 17, Issue 2), pp. 1-35.