

Innovation Capability – Product of Innovation Culture and Climate

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Abstract

There is little agreement about which, and how, organizational capabilities influence firm success. In this article, the construct innovation capability is conceptualized based on the concept of organizational culture and innovational climate. Furthermore it is assumed that innovation capability is the product of the dimensions organizational culture and innovational climate. Against this background, the aim of this paper is to make a theory-based contribution to a better understanding of the innovative capability of firms or organizations, the development of a model for conceptualization and operationalization of innovation capability, as the foundation for the development of a measuring tool of innovation capability.

Thus, two research questions arise:

1. Is it possible to develop a model for innovation capability based on the dimensions innovation culture and innovational climate?
 2. Is it possible to measure innovation capability, based on the assumption that it is a product of innovation culture and innovational climate?
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Introduction

The semantics for innovation research and consulting is known. Companies are now faced with an increasingly dynamic and complex environment. The economy in transition, globalization, pressure on prices, location competition and increasingly more individual and demanding customer requirements are just a few key words that characterize the daily lives of companies. The engine of any company is innovation and in practice, shows a close correlation between successful innovation and business success. Therefore, it is important to grow with its own innovative strength and maintaining its market position successfully (Rudzinski & Groth, 2011), (Blättel-Mink & Menez, 2015). The traditional understanding of innovation is product-, technology- and market-oriented, established a holistic understanding of innovation only in the current transformation of the economic system from an industrial to a knowledge and service economy. In addition to technical aspects, the human, social and organizational features enhance an organization's ability to innovate (Baitsch, 1998), (Howaldt, Kopp, & Beerheide, 2011). Against this background, with the exploration of innovative capacity develops an interdisciplinary field of science. Basis of investigation is man as a crucial enabler of innovation (Jeschke, Isenhardt, & Hees, 2011). With the emphasis on innovation capability obtain the so-called "soft factors" in value-added processes greater attention and increased quality (Hansen, 2014). The economic activity no longer relates only to short-term monetary gains,

but is tied to sustainability and are thus extended by human and social aspects. The innovation studies are still in the development phase. In addition to working and learning research other areas of sociology, psychology and education and, increasingly, operational and economists, staff developers and engineers are involved in the formation of a research community. The interdisciplinarity is of fundamental importance for the innovation studies and helps to generate new ideas (Jeschke et al., 2011, Gerlmaier, Gül, Hellert, Kämpf, & Latniak, 2016).

Innovation capability needs competent people and adaptable companies. Growth and jobs only created when the development of human resources and the company matched“ (Bundesministerium für Bildung und Forschung 2006, p. 3). In the center of innovation capability stands the human being and the development of competences. Organisation and technique are seen as the social environment where knowledge can be transformed into competence (Ludwig, Moldaschl, Schmauder, & Schmierl, 2007)

Aspects of Innovation Capability

The term innovation capability is composed of the terms innovation and ability. A lot of definitions that represent extended understanding of innovation. Following table provides a selection of definitions and the related knowledge contribution.

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Table 1: Development of definitions of innovativeness (own illustration)

Author		Knowledge Contribution
Jeschke (2011)	Innovative capability is the ability of individuals, groups, institutions or networks, continuously to innovate. It results from the complex interplay of human dimensions, organization and technology. Many companies to perform by innovation and knowledge management as well as personnel and organisational development to increase its capability for innovation, as this has a strong influence on international competitiveness.	Innovation and knowledge management same weight as personnel and organizational for increasing its capability for innovation
Gabler-Lexikon (2016)	Performance of an institution, based on the making of new features. Innovativeness is determined by innovation potential and innovation climate. Criteria for the assessment of companies' innovative strength by European Management Forum: (1) High growth rate in comparison to companies in the same industry, (2) remarkable social benefits, (3) behavior in economic crisis situations, (4) Quality of planning mechanisms, (5) external relations, (6) rational use of material resources, (7) organization of production, (8) business dynamics, (9) The scope of research and development, (10) activities abroad, (11) financial security for the future, (12) personality of the company management.	Innovativeness is determined by innovation potential and innovation climate
Cantner (2000)	Cantner calls as a determinant of the ability to innovate the " systemic [n] aspect of innovativeness. [...] The basic idea, which is connected thereto, believes that innovation activities, the willingness to innovation and the ability to innovate activities of individuals or business owners cannot be seen in isolation but integrated into a more or less widely defined system of actors (often unconsciously) are responsible on knowledge and experience it together, that innovations are directly or indirectly spawned. "	Innovativeness results from the interaction of elements and features of a (social) system, which is based on knowledge and experience. This requires a continuous development and promotion.
Un (2002)	"The firm's innovative capability is its ability to mobilize the knowledge embodied in its employees and combine it to create new knowledge Resulting in product and / or process innovation. This capability is dynamic in fact it Involves the interaction between a firm's internal knowledge and the demands of the external market. "	Knowledge, internal and external learning are for the innovation capability of significance.
Reif und Buck (2003)	"Innovativeness referred parlance especially the active participation and the assumption of a role initiators [by staff]. "The employee as initiator" recognizes its own problems and solve them in cooperation with others. "	The role of the employee and his abilities to recognize and solve problems, form an integral part.
Bergmann und Pohlandt (2006)	"People are carriers and producers of knowledge and be able to transfer knowledge into innovation. However, this does not succeed in self-running. The learning and innovative capability of human beings requires care and development. [...] Promotion of innovative capability must be directed primarily at the employees, because they are carriers and developers of knowledge and those who transfer the knowledge into innovation. "	Innovative capability is captured as part of the known phases of the management process, the phase of problem identification is added as an essential component. This capability is the man credited as the decisive support.
Bullinger (2006a: 1f; 24)	The core of the innovation capability is operational innovation processes hidden." Bullinger propagated in this context, a "holistic [n] approach to improve operational capability for innovation."	Innovative capability is not based on a single division, but is based on the interaction of different areas within the company. Thus a holistic approach in relation to the company and thus of innovation capability is occupied.
Schreyögg (2008: 138; 203)	"Innovative behavior [...] must grow out of the need to solve problems out." Furthermore, it says, "by the release of motivation and creativity [should] be given a substantial impetus for innovation in business."	The ability to solve problems will be brought into focus. The man and his abilities, which are based on problem solving, are central.
Götzenauer (2010: 11f)	Innovative capability is "the ability of companies to identify with changing production and market conditions the need for innovation and sustainable development of innovations. However, capability for innovation is not only reflected in the number of creative ideas, but rather the fact that the company with its new products, services and processes prove itself in competition. "	Innovative capability is understood as the ability to ultimately innovations competitive power. Here skills are as flexible adjustment and reaction, creativity, problem identification and problem solving emphasized.
Leitow (2010: 13)	"The innovativeness of a company's principle describes the degree to which it is connected to the company's existing resources and the links to be able to recognize the potential of a new product or process, to develop and market."	Manifested understanding of innovativeness is connected in the context of an expanded perspective on the business processes and all those resources.

At the conclusion it is to be noted that no definition of innovation capability is present, which can provide an adequate description of the purposes of this work. In this respect, a general definition will represent the different aspects of existing definitions and is already integrated with respect to the subject matter of this work: innovativeness includes specific staffing and organisational characteristics of a company, their interaction supports the continuous development of innovations.

The influencing factors of innovation capability are extremely complex. So far there is no generally accepted empirical basis for the operationalization of innovativeness. It is generally accepted that innovation is the key factor to ensure international competitiveness and prosperity (Dömötör, 2011, Sammerl, Wirtz, & Schilke, 2008, Hansen, 2014). In many parts there is only limited generalizable and sometimes conflicting research results which shows again the need for a profound conceptualization (detailed specification) and operationalization (development of a measuring instrument for the empirical record of the construct) of the latent construct of innovativeness (Sammerl et al., 2008). Basically, only a few works can be identified, explicitly and mainly deal with the innovative capacity of businesses. In particular, no work could be identified, which undertakes an empirically validated conceptualization of innovation capacity in the form that is not the innovative ability queried directly or through output variables (eg number of product innovations, innovation) is measured, but recognized their contents, elements and structural characteristics (Dömötör, 2011). However, for a better understanding of the innovative capacity issues and to generate implications for the management just knowledge of the elements and the structure of the capacity for innovation centrally, because only then can be gained about understanding how to improve the innovative capacity of a company. Empirically good quality evidence to the innovative capacity of enterprises, there are therefore currently insufficient (Hansen, 2014). It lacks not at least on operationalizable overview potentially conducive to innovation characteristics of companies that can be used by managers to deliberate design innovation favorable conditions. The present work contributes to filling this gap in research. Features the innovative capacity therefore represent the central subject of investigation work.

Aspects for the Research Model

In the research field of innovation studies organizational innovations are less researched than technical innovations. One reason is that the relationship between innovation and organization is quite complex and stringent theoretical concepts and standardized definitions for a long time not available (Blätzel-Mink & Menez, 2015). If it is want to represent the quality of the innovation capacity precisely, can the degree of severity of the number of innovations in a defined period, the success of innovation (sales and profit share, cost reduction, quality improvements), the type of innovation (improving innovations and radical innovations, process innovations or product innovations). To distinguish innovation capability of not capable of innovation or non-innovative companies is one thing. Crucial is the question of what makes innovative companies innovate. These features are the conditions and critical factors of innovation capability. The innovation research has produced a number of findings about the success factors of innovative companies. They relate to external environmental conditions and internal factors. The organizational differentiators between innovative and non-innovative enterprises reflect, summarized in the following areas: (Crossan & Apaydin, 2010, Rütten, 2015, Schein, 1980)

- target and value system – culture (Market strategy, regional and global orientation, employment development as part of the mission statement, vision, business strategy, customer focus
- acting management system - culture carriers

The starting point of further consideration, the organizational culture, Transmitter of organizational culture in the form of management and the organizational climate. From a strong organizational culture and a favorable organizational climate is mentioned, when it comes to successful businesses (Rütten, 2015).

As part of the literature review, it always comes back to overlap the topics organisational culture and organisational climate. Often the two terms are also used interchangeably but in this cases the terms didn't get their real importance (Nerdinger et al., 2014). Different research perspectives. Both concepts come from different scientific developments. The climate concept is based on the psychological field theory of Lewin (1939). Aspects of culture traditionally addressed by the scientific discipline of anthropology. It can be deduced also that these studies were carried out using different methods. In his comparison of the two literature of culture and climate Denison (1996) stated, that traditional methods of studying culture relates to qualitative perspectives and studies of organisational climate are based on quantitative research designs (Denison, 1996). The term climate consciously perceived processes and factors of the environment are described that can be controlled by the organisation. The focus of climate is on the situation and its link to perceptions, feelings, and behaviour of employees. It can be viewed as relatively temporary and as subject to direct control, that means also as subject to manipulation by authority figures (Denison, 1996), (Weiner, 2012). The term organisational culture, however, deeply rooted values and assumptions are addressed, which are often not aware of (Schneider and Barbera, 2014), (Amjad and Bhaswati, 2014), (Nerdinger et al., 2014). Meaning is established through socialisation to a variety of identity groups that converge in the workplace. Interaction reproduces a symbolic world that gives culture both a great stability and a certain precarious and fragile nature rooted in the dependence of the system on individual cognition and action“ (Denison, 1996), (Rütten, 2015). Organizational climate means "the relatively enduring quality of the internal environment of the organization that is experienced by the members, may be affected and their behavior described by the values of a particular set of characteristics of the organization“ (von Rosenstiel, 2003). The organizational climate refers to the perception of the current situation by employees. It is time-less stable than the organizational culture and can be changed and influenced more quickly.

For innovation-related aspects of the organizational culture and organizational climate are a strong focus on innovation, a commitment to quality, a process-related efficiency focus, support for experiments, a high fault tolerance, and clear standards of risk taking. It is not enough to verbalize the norms and values of innovation. Rather, it is important for an externally visible and credible inward culture that the norms and values are consistently practiced and lived. The work of Cooper and Kleinschmidt (Cooper, 1995) show that the influence of the culture of innovation or of items that are considered by the authors as part of the culture of innovation that has scarcely been examined for the success of new products. So in the literature also a corresponding need for research is attested (Hauschildt, 1998, Ernst 2001).

The construction of innovation-promoting values and a strong culture is not possible at short notice. A culture can only be established in the long term. Willingness to communicate and mutual trust must grow slowly and cooperative. The norms and values of creativity should also be team and leadership development play a more prominent role (Rütten, 2015). Many small and medium enterprises have a number of characteristics that favor innovation. Flat hierarchies, short communication lines, fast and unbureaucratic decisions, small division of labor, motivation of management and employees as well as a high proportion of informal communication are all properties that - as a recommendation for large enterprises - be mentioned when speaking of a positive climate for innovation (Dömötör, 2011). The positive effect of an innovation-friendly and entrepreneurial working atmosphere on innovation success is considered indisputable (e.g. Meta-Analysis Pattikawa, Verwaal, & Commandeur, 2006; singular

results: Ekvall & Ryhammar, 1998; Lester, 1998; Shrivastava & Souder, 1987). As part of innovation success factors studies no latent construct is in this context, mostly "Climate of Innovation" measured, but rather a question about what measures are being taken to promote entrepreneurial (or innovative) activities of employees (Hauschildt, 1993; Wind & Mahajan, 1997). These include the existence of an incentive or idea management system (z.B. Barczak, 1995; Cooper & Kleinschmidt, 1995), the ability of employees, especially those from research and development to be able to use a certain part of their time on the (further) development of own ideas, support for employees to work at "unofficial" development projects, the provision of "internal venture capital" for employees' ideas (e.g. Chesbrough, 2000; Cooper & Kleinschmidt, 1995; Garud & Van de Ven, 1992; Simon & Houghton, 1999; Sykes, 1990), the promotion of training activities of employees (e.g. Freel, 2003) and the presence of product champions and promoters (e.g. Barczak, 1995; Chakrabarti, 1974; Hauschildt & Chakrabarti, 1988; Hauschildt & Gemünden, 1999; Jervis, 1975; Song & Parry, 1997a; Witte, 1973; Yap & Souder, 1994; Dömötör, 2011). An innovation-friendly climate in the company with an appropriate risk adjustment is also isolated as relevant for success identified (Voss, 1985). In the latest work of Cooper and Kleinschmidt (1995a) is the construct "entrepreneurial climate" operationalized by those variables. Besides the aforementioned idea suggestion system the following aspects are considered: (1) possibility for employees, preferably use of R & D, a fixed proportion of their independently working for work on their own ideas to be able to; (2) support for work on unofficial projects that have been already stopped by management and (3) the provision of internal "venture capital" to facilitate the implementation of creative ideas [1]. Another undoubtedly significant factor that affects both the innovation cultures in teams as well as directly on the innovative capacity of teams, represents the leadership. Not only for the social relations within the team, but also for the ratio of supervisors to employees ("Leader Membership relation ") found significant correlations (Gerlmaier et al., 2016). But innovation does not fall from the sky, but are made by people. Experience shows that there are no more than 10-15% of managers and professionals, drive innovation beyond the mainstream even against resistance. Many managers but find it difficult to help to develop the innovative potential of the workforce. Accustomed to optimize the status quo, they seem to have forgotten how to promote creative engagement and makes available for the company's development. Programmatically adapt companies although often new models and management concepts to promote innovation; currently next to the unbroken economic learning organization is observed an increase in projects to "synthesize" innovation culture; but rationalize the company and continue to shrink - the contribution to improving the innovation capacity is limited (Kriegesmann, 2007).

The definition of the culture of innovation is made uneven. The question of configurability is closely related to the question along to the measurability. A positive correlation between the dimensions innovation culture and innovational climate has been found in numerous studies. A central question of this work is now to develop a model that determines the innovative ability of a company or organization using the dimensions innovation culture and innovative climate and can measure.

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