The Top Managerial Influence on Innovation: Development of a Comprehensive Framework

Sonja Sperber

1 Innovations in the Organizational Context

Change and adaptation as topics as well as the discussion regarding their significance for organizations have a long tradition in management research. Over a century ago, this concept has already been discussed by Davies (1900: 517), highlighting the omnipresence of change by indicating that "*[…] at present, all that we can say is that the universe manifests itself not as permanent and unchanging, but as a cosmic whole which unfolds according to a law which is autonomous.*" Change is recognized as a universal phenomenon, being one of the most fundamental principles of human life and affecting all parts of society, especially its cultural, political, social, as well as economic system (cf. Hagen, 1962). Organizations constantly must adapt to economic change occurring due to shifting social, technological, or political circumstances. It is the application to all changes of real being which points to the complexity and the dynamic nature of change processes. More precisely, the ubiquity of change affects business life in manifold ways, requiring distinct skills, abilities, and capabilities from leaders. This connection has, however, not been fully explored until today.

Within the last century, the management task of moderating renewal has been researched from manifold perspectives. Highly notable is the occurrence of change in its direct relation to innovation, appearing as both force to and result from innovation (e.g., Ruttan, 1959). This relation mainly derives from the fact that new developments provoke a constant alteration in business life and its associated operations to cope with the shifting environment, for instance and particularly through innovations. Consequently, the adaptation of organizations to their environment is essential for

S. Sperber (✉)
International Business & Strategy, MSc International Business Management, Newcastle University London, 102 Middlesex Street, London E1 7EZ, UK
e-mail: sonja.sperber@newcastle.ac.uk
URL: https://www.ncl.ac.uk/london

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their survival, while a firm's competitive advantage in a dynamic environment is the result of innovative and creative answers to technological changes (Mumford & Gustafson, 1988). Thus, the necessity of an organization's constant renewal for its long-term success has been accepted by scholars and practitioners. The adaptation to change by constantly abandoning past success and aiming at innovations hence is inevitable (Utterback, 1994). Because of this realization, the topic has continuously moved into focus, leading to nowadays' creed on innovation and change as the imperative and dogma of today's business life.

Schumpeter (1934) was among the first to address the aspect of innovation in the context of organizational life by referring to it as the implementation of new combinations. Since this first academic attention to innovation, research on this topic has experienced a great increase in popularity, leading to a high quantity of academic approaches for assessing it while being stretched to a broad variety of subjects, as for instance cultural aspects (e.g., the innovation culture), human resource-based aspects (e.g., innovative actors), product-based aspects (e.g., open innovation) and organizational aspects (e.g., business model innovation).

However, innovation is not naturally occurring by itself within the organizational context, but the firm's innovative power rather is the result of an effective management, which instantly also raises the question on the managerial role in renewal processes. It generally is proceeded on the assumption that organizational leaders represent the most decisive shapers of organizational operations, including strategy, culture, processes, and structure (e.g., Finkelstein & Hambrick, 1996; Hambrick & Mason, 1984; Shalley & Gilson, 2004; Sperber, 2017). As the member of the top management team (TMT) are the most powerful players due to their hierarchical position, a top manager (TM) can influence the organization in many ways. Past studies have outlined several positions, which crucially contribute to innovations, for instance referring to specific functions of employees or technical experts (Ettlie et al., 1984; Fennell, 1984). The TMs' position regarding its influence on innovation, however, has only rarely been addressed (Hueske & Guenther, 2015; Tierney et al., 1999), only starting to be receive attention in recent decades.

2 Influencing Factors on Firm Innovativeness

To later investigate the TMs' influence on firm innovations, their overall significance for organizations needs to be clarified. Only after this, the crucial influence of TMs on innovations in principle and their effectively executed impact becomes evident. Firm innovativeness, which alludes to all innovation activities of an organization (in relation to products, processes, and services), is vital for an organization for adapting to the perpetually changing market environment through the generation and the implementation of innovations, with the goal of continually retaining a competitive advantage and with this indirectly contributing to the firm's performance (Anderson et al., 2014; Read, 2000). Following Boso et al. (2013: 64), "*[f]irm innovativeness is […] viewed as a strategic resource that may provide a firm with the*

ability to compete in target markets by offering customers products and services with added and/or different sources of value relative to competitors".

Research on firm innovativeness in general addresses two major aspects: (1) The first stream of research focuses on *whether* and *how* firm innovativeness eventually effects firm performance respectively growth (e.g., Kraiczy et al., 2015), while (2) the second stream addresses the *factors* which influence the firm innovativeness and, in consequence, the performance. Regarding (1), broad agreement exists that innovation activities are highly important to ensure advancement and to foster the emergence and maintenance of a competitive advantage within the market sphere (e.g., Bowen et al., 2010; Damanpour & Evan, 1984; Howell, 2005; Smith et al., 2008). In times of accelerated market competition, the innovation needs to generate a distinctive position in the market place for the respective company (Porter, 1985). New—respectively innovative—ideas are therefore essential for the long-term performance of the organization (e.g., Anderson et al., 2014; De Massis et al., 2015), since these ideas allow the company to adapt to the changing market demand or to an overall change in the economic system (e.g., in technological standards or market conditions) (Dawson & Andriopoulos, 2014). Since innovations represent the most effective medium in adapting to occurring changes, the firms' dependency on innovations has accelerated over time (Smith & Tushman, 2005), which continually increases the overall need for an organization to generate and foster innovative ideas. As the innovation activities impact the firm performance and its growth, they are recognized to be highly relevant for the company's overall success (e.g., Bledow et al., 2009; Utterback, 1994). Regarding the (2) second stream of research, i.e. the antecedents of firm innovativeness, multifarious factors located in diverse areas within the organization as well as in its environment have been addressed. This paper specifically focuses on the factors of *management*, *culture*, *leadership,* and *network* as they have a significant influence on the TMs' impact on the firm innovativeness.

3 The Complex Relation Between the Top Management and Innovation

As it is the objective to assess the top managerial influence on innovations, the focus is exclusively on those factors located within their direct scope; further factors (e.g., market conditions and developments, competitors' behavior, environmental conditions) are not considered. Regarding those factors within their scope, Hult et al., (2004: 429) refer to the fact that still only little is known on the TMs as "*[…] the drivers of innovativeness and how those drivers operate* via*innovativeness to collectively influence performance*". The high relevance of their role for firm's innovations is, however, evident: the explanation can, among others, be approached from the resource-based view (e.g., Peteraf, 1993; Pfeffer & Salancik, 2003). From this perspective, firm innovativeness is viewed as a strategic resource (Boso et al., 2013), and it is the TMs' exertion of influence on firm competitiveness through firm

innovativeness which distinguishes successful managers from less effective ones. This refers to a high probability that a firm with a greater level of innovativeness and, accordingly, more effective leaders is more likely to develop multiple types of innovative product portfolios. Regarding the factors via which the TMs execute direct influence, the following ones require special attention:

(a) *Organizational culture*: Due to its significant influence on innovativeness (e.g., Chua et al., 2015; Flynn & Chatman, 2001; Kitchell, 1995; Martins & Terblanche, 2003), the fruitful setup of the organizational culture for innovations is increasingly becoming a corporate mandate (Miller & Brankovic, 2011); it, among others, has a direct influence on organizational creativity (e.g., Tesluk et al., 1997) and accordingly on firm innovativeness. Regarding this prior research, the question on which actions managers must engage in to generate and/or support innovations within the organizational context has experienced consideration in theory and practice. Amabile (1998) addresses the importance of the individual or the team creativity as a necessary condition for innovation activities; she further points out that innovation mainly is about creating something that is appropriate to the goal at hand in terms of being applicable, valuable, or expressive of meaning (Amabile, 1996). Even if the pursuing of this objective depends on both internal as well as external information and knowledge, the internal fostering of creativity seems to be the essential task of leaders to support organizational innovativeness (Amabile, 1998; Amabile & Khaire, 2008). In this vein, numerous explanatory approaches of innovation allude to the aspect of creativity (e.g., De Sousa et al., 2012). One of them is Woodman et al., and and's (1993: 293) approach of referring to creativity as a necessary organizational element in describing it "*[…] as the creation of a valuable, useful new product, service, idea, procedure, or process by individuals working together in a complex social system*". For this, the organizational culture fostering innovativeness is inevitable.

(b) *Leadership*: In this vein, past research addressed the aspect of leadership as an approach for conceptualizing the direct and indirect links between TMs and workforce. Previous studies have referred to the assumption that not all TMs act as omnipotential leaders—as usually assumed—due to certain demographic characteristics and personality factors. Yet, leadership's impact on firm innovations (e.g., Adair, 2009; Woodman et al., 1993) as well as creativity (e.g., Shin & Zhou, 2003; Tierney et al., 1999) has been asserted multiple times, overall resulting in the concordant acceptance that their high impact (e.g., Hoffman & Hegarty, 1993; Howell & Avolio, 1993; Jung et al., 2003). This high level of impact predominantly is inferred from their leadership behavior (Elenkov et al., 2005).

(c) *Network ties*: The network previously has been acknowledged to influence firm innovativeness with regard to knowledge transfer (e.g., Ibarra & Hunter, 2007). In general, the transfer of knowledge between the single intraorganizational units and the respective TM's information delivering network is highly important for the stimulation of innovative ideas and creativity (e.g., Nonaka et al.,

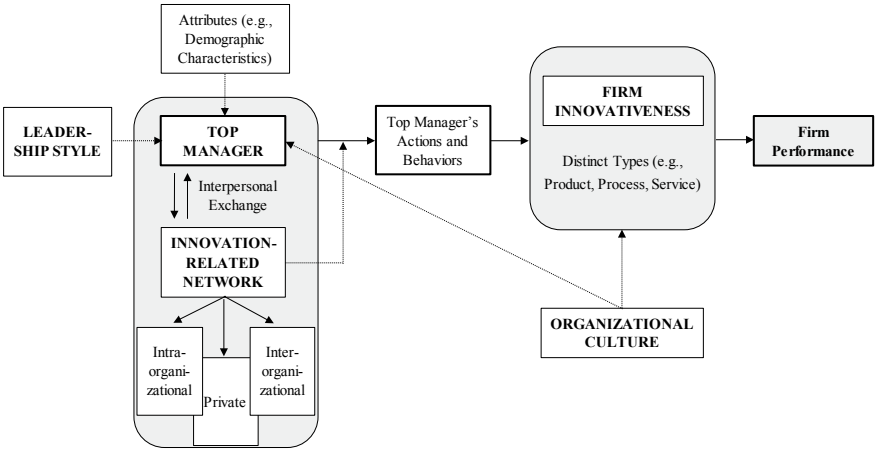

Fig. 1 Interrelation of the factors of investigation

1996; Tang, 2011; Wissema & Euser, 1991). Since the TM's leadership thus "*[…] is about enabling knowledge creation*" (Nonaka et al., 2006: 1192), the network ties inside but also outside the organization are essential for the organizational creativity and innovation process (e.g., Geletkanycz & Hambrick, 1997; Landsperger et al., 2012). Yet, not only the impact of leadership on innovations is of importance, but rather the influence from the network on the leadership behavior itself must be considered, as the knowledge ties contribute essential information to the respective TM and therefore expand the individual knowledge state.

In summary, the relation between TMs as organizational leaders and their impact on innovations appears to be complex and multidimensional, even though the highly important role of the TMs in fostering and managing a firm's innovation activities has in the past been widely acknowledged. Figure 1 outlines the overall interrelation of the single thematic components and directly refers to those factors, which have been identified as important elements.

4 The Central Perspectives for the Theoretical Foundation

To enlarge the understanding of the top managerial impact on innovations over the different factors of influence (cf. Elenkov et al., 2005; Li et al., 2013; Smith & Tushman, 2005; Yuan et al., 2014), four central perspectives are identified. It is referred to the overall perspective of *Management* from a holistic point of view by applying the *New St. Galler Management-Model* (Rüegg-Stürm, 2003). In addition, as prior research indicates, the perspectives of *Culture, Leadership,* and *Network* deliver a large explanatory power regarding firm performance: the conceptualization

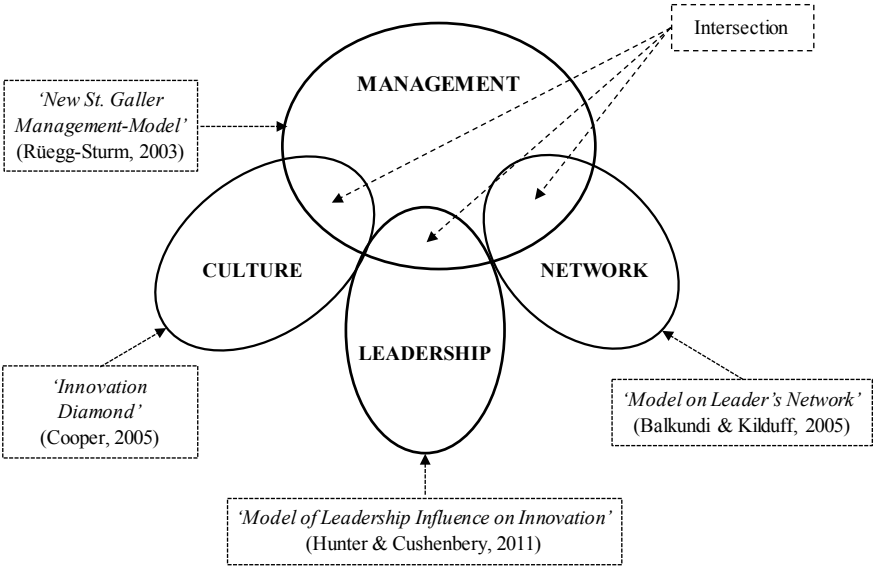

Fig. 2 Main theoretical perspectives and corresponding models

of *Culture* is based on the *Innovation Diamond* (Cooper, 2005), offering a systematization of innovation that exceeds the scope of the more universal management model. A modified version of Hunter and Cushenbery's (2011) *Model of Leadership Influence on Innovation* is applied for the *Leadership* perspective and Balkundi and Kilduff's (2005) *Model on Leader's Network* for the *Network* perspective. The following section displays the theoretical background of these models (Fig. 2).

4.1 The Management Perspective: New St. Galler Management-Model

The *New St. Galler Management-Model* by Rüegg-Sturm (2003) serves as a generic model for the management perspective, which has been developed over several generations, representing a holistic framework to encompass the top managerial actions while differentiating between internal and external sphere. The model itself does not focus on the process-related application within a certain context, but rather offers an integrated framework for embedding and observing specific problem statements from a more general view. The model's first generation by Ulrich and Krieg (1974) in its initial composition pursued the objective of delivering a holistically-oriented framework for management operations and consisted of three sections: the enterprise model, the leadership model, and the organization model. The model's second generation focused on the newly developed management direction in research during that

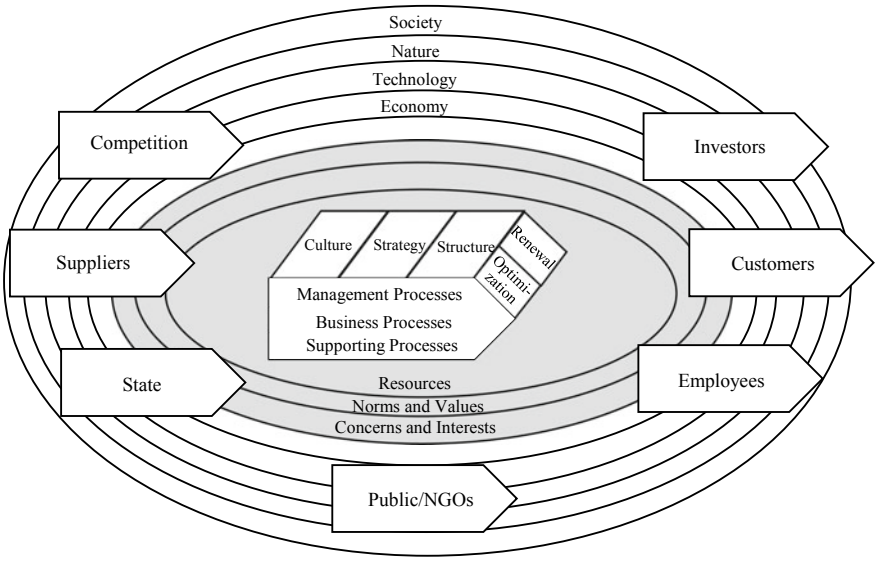

Fig. 3 New St. Galler Management-model (Rüegg-Sturm, 2003)

time by explicitly referring to the dimensions of strategy, culture, and management philosophy.

The model's third generation (Rüegg-Stürm, 2003) expands the initial model by two aspects: first, the differentiation into normative, strategic, and operative dimensions, introduced from the second generation finds consideration. Second, it overall contains six dimensions (Fig. 3): processes (management, business, and supporting ones), vertical aspects of integration (culture, strategy, structure), development modes (optimization, renewal), stakeholders (competition, customers, employees, etc.), environmental domains (society, nature, technology, economy), and the organizational area of interaction (resources, norms and values, concerns and interests). These dimensions are important for the general reflection of the corporate activities and require consideration within the scope of an integrated management approach.

This generation of the *New St. Galler Management-Model* by Rüegg-Stürm (2003) delivers the largest explanatory power as it presents an integrated view over all elements and puts emphasis on the integrated perception of elements and their correlation. Its most important features lie in the differentiation of the vertical integration as well as the environmental domains; the latter refer to the fact that managerial action is always embedded in a larger context. A fourth generation has later been developed, which investigates the aspects in several minor frameworks detached from each other; it hence is not beneficial for application in this context.

4.2 The Culture Perspective: Innovation Diamond

The value of Cooper's (2005) *Innovation Diamond* lies in its focus on innovation processes. This is in line with the management process of the *New St. Galler Management-Model* but exceeds the previous approach by directly addressing issues which are exclusively related to innovation as a specific domain of management tasks. It originally has been developed as an integrative framework to describe top managerial action with respect to success in innovative product development.

The *Innovation Diamond* as one key innovation concept has undergone several enhancements over the last decades and mainly is based on the *New Product Performance Triangle* by Cooper and Kleinschmidt (1995a, b), which outlines the fundamental aspects for successful performance in new product development (NPD). In the 1990s, this framework has been implemented in the business practice of 'Procter and Gamble' (P&G), advancing the theoretical model of Cooper and Kleinschmidt into the practical *Initiatives Management Diamond*. Even though the model contains a similar content, the fundamental idea has changed as P&G acts on the assumption "*[…] that there is no one key to success in product innovation*" (Cooper & Mills, 2005: 10). It focuses on a rather broad picture of the correlation between the single cornerstones of the model. For the enterprise P&G, the adjustment of the internal innovation process based on the developed model has significantly increased the company's NPD success and has often been referred to as best practice on product development (Cooper & Mills, 2005).

Cooper's (2005) *Innovation Diamond* (Fig. 4), has been established on the foundation of the P&G model and is mainly based on the insights of a study regarding the best practices that lead to high performance in NPD. Besides its reference to the strategy as first, the resources as second, and the idea-to-launch process as third cornerstone, this model includes one significant alteration, which takes place in the fourth cornerstone: here, the *Innovation Diamond* directly includes the element of 'People' by

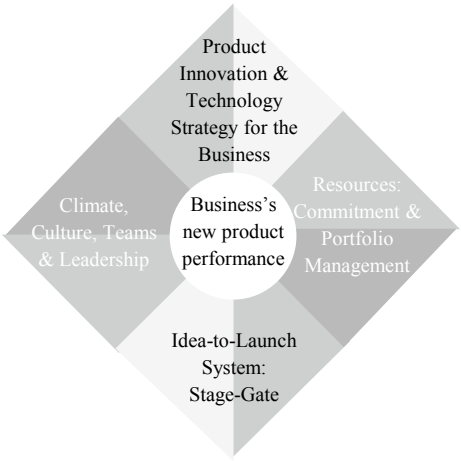

Fig. 4 Innovation diamond (Cooper, 2005)

its denomination of 'Climate, Culture, Teams & Leadership', often referred to as the 'soft' element. Cooper and Mills (2005: 9) define this aspect as "*[…] having the right climate and culture, effective cross-functional teams, and senior management commitment to New Product Development*". Accordingly, this model directly addresses the importance of a positive and fruitful culture and climate for the internal collaboration and the overall innovation activities by referring to it as "*[…] the fourth driver of performance*" (Cooper & Mills, 2005: 12). Further, this fourth cornerstone addresses leadership as a vital element, since the TMT members have to lead all innovation efforts and needs to be strongly committed to product innovativeness (Cooper, 2005). This outlines the essential importance of the top managerial support for innovation activities in order to be successful.

Even though the *Innovation Diamond* primarily addresses product innovations, it demonstrates the overall importance of innovations in the organizational context by highlighting general success factors, such as cultural aspects and leadership (cf. Kahn et al., 2012). It enables the understanding of TMs' influence from a rather technical perspective by identifying tasks and action fields that promise a competitive advantage if executed properly. The TMs' task is to develop the strategic roadmap, to engage people ('team') into this vision, and to support it by building a corresponding culture.

4.3 The Leadership Perspective: Model of Leadership Influence on Innovation

Although the *Innovation Diamond* takes 'soft' elements into consideration, it is not fine-grained enough to investigate leadership in depth as it jointly focuses on the factors of climate, culture, teams, and leadership as interconnected elements. Accordingly, a distinct approach is required. In the past, diverse approaches to investigate the influence of the top managerial leadership on innovations were developed (e.g., Elenkov & Manev, 2005; Jung et al., 2003; Li et al., 2016; Makri & Scandura, 2010). Yet, most studies on the leader's impact hereby outline the fact that the influence mainly addresses the facilitation of creativity (e.g., Cheung & Wong, 2011; Jaussi & Dionne, 2003; Shin & Zhou, 2003), which in turn supports innovation (Howell & Avolio, 1993). In this regard, distinct leadership styles have been investigated in a long tradition of research regarding their levels of influence on innovations, resulting in concordant evidence that the transformational leadership style is beneficial for supporting innovation (e.g., Bass, 1990; Yukl, 2012), as it is the transformational leaders' main potential to inspire the employees to be creative and innovative (Howell & Avolio, 1993).

In this respect, Hunter and Cushenbery (2011: 248) propose a model which directly builds on the assumption "*[…] that leaders are one of the primary driving forces in increasing innovative output*". This approach focuses on detecting the

leaders' direct and indirect influence of leadership on innovation; the model establishes a multilevel-process perspective, which highlights the fact that the leaders' efforts regarding creativity and innovation require the investigation within a larger context (e.g., including teams, departments, or entire organizations), as they do not function as detached entities within the organization. Even though the model delivers an important approach for assessing leadership, its original version yet holds some severe shortcomings, for which it requires modification. Hunter and Cushenbery (2011) have examined the direct leadership influence (e.g., the allocation of resources, the decision making on a specific idea) as well as the indirect influence (e.g., the establishment of an internal climate for fostering creativity, the rewards and recognition of employees' innovative ideas) (cf. Jung et al., 2008). However, even though the leadership effects exert their impact both via direct and indirect paths, past research has acknowledged the fact that the boundary between the two is floating. Hence, an adapted version based on the new theoretical insights is shown in Fig. 5.

The modified version emphasizes the fact that leadership upholds several ways of influencing innovation; it hence is not possible to specify the leader's precise impact on one single aspect. Rather, "*[…] there is a system of activities, actions, and behaviors needed that often operate in concert with one another*" (Hunter & Cushenbery, 2011: 259). The model's reference to diverse factors of influence thus provides a broad and multilateral approach for investigating the leadership influence on innovations.

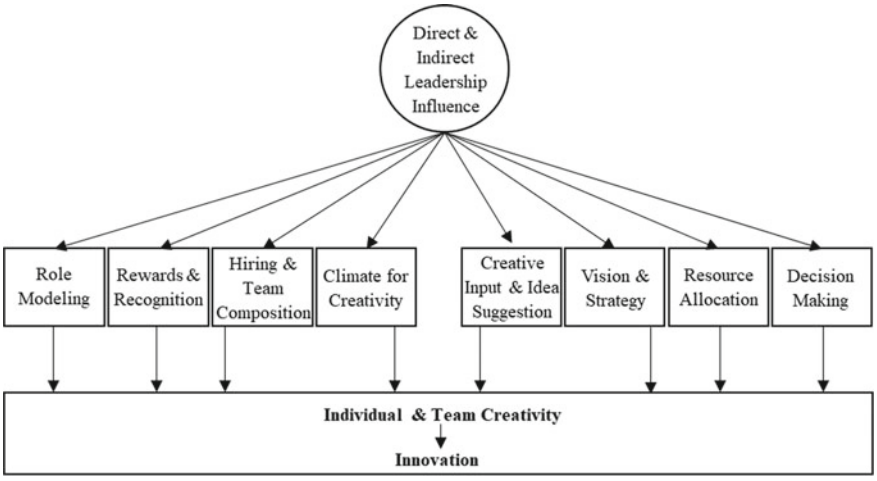

Fig. 5 Model of leadership influence on innovation (Hunter & Cushenbery, 2011; modified)

4.4 The Network Perspective: Model on Leader's Network

According to Balkundi and Kilduff (2005), leadership is a social process and as any other behavior is subject to manifold influences, among others the TMs' social network ties. Social network theory hereby serves as a substantial source, since it characterizes networks "*[…] as both cognitive structures in the minds of organizational members and opportunity structures that facilitate and constrain action*" (Balkundi & Kilduff, 2005: 941). Accordingly, the facilitation of action—as for instance for innovation—is considerably contingent on networks. With focus on the individual level, special emphasis is put on the significance of the TMs' relationships regarding the network collaboration for the firm innovativeness (Elenkov & Manev, 2005; Elenkov et al., 2005). However, the direct effect of dyadic tie collaborations—referring to pairwise direct ties—on innovation has mostly been neglected in past research (Fliaster & Schloderer, 2010); the dyadic ties yet are important for the TMs' obtaining and exchange of knowledge.

In the context of the ties' origin, the structural holes theory (Burt, 1997) proposes that the organizational members are predominantly connected to those actors within the organization who share common foci of activities (Feld, 1981). Thus, "*[t]he lack of direct connections among a firm's partners, […] indicates that these partners operate in distinct parts of the network, increasing the likelihood that they carry heterogeneous information.*" (Frankort, 2008: 1). This yet indicates that managers, who span structural holes and establish a connection to other organizational parts, gain access to new information (Burt, 1997); empirical evidence has been found for the positive impact of the structural holes on innovation through the access to new information. However, the TMs' networks are not limited to the organizational boundaries, but rather also include ties outside the internal sphere (e.g., Collins & Clark, 2003). Regarding the network differences between (top) managers and nonmanagers, Carroll and Teo (1996: 433) indicated: "*Managers belong to more clubs and societies than nonmanagers […]. In terms of core discussion networks, managers […] have large networks, and also have a greater number of close ties with network members*". Further, their ties are to a larger extent located outside the organizational boundaries compared to colleagues from lower hierarchical levels (Michael & Yukl, 1993). As the TMs' network collaboration inside as well as outside the firm hence can be seen as essential source of knowledge, it accordingly directly affects their influence on innovations. This relation further is highlighted in Balkundi and Kilduff's (2005) *Model on Leader's Network* in Fig. 6, differentiating between types of network ties and the leader effectiveness.

The model represents a tentative approach to leadership effectiveness from a network perspective and exclusively addresses the extent of leaders' influence in the ego, the organizational and the interorganizational network; further types of ties, as for instance private ties, are not considered. The model yet highlights the important insight that leaders' ego networks are affected by the individual cognition on networks, leading to the assumption that social ties are shaped in accordance with

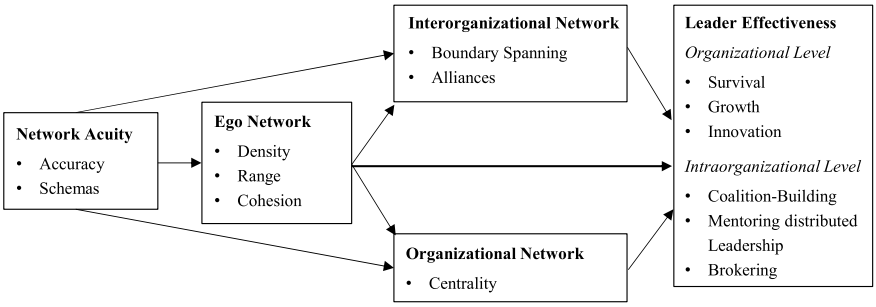

Fig. 6 Model on leader's network (Balkundi & Kilduff, 2005)

one's expectations on the network setup. Further, network accuracy improves the extent to which a strategic position is occupied by a leader within the network.

In summary, the network perspective proposes that the effectiveness of TMs' networks on organizational and intraorganizational level significantly influences the firm innovativeness, yet in a distinct manner: while a central position in the organizational network positively contributes to internal effectiveness, the latter focuses on the formation of important external partnerships. It therefore is seen as an important source of information, which directly contributes to innovation (Balkundi & Kilduff, 2005).

5 The Development of a Comprehensive Framework

The four perspectives discussed provide a rich basis to comprehend the TMs' influence on innovation in the organizational context. They offer an access for investigation, which contributes to the enlargement of the topic's understanding in multiple ways. Combining the different perspectives, however, appears to be more profitable than the detached examination of the single influence areas. Due to several shortcomings of the previous models from today's point of view in explaining the top managerial impact on innovation and the so far missing combination of the distinct areas of influence into one framework, this paper aims at closing the prevailing gap.

5.1 Shortcomings of the Current Models

The most important shortcoming of the discussed models refers to their generic nature and in consequence the possible gaps of explanation of the models' single elements. They exclusively focus on a macro-level rather than allowing the framing of micro-oriented perspectives, leading to the fact that the precise circumstances are insufficiently taken into consideration and that in-depth information is not available.

This fact limits the understanding of top managerial influence in multiple ways: first, only little is known on the precise actions successful leaders take to moderate innovation processes. Leadership models which apply a macro-perspective can express the relation between different dimensions, yet are they blind for understanding the meaning and sense of interaction between leader and follower in complex networks.

Second, broad concepts of efficacy, effectiveness, and performance regarding innovation processes claim universal validity. This, however, neglects the fact that the particular context can let one action appear adequate in one situation, while in another situation the same action is not. Such models assume causal linearity of the phenomenon under research, while instead the value of their application can increase by taking on a micro-perspective. Addressing the micro-perspective also provides an opportunity for advancing the understanding of innovativeness in a general view on the macro-level. To explore the social mechanisms and to illuminate the multifaceted micro-foundations of top management influence on innovation, an in-depth analysis of the distinct areas of influence in combination can provide important insights.

Third, a managerial perspective of cognition and behavior comprehends managers' cognitive framing as underpinning basis for their decision making and their manifested behaviors (Hodgkinson & Healey, 2008). If leaders try to navigate through complex innovation-related issues with multiple interdependencies to economical, technological, and social aspects, it is valuable to apply the network perspective for analysis of this issue. The question *whether* networks represent an important aspect in shaping cognitive patterns appears to be sufficiently answered by the previously discussed models. However, the questions on *how* this occurs, what the meaning of network embeddedness for decision making is, as well as which specific information, emotions, and values are exchanged, so far remains open.

Fourth, social exchange relationships and behaviors can affect creativity and, accordingly, innovation (Khazanchi & Masterson, 2011). The mentioned models do neither consider nor assume side-effects from the industry focused on, but rather claim general validity. This is astounding as this implicitly supposes that social exchange relationships are of the same quality in any industry. As this in sum highlights, the prevailing models generally focus on the macro-perspective and derive their explanations from a generic view. Accordingly, they mostly disregard the micro-perspective and pay insufficient attention to the precise context at hand. This is taken into account when developing the comprehensive framework.

5.2 Framework

In summary, the setup of the comprehensive framework in Fig. 7 derives from the basic assumption that the TMs are one of most decisive shapers of all innovation concerns within the organizational context (Daellenbach et al., 1999; Hoffman & Hegarty, 1993; Wong, 2013). However, numerous factors affect the top managerial impact on innovations: some of these factors are based on the individual level—among them the demographic characteristics (e.g., age), the functional background,

and the personal experience (e.g., Boeker, 1997; Hambrick & Mason, 1984)—whole some other factors are based on the group level—as for instance the composition of the TMT in which they operate (e.g., Carpenter et al., 2004). These factors therefore necessarily require attention in a holistic framework on TM's innovation influence.

Regarding the previously discussed four perspectives of management, culture, leadership and networks, their already addressed high importance is recognized by the incorporation in the conjoint model's setup: in practice, the TM's network ties determine the leadership style applied, which in turn influences the leader's impact on the innovation culture. In conclusion, the direct impact of the TM effects innovativeness, yet via different paths of indirect influence.

Complementary to the perspectives considered, it is further argued that leadership is never independent of the context it is executed in and therefore the industry focus is incorporated within the conceptual framework. Numerous past studies have indicated its special relevance, especially for studies regarding TMs: most importantly, this is because a long top managerial career within a certain industry enhances the TM's knowledge on industry specificities and trends, and thus enlarges the personal openness towards innovations in reacting to new trends and changes (Daellenbach et al., 1999). Hayes and Abernathy (1980: 77) accordingly state that TMs "*[…] who are less informed about their industry […] are likely to exhibit a noninnovative bias in their choices*". Further, the long industry tenure increases the likelihood that the network ties are embedded in the same industry, as the exchange of information takes place specifically regarding these industry factors, predominantly with other (top) managers of the same industry.

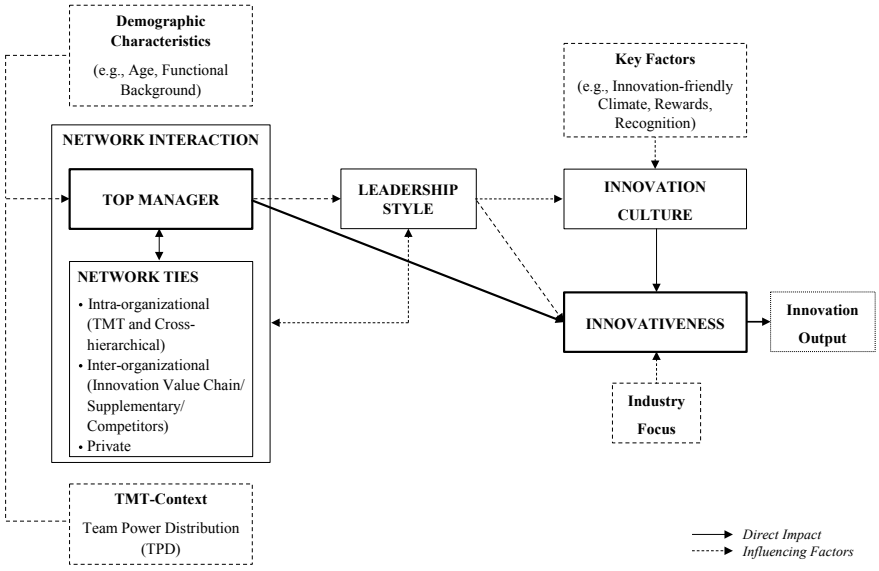

Fig. 7 The comprehensive framework on the top managerial influence on innovation

Therefore, long-term experience and respective knowledge gained within a certain industry overall increase the tendency towards innovative behavior of TMs. However, numerous past studies have mentioned that research on innovation altogether lacks findings with focus on specific industry settings (e.g., Edwards, 2000; Tidd, 2001); this again emphasizes the necessity of incorporating the respective industry focus within a comprehensive framework in order to analyze the top managerial influence in the context of a particular industry.

6 Conclusion, Implications and Limitations

The prior state of knowledge has significantly lacked insights on a combined view of the most central perspectives regarding TMs' influence on innovations. This academic void, which is of essential significance against the background of their key impact on organizational operations, has directly been addressed by setting up a holistic framework. Yet this approach, as research in general, not only advances the state of knowledge by gaining new insights, but also discloses research gaps requiring further investigation. Hence, the outlook on implications and the identification of future research paths as well as the paper's limitations are outlined in the following.

6.1 Implications and Further Research

The implications addressed in the following lay the foundation and provide an orientation for future research paths, which based on the setup of the comprehensive framework on TM's impact on innovations require more investigation. As mentioned, the past empirical research conducted on this topic has predominantly put focus on one of the perspectives (e.g., the individual influence on culture, network influence, etc.), not considering any effects which derive from a conjoint investigation of the different influence areas. The holistic framework developed within this paper yet provides the theoretical basis for implementing more profound (empirical) analyses of the top managerial influence regarding an integrated view of perspectives.

With focus on the individual top managerial level, an investigation of the significance of the available and above all also accessible internal and external resources for the individual impact on firm innovativeness is required. Further, this paper's implications allude to the fact that a more detailed examination of the individual impact on the firm's overall innovation performance is overdue. Regarding the future research paths, the holistic investigation of perspectives detects a further necessity to also analyze TMs' influence on innovations according to the respective position within the TMT, as the comparison of the executed influence between distinct positions is expected to be perceptive (some previous studies accredit the role of the CEO with

better access to a broader-oriented information basis, e.g., Six et al., 2013). Moreover, a detailed examination of TMs' practically executed level of influence moves to the center of attention, as there possibly is a deficit between potential and realized top managerial influence (Linder & Sperber, 2017), which raises the following questions: are TMs not willing to invest more effort into the advancement of organizational innovations, do they consider it as unnecessary due to already prevailing innovation orientation, or do they rather lack appropriate tools to realize a higher level of influence? One aspect which further requires investigation based on the developed comprehensive framework is the top managerial innovation-related network: as it was outlined, the industry focus can have a significant effect on the overall TM's innovation influence, which amongst others is due to the different network structures built up by the TM within the industry. Hence, the allocation of ties between internal and external organizational sphere might differ for specific industries: for instance, the trend-based and fast moving lifestyle industry contains a high level of confidentiality, which can lead to resistance against the open exchange of ideas with the external sphere in comparison to other, less trend- or innovation-focused industries. Regarding future research approaches, it moreover will be beneficial to investigate the company size as decisive factor for the single TM's innovation impact, as the size (e.g., also affecting size of the TMT, the size of the workforce the TM is responsible for, etc.) can significantly influence the TM's possibilities and constraints regarding the individual innovation influence.

Focusing on the collective top managerial level, the insights through the integrated view over all four perspectives shed light on the fact that not only aspects embedded in the single TM, but rather in the collective of TMs as a group play a role. As for instance, the decision of how the single TM influences innovations is often not only dependent on the individual willingness and/or ability to influence, but rather on the scope of influence bestowed on the single TM. Hence, the process of decision making within TMT and the allocation of decision power needs to be addressed further. In this context, the demographic factors also come into play: especially when focusing on the collective top managerial level of all TMs within the firm, the composition of specific factor combinations (e.g., age groups, functional backgrounds, etc.) can influence the single TM's innovation impact.

In general, these and other aspects will require further attention by (empirical) research studies for increasing the awareness of present and future TMs for their extensive influence on innovations as well as the mutual dependencies between the different perspectives. Only if they are aware of the importance of their broad influence on the organizational management, they will be able to productively execute this important task in practice. Or as Blanchard (2007: 145) has summarized it: "*The key to successful leadership today is influence, not authority.*"

6.2 Limitations

Several limitations regarding this paper and the developed framework must be mentioned: first, the framework is built up on the four central perspectives, which have been identified based on previous studies to have the most severe impact on the TM's influence. The framework hence pictures the fact that a holistic approach compulsory needs to consider the perspectives of management, culture, leadership and network; however, it is unquestioned that further aspects influence the comprehensive relation and in addition could further complement an even more comprehensive approach of displaying the single factors of influence. Second, the framework is directed towards the relation of TMs and organizational innovativeness, while the further relation between innovativeness and firm performance, and thus the important impact of firm innovations on output, remains disregarded and requires detailed investigation in the future.

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