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LEADERS' COMPETENCES FOR SUCCESSFUL LEADERSHIP OF INVENTION AND IMPLEMENTATION OF INNOVATION: A CONCEPTUAL MODEL

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ABSTRACT

Purpose. The aim of this paper is to define necessary competences for leading the two stages of the innovation process and, based on research, to develop a conceptual leaders' competency model.

Design/methodology. The research was conducted by using an analysis of academic literature. Based on the theoretical findings, the authors offer a conceptual innovation leadership competency model.

Findings. The main finding of the research shows that leaders' role is crucial for effective leading of innovation phases, while competences that stimulate innovation can be divided into three groups – competences that are equally important for both phases and competences that are more important in each of the phases.

Research Implications. Based on the research results, a leadership competency list is proposed that could be used as a basis for future research in organizations and validation.

Practical Implications. The conceptual model provides managers with information on innovation processes and factors that affect invention and implementation phases. The guidelines offered can be used by organizations and leaders to develop their competences to ensure successful leadership of the two stages of the innovation process.

Originality/Value. Currently many researchers are focusing on factors which affect the innovation process and leadership, but there are only a few studies that combine those two concepts. The value of this paper lies in its structured vision of factors which are important to one process or both main innovation processes, that is, invention and implementation, and how leaders could lead these processes.

Keywords: innovation, creativity, idea implementation, leadership, competence model.

Paper type. Conceptual paper

INTRODUCTION

An organization's ability to be innovative has been widely seen as a key factor for long-term survival (Amabile, 1988; Christiansen, 2000; Janszen, 2000). The ability to create and develop ideas for innovation is highly important for any organization. Many leading organizations are looking for solutions regarding how to replace creativity as a spontaneous phenomenon with a systematic approach (Bergendahl, Magnusson, 2015).

Making the innovation process a system in an organization first of all affects the managerial process (Drucker, 1985). Many researchers show that leaders play a crucial role by creating an environment for innovations (Gratton, 2007; Davila, Epstein, Shelton, 2006). The relationship between leadership, innovation and sustainable development is essential for innovation. Besides this, social, human, and cultural dimensions should be taken into account (Slimane, 2015).

Innovation is comprised of two major overlapping processes: having new ideas and implementing them (Adair, 2007). However, researchers have found that the two stages of innovation may have different requirements. Studies show that idea generation is strongly influenced by individual factors, whereas idea implementation is strongly influenced by group and organizational-level factors (Birdi, Leach, Magadley, 2014). For example, Birdi and Magadley (2012) found that environmental factors such as management support for innovation had greater influence on idea implementation than idea generation.

"A competency is a reliably measurable, relatively enduring characteristic (or combination of characteristics) of a person, team or organization, which causes and statistically predicts a criterion level of performance" (Spencer, 2003). There are various studies that have resulted in finding leadership competencies that positively affect an organization's management, which indicates the possibility to identify a set of competencies that have a positive impact on innovation in the process of the idea generation phase and the realization stage.

Therefore, the aim of this paper is to develop a conceptual model of leader competencies that supports innovation in two major processes – idea generation and idea implementation. The article consists of three parts. The first part provides a theoretical overview of the two major innovation phases, characterizing factors and the leader's role in these phases. The second part presents information on conceptual leadership competency models for both processes.

THEORETICAL OVERVIEW OF INNOVATION

Innovation is studied very widely; however, in the literature various definitions of innovation can be found. Innovations may come in many different forms, types and sizes. The most widely used definition of "innovation" has been offered by J. Schumpeter (1934); as cited in Croitoru (2012), it is "the commercialization of all new combinations based upon the application of new material, new source of supply, new method of production, new good, new market and carry out new organization". Schumpeter's definition shows that innovation not only depends on inventions; implementing them requires different actions at the organizational level. Innovations are achieved through a process and considerable research has been carried out to find a successful definition of the innovation process. Classical innovation studies refer to two types of product and process innovation (Salter and Alexy, 2014).

However, today there are many definitions of the innovation process. The authors propose to look at the innovation process through tasks (Christiansen, 2000), stages (Cooper, 2008) or roles (Bes and Kotler, 2011). The stage-gate model developed by Cooper (2008) is popular in product development (ideation, preliminary investigation, second screen, building a business case, decision on the business case, development, post-development, testing, testing and validation, production and launch, post-implementation review). There is also the design-thinking model – empathy (customer and stakeholder) definition, ideation, prototyping and testing (Wölbling, Krämer, Buss, Dribbisch, LoBue and Taherivand, 2012). Christiansen (2000) maintains that a project originates in an idea (in a specific time and specific place; for product innovation, this also includes technical solutions and market needs), proposing the idea, looking for funding (a process that might last from a few days to many years), then development and launch or implementation. Bes

and Kotler (2011) propose to look at innovations not as a process but as a list of key roles. According to their findings, an organization "must define and assign roles to specific individuals and having established goals, resources and deadlines, let them interact freely to create their own process" (Bes and Kotler 2011:16). Key roles are activators (initiate the innovation process), browsers (provide information for starting the process and application of new ideas), creators (bring ideas for new concepts and possibilities), developers (turning ideas into products), executors (their function is to implement), facilitators (their mission is the instrumentation of the innovation process).

According to Fagerberg (2005), normally innovation and invention are separate processes. As Fagerberg (2005:4) states, "Invention is the first occurrence of an idea for a new product or process and innovation is the attempt to carry it out into practice". To convert an invention into innovation, organizations need to combine several different competences and resources.

In many studies the invention phase is highlighted as the phase of creativity. For example, Mumford and Gustafson (1988:365) maintain that "the innovation process begins with the creativity of individuals, so the generation of new ideas is a cognitive process located within the individual, albeit fostered by the interaction process". According to West and Richter (2008), an innovation process consists of two main activities: creativity and implementation. Creativity involves the generation of novel and useful ideas while innovation translates them into new products and processes.

In this paper, following Fagerberg (2005), the first innovation phase is defined as invention. The invention phase should provide many ideas and experiments and is related to skills and opportunities to be creative. Following Hargadon (2008), creativity is seen as an opportunity for recombination – creating novel insights by applying and modifying schemas and scenarios learned by conceptual domains.

However, the link between invention and implementation may not be straightforward (Sarooghi, Libaers, Burkemper, 2015). Implementation consists of three main aspects – selection, development and commercialization. It needs to be structured and cannot be left to a random choice. Time is important – the process needs to be fast. The literature review shows that the invention phase is described as less straightforward than implementation; it is not about establishing a new process. The implementation process consists of many different processes and goals; creativity is needed, but on a different level. Bes and Kotler (2011) maintain that creativity alone will not ensure innovation. To guarantee the success of innovation, people and new skills related to business management are crucial.

Innovation management is different from business management because it includes management of a large quantity of creativity (Davila et.al. 2006). Managers need to be aware of which managerial practices act as a stimulus for creativity and which practices lead to high quality and fast results. In this paper, the implementation phase is regarded as tasks and roles in various implementation processes.

The reviewed literature indicates that there is research on invention and creativity (Amabile, 1988, 2012; Graton, 2007; Zhou, 2007) and research that focuses on implementation (Tidd, Bessant, Pavitt 2005), but there is a gap in research that focuses on these processes together (Von Stamm, 2008, Christiansen, 2000). For the purpose of this research, three key influential factors – invention, the implementation phase and the role of leadership – are evaluated.

Invention

Invention can be described as both a creative outcome and a process. According to Shalley and Zhou (2008), that process can involve finding and solving problems continuously or implementing new solutions, but the creative outcome could range from suggestions for incremental changes to major and radical changes. James and Drown (2012:19) state that "creative outcomes are products or results that are substantially novel, useful and goal-oriented".

In order to produce creative outcome, individuals need to first engage in different processes that can help them be more creative (Shalley and Zhou, 2008). Invention processes, according to James and Drown (2012:19), "are the skills and mechanisms used to translate goals and raw materials (including knowledge and abilities) into creative ideas and products". Bes and Kotler (2011) identified two roles in the invention phase – browsers and creators. Browsers are people whose mission is to gather information that assists, enlightens, inspires and resolves whether a new idea should continue in the innovation process. A creator is the person responsible for coming up with ideas throughout the innovation process. "Organizations pick up signals about innovation possibilities through exploring a particular 'selection environment' – essentially a search space made up of knowledge about technologies, markets, competitors and other sources" (Tidd et al. 2005:273). According to Tidd et al. (2005), organizations need effective routines for exploration and boundary stretching to create new space (Tidd et al. 2005). After research comes ideation. Sauter (2007) defines ideation as the collection and systematic evaluation of ideas. The ideation process includes elements both within and outside of the organization. Typical external organization elements are current clients, target clients, competitors, sales partners and technology.

In this paper, the invention phase is viewed as two processes – research and ideation. The biggest challenge in ideation is the promotion of creativity. Therefore, elements influencing the creative process are discussed.

The research process has clear mechanisms and tasks to research market trends, technological possibilities, customer needs, competitors and other sources. While ideation has a task, discussion is about mechanisms. In the literature, the ideation process is closely related to creativity, which is analysed at the individual, team and organizational level; in this paper, the focus is on the team and organizational level, emphasizing only individual factors that can be influenced by the organization.

According to the multi-level componential theory of Amabile (2012) and Amabile, Mueller (2008), "encompassing creativity is in single individuals, teams, and entire organizations". According to Amabile (2012), creativity includes three individual components that influence it – domain-relevant skills (expertise in the relevant domains), creativity-relevant processes (cognitive and personality), and task motivation. Outside elements comprise the surrounding environment and the social environment. Zhou's (2007) research shows that employees who have a relatively less creative personality type exhibit greater creativity when they are working together with more creative co-workers and their managers do not micro-monitor them. He maintains that leaders can increase and support employee creativity by everyday leadership behaviours that promote creativity. Amabile (1988) has revealed a number of work environment factors that can block creativity, such as norms of harshly criticizing new ideas; political problems within the organization; an emphasis on the status quo; a conservative, low-risk attitude among top

management; and excessive pressure. James and Drown (2012) also maintain that creativity is a multi-level phenomenon. They provide a model that incorporates multiple levels. Organizational-level impact is shown in their model through strategic vision and leadership and organization of the innovation process at the individual, team and organizational level. They maintain that the mediators of creativity on the individual, team and organization level are raw materials, the mission and vision, organizational characteristics, leadership, goals for creativity, individual and collective processes, creative efficacy, and individual characteristics which are impacted by the extra-organizational culture and system.

Amabile (1988) identified components that affect creativity in organizations, encouragement of creativity (open information flow, support for new ideas in all levels of the organization), autonomy or freedom (sense of individual ownership), resources (materials and information), pressures (positive challenge, negative workload pressure), and organizational impediments to creativity (negative conservatism and internal strife).

Over ten years, Graton (2007) has focused her research on how creative places and times emerge and how organizations can create an environment which supports creativity. She reveals that there are hot spots where people work in an exceptionally creative and collaborative way, creating great energy, innovation, productivity, and excitement. The factors in creating hot spots are cooperative mindset, boundary spanning, igniting purpose and productive capacity. A cooperative mindset consists of three elements: intellectual capital, emotional capital and social capital. Value is created between people. In boundary spanning, value is created through novel combinations of ideas, knowledge and different mindsets. An igniting purpose is something that people find exciting, interesting and worth engaging with. The early phase of productive capacity is working on relationships – appreciating others' talents, learning to make a commitment, and solving conflicts. In more complex phases it shifts to members' attitudes towards time and processes.

The key finding in the literature is that the social environment is of great importance for group or organizational-level creativity. There are factors which may have a positive effect, for example encouragement or autonomy. There are also factors which may have a negative effect, for example criticizing new ideas and lack of productive capacity. The model by James and Drown (2012) clearly shows the organizational-level impact on creativity. Group creativity has also been found to be influenced by leadership. Leadership can play the most important role in guiding the creative potential of followers. Creativity, therefore, needs to be integrated into the strategies and practices that support innovation (Dodgson, Gann and Phillips, 2014). This means that in order to provide a successful invention phase, there is a need for strategical, cultural and clear leadership support.

Implementation

After the invention phase, the next key phase is turning those potential ideas into a new product or service, a change in the process, a shift in the business model, etc. (Tidd et al. 2005). "An innovative outcome involves the successful application of new ideas, which results from organizational processes that combine various resources to that end" (Salter and Alexy, 2014:5).

Tidd et al. (2005) have developed a four-phase innovation process – search, select, implement (acquire/execute/launch/sustain) and value capture. An innovation solution is

implemented by understanding the system, processes, resources, talent, and individual skills and abilities (Matthews, Brueggemann, 2015). This shows that for a successful implementation strategy, it is important to define the business model. Focusing on only one task or step will not provide successful and sustained innovation (Davila et al. 2006). Successful innovation management is associated with creating an integrated set of routines. Successful innovators get, maintain and use technical resources and have managerial capability (Tidd et al. 2005). This means that one of the first rules of innovation and implementation is that the organization has a clear innovation and business strategy and this is the senior leadership's responsibility.

According to West and Richter (2008), innovation implementation involves changing the existing procedures and environment, which could cause resistance and conflict, and therefore the process requires sustained effort. They provide six key climate factors – commitment to the group vision, participation in decision-making, managing conflicts, supporting innovation, safety and trust, and flexibility. These elements help the team to convert a task and the diversity of knowledge into generation of ideas and implementation. In other sources this is described as innovation readiness (Zerfass, 2005).

Bes and Kotler (2011) define three roles – developers, activators and facilitators. Developers are people whose job is to guide the idea towards invention, thus playing the leading role in everything related to implementation. The role of activators and facilitators is to manage all processes together. Activators are the people (or mechanisms) that launch the innovation process within the organization. They define the framework and guidelines. The facilitator's role is important in moving the process forward efficiently and in meeting the budget.

Other factors for successful innovation which have been identified in the literature are listed below. The most common is effective knowledge acquisition – knowledge that is accumulated around core elements should be used for improvement (Davila et al., 2006; Bergendahl, Magnusson, 2015). According to Davila et al. (2006), organizational learning and change are related processes. Suitable organizational learning can be a powerful force of creativity and implementation. Learning through alliances – collaboration – has been mentioned in the context of learning (Von Stamm, 2008).

The emphasis is on team and teamwork values because the innovation process is about combining different perspectives. Tidd et al. (2005) define the key elements for a team: effective leadership, clear objectives, balance of team roles and individual behavioural styles, mechanisms for effective conflict solving, and continuing collaboration outside the organization. Competency management is indicated as an important element of an effective team (Christiansen, 2000) and getting the right people involved (Ettlie, 2006).

Change and risk management is also emphasized as a key factor of successful innovation. Skilled change management is needed for successful implementation. To minimize resistance to change, researchers (Tidd et al. 2005, Midgley 2009) stress that the process includes marketing principles, communication and intermediation through trainings. According to Lam (2005), the innovation process in an organization is complex, dynamic, and takes place at different levels. She proposes to look at change management through three perspectives: "(a) relationship between organizational structural forms and innovativeness; (b) innovation as a process of organizational learning and knowledge creation; (c) organizational capacity for change and adaptation" (Lam, 2005:138). An important factor in the innovation process is risk taking, including a high tolerance for

failure; therefore, risk management is an important factor. According to Davila et al. (2006), the innovation portfolio's width and depth determines the level and type of risk that needs to be managed.

According to Davila (2007) and Christiansen (2000), systems of incentives and rewards are the most powerful management tools. Recognition, vision, economic incentives and passion are four elements for supporting innovation in order to create an adequate reward system. In addition, operational tools and an effective implementation mechanism structure are important, for example, decentralized decision-making, clear resource status (time, monetary, tools), communication systems, project set-up, consulting, mentoring, coaching, direct management and control (Christiansen, 2000).

According to McLean, invention is more influenced by individual factors and team elements, while implementation is more affected by organizational-level factors (McLean, 2005).

The role of leaders in the innovation process

Leadership as a research subject has been popular for many years and has been an object of interest since the beginning of civilized society. The subject of research has changed over time due to changes in the environment, culture, innovations and human behaviour.

Leadership research has taken different perspectives – leaders' traits, behaviours, and the influence of situational characteristics on leaders' effectiveness (Jong, Hartog, 1998). Theories can be divided into two broad directions. The first direction is about leaders' traits and behaviour, the second refers to leaders' interaction with followers. Each school has its own focus and statement. For example, according to situational theories, leadership arises because the situation demands it; according to contingency theories, the effectiveness of leadership is based on the leadership style; and according to trait theory, people are born with certain inherited traits and those who make good leaders possess the right combination of these traits.

There are researchers who study leadership in different areas, for example politics, volunteering, education and organizations.

Furthermore, scholarly research on the topic of leadership has increased in recent years and this supports the development of diverse leadership theories (Dinh, Lord, Gardner, Meuser, Liden, and Hu, 2014). In this paper, the authors focus on leadership in organizations and innovations.

There are various definitions of leadership. The common elements in these definitions is that leadership involves a social influencing process in which a group of members are led towards a goal (Bryman, 2013). According to Bass and Stogdill (1990), there are many ways to define leadership, and therefore they maintain that the definition of leadership should depend on the aim which should be achieved by the definition. Bass and Stogdill (1990:20) provide a complex definition: "interaction among members of a group that initiates and maintains improved expectations and the competence of the group to solve problems or attain goals." Types of leaders can be differentiated according to some of the definitions, most often based on role and functional or institutional differences.

Managerial style can be defined similarly to leadership, for example in the manner in which results are reached; thus, it covers the concept of leadership (Rees and Porter, 2015). When analysing the previous findings, it is seen that these concepts overlap. For

example, Davila et al. (2006,) have written that "the lesson from the most innovative companies is that leadership – particularly the CEO's leadership – is the crucial difference in creating and sustaining successful innovation". Other authors support this view and maintain that innovation management depends on the top leadership. Surveys show that the most important factor for selecting investments are the management team's strength (Drucker, 1985). In this paper the definition of leadership offered by Oke, Munshi, and Walumbwa (2009) will be used as a basis. They maintain that leadership is a social process containing three elements: (1) it takes place in the group, (2) the leader influences his or her followers' behaviours, (3) organizational goals are met.

Discussion of formal and informal leadership can be found in the literature that has been reviewed. According to Bass and Stogdill (1990), formal leaders' power is provided through the positions that ensure them legitimacy and the power to lead. In turn, informal leaders lead through their personality. This paper focuses on the formal leadership concept that promotes invention and implementation of innovation in an organization.

Research dealing with innovation management refers to the set of critical abilities of organizational leaders because leaders create organizational growth and ensure profitability. One of the controversies that needs to be addressed in the process of innovation is linked with unconditional freedom and discipline (Pouran, 2016). Davila et al. (2006) define leaders' roles as follows: (1) on the basis of innovation strategy, they provide a long-term view for innovation, assessing compliance; (2) they implicate key leaders and managers in the innovation and make it dynamic through key projects; (3) they manage relationships with external partners; (4) they provide an expert opinion and make crucial judgments; (5) they manage the balance between all business elements.

According to Matthews and Brueggemann (2015), 12 elements are needed for innovation: innovative behaviour, innovative thinking, problem solving, knowledge building, creativity, culture building, innovation theory, entrepreneurship, strategy, catalytic leadership, ecosystems and technology accelerators. Catalytic leaders form organizations where the ideas may derive from anyone. They develop creative skills by removing barriers. Catalytic leadership consists of five levels: capable individual character and competence, contributing team members, competent managers, effective leaders and catalytic leadership.

Transactional and *transformational* leadership are popular concepts. Transactional leaders practice contingent rewards and active management by expectations. Transactional leaders are inspirational and intellectually stimulating. According to Deinert, Homan, Boer, Voelpel, and Gutermann (2015), transactional leadership is also called managerial leadership. Transactional leadership focuses on supervision, organisation, and group performance. It promotes compliance of followers through a rewards and punishment system. Meanwhile, transformational leadership boosts the motivation, morale, and performance of followers through different mechanisms. Transformational leadership has five dimensions: inspirational motivation / charisma, idealized attributes, idealized behaviours, intellectual stimulation, and individualized consideration.

Research dealing with leadership theories (Dinh et.al, 2014) shows that the most widely used concept is still transformational or charismatic leadership.

Research by Kang, Solomon and Choi (2015) confirms that a CEO's transformational leadership style is a better predictor for their direct subordinates' innovative behaviour than transactional leadership. According to the findings of Kang et

al., transformational leadership is more powerful in creating an innovative climate.

However, a study carried out in 2013 by Accenture shows that 49% of respondents claim that trying something new is of importance. Also, generation of entrepreneurship idea management support is vital. Only 20% of respondents report that their management supports it (Matthews and Brueggemann, 2015). Therefore, in order to arrive at a possible solution for leaders' behaviour, it is necessary to research the influence of the innovation process; this will be the focus of the next section.

Development of a competence model of leaders involved in the innovation process

Competency-based human resources constitutes a common practice. Today, almost any organization that employs more than 300 employees uses some form of competency-based human resource management system (Boyatzis, 2007). Over the last 35 years, businesses and other industries have applied competency models in the selection of employees. In recent years, the trend has been to use competency-based approaches in education and training as well as in assessment, development and succession planning (Ennis, 2008). One of the benefits of the competency (or behavioural) approach, especially in the case of talent, is that through competences talent can be developed in adulthood as well (Boyatzis, 2007).

The literature offers different definitions of competencies. For the purpose of the current research, two commonly used definitions of competencies proposed by Boyatzis have been used (1982, 2007), as cited in Spencer and Spencer (1993, 2003):

1. Competencies are specific personal qualities that are "causally related to effective and/or superior performance". Competencies are a behavioural approach to emotional, social, and cognitive intelligence.
2. "A competency is an underlying characteristic of individuals that is causally related to criterion-referenced effective and/or superior performance in a job or situation" (Spencer and Spencer 1993:9). Underlying characteristics mean that competency is a fairly deep part of a person's personality and can predict behaviour. 'Causally related' means that the competency causes or predicts the behaviour or performance. 'Criterion-referenced' implies a specific criterion or standard.

In other words, a competency is a reliably measurable entity describing the combination of characteristics which can be used for a team or an organization, and it can statistically predict the level of performance. A competency may include knowledge, behavioural skills, cognitive processing (IQ), personality traits, values, motives, and occasionally other capabilities which are important for a specific job (reaction time for combat pilots) which can be validly predicted by performance outcome criteria (Spencer, 1993).

Creating competencies requires a specific context (Boyatzis, 1982); some competencies are more important than others for a specific organization or position. The degree or level at which competences are needed depends on the job or the task (Ennis, 2008). Competences do not cover all aspects of personality, but comprise the most important everyday behaviour that enhances the achievement of an organization's strategic goals.

Descriptions of competencies can be grouped in models. According to Spencer (2003), models are descriptive tools identifying competences that are needed for operation

in a specific role. Depending on the work and organizational environment, it is common for 7 to 9 competencies to be used in one role (Shippmann, Ash, Carr and Hesketh, 2000).

Goleman, Boyatzis and McKee (2002) have defined leadership competences as follows. Personal competences are capabilities that determine how a person manages himself/herself. Personal competences consist of two elements: self-awareness and self-management. Self-awareness includes emotional self-awareness (recognizing one's emotions and understanding their impact), accurate self-awareness (knowing one's strength and limits), and self-confidence (a sound sense of self-worth and capabilities). Self-management includes emotional self-control (keeping disruptive emotions and impulses under control), transparency (displaying honesty and integrity, trustworthiness), adaptability (flexibility in changing situations), achievement (drive to improve performance), initiative (readiness to act and seize opportunities) and optimism. Social competences are capabilities that determine how one manages relationships. Social competences consist of two elements: social awareness and relationship management. Social awareness includes empathy (sensing others' perspectives, emotions), organizational awareness (understanding different aspects of the organisation), and service (meeting clients' and followers' needs). Relationship management includes inspirational leadership (guiding and motivating with compelling arguments), influence (a range of tactics for persuasion), developing others (through feedback and guidance), being a change catalyst (initiating, managing and leading), conflict management, building bonds (building networking) and teamwork and collaboration.

However, this model does not show all the elements which are needed for successful management of innovation in a specific organization. Also, the model is not easy for managers and others to translate into action. Studies show that the most effective models are integrated competency models which include behaviour that supports business strategies and organizational culture and values (Boyatzis, 1982).

To construct a competency model for leadership capabilities pertaining to the two innovation process phases, the process proposed by Spencer is used. According to Spencer (2003), three steps are important for building competency models. The first is identifying characteristics and competencies that statistically distinguish the best performers from the average ones. The second is creating a model that is easily understood by managers, human resource professionals, and employees. The third step is identifying competencies that hold economic value.

Based on the findings described in the previous section, which focuses on factors that relate to one or both phases (invention and implementation) of the innovation process (Goleman et al. 2002), a competency model for invention and implementation leaders has been created. (see Table 1).

Table 1

Competency model for innovation leaders

Competence	Importance in invention and implementation phases	Behaviour
Strategical view	Both	- Creates reasonable vision and strategy, takes into account the global market, customer needs, opportunities and resources. - Understands the importance of innovation and integrates it into the strategy.
Implementation of strategy	Both	- Capable of communicating vision and strategy clearly to team and involving all members of the team in its realization. - Through behaviour, demonstrates the integrity of corporate values and business ethics. - Initiates, manages and leads changes.
Business orientation	Implementation	- Implementation of strategy through goals and clear roles. - Demonstrates sustainability and integrity in business decision-making. - Builds relationships with partners, customers and employees with effective communication. - Builds relevant and motivating reward system.
Result orientation	Implementation	- Organizes activities in order to add business value. - Organizes integrated changes that contribute to the realization of the strategy. - Effectively manages resources.
Orientation towards creativity	Invention	- Demonstrates openness to new ideas. - Creates and maintains environment that promotes experimentation, risk-taking and sharing of ideas.
Orientation towards development	Implementation	- Creates and maintains environment that promotes sharing with knowledge, consulting, giving feedback and mentoring. - Understands and uses effective implementation mechanisms. - Encourages cross-border cooperation.
Team building	Invention	- Establishes and leads team mindfully and in an integrated fashion. - Builds trust through mutual respect and communication. - Establishes and develops a team that supports diversity and respects individuality.
Team efficiency	Both	- With communication, organization of work and motivation, involves the whole team in achieving common goals. - Effectively integrates new team members. - Plans and promotes succession and rotation. - Effectively prevents confusing situations.

Personal competence	Both	- Learns from mistakes and achievements. - Capable of analysing and combining a variety of information. - Demonstrates the ability to challenge assumptions. - Demonstrates empathy. - Demonstrates the ability to manage emotions. - Communicates clearly, constantly and appropriately to the situation.

Source: created by the authors and based on Spencer's competency model construction

IMPLICATIONS AND CONCLUSIONS

This paper supports researchers that advocate the link between invention and implementation, which is not straightforward (Sarooghi et al. 2015). The competence model developed shows that some competencies refer to one or the other innovation phase. For example, orientation towards development, business orientation and result orientation are more important in the implementation phase, while orientation towards creativity and team building are more important in the invention phase. Such competences as personal competence, team efficiency, strategical view and implementation of strategy are important in both phases.

This paper has identified key leadership competences that support successful management of invention and implementation. The findings highlight a practical and theoretical set of leadership skills, attitudes and behaviours that can effectively lead to invention and implementation. The conceptual model is useful for the understanding of leaders' competencies and in order to determine which ones are important in both phases. In order to implement the competency model in organisations, it should be discussed in the organization in line with the organization's strategy, vision and values. For successful implementation, it is important to integrate the competency model with other systems or processes of the organization, for example human resources. Furthermore, competency levels need to be defined in order to identify the competences that should be developed.

LIMITATIONS AND FUTURE RESEARCH

The paper has some limitations that lead to recommendations for future research. The first limitation is that there are factors that affect both innovation phases (invention and implementation); thus, for the construction of the competency model, these factors have been discussed widely without distinguishing whether the innovations are incremental or radical. Perhaps there are some differences depending on whether the innovations are incremental or radical.

Another limitation is that the competency model developed in this paper provides a broad overview of leaders' behaviour. According to Spencer (2003), it is possible to develop more dimensions, for example, the intensity of the intention (or personal characteristics) involved or completeness of actions taken to carry out an intention. Other potential dimensions include complexity – taking more things, people, data, concepts or causes into account; time horizon – seeing further into the future, and planning or taking action based on anticipation of future situations, e.g., acting now to head off problems or create future opportunities; breadth of impact – the number and position of people

impacted, e.g., on a scale ranging from a subordinate or a peer to the CEO of the organization and to national or international leaders; or the size of the problem addressed, e.g., ranging from something affecting part of one person's performance to something affecting the entire organization.

The model provided is conceptual and should be approbated empirically.

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