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MANAGING ORGANIZATIONAL INNOVATION THROUGH HUMAN RESOURCES, HUMAN CAPITAL AND PSYCHOLOGICAL CAPITAL

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ABSTRACT

The article aims at making a series of considerations on the concepts of innovation and, more specifically, organizational innovation, in order to show what literature says about the role of human resources, human capital and psychological capital in the matter. Starting from some definitions of innovation given in the introduction, the paper goes on by dealing with organizational innovation and the role of human and psychological capital in the innovation processes. Although most of the consulting books underline the importance of people in the innovation process, little research on the implications on human and psychological resources has been carried out and research has not explored in an extensive way the human side of innovation. So, the final part of the article stresses the existing links between innovation and the so-called human factor and reports a summary table with the competences literature has identified so far which are useful to implement innovation.

Keywords: *Organizational Innovation; Human Resources; Human Capital; Psychological Capital*

1. INTRODUCTION

When it comes to such concepts as organizational continuity and competitiveness, innovation seems to play a key role. Three concepts seem to be particularly linked together: *training*, *development* and *innovation* (Ceschi, Dorofeeva and Sartori, 2014). The present article focuses on the latter.

As stated in Sartori, Favretto and Ceschi (2013), nowadays several definitions of innovation exist, depending on the *type of innovation* authors refer to and the *context* where innovation is taken into account (organizations, public administrations, companies, etc.). According to Mulgan (2007), for example, innovation in organizations means *new ways of organizing things*, *new ways of rewarding people* and *new ways of communicating*.

Distinctions are sometimes made between policy innovations, service innovations and innovations in such fields as democracy or international affairs.
Quoting Zhuang (1995), Glor (1997) underlines that innovation can mean (1) Unique and new activities or ideas; (2) The people who innovate; (3) Improving existing processes; (4) The dissemination of new activities or ideas.

Van der Meer's (2007) synthesis suggests that innovation is the total set of activities leading to the introduction of something new resulting in strengthening the defendable competitive advantage of an organization, while the Oslo Manual published by OECD (*Organization for Economic Cooperation and Development - It is composed of the following Countries: Australia, Austria, Belgium, Canada, Chile, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Spain, Sweden, Switzerland, Turkey, United Kingdom, United States*) and Eurostat in 2005 specifies that innovation can be *new to the organizatio*n (it may have already been implemented by other organizations, but it is new to one specific organization), *new to the market* (an organization is the first to introduce it in the market) and/or *new to the world* (an organization is the first to introduce it for all markets and organizations).

The simplest definition of innovation states that it is about *new ideas that work towards creating value*. The ideas have to be at least in part *new* (rather than improvements); they have to be *taken up* (rather than just being good ideas); and they have to be *useful*.

Finally, Wallin and von Krogh (2010) see innovation as a process that covers the creation of relevant knowledge for the development and introduction of something *new* and *useful*.

2. THE CONCEPT OF ORGANIZATIONAL INNOVATION

According to the Oslo Manual, innovation is the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method in business practices, workplace organization or external relations.

The OECD (2011) distinguishes four forms of innovation:
1. *Product innovation*, the introduction of a good or service that is new or significantly improved in terms of its characteristics or intended uses;
2. *Process innovation*, the introduction of new or significantly improved production or delivery methods;
3. *Marketing innovation*, the implementation of a new marketing method with changes in product design or packaging, product placement, product promotion or pricing;
4. *Organizational innovation*, the implementation of a new organizational method in the organization's business practices, workplace organization or external relations.

As for the latter, Chesbrough (2003) states that organizations in the Twentieth Century thought that successful innovation required control: they invested heavily in internal R&D (*Research and Development*), engaged the best and brightest people, enabled them to develop innovative ideas and breakthrough discoveries, and protected them with Intellectual Property Rights. The generated profit realized by more sales was reinvested into internal R&D, creating a virtual cycle of innovation with the following steps: (1) Technology breakthroughs; (2) New products; (3) Increased sales and profits; (4) Increased investment in R&D. These four steps represent the paradigm of the so-called *Closed Model of Innovation* or *Stage-Gate Model* (Cooper and Kleinschmidt, 1986; Tidd, Bessant and Pavitt, 2005), which is based on the assumption that technology developed outside does not guarantee the same quality, availability and capabilities than technology invented by internal collaborators. Organizations that still adopt this model have solid boundaries: ideas are internally generated, evaluated and selected, and only potentially successful projects are further developed and taken to the market. There is no access for ideas from outside the organization, nor are there paths for products and services taken to the market.

On the contrary, the so-called *Open Innovation Model* considers external ideas as important as internal ideas. Open innovation enhances access to novel and heterogeneous knowledge belonging to customer needs, technical solutions and problem solving activities (von Hippel, 1994). Access to external knowledge provides adaptation of products and services for customer needs and can reduce the development time. Lowering costs of innovation and commercial utilization of knowledge and technology that otherwise would remain unutilized are also possible. Other factors that attract organizations in adopting open innovation are the shared risks in product and service development and enhanced organization image and reputation (Wallin and Von Krogh, 2010).

Closed innovation and open innovation are not binary in their application. Besides, other than benefits, innovation, both closed and open, carries risks. For example, it is based on teamwork and cooperation. Studies on teams underline that "while working in teams can potentially create synergies so that the team produces an output which is better than could have achieved by any individual member working alone, teams can also produce outputs which are worse than could have been produced by the most competent team member" (Newell and Swan, 2000, p. 1291). Some of the potential problems associated to teamwork include *conformity and obedience* (Asch, 1956; Milgram, 1965), *groupthink* (Janis, 1972) and *group polarization* (Isenberg, 1986).

3. FROM HUMAN RESOURCES TO PSYCHOLOGICAL CAPITAL

In organizations, innovation, both closed and open, involves the collaboration of people and teams with different knowledge, experience and expertise. There is a prolific research literature on the question of what makes teams and work groups effective. Part of this issue lies in the concepts of team and work group and in their differences. *Team* is conceived as a group of agents adopting the appropriate joint and individual mental attitudes. Instead, *work group* is defined as multiple individuals acting as a bounded whole in order to get something done. In general, members of teams tend to develop greater interdependence and a stronger sense of collectivity than members of work groups, even if the sole social-identification processes cannot be used to explain which factors have a significant influence on work groups and teams' practices (Ceschi, Dorofeeva and Sartori, 2014).

Kelley (2010) stresses the idea that innovation is not realized by a single skilled worker, but can only be pursued in collaboration: 'While many people give Thomas Edison, Alexander Graham Bell, and the modern-day equivalent, Dean Kamen, credit for being lone inventors, the fact is that the lone inventor myth is just that – a myth. All these gentlemen had labs full of people who shared their passion for creative pursuits'. In fact, innovation seems to be the outcome of three social activities described as follows (Kelley, 2010; Sloane, 2011):

1. *Social inputs* – At the beginning, organizations seek to identify key insights for innovation. Through such social research methods as focus groups and ethnographic studies or connections to other organizations and disciplines, they can gather insights that can inspire new solutions.
2. *Social evolution* – Organizations adopt innovation teams, not sole inventors, to transform key insights and elaborate new solutions.
3. *Social execution* – It includes such social outputs as trials, beta programs and trade shows. It is critical for customer groups to be educated so that they can recognize their needs for innovation. Henry Ford summed up this problem with his famous quote 'If I had asked people what they wanted, they would have said: faster horses'.

The life cycle of innovation is an interactive process that starts with exploration and ends with exploitation (Ferrary, 2011). *Exploration* is the preliminary step for knowledge generation; *exploitation* is when the knowledge that produces innovation is industrialized and commercialized. Exploration and exploitation stages are dependent on the human and the (positive) psychological capital.

According to the OECD (2011, p. 18), human capital is 'the knowledge, skills, competences and attributes embodied in individuals that facilitate the creation of personal, social and economic well-being'. Positive psychological capital is defined as the positive and developmental state of an individual as characterized by Hope, high self-Efficacy (Bandura, 1997), Resiliency and Optimism (Luthans and Youssef, 2004; Luthans, Luthans and Luthans, 2004). Note that the first letters of these four constructs give rise to the acronym HERO.

Different models have been developed to represent the process of the collaborative knowledge creation: the *Knowledge Creation Model* by Nonaka and Takeuchi (1995), the *Information Processing Model* by Huber (1991), the *Social Learning Cycle of the New Knowledge Flows* by Boisot (1986), the *3-T Framework* by Carlile (2004), the *Experiential Learning Cycle* by Kolb (1984) and others. Du Chatenier et al. (2010) analyzed all these models and found out the following four stages in common:

1. *Externalizing and sharing* – Professionals share their information, (implicit) knowledge and needs through verbal communication with other professionals. This communication takes place at group level and results in distributed knowledge among the participants.
2. *Interpreting and analyzing* – Professionals absorb, interpret and analyse the previous information by associating it to their own knowledge. This process happens at an individual level and the outcomes result in different interpretations representing the experience of the single person.
3. *Negotiating and revising* – At group level, professionals assemble and order these different interpretations. In this collective process, they gather shared knowledge, a common communication language, shared meanings and common understandings about ideas, roles, tasks and goals.
4. *Combining and creating* – At this stage, which can happen at both individual and group level, professionals combine different knowledge bases and create new ideas for innovation. They also define common goals and action plans to realize their ideas.

4. INNOVATION AND THE SO-CALLED "HUMAN FACTOR"

Although most of the consulting books underline the importance of people in the innovation process, little research on the implications on human and psychological resources has been carried out. To aid with successful implementation of innovation practices, it is crucial to understand better the conditions that allow a mutual working relationship between two or more parties. In order to let the outside ideas reach the people best equipped to exploit them, Whelan, Parise, de Valk and Aalbers (2011) suggest that organizations nominate idea scouts and idea connectors. *Idea scouts* are the antennae of the R&D units and collect the signals on emerging scientific and technological developments that are broadcast from institutions around the world. *Idea connectors* have an extensive network together

with the know-how needed to distribute the technological information. Connectors are the hub of the organization's social network and much of their expertise lies in knowing who is doing what. They have the ability to translate external information into a form understandable and relevant for internal colleagues, and are also able to convince other network members to take the needed actions.

Although literature underlines the crucial role of individuals in the innovation process, research has not explored in an extensive way the human side of innovation. Several consulting books describe the skills needed by innovation teams, but their description is mainly based on their experience and not supported by research. Sloane (2011) divides into hard skills and soft skills. *Hard skills* refer to specific tasks and activities, such as developing a project, evaluating technology or overall project management. *Soft skills* are a combination of personal traits, attitudes and interpersonal abilities that are applied broadly across innovation tasks and activities. Du Chatenier et al. (2010) refer to the term of competence as human knowledge, attitudes and skills related to their work practice. Some of the required characteristics for individuals working in innovation teams are:

- An *entrepreneurial mindset* (Sloane, 2011, Lindegaard and Kawasaki, 2010);
- Strong *communication skills*, which combines listening and articulation skills (Shockley-Zalabak, 2008);
- *Ability to comprehend* complex technical requirements and articulate them in simple terms in relation to partners from other organizations (Kanter, 2006; Sloane, 2011);
- Skills for *relationship* building and maintenance in order to facilitate collaboration across various departments or external partners (Kanter, 2006; Sloane, 2011; Lindegaard and Kawasaki, 2010);
- *Curiosity*, as natural desire to learn new concepts and technologies, and to determine how they can fit together to meet or support strategic goals and objectives (Lindegaard and Kawasaki, 2010);
- *Holistic point of view*: the ability to decipher the internal political landscape that will impact the ability to move innovation forward (Ritter and Gemünden, 2003).

5. FINAL CONSIDERATIONS

Innovation requires ideas, ideas come from people and people can be described in terms of their human and psychological capital: knowledge, skills, competences (OECD, 2011), self-efficacy (Bandura, 1997), optimism, hope and resiliency (Luthans and Youssef, 2004; Luthans, Luthans and Luthans, 2004). An extensive study has been conducted by du Chatenier et al. (2010) which tries to define the competences required for professionals working in innovation teams.

By combining literature on inter-organizational learning, innovation management, business alliances and networks in organizational management and human resources studies, the competence profile has also been supported by an empirical survey. In interviews and focus groups, participants were asked to talk about critical incidents or challenging situations they experienced in innovation contexts and to describe how they dealt with those critical incidents.

The challenges and competences mentioned varied among the respondents. The interviews collected a great variety of answers with seemingly contradictory competence elements. This could be related to the fact that respondents participated in different innovation teams, with differences in partnerships, collaboration methods and goals. Furthermore the variety of answers might be a result of the specific background and context of the interviewees. The result of the study is the list of competences reported in table 1, which also shows the relationships found between competences, contextual factors and team performance.

Table 1: Competences for innovation

Competences of extra importance in certain contexts	
Project Management	**Involve**: Identifies human, material and experiential resources for accomplishing various kinds of learning objectives. Identifies situations for participative group problem solving, using the proper degree of participation, and recognizes obstacles and corrective actions. Knows who to inform and when. **Influence**: Appropriately adapts, calibrates ones behavior to each situation in order to elicit particular responses from others. Uses influencing skills (as opposed to instructing): position, coalition, stimulation. Knows how to play the political game. **Create learning climate**: Shares success, allows people to make mistakes. Is honest: possesses high levels of integrity, authenticity, sincerity and genuineness. Can be counted on to represent situations fairly. Develops, maintains and uses effective networks. Is approachable, develops friendships easily and strong beneficial alliances and coalitions. Develops a team spirit. Deals with unexpected situations, is flexible with plans, deadlines, improvises. Is not too systematic, rigid. Deals with a flexible team composition.
Both	**Prevail**: Has an overall picture of the project and influencing factor. Understands and manages complexity. Supports many things on his/her mind at the same time. Has self-confidence. Is competent: able to perform the tasks required by his or her position.
Complex alliances	**Take on**: Is aware of, and regulates, own thinking and feeling. Manages tensions created by multiple accountabilities, tasks and roles. Has perseverance, keeps on thinking positively, having end-goal in mind. Is reliable: ensures that the others can depend upon him/her to come through for them, acts consistently, follows through. Is pro-active. Comes up with ideas him/herself and takes initiatives. **Communicate clearly**: Creates a vision. Appreciates the learning domain and has the motivation to learn, has a sense of urgency. Is open: shares information freely with others, even when (s)he is not sure. Communicates clearly and understandably. Recognizes open and supportive communication methods.
Competences related to team performance	
Positively	**Monitor**: Coordinates and synchronizes activities, information, and tasks between team members. Designs a plan of strategies. Carries out the plan systematically and sequentially. Feels responsible for the team and acts as such. Monitors, evaluates, and provides feedback on overall team and individual performance. Accepts feedback about his/her performance non-defensively. Collects evidence of accomplishments. Asks many critical questions. Trusts the other party.
Negatively	**Compete**: Is critical but constructive. Is aware that (s)he represents an organization; refuses to accept less.

Positively or negatively	**Handle conflicts**: Openness: treats differences as important opportunities. Respects, values and appreciates people and their ideas. Possesses basic knowledge and perceptions of various technical/professional areas and business languages. Has experience working in partnerships. Is assertive, extroverted. Communicates own perceptions and feelings (in a diplomatic way). Is straightforward. **Analyse**: Wants to learn from others. Understands social situations as well as interpersonal interactions. Is sensitive to the roles and responsibilities of all partners, aware of their collaborative motivations and expresses understanding and empathy. Has good reflective skills and applies techniques of lateral thinking or divergent thinking.
Other relevant competences	
Relevant for all innovation professionals	**Decide mindfully**: Knows what his/her qualities are, does not take the position of the underdog. Possesses basic knowledge and perceptions. Establishes specific, challenging, accepted team goals. Diagnoses, formulates learning objectives in performance outcomes (but not too quickly). Is benevolent: has the best interests of others at heart. **Explore**: Combines high advocacy (egocentrism) with high inquiry. Recognizes types and sources of conflict, encourages desirable conflict but discourages undesirable conflict. Picks up signals, sees opportunities, has intuition for innovation. Balances short- and long-term goals. Identifies problems. Discerns sub from main issues. **Combine**: Employs integrative (win-win) negotiation strategies rather than distributive (win-lose) strategies. Brokers solutions or outcomes. Thinks in ways that differ from established lines of thought. Agrees to disagree (lose-lose strategy). Considers common goals mostly important. Adapts without violating own ideas.

Collected from: du Chatenier et al, 2010: 278-279.

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