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Learning from the future as a novel paradigm for integrating organizational learning and innovation

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Abstract

Purpose – The purpose of this paper is to challenge processes of organizational learning and innovation that are based on making use of, extrapolating, or adapting past experiences and knowledge, because such a strategy turns out to be incapable of dealing with the challenges of today's volatile, uncertain, complex and ambiguous environment. As a possible way out, a conceptual model is proposed that integrates organizational learning and innovation as a future-driven learning process and a future-making practice.

Design/methodology/approach – This work is conceptual in nature, drawing on (both theoretical/philosophical and empirical) interdisciplinary concepts and evidence from a variety of fields, including organizational studies, organizational learning, innovation studies, systems theory and systems biology, as well as cognitive science.

Findings – The author proposes a paradigm shift in organizational learning: from a future-oriented perspective, organizational learning can be viewed as an innovation process that is based on "learning from the future as it emerges." A conceptual approach is presented that integrates future-oriented innovation and organizational learning as a future-making practice. It is based on learning from future potentials as a source for sustainable innovations. Both epistemological/ontological foundations and organizational implications are discussed.

Originality/value – This paper introduces a new perspective on the role of future-oriented innovation in the context of organizational learning. It shows how organizational learning and innovation can be integrated and how shortcomings of absorptive capacity can be overcome by assuming a future-driven perspective. Furthermore, an epistemology of future knowledge/potentials and its applications for organizations is developed.

Keywords Innovation, Future-oriented, Organizational learning, Future-making, Future potential, Emergent innovation, Absorptive capacity, Inside-out, VUCA world, Future-making practice

Paper type Conceptual paper

1. Introduction

As our experiences in our daily personal, economic and organizational contexts show, we live in a period of profound change and rapid transformation. Disruption and

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breakdown of well-established (social, cultural and political) patterns of behaviors, values and mindsets is ubiquitous in almost every domain of our personal and professional lives. We are confronted with an unprecedented increase in complexity, speed and uncertainty, and we have to learn how to deal with these challenges in order to develop strategies for co-creating a flourishing future. In the literature, such an environment is referred to as "VUCA world" (Baran and Woznyj, 2020; Johansen and Euchner, 2013 and many others). It denotes a world characterized as being volatile, uncertain, complex and ambiguous. The guiding question is, how can we bring about sustainable and purposeful innovations for (co-)shaping a thriving future in an impactful and beneficial manner in such an environment?

Schoemaker *et al.* (2018) show that organizations need entirely new capabilities in organizational learning and innovation to deal with such a VUCA environment. However, quite the opposite can be observed when one looks at how most of today's organizations are struggling with our high-speed VUCA environment. Although many organizations claim to have organizational learning and innovation in their DNA nowadays, we have to admit that most of them operate in a rather reactive, standardized and repetitive mode (Farjoun, 2010). In many cases, this results in incremental innovations or adaptations which are – at best – a response or reaction to changes in the market, in technologies, or user needs.

A closer look reveals that these companies – in many cases out of fear of uncertainty – are primarily driven by learning and innovation processes dealing with past knowledge rather than by a bold and positive perspective on engaging in a process of (co-)becoming and "world-making" with their environment (Chia, 2003) for shaping a prospering future that is full of yet unknown, however useful emerging and latent potentials and opportunities. Facing the challenges of a VUCA environment, they are in need of future-oriented/shaping capabilities in their learning and innovation activities (Schoemaker *et al.*, 2018).

1.1 Outline of this paper

The goal of this paper is to develop a novel future-oriented perspective on the link between organizational learning and innovation. In a first step, we will show that organizational learning processes and innovation do not only share many aspects and functionalities, but that OL can be considered to support and have a positive effect on innovation activities.

The second part of this paper elaborates on the limitations of this link. Organizational learning processes often follow a rather reactive learning culture and focus on internal knowledge and on improving and optimizing existing knowledge. This is problematic, as it does not sufficiently address the challenges of VUCA dynamics.

In order to overcome these limitations, the third part introduces a future-oriented approach to integrating organizational learning and innovation. The following concepts play a key role:

- Absorptive capacity (ACAP) as a capacity of learning from an organization's external environment so that novel knowledge may flow into the organization.
- Future potentials as a source for novelty.
- This results in an integrated learning and innovation process following the future-making practice of "learning from the future as it emerges."

In the final sections, key findings and implications will be discussed.

2. On the relationship between organizational learning (capability) and innovation

If innovation is understood as the generation and successful implementation of creative ideas or novel knowledge concerning new opportunities that satisfies (future) human needs (Baregheh, Rowley and Sambrook, 2009; Calantone *et al.*, 2002; Drucker, 1985, p. 15; Schumpeter, 1934), one can establish a clear link between organizational learning and innovation. Both domains are intrinsically about socio-epistemic processes: both organizational learning and innovation can be considered as social processes in which new knowledge is generated, novel meaning is negotiated, created and, finally, operationalized and implemented; these realizations materialize and manifest in concrete artifacts and products, services, (organizational) processes, etc. embodying the newly developed or learned knowledge (Damanpour, 1996, p. 694).

2.1 Organizational learning supporting innovation

Actually, few studies dispute the fact that organizational learning capabilities are not only closely related to innovation but even have a positive effect on innovation and on performance (Alegre and Chiva, 2008; Sheng and Chien, 2016; Keskin, 2006). Organizational learning is understood as the capability and process by which organizations learn, more specifically, "organizational learning is the process by which the firm develops new knowledge and insights from the common experiences of people in the organization and has the potential to influence behaviors and improve the firm's capabilities" (Jiménez-Jiménez and Sanz-Valle, 2011, p. 409). This quotation shows the close link between OL and innovation. These processes require skills of using, creating and changing an organization's knowledge to improve or maintain its performance (Hedberg, 1981; Calantone *et al.*, 2002, p. 516). Concerning the link between organizational learning and innovation, Jiménez-Jiménez and Sanz-Valle (2011) show that innovation is considered an outcome of learning processes, they are mediating innovation processes and have positive effects on the performance.

In this context, one has to consider several components and organizational (learning) capabilities that are key for a successful integration of these two domains (Alegre and Chiva, 2008; Jiménez-Jiménez and Sanz-Valle, 2011; Calantone *et al.*, 2002; Keskin, 2006; Peschl, 2019a, 2020; Peschl and Fundneider, 2017):

- culture of and commitment to learning;
- ability of observing and capacity of absorbing and acquiring (external) knowledge;
- open-mindedness and capacity of reflecting and questioning existing mindsets and routines;
- capacities of sense-making and knowledge interpretation;
- balancing and integrating exploitation and exploration in learning processes (ambidexterity; ÓReilly and Tushman, 2013; Alegre and Chiva, 2008; Raisch and Birkinshaw, 2008);
- shared vision and alignment about the focus of an organization; and
- intra-organizational distribution, sharing and storing of knowledge.

2.2 Absorptive capacity, organizational learning and innovation

Among many others, Alegre and Chiva (2008, p. 323) show that innovation is a function of organizational learning capability. They relate this link to the concepts of ACAP,

dynamic capabilities (Felin and Powell, 2016; Schoemaker *et al.*, 2018) and corporate renewal. It turns out that – apart from transformation and exploitation of existing knowledge – the acquisition of (new) knowledge understood as a learning capability is central for improving innovation performance of a company. Jiménez-Jiménez and Sanz-Valle (2011, p. 410) describe knowledge acquisition from the outside as a capacity of an organization to absorb new ideas, to understand their relevance for the organization and to assimilate and apply these insights to commercial ends. Sun and Anderson (2010) relate the acquisition of external knowledge to the ACAP of an organization and consider it a "specific type of OL which concerns an organization's relationship with external knowledge" (p. 141).

One has to differentiate between four complementary dimensions that are necessary capabilities for ACAP (Zahra and George, 2002, p. 189f; Sun and Anderson, 2010): acquisition, assimilation, transformation and exploitation. In their model of ACAP, Zahra and George (2002) differentiate between potential ACAP (PACAP) and realized ACAP (RACAP). While PACAP enables an organization to become open and receptive to external knowledge by acquiring and assimilating it, RACAP is the capacity to actually transform and exploit this newly assimilated knowledge. In the context of innovation studies, this is a well-known and similar phenomenon: for being an innovation, it does not suffice to create ideas or novel knowledge. Similarly as in RACAP, novel knowledge becomes an innovation only if it is implemented and successful in the market (Garcia and Calantone, 2002, p. 112; Baregheh *et al.*, 2009, p. 1334; Drucker, 1985).

Furthermore, it can be seen that the above discussed four dimensions of ACAP are not only related to each other, but depend on each other in their entirety. They have an impact on a firm's knowledge by extending, leveraging existing or even bringing about novel competencies, which in turn enables an organization to deal with today's high levels of uncertainty and unpredictability (VUCA dynamics). By that, ACAP, organizational learning and innovation share similar theoretical backgrounds (Sun and Anderson, 2010, p. 137). Thus, ACAP turns out to be a crucial link between organizational learning and innovation; it enables a kind of irritation of existing knowledge and routines by allowing external novel knowledge and perspectives to flow into the organization.

2.3 Limitations of the (positive) impact of organizational learning on innovation

Taking a closer look at the relationship between organizational learning and innovation reveals that we have to go beyond investigating ACAP, however. One has to ask what is the scope and the direction of these learning processes bringing new external knowledge into a company. Starbuck (2017, p. 31) shows the importance of people not learning the "wrong things;" rather, they should have a reflected and attentive understanding of what is going on in the market (and in the world in general). Furthermore, they should have a capability to make accurate predictions about relevant developments in the future in order to avoid focusing on sometimes misleading and self-reinforcing (already existing) knowledge.

To tackle this question concerning the relationship between organizational learning and innovation, Sheng and Chien (2016) suggest to differentiate between incremental and radical innovation. In the field of innovation studies, this is a classical distinction (Baregheh *et al.*, 2009; Damanpour, 1996; Ettlie *et al.*, 1984; Tidd and Bessant, 2009): incremental innovation focuses on the incremental and reactive improvement of existing products or services by slightly changing or optimizing their features or functionalities. Radical innovation, on the other hand, is based on completely/radically new principles, premises or knowledge opening up new long-term opportunities, markets and applications (Hopp *et al.*, 2018).

To keep their competitive advantage, companies develop and cultivate highly specialized knowledge and routines. As a consequence, most of their learning activities focus on using and improving existing knowledge and processes that are potentially useful for the (current state of the) organization. As is shown by Sheng and Chien (2016, p. 2307), this leads to incremental innovation in most cases because these firms become entrenched in their well-established knowledge, patterns and routines, self-reinforcing learning processes and paradigms; they are unable to sense necessary (external and internal) changes, to pay sufficient attention to new developments or technologies in the market and environment, or to create new ideas or perspectives. This creates blindness and rigidity on an organizational level: such organizations continue to operate on their past premises and are not able or willing to acknowledge that these new external developments make their existing operating models obsolete (Starbuck, 2017, p. 32). This does not imply that a company should prefer radical over incremental innovations; as is shown in the discussions about organizational ambidexterity, it is important to establish a balanced relationship between the explorative and the exploitative modes of operations (ÓReilly and Tushman, 2013; He and Wong, 2004). Both modes are necessary and mutually support each other for the overall success of the company.

These dynamics of an organization operating mainly on their past premises and experiences has its foundation in what we refer to as "organizational predictive mind" (Grisold and Peschl, 2017a, 2017b), i.e. an organization has hypotheses about its market, users and their needs, technologies, products and services and more, and these hypotheses are predicting and driving not only its operations but also its perspective on the world, its processes of learning and development/innovation, its employees' mindsets and mental models, its training strategies, strategic decisions, etc. What does not fit into these hypotheses, can (almost) not be perceived by the company leading to organizational blind spots and self-reinforcing routines, group think, rigidity, inertia, organizational lock-ins or paralysis (Van der Heijden, 2004) and sometimes (misleading) self-fulfilling prophecies. These dependencies on past models and existing modes/routines of operation sometimes become so strong that they heavily influence and bias crucial decision processes on an individual and organizational level (Starbuck, 2017, p. 34).

From these considerations at least three causes can be identified leading to the sometimes detrimental dynamics having been discussed above:

- the focus of learning processes on internal knowledge;
- most of these learning processes are reactive in nature; and
- a focus on improving and optimizing past/existing knowledge.

One of the conclusions from these considerations is that, to address and overcome these challenges in the context of a VUCA environment, it is necessary to engage more in future-oriented activities, such as proactive and explorative learning (from the external environment), active shaping of the future, as well as in radical innovation (Sheng and Chien, 2016).

3. Future-oriented innovation and (organizational) learning

As has been discussed above, one of the key elements of ACAP is the capability of an organization to learn and absorb both external and novel knowledge (Sheng and Chien, 2016; Sun and Anderson, 2010; Zahra and George, 2002). In this section, we do not intend to expand on this concept in more detail, but we would like to focus on the following questions: What do we actually mean when we talk about absorbing "external novel knowledge" as an

enabler for becoming beneficial for an organization and for bringing about (radical) innovation? Which role does the future play in such learning and innovation processes? What kind of knowledge are dealing with here and what is its epistemological and ontological status? Which modes of organizational learning processes do we have to employ in order to enable these learning and innovation processes?

3.1 Role of the future in organizations and organizational (un-)learning

Although Berends and Antonacopoulou (2014) consider:

> [. . .] pre-viewing the future an essential mechanism in OL, in most OL studies, the future is a rather empty concept, referring to later moments in which improved ways of working may be deployed [. . .] the future is also present in the present and may thus affect learning. (p. 447).

In their review paper, they show that time and more specifically, future plays an important role in organizational learning. In their model of OL, they stress the fact that a temporal lens on OL will almost always contain an element of uncertainty and surprise, that it entails open-ended processes and, thus, will be emergent in nature.

In this context, scenario planning has proven to be an important tool for anticipating what is yet to come in the fields of (organizational) learning, innovation and strategizing (Amer *et al.*, 2012; van der Heijden, 2004; Schoemaker, 1995). One strength (and at the same time also a kind of weakness) of future scenarios is that they offer multiple perspectives on the future. As van der Heijden (2004) shows, this multitude of scenarios neither provide a single line of forecast nor have high predictive value. Rather, they make explicit the uncertainty of the situation and at the same time offer alternative descriptions of possible future states that, in turn, open up new spaces for conversations in an organization. To learn about and prepare organizations for what is yet to come, these scenarios support decisions for the future that need to be made today.

Another important approach that is dealing with the future in the field of OL is learning from unusual experiences (Berends and Antonacopoulou, 2014; Garud *et al.*, 2011). Classical (organizational) learning processes are based on learning by pattern recognition: simply speaking, a phenomenon or situation is categorized in an already known category leading to a kind of stimulus-response behavior; learning is reduced to improving and optimizing these responses, as we know it from incremental innovation (Tidd and Bessant, 2009; Ettlie *et al.*, 1984). As we have seen above, such learning processes are primarily driven by past experiences/knowledge. Looking at today's VUCA world leads to the observation that organizations increasingly experience unexpected and unusual events making it almost impossible to anticipate/predict the future by extrapolating from the past. These unusual experiences pose a challenge to organizations, as they neither have appropriate means to deal with and react to these novel situations nor do they know how to learn from it (Garud *et al.*, 2011). In some cases, organizations might not even be able to recognize them properly, because they are simply not prepared to "see" them. In a VUCA environment, however, it is precisely these unusual events that can be an important key or trigger for learning and innovation processes sometimes leading to (radical) transformations in a company that are necessary for its success, survival, competitiveness, innovation and flourishing future. In such a situation, it is not sufficient to have only well-established stimulus-response patterns/routines in place.

As we have seen in our discussion about VUCA dynamics and as is shown by Wenzel *et al.* (2020) future-related issues have been "rediscovered" recently because our world has dramatically changed and become increasingly complex, uncertain and unpredictable in almost every domain of our lives. Although planning is considered as one key activity and

strategy in organizations for dealing with the future, it is being called increasingly into question as the instrument for coordinating, controlling and shaping the future. As is shown by Tsoukas and Shepherd (2004) or Sarasvathy *et al.* (2003), we have to accept that the future of today's world is inherently unknowable, open-ended and will always surprise us.

In this paper, we propose a shift from a paradigm and mindset of predicting (the future by extrapolating the past), planning and controlling only to an approach having its focus on (pro-)actively making and shaping the future by "learning from the future." This practice of future-making (Wenzel *et al.*, 2020) can be understood as a process of organizational learning (and unlearning; Peschl, 2019b). Integrating ACAP (in an extended understanding; see below) and future-driven innovation.

Therefore, the environment and the (external) knowledge an organization can gain from it play a crucial and novel role in such a future-making approach. In many cases, "external new knowledge" refers to knowledge from the environment that is new to the company even though it already exists in the environment or market as a concrete technology, knowledge about a solution for a specific user need, etc. According to the concept of ACAP, the company would have to acquire, assimilate, transform and exploit this knowledge for its own purposes.

However, it is not the existing knowledge we want to focus on in this paper. What is of interest for us is a more future-oriented perspective on novelty and not yet tapped opportunities emerging in the social and/or technological environment, in its value systems, or user preferences. In the sense of a future-making practice (Wenzel *et al.*, 2020), we are interested in what it means to learn about future potentials and how organizational learning processes can be integrated with a future-oriented innovation process. We will show that we are in need of a new mode or paradigm of learning replacing learning from the past by "learning from the future" (Scharmer, 2016; Peschl and Fundneider, 2013, 2017).

3.2 Novel external knowledge and future potentials – toward an epistemology of future-oriented innovation

If, in the context of this paper, we are not primarily concerned with (learning about) existing external "new" knowledge, then what should we learn from the environment to bring forth sustainable radical innovations for co-shaping a thriving future? On which aspect of reality do we have to focus our attention, our learning processes and absorptive capacities? What is the "object" of our learning processes?

3.2.1 Epistemological and ontological quality of the not-yet. Obviously, it is different from something that already exists at some level of maturity and that can be (directly) perceived as a concrete and actualized entity (be it an innovation artifact, novel product, service, etc.). From an ontological perspective, as is pointed out by, for instance, Felin *et al.* (2014), Bloch (1986), Poli (2006, 2017); or Kauffman (2014), this knowledge has a different quality. It has the quality of being about something that is "not yet," that is "latent," possible, or, as we refer to, as being a (future) potential. Ontologically speaking, our present situation or environment does not only comprise phenomena that already exist and that can be directly observed; it also includes something that is present in a latent or potential manner, something that is possible, but not necessarily realized or actualized (yet). These aspects of the world can be described as "the unrealized potentialities that are latent in the present and the signs and foreshadowings that indicate the tendency of the direction and movement of the present into the future" (Kellner and ÓHara, 1976, p. 16).

This implies that our actual present world, our environment, markets, users and, of course, organizations are in a permanent state of potentiality, of needs and desires. They are waiting to *unfold* into something that is "not yet here;" the present state – although being

real(ized) and sometimes quite stable – is the unrealized potential of a possible future state. As humans and organizations, it is our task to bring what-is-not-yet-realized (or the "not-yet-come-into-being") into the world. We are achieving it by changing or transforming both the world and ourselves in accordance with what could be, with what "wants" to emerge and with what could lead into a thriving future through a process of co-creation and co-learning. From this perspective, this means, when organizations engage, for instance in innovation activities, they are shaping the becoming of social, technological, material, etc. reality by making use of and cultivating these not yet realized potentials through bringing novel meaning to them (Krippendorff, 2011; Peschl, 2019a, 2020; Verganti, 2009). Potentials are always dealing about the future, as they are not yet realized possibilities of the present.

3.2.2 From potential/not-yet to realization. How do these not yet realized potentials come into being? First of all, it is important to understand that novelty, innovation, or change is always realized or manifested in material artifacts, which we refer to as innovation artifacts. In an organizational context, these artifacts may be very diverse, comprising (innovative) products, services, technologies, processes and routines (realizing themselves in concrete material behavioral patterns), organizational structures or even social processes, etc. Generally speaking, an artifact is an object or an entity that has been intentionally made or produced for a specific purpose (Risto, 2011). This implies that there has to be one or more "authors" (cognitive/creative systems/agents) who are responsible for having brought about this artifact. To understand the relationship between potentials and innovation artifacts, we have to take a step back and look at the situation from an ontological perspective: in his metaphysics, Aristotle (1991) suggests that an object is constituted as a unity or compound of form and matter. Form (formal cause) gives matter (material cause) its determination, its "meaning," its intelligibility, its "what it is" as well as supports its purpose. Hence, philosophically speaking, "form" is not only an object's material form, but also its *meaning* or *intelligibility* (its formal cause and partly its final cause). In the case of artifacts, this form has its source in a cognitive system¨s knowledge: this means that knowledge (form) or a "(new) idea" in a cognitive system's/creator's mind is transformed into action/behavior itself shaping matter (i.e. artifacts, environmental structures) according to this knowledge or idea. Ideally, the artifact embodies the original idea or knowledge ("hylomorphic approach;" Ingold, 2013; Peschl, 2019a).

The interesting point is that any material object (or process being realized in material structures) does not only have a specific form, but also a potentiality to be (further) changed or transformed. That is the point where the notion of (future) potential comes in. As a simple example think of a tree (having already a specific form) being transformed into a table or chair by a carpenter. By externalizing his/her idea via his/her actions and by using tools, the carpenter "in-forms" matter (i.e. wood) and "engraves" his/her idea of a table into the piece of wood by "trans-forming" it. The resulting table constitutes a unity of form (i.e. the carpenter's idea or knowledge of a table) and matter (i.e. the piece of wood). The table has the material form of a table and – at the same time – embodies the meaning of a table. However, the important point is that the same piece of wood also has the potential to become a chair or another object. Its realization lies in the future and depends on how one makes sense of it and transforms it to bring it to reality.

3.2.3 Organizational implications. Coming back to the organizational context, the process described above is what happens in a company at a more sophisticated level: it creates and produces (innovation) artifacts according to its organizational knowledge and these artifacts provide a value for its users by supporting, improving, changing, etc. their behaviors and/or fulfilling their needs. As has been mentioned above, these innovation artifacts may be products or services, business models, etc.

What does this mean for our discussion on the relationship between organizational learning and innovation? First of all, what we are discussing here is a perspective on innovation and learning that is intrinsically driven by the future (vs being driven by past experiences). Second, it changes the perspective on what we have to focus on, what an organization has to learn when it engages in acquiring external novel knowledge in such a future-oriented innovation process: the focus has to shift from already existing (novel) knowledge to (future) potentials. The source of our learning processes become future potentials. Third, this implies that the mode of learning has to change as well, shifting to proactive learning and anticipation, being receptive to future potentials and to making sense of these potentials.

In the remainder of this paper, we are going to develop principles and capabilities that are necessary for such an integrated future-oriented organizational learning and innovation process, which we refer to as emergent innovation (Peschl, 2020; Peschl and Fundneider, 2013, 2017).

3.3 Principles and capacities for an integrated future-oriented organizational learning and innovation approach

If one wants to innovate in such a future-oriented manner one has to leave behind classic paradigms of learning and engaging with the external environment of an organization, such as traditional user- or marketing research, technology- or trend scouting, learning from best practices, predicting and planning by extrapolating past experiences, etc. and enter into a mode of anticipation (Poli, 2017) taking seriously future potentials as a source for learning and innovation processes. What are principles, skills and mindsets that enable such processes?

3.3.1 Learning to see. First of all, an organization has to develop its capabilities of observing/perceiving closely its environment and not limit itself to its already known sources of knowledge or markets (Sun and Anderson, 2010; Zahra and George, 2002). Being open and receptive to unknown related and analogous fields are key in this context. Above that, openness is not only limited to willingness to explore alternative search fields, but also means to cultivate an open mindset: an organization (and its employees) has to learn to reflect on its own organizational patterns of perception and thinking, to reframe them (Argyris, 1982; Tsoukas and Mylonopoulos, 2004) and, by that, to reduce observation bias (i.e. reduce its organizational predictive mind; Felin and Zenger, 2017; Grisold and Peschl, 2017a). This results in having a broader perspective and a first understanding of fields, which – at first sight – might seem not directly related and relevant for the company, however might turn out to become important sources for future developments.

3.3.2 Understanding the core. However, it is not sufficient to just observe a newly identified field from the outside. To discover its potentials, it is necessary to deeply intellectually penetrate this field. This can be achieved by changing and redirecting the standpoint from being an external observer only to an internal perspective (Scharmer, 2016). By actively engaging with and enacting the field it is possible to deeply immerse into the field. This goes beyond traditional methods of research and requires a deep and personal interaction to arrive at the core or the essence of the field (Dorst, 2015, p. 30). In an organizational context this can be realized, for instance, by going out to the field, observing potential users, deeply immerse in the concrete life worlds and contexts of users, being highly attentive and sensitive to environmental details, to what is "in-between," what is not directly visible, etc. and engage in a sense-making process to understand what users' most profound needs are really about, what stands behind their behaviors, what is their purpose and what is missing.

As a result, a company gains intimate knowledge and understanding of the field "from within," its deepest meaning and purpose (Bortoft, 1996; Scharmer, 2016; Depraz, Varela and Vermersch, 2003; Peschl *et al.*, 2010). Philosophically speaking, this is the transition from external observation to the exploration and understanding of the underlying (philosophical) causes and principles of the field and thus, to its core and deepest meaning (Aristotle, 1991; Falcon, 2015).

In this context, it is important to understand that the current situation is one of the points of departure for learning from the future, as it always carries in itself what is not-yet (i.e. the future potentials). Hence, learning from the future always partly comprises learning from the past; however, it is not limited to and not determined by the past, as it opens up the past to the transformative power of future potentials.

3.3.3 Getting in resonance with future potentials. Understanding the core of a field is mostly rooted in the present. If an organization wants to identify future potentials, it has to learn to see the future of reality as an unfolding emergent phenomenon carrying in itself a dynamics of bringing things from potentiality into actuality. In such an approach one has to acknowledge that the goal or the purpose is not clear from the outset; rather, it (co-) emerges in a process of cooperation and co-becoming with the environment (Peschl, 2019a). The goal is to tap into potentials of the core (see above) that have not been identified and realized yet. In many cases, more than one potential has to be considered and combined with other potentials in a process of sense-making to bring about a sustainable innovation having positive effects. This implies that a different mode of organizational learning processes has to be in place that is referred to as "learning from the future as it emerges" (Scharmer, 2016; Peschl, 2020).

3.3.4 Wisdom, phronesis and future purpose. Going far beyond the classical notion of knowledge as "justified true belief", wisdom is a distinctive form of knowledge. Although subtle and hard to grasp, it offers a different quality: it provides a kind of orientation and stability in this highly volatile (VUCA-)world. It draws our attention back to (first) principles, meaning, purpose and the essence of humans, things, phenomena and organizations (Nonaka and Takeuchi, 2019). Wisdom is defined as a higher-order tacit knowledge grasping the essence/core of a phenomenon from a more general perspective (see "Understanding the core" above). While knowledge becomes obsolete in relatively short time in most cases, wisdom endures over time, stays relevant, offers orientation and concerns the why/purpose (final cause) of a phenomenon. Hence, wisdom deals with the core and the future (purpose) in the sense of self-transcending knowledge (Scharmer, 2001; Kaiser and Peschl, 2020). Phronesis is concerned with the practical (here-and-now) aspects of wisdom (Nonaka and Takeuchi, 2019, p. 6; Aristotle, 1991). It brings wisdom into the (practical) context of how to deal with the current situation in a "wise" (i.e. long-term, purpose-, value- and future vision driven) manner and nevertheless leads to operational and practical action. Although wisdom concerns the core and the (future) purpose and is more abstract, phronesis translates this purpose into concrete action both taking into account the current practical context and by being "attracted" by the future purpose (understood as final cause).

Phronesis empowers employees and leaders to exercise prudent judgments and to take wise decisions. As is pointed out by Nonaka and Takeuchi (2019, p. 33), phronesis connects concrete decisions and action with wisdom, goodness and future purpose. By that, it might guide decision processes concerning the identification of adequate and fruitful future scenarios. In an innovation process, for instance, this can be achieved by putting real and honest value (for the user), social justice, the consideration (and satisfaction) of deep human needs, sustainability or the common good (for society and/or the environment) first (instead of pursuing maximization of profits at all costs).

3.3.5 Creating new niches enabling the emergence of novelty. "...companies must create a new future in order to survive. Those futures can no longer be extensions of the past; they must be leaps of faith" (Nonaka and Takeuchi, 2019, p. 23). Future-oriented innovation is about creating new niches and making use of them. Niches are spaces of possibilities/potentials (Felin *et al.*, 2014; Kauffman, 2014; Nonaka and Takeuchi, 2021) in which novelty can emerge. As Felin *et al.* (2014) and Kauffman (2014) show this process cannot be predicted, as it does not follow a strictly deterministic and causal dynamics. The resulting possible novel uses or purposes (e.g. concrete products or services serving specific user needs) of a niche are unprestatable (Kauffman, 2014). They are co-created in an emergent circular interaction process between a creator (or a team of creative minds, an organization), the potentials and enabling conditions of the niche and the unfolding dynamics in the environment.

3.3.6 Acknowledging the importance of the external environment and reducing control. One of the consequences of the emergent innovation perspective (Peschl, 2020; Peschl and Fundneider, 2013) having been discussed in this paper, is to acknowledge that the external environment plays a key role as a source for learning and future-oriented innovation. Classical innovation approaches usually focus on the creative and cognitive abilities of humans and their dominance over the environment (by projecting and implementing their ideas). We propose to reverse this perspective and to give room to the future potentials in the external environment, to the intrinsic creativity that is latent in these potentials and to engage in an empathic co-creation process for bringing forth beneficial future-oriented innovations in a process of "learning from the future as it emerges" (Scharmer, 2016). Of course, this implies that we have to give up the idea that we can gain (full) control over the environment (be it the market, a user, etc.) in a deterministic manner. However, living in a VUCA world has taught us (think of the COVID-19 crisis) that many of our efforts to keep things under control are rather limited and that we have to assume a more humble position accepting that the source of novelty and creativity is not primarily in our minds but lies in (the untapped future potentials of) our environment/reality (Peschl, 2019a).

4. Conclusions

The goal of this paper was to establish a link between organizational learning and future-driven innovation. We have shown that classic forms of both organizational learning and innovation are often driven by past experiences and already existing knowledge. In most cases, this leads to incremental innovations or improvements and optimizations of existing products or services. As has been discussed by Wenzel *et al.* (2020, p. 1442), such approaches remain very much in the paradigm and mindset of planning and controlling. Although being a mainstream approach, they show that this is only one way of how an organization can understand and deal with an unpredictable future and VUCA environment. They point out that alternative future-making practices are still very poorly understood. This paper tried to develop such an alternative future-making practice. If we are interested in shaping the future of our social and economic environment in a VUCA-world, we must recognize that we will have to leave behind a paradigm that is based on planning and controlling only.

To overcome these shortcomings, we suggested changing the mode of learning and innovation by redirecting it to the future. The following concepts turned out to be crucial in this context:

- ACAP as a capacity of learning from an organization's external environment so that novel knowledge can flow into the organization.

- Instead of assimilating already existing external novel (for the organization) knowledge, learning and innovation processes should focus on future potentials.
- This resulted in an integrated learning and innovation process of "learning from the future as it emerges" (Scharmer, 2016).

4.1 Key findings and implications

4.1.1 Actuals and possibles. Following such a future-oriented approach implies a profound change in the underlying ontology and epistemology for organizational learning and innovation processes. We are no longer dealing exclusively with knowledge about what actually exists. Kauffman (2014, p. 6) suggests to differentiate between "actuals" and "possibles" (= potentials). While actuals are actually existing phenomena (such as a concrete table), possibles exist only in their potentiality (they may become a table). The fascinating thing about possibles/potentials is that they are both ontologically real, they are latent (Poli, 2006, 2017) not yet and at the same time their future functionality or purpose resists prediction, they are "unprestatable" (Kauffman, 2000, 2014; Felin *et al.*, 2014) . In other words, its future form and final cause/purpose cannot be predicted as they emerge as a result of an interaction between the new actual and its environment in the moment of transformation.

Concerning their knowledge and learning processes, organizations have to learn that potentials have to be dealt with in a different manner than actuals. They are highly fragile, vague and sometimes intuitive. They deal about future possibilities, things that are "not yet," but that are already present in a latent manner, phenomena that might emerge, if they are cultivated in an enabling environment ("niche"). They need time and space to develop, they have to be sensed, uncovered and developed (Peschl, 2020; Scharmer, 2016).

From these considerations, it is clear that we need special epistemological (learning and innovation) skills, as well as attitudes and ways of thinking that go beyond traditional management skills. They are capabilities concerning receptivity for (future) potentials, openness, patience, humbleness, empathy and intuition, close, unbiased and profound observation, a high level of reflection on one's patterns of perception and thinking, sense-making capabilities, as well as a high levels of resilience when facing uncertainty and ambiguity.

4.1.2 Emergence, enabling and trust. Future-oriented organizational learning and innovation processes are emergent processes. They have to be dealt with in a different manner on an organizational level: instead of trying to control and "manage" such processes as mechanistic routines, a change in attitude and mindset is necessary. A rule/routine-driven organizational environment has to be replaced by an explicitly enabling milieu. This implies that an organization has to learn how to reduce control both on its employees and concerning its processes. It has to be capable of enduring in a sometimes ambiguous state for some time. As a consequence, a culture of trust has to be established in a twofold manner:

- "Social trust" in employees and their capabilities and autonomy to bring forth novel knowledge and innovations that are relevant and beneficial both for users and the future of the company.
- "Ontological trust" in an emerging reality that it unfolds in a positive manner and useful innovations, if the relevant latent potentials are identified, understood and cultivated by the organization.

Considering a VUCA environment, engaging in such a learning and innovation process of co-becoming and dependence on reality seems to be a more promising strategy; its

unpredictability and instability carries in it the potential for creativity and novelty (Baran and Woznyj, 2020; Ingold, 2013) waiting to be transformed into sustainable innovations.

4.1.3 Purpose and innovating from the inside out. Finally, if the point of departure of this future-oriented approach to innovation and learning is the core of the object to be innovated and its yet untapped emerging potentials, this has several interesting implications: it is an "inside-out" approach to innovation in a twofold manner. First, the learning and innovation process is not primarily about "superficial" features, such as the physical shape or specific functionalities, but about innovating the core or deeper purpose (the "why"). An organization has to learn how to tap future potentials of the core and from there develop possible concrete innovations in an inside-out manner (i.e. the what and how). Second, as Nonaka and Takeuchi (2021) suggest, companies have to adopt an inside-out approach to strategy: the company's future vision and its purpose, the reason why this company exists, serve as the reference point for interacting with external future potentials. As a consequence, an integrated future-oriented innovation and learning approach has to engage in a process of co-becoming of the organization's core/purpose and the external emerging future potential(s). They jointly bring the state of potentiality to actuality and co-create what can be "learned from the future as it emerges." Both sides are engaged in a future-driven process of transformational learning and innovation.

4.2 Future research

So far little research has been done on future-oriented innovation that is based on future potentials in the organizational context (Wenzel *et al.*, 2020). Philosophy, systems science and evolutionary theory have already developed concepts and approaches that have been used partly in this paper (Kauffman, 2014; Aristotle, 1991; Scharmer, 2016). However, more work needs to be done to integrate them both in the theoretical realm as well as in operationalizing these insights in concrete learning and innovation processes, skills, mindsets and cultural structures. A first step has been achieved by developing and successfully applying and testing the approach of emergent innovation (Peschl, 2020; Peschl and Fundneider, 2013). Furthermore, based on the insights and concepts having been discussed in this paper, it would be interesting to develop further the concept of ACAP (Sun and Anderson, 2010; Zahra and George, 2002), as it is intrinsically concerned with acquisition, assimilation, transformation and exploitation of (external and existing) knowledge, dealing with future potentials would be an important element which should be included in this organizational capacity.

Another important field would be the development of an "epistemology of potentiality" as a foundation for how organizations can deal with future potentials in order to improve both their learning and innovation capabilities. One question that still has to be worked on in detail concerns the issue of how an organization may cultivate and co-create these future potentials that have the highest probability of becoming innovations leading to having a thriving and beneficial impact on society and the environment.

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