

Disentangling workplace innovation: a systematic literature review

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Abstract

Purpose – The purpose of this paper is to consolidate the state of extant academic research on workplace innovation (WI) by proposing a comprehensive conceptual framework and outlining research traditions on the phenomenon.

Design/methodology/approach – This paper systematically reviewed the literature published over the past 20 years, basing on a predefined research protocol. The dimensions of WI were explored with the help of thematic synthesis, while the research perspectives were studied by means of textual narrative synthesis.

Findings – The analysis suggests that there exist four research traditions on WI – built container, humanized landscape, socio-material macro-actor, and polyadic network – and each of them comprises its own set of assumptions, foci of study, and ontological bases. The findings suggest that WI is a heterogeneous process of renovation occurring in eight different dimensions, namely work system, workplace democracy, high-tech application, workplace boundaries, workspaces, people practices, workplace experience, and workplace culture. The analysis showed that over years the meaning of innovation within these dimensions changed, therefore it is argued that research should account for the variability of these categories.

Practical implications – The paper includes implications for developing and implementing WI programs. Moreover, it discusses the role of HR in the WI process.

Originality/value – This paper for the first time systematically reviews literature on the topic of WI, clarifies the concept and discusses directions and implications for the future research.

Keywords Qualitative, Workspace, Work practices, Workplace innovation, Workplace design, High-performance work systems (HPWS), Working life development

Paper type Literature review

Introduction

Nowadays organizations are operating and competing in a rapidly changing, hypercompetitive, and unpredictable environment. In order to develop competitiveness in these conditions, it is claimed that innovation is paramount and imperative for success (Tushman and O'Reilly, 1996; Dess and Picken, 2000; Friedman, 2011). Whereas for years the only domain of innovation was technology, product and service, recently new domains of innovation have appeared (e.g. social innovation, organizational innovation, grassroots innovation, user innovation). Among these, workplace innovation (henceforth WI) has gained much attention and was recognized as a main driver of economic growth (Dhondt and Totterdill, 2014). European Commission made WI a priority in the reinforced EU Industrial Policy Communication (Kesselring *et al.*, 2014), and different countries recognized the importance of the WI in their policy agenda on the national level (Alasoini, 2009).

Despite an enormous amount of writings on WI, up to today there is no clear conceptualization of WI. Different authors include under this umbrella-term modernization aspects of management, organization, space, skills, labor relations, workplace culture, HR



practices, etc. (Eeckelaert *et al.*, 2012; Kesselring *et al.*, 2014). Such polysemy and low conceptual development is a serious impediment for the consolidation of the field of WI, as it drives to fragmented knowledge, difficulties with the development of measurement scales, and theorizing problems. Moreover, WI seems to involve disparate or dual tendencies (Oeij and Vaas, 2016), thus it can be distorted if relying on a single and overly simplified model. Therefore, it is important to outline the conceptual framework that can account for the internal contradictions of the phenomenon of WI.

In HRM literature there is a general consensus to consider WIs as a bundle or system of practices (Lepak *et al.*, 2006). However, considering all practices is impossible, while considering only some of them requires applying certain selection criteria. Moreover, the logic of a system raises the problem of how different components are related to each other. Past research proved that the interdependence between different practices may produce a significant effect on performance (Delery and Gupta, 2016). Therefore, at one hand, we cannot neglect the inter-relatedness, but at the other hand, there is no theoretical framework for understanding whether some practices are redundant, complementary to others, significant for performance, unnecessarily constrained, etc.

In order to take the configurational perspective on HRM practices, we need to understand how researchers' attention should be allocated. With this intent scholars have developed numerous typologies and categories of innovative practices (MacDuffie, 1995; Totterdill and Exton, 2014). Given the multifaceted role of practices, the creation of meaningful categories is still challenging. Traditionally in management studies, the categorization has been based on prototype theory (i.e. consensus on definitional properties) (Durand and Paoella, 2013). Yet, such approach cannot explain the fuzziness of categories. More recent approaches see fuzziness as inherent in the category itself. This means that categories may extinguish, and their boundaries may extend either horizontally (i.e. growing to encompass new situations) or vertically (i.e. repositioning within a hierarchical structure of a field) (Delmestri and Greenwood, 2016). Therefore, if we admit that there may exist some categories that help to elucidate the concept of WI, their variability should be addressed as well.

Moreover, in HRM literature, scholars usually approach workplace as a social system without taking into account the interplay of spatial and material factors (Kornberger and Clegg, 2004). But the field of socio-material studies of organizations highlights that practices are deployed within a material and symbolic space (de Vaujany and Mitev, 2013). To deepen this perspective, HRM field may benefit from integrating a place-based view on practices and entering in dialogue with such fields of research as, for example, architecture, ergonomics, science and technology studies, etc. This implies that some common ontological, epistemological and methodological bases in different disciplines shall be established first. With this purpose, the identification of different research traditions on WIs within the management field is an essential step in creating an interdisciplinary dialogue.

Basing on these premises, the purpose of this paper is to provide a comprehensive understanding of the WI concept by answering the following questions:

RQ1. How has the concept of WI been approached in the academic literature?

RQ2. What are the dimensions through which WI has been explored?

RQ3. How have the meaning and contents of these dimensions changed over years?

In order to answer these research questions, we applied the systematic literature review. We investigated different academic databases for a series of WI-related keywords and retrieved citations on topic from 1996 to 2016. We then applied the methodology of narrative synthesis and thematic analysis to qualitatively interpret the findings. After presenting initial theoretical insights into WI, we introduce our findings on four research traditions on WI.

We then propose eight dimensions through which WI has been explored in the literature and examine the variability of these dimensions. Finally, we critically discuss our findings, propose directions for future research and a series of implications for HR practitioners.

Toward the definition of WI

Prior to reviewing the existing literature on WI, it is important to understand the meaning of two main words it is composed of, i.e., workplace and innovation. The debate over the concept of workplace is complex and full of various nuances. As a rule, workplace is defined as the outcome of the social process of valuing workspace (Meskell and Preucel, 2004; Cresswell, 2015). It describes the whole network of social, organizational, and design elements that constitute the context in which the work is realized. The concept of workplace expresses the spatiality enacted by organizational members and/or the material space constituting an organization in concrete terms (de Vaujany and Mitev, 2013). In organization studies the research on workplace is inspired by multiple perspectives: environmental psychology, sociology of space, sociology of architecture, socio-materiality, etc. The general claim of scholars is to treat the concept as multifaceted (Delbridge and Sallaz, 2015). The idea of place thickness has been promoted years ago by human geographers, claiming that place cannot be reduced to a dimension-less point as it contains a number of features that cannot be spatially merged with one another (Cresswell, 2015). Similarly, Foucault drew attention to the multidimensionality of the place when he spoke about heterotopia (Foucault and Miskowicz, 1986), i.e., places that function in non-hegemonic conditions, with simultaneous co-existence of different dimensions (e.g. physical, mental, psychological).

If the static view of workplace analyses it as physical boundaries of social life, the dynamic view of workplace explores the process of its construction and renovation. Thus, according to this view, workplaces are dimensions of, and (re)produced through, processes of innovation and creativity. With the advent of the innovation studies, there has been an attempt to understand how these processes occur and how to manage them. Yet, as long as the innovation became sense-deprived and abused word, it was difficult to establish it in the workplace discourse. Since early 1990s when the WI started to emerge as a discourse, there was no settled meaning of it (Ichniowski, 1996). What diverse definitions of WI had in common is that they departed from the stereotyped traditional Fordist idea of workplaces. All non-traditional initiatives in the workplace were collectively defined as “WI”. Even if the emergence of innovative working practices had origins already in the 1960s, they were not common or widely adopted due to the underdeveloped technologies and cultural unreadiness, and so had not been defined as innovations (Ruostela *et al.*, 2015). As we know, innovation always expresses a new form of social value – from slightly incremental to radical and breakthrough. At the same time, innovation does not require absolute novelty of an idea, simply that the idea be new to the relevant unit of adoption (Zaltman *et al.*, 1973). As such, the unique characteristics of innovation can be described in this way: it involves new and creative knowledge, it derives from a conscious inventive effort, it expresses the actual utilization and it encompasses a created value.

Many studies do not precisely identify what kind of innovation they refer to. Innovation may refer to: a substantive (new ideas, practices, and objects), a verb/an action (introducing or adopting something new), an outcome (the result of introducing novelties), and a process (a sequence of activities from generating ideas to their use in practice) (Van de Ven *et al.*, 1999). In any case, the majority of studies on WI seem to stick to the “atomic” idea of innovation, and define innovations as new organizational solutions (Tidd, 2006). Yet, the temporality and perpetual change of innovations-as-solutions makes them difficult to grasp. Instead, innovation as a process is understood as a flux, a tendency of directing practices and reshaping places toward continuous improvement, which can bring benefits to the employee, the group, organization or wider society.

To sum up, in organization studies there exists a plurality of approaches on WI. No unified definition has been advanced yet. The concept describes a more comprehensive, if compared to simple improvements, redesigning of the workplace with the intent of questioning the suitability of existing work realities. Still, it is difficult to accurately distinguish what counts as a WI and what does not. Embracing the idea of multiple dimensions of workplace and their instability in time may be an important step ahead in clarifying the concept. The future research should account for the tensions internal to the conceptual apparatus of WI and distinguish different research approaches and traditions on the topic.

Research framework and methodology

In order to address our research questions, we selected the method of systematic literature review for coping with the elevated number of papers published in this area. Although this method was developed in medical discipline, it has already gained awareness and recognition in the management research field (Tranfield *et al.*, 2003; Barnett-Page and Thomas, 2009). Traditional narrative literature review is criticized for being highly subjective and open to potential biases (Mulrow, 1994; Borenstein *et al.*, 2009), whereas systematic reviews aim at presenting evidence-informed summary of the literature. In the first stage of the review, a scoping study was carried out with the purpose to prepare the background of the review (Arksey and O'Malley, 2005). We retrieved from search engines Scopus and Web of Science citations containing primary keywords "workplace AND innovation". We then constructed bibliometric networks of term co-occurrence contained by citation titles, abstracts and keywords. Basing on these networks, journal descriptions and keywords, we created thematic clusters and organized them into a disciplinary mindmap. This helped us to gain a sense of volume, obtain a visual overview of different thematic clusters, and set parameters for future systematic literature review.

The scoping study showed that there exist three different perspectives on the phenomenon of WI, treating different topics and having different focus, namely: national policy (e.g. enabling factors of the WI on political/economic/law/ environmental level, involving country-level stakeholder groups into the WI discourse); economics (e.g. results, impact and indicators of the WI, measuring WI, linking WI to the economic performance); organization (e.g. typologies and dimensions of WI, stages of the WI process, enabling factors of the WI on individual/work/organizational level, good practice examples). Our decision was to concentrate on only the organization perspective as the one regarding our disciplinary interest and competence, while other perspectives were added to the exclusion criteria. The non-uniformity in the use of the terminology on WI, as well as the absence of theoretical framework, were a serious impediment for the systematic review. We decided to consider WI as a broad concept. The main outset of the scoping study was the definition of the bundle of synonyms and the decision on what organizational phenomenon and initiatives to be included in the term "WI".

A review panel was formed to provide narrative and methodological expertise, and cross-check the quality of the review protocol. The research protocol comprised several sections: inclusion and exclusion criteria, relevance and quality criteria, guidelines for thematic and narrative synthesis, quality criteria of the review synthesis (see Tables AI and AII). During the whole research process, adjustments to the review protocol were introduced to enhance the quality of the study. Initially keywords for the review were identified in a brainstorming session. Others were added after checking the thesaurus function of some databases. The keywords formed two groups basing on the semantic type (e.g. new, modern, twenty-first century, alternative, innovat*, transform*, chang*, improve*, etc. and workplace, work practice, ways of working, work system, workspace, etc.) that were translated into the research strings. It was decided to use the Boolean operator of proximity searching between two semantic groups of keywords in order to reduce noisy results.

We used this algorithm to interrogate two search engines (Scopus – Area of Social Sciences & Humanities, Web of Science – Web of Science Core Collection), and ten databases (EbscoHost Business Source Complete, International Bibliography of the Social Sciences, Applied Social Sciences Index and Abstracts, PsycINFO, Periodicals Index Online, MEDLINE®, Sociological Abstracts, EconLit, ERIC, and PsycARTICLES). The search strings were used only within the title, as the abstract and keyword searches produced extremely high number of irrelevant citations. The databases/search engines were mined for citations from 1995 to present, with filters used according to the inclusion and exclusion criteria. Studies published before 1995 were excluded on the assumption that managerial responses to the changing context were too protean to hold direct relevance for our purposes. The last citation extraction was done in June 2016. At this point, the citations were examined to identify duplicates, book reviews and anonymous authors. As a result of this stage, 2,205 citations were obtained. We imported them to the web-based service DistillerSR, a software for citations screening and multiple-reviewers coding. Three stages were undertaken to reduce the number of citations.

The first stage analyzed the titles of articles against inclusion and exclusion criteria. This approach of limiting the review to title screening has been recognized to have weaknesses but at the same time to be useful when a systematic review is faced with overwhelming lists of citations to review (Pittaway *et al.*, 2004). If the relevance of a study was unclear from the title, then the abstract was analyzed. The process of title screening yielded 754 citations. The second stage analyzed the abstracts against inclusion criteria and resulted in 315 citations. Citations were then divided into two lists: A – relevant studies, B – less relevant studies. If the relevance of a study was unclear from the abstract, then the full article was analyzed. A review panel was invited to cross-check and assess the veracity of the A list of studies. As a result of the final stage, 75 studies were considered pertinent to this literature review. At the third stage the full texts of the studies were reviewed in-depth to extract data for future synthesis.

In order to find answers to our research questions, we adopted the methods of thematic and narrative synthesis (Arai *et al.*, 2007; Lucas *et al.*, 2007; Thomas and Harden, 2008; Rodgers *et al.*, 2009). The thematic analysis was useful to explore the multidimensional nature of the concept of WI. It involved the development of the descriptive themes and the generation of analytical themes. The narrative synthesis was used to explore the heterogeneity of multiple studies. It involved a commentary reporting on different study characteristics. In order to synthesize the findings, more homogenous groups were formed and then analyzed on the between-group scope, differences and similarities. The narrative synthesis, due to the fact that it clarifies the context and characteristics of each study, was useful to identify the research traditions on WI. Finally, in order to assess the quality of our review, we identified some quality assessment criteria. First, our study tries to assure validity by overcoming source bias and triangulating databases and search engines. It also tries to overcome debriefing bias by triangulating researchers and peer debriefing. The reliability of our study is assured by the degree of methodological transparency, protocol development, and reliability of selection principles. Finally, we tried to guarantee the conformability of our findings by reporting references used for meta-synthesis.

Literature review and analysis

The literature review revealed that WI studies are maturing as a research field and becoming more discipline-like. Our data set demonstrated that there is the phenomenon of the “disciplinarization” of the field, as the majority of studies belong to the area of business & management ($n = 35$). Other fields interested in the topic are: sociology ($n = 15$), architecture, design, ergonomics ($n = 12$), science and technology ($n = 8$), and organizational psychology ($n = 5$). Most of the papers are conceptual ($n = 30$), the fact that underlines the

need for theoretical clarifications. Empirical papers almost equally use qualitative ($n = 23$) and quantitative ($n = 19$) research, while the use of mixed methods is quite rare ($n = 3$). Almost all studies are concerned with the organizational level of analysis ($n = 60$), while individual and inter-organizational level are almost neglected ($n = 7$ and $n = 8$ respectively). Moreover, the process view of WI is still poor compared to the “atomic” view (25 percent compared to 75 percent of citations) (see Table AIII). Most of the studies are lacking of theoretical foundations, only 15 percent of citations clearly referred to a theory. Among theoretical perspectives that have generally (but not exclusively) informed research activity on WI: contingency theory, flexible accumulation theory, resource-based view, action-regulation theory, socio-technical systems, institutional theory, theory of social transformation, and dynamic capabilities.

Research traditions on WI

In order to synthesize the findings, we analyzed the citations with the method of narrative synthesis. The aim was to understand whether the range of the research questions, ontological and epistemological premises, as well as methodologies, can be meaningfully grouped into research traditions. Our finding suggested that there exist at least four research traditions, having their own system of meanings (see Table I). We attributed them names based on their understanding of workplace. These are: built container; humanized landscape; socio-material macro-actor; and polyadic network. Even if boundaries of different traditions are not always easily recognizable, in our research process we tried to associate every citation with one of the research traditions (see Table AIII).

Workplace as a built container

The first research tradition refers to the idea of workplace as a built container (Cresswell, 2015). According to this tradition, workplaces have delimited boundaries, and work systems are encapsulated within workplaces. Workplaces inherit from organizations their formal purpose and meaning. As such, workplaces are updated from the organizational context. The construction and the innovation of workplace is hegemonic, conceived by dominant groups and imposed to other members by a cascading process. In this sense, workplace serve as an attraction pole and lead to the confinement of individuals inhabiting the workplace. The dominant group is assumed to provide goals, define rules and routines, constrain or enable work practices, and create an infrastructure (e.g. physical, material, technological, semiotic) to provide the context for work. Thus, WI is conceived as the optimization in accordance with centrally defined organizational goals (Winter *et al.*, 2014). This research tradition has epistemological basis of realism and behaviorism. As the analysis of citations showed, its disciplinary origin derives from business and management. Within the discourse of WI, it privileges such topics as: process innovation, work organization, quality management, effective human resources management, job design, etc.

	Built container	Humanized landscape	Socio-material macro-actor	Polyadic network
Type of workplace construction	Hegemonic and given	Dialogic	Emerging from recursive agencies	Emerging from inter-relations
Epistemological basis	Realism, behaviorism	Phenomenology, social constructivism, hermeneutics	Socio-materialism, socio-technical systems	Complex systems, evolutionary theory, ANT
Background	Business and management	Psychology	Architecture, design, ergonomics, IT	Natural sciences

Table I.
The comparison of the four research traditions on workplace innovation

Workplace as a humanized landscape

The second research tradition refers to the idea of workplace as a humanized landscape (Relph, 1976; Canter, 1977; Lefebvre, 1991). The workplace here is understood as a result of different human agencies that are characterized by social gestalt. The construction and the update of workplace is partly hegemonic: dominant groups create the initial workplace, while leaving a window for negotiation with other workplace actors. Therefore, this research tradition moves away from normative prescription toward explanations of different social agencies. WI is understood as a result of the intentions, representations, perceptions and actions of all actors inhabiting the workplace. The technical-material world is understood here only from the structurationist perspective: different spatial affordances and properties restrict and create possibilities for different human behaviors. In this sense, workplace is both socially produced and socially producing. Studies rooted in this tradition see WI as a joint optimization in accordance with the combined multiple human and organizational goals. This research tradition has epistemological basis of phenomenology, hermeneutics and social constructivism, and bases on the foundational ideas of psychology. It takes for granted anthropocentrism and privileges the human-social dualism. The topics that are approached in this tradition are: work practices, teamwork, community development, quality of working life, workplace relationships, employees' upskilling, etc.

Workplace as a socio-material macro-actor

The third tradition is connected with the idea of workplace as a socio-material macro-actor (Dale, 2005). What differentiates this tradition from the previous one is that the material world here is considered equally agentic player as human beings. Thus, the construction and innovation of workplace is a simultaneously combined product of multiple human and non-human agencies (Winter *et al.*, 2014). WI occurs when the results of certain socio-material arrangements enable new socio-material arrangements, influencing the trajectory of WI. This research tradition has epistemological basis of socio-technical systems and socio-materiality (Orlikowski and Iacono, 2001). It is associated with such disciplines as architecture, design, ergonomics and IT science. The topics that are more commonly approached in this tradition are: e-working, spatial and technological arrangements of work, technology-based collaboration, etc. Moreover, this tradition explores the topic of workplace experience from a qualitative point of view: not a degree of satisfaction but the mechanisms of sensemaking, proposing a more nuanced dynamic picture of WI.

Workplace as a polyadic network

The fourth tradition refers to the idea of workplace as a living system (O'Mahony and Lakhani, 2011). This tradition considers workplaces as embedded into a network of relations in wider cultural, economic, historical, political, technological and social contexts. Such assumption implies that workplaces not only are characterized by their internal properties, but also demonstrate transcendent properties that arise from the relationships/interactions that the workplace is embedded in. WIs emerge from a fluidity of human and non-human trajectories, occurring inside and outside the organizational boundaries (Winter *et al.*, 2014). This tradition inherits epistemological stances from complex systems and actor-network-theory (ANT) and originates on disciplinary basis of natural sciences. The topics that are approached in this tradition are: environmental forces in WI, organizational flexibility and adaptability, transorganizational work, etc.

Identifying dimensions of WI

In order to synthesize the findings on WI dimensions, we analyzed the citations with the method of thematic synthesis. The aim was to understand whether it is possible to identify

the dimensions through which WI has been explored in the academic literature. Our study outlined eight WI dimensions, namely work system ($n = 64$), workplace democracy ($n = 15$), high-tech application ($n = 23$), workplace boundaries ($n = 6$), workspaces ($n = 17$), people practices ($n = 29$), workplace experience ($n = 25$), and workplace culture ($n = 12$). As a rule, different studies treat WI as a bundle of these dimensions (see Table AIII). We can note that different research traditions have tended to privilege different categories. For instance, a “built container” tradition has concentrated attention on the work system ($n = 10$) and people practices ($n = 8$); the “landscape” tradition has explored mostly the categories of the work system ($n = 35$), people practices ($n = 19$), and workplace experience ($n = 17$); the “macro-actor” tradition has explored equally the categories of the work system ($n = 11$) and high-tech application ($n = 11$); while “polyadic network” tradition is the only one to have approached, even if with different intensity, all eight categories. The narrative overview within a single thematic group, combined with a temporal ordering, permitted us to understand how the meaning and the contents of these dimensions changed over last 20 years.

Work system: from control approach to high-performance approach

Work organization over last 20 years abandoned rigid and routine-intensive Fordist views of work organization toward more flexible and participative. The first-generation innovations in this domain came from the manufacturing sector and were mostly concerned with work processes (e.g. total quality management, lean production, just-in-time production). These process-concerned innovations were focused on cutting costs and partly belonged to the Fordism ideology, as they focused on quantification of production standards and on a standardization of work methods. These innovations required employee involvement, but the involvement was normally initiated by management with the intent to solicit employees advise on job-related matters only. Even if these new work systems blurred the division of labor between management and production workers, they still had rigid control mechanisms and limits to the discretionary power of employees (Vallas, 1999). The switch to teamwork was a way of changing the mechanism of control. If in Fordist paradigm, management was in charge of the autocratic internal regime, in a new paradigm teams – or cross-functional quality circles, problem-solving groups – maintained hierarchical patterns of authority in a non-bureaucratic way (e.g. social and peer control). Greater employee involvement implicitly built on job redesign practice (e.g. job rotation, large job autonomy), stressed the accumulation of intra-organizational pressures, and compelled organizations to adopt more egalitarian practices.

The second-generation innovations in this domain came with the raise of the service sector. The interactive nature of service work, its unpredictable and customer-driven workflows, and the process of “co-production” with customers required new forms of work organization for ensuring service quality (Hunter, 2000). At this point, greater employee participation in business and decision process sounded as an optimal solution. The emerging model of work organization was aiming at high performance and required high commitment and trust. Organizations embraced more consensual form of decision making in lieu of the tradition rule by command. In these work systems, the authority is based less on formal rank and more on dialogue and consensual legitimacy. Such new work systems are based on the entrepreneurial spirit, and thus are more organic, characterized by developmental orientation, and are deeply associated with organizational culture and values (Savolainen, 2000). These innovations enhanced the neo-craft paradigm of work organization (Vallas, 1999), resulting in structural reforms (e.g. autonomous teams, cross-functional teams, corporate ventures). At the same time, the satisfaction of ephemeral customer needs required greater functional and work time flexibility (Martinez-Sanchez *et al.*, 2008).

Workplace democracy: from collective rights to individual needs

At the beginning the workplace democracy was associated with welfare, expression of complaints or grievances, improvement of working conditions, and demand for relatively egalitarian distribution of wages and opportunities (Hazarika, 2013). It was guaranteed by cooperative forms (e.g. trade unions, collective bargaining), and the main mechanisms for requiring democracy existed outside the workplace. With the advent of new work systems, the relatively stable boundaries of hegemonic organizational culture weakened and a new post-modern paradigm arose: it celebrated difference and ephemerality. The employee participation in the decision-making process had the spillover effect and resulted in general democratization of workplaces. The first step was the consideration of fundamental values of democracy in different spheres of organizational life: work processes, division of work, organizational structures, political representation, etc. Greater participation and equality status resulted in programs of profit and gains sharing, promoting thus the idea of collective ownership. Such a shift in workplace democracy improved trust between an employee and an employer. Trust-based relationships marginalized cooperative forms of workplace democracy and empowered the individual negotiations and idiosyncratic deals (Rousseau, 2005). Moreover, technological breakthroughs and social media have inspired new ways for employees to voice their satisfaction and dissatisfaction (Miles and Muuka, 2011).

High-tech application: from efficiency to flexibilization

If in traditional workplaces technology was intended to save costs and boost productive efficiency (Barrett and Walsham, 1999), new workplaces started to employ technologies to rethink completely the work systems. On early stages of paperless office, ICT infrastructures (e.g. intranet, applications, storage) were aiming at processing and managing information, but later technological and digital developments shaped the possibilities for radical innovations in different domains of the organizational life (Hunter, 2000). ICT-based work altered the constraints of working together, changing who can participate, when participation can occur, and where it can occur (Olson, 1998). Developments in mobile technologies gave rise to a series of e-working styles (Lim *et al.*, 2009), specifically they enabled employees to work distantly from office some days in a week, to deliver the service to clients instantly, to fulfill work-related activities during work journeys, to avoid traffic congestion, and to plan work during business travels in a geo-efficient way. At the same time big data, cloud computing, and search-based applications further enabled the idea of virtual office. More recent concepts of virtual office implied the integration of different enterprise platforms and services into an ecosystem with global navigation and consistent design (i.e. digital workplace).

Workplace boundaries: from well-defined to blurred boundaries

If in traditional workplaces the boundaries were well defined, innovative workplaces blur them in different ways. First of all, empowered by high tech, organizations participate more frequently in collaborative networks and open platforms (e.g. industrial districts, trans-organizational platforms etc.), where they enter in dialogue with different actors (Winter *et al.*, 2014). This trend is not about eliminating workplace boundaries but rather about momentarily crossing them and reconnecting with the context that previously was considered vacuum. At the same time, the rush for flexibility requires temporal extension of the workplace boundaries, when additive workforce is acquired with the intent to face the need of the moment (i.e. disposable workplace). Finally, there is an emerging type of network-enterprise with unstable boundaries. It is called knotworking (Engestrom, 2000), it has no center and fixed end points, and it is organized as rapid, distributed and partially improvised orchestration of collaborative performance between otherwise loosely connected actors (e.g. company, customer, suppliers, partners, product, service) and activity systems, characterized by a continuous movement of tying, untying and retying. In knotworking

there is a high interdependency between multiple producers forming a strategic alliance, supplier network, or other such patterns of partnership which collaboratively puts together a complex product or service.

Workspaces: from single space to pluralistic spatial hybridity

If in manufacturing setting architects, ergonomists and industrial psychologists were working on designing the work environment that could guarantee space efficiency, health issues and control mechanisms, in new work systems the concept of work environment became obsolete (Baldry *et al.*, 1997). With the advent of knowledge-based work, there raised an attention to the qualitatively different organization of workspaces (Cole *et al.*, 2014). Workspaces were called to reflect a greater balance of improvisation, coordination and trust across time and space and lesser degrees of bureaucracy and rationalization. The flexibility in the workspace became an important issue: space facility started to be seen as support for work flexibility (Ruostela *et al.*, 2015). Compared to traditional rigid layouts, contemporary workspaces were compelled to flexible layouts that could foster creativity, collaboration and information sharing. Workspace became an important vehicle of organizational culture and a well-being promotion tool (e.g. active design, green building, standing desks, leisure spaces, etc.). Moreover, enhanced by high tech, the idea of spatial hybridity emerged (Halford, 2005): combining cyberspaces, organizational spaces, domestic spaces, other social and urban spaces (cars, restaurants, trains, co-working spaces). In the modern workplace, space is not a singular location anymore, as it uses spaces both inside the corporate organization (in “the office”) and “outside” (“in the city”) in third places. The emerging landscape (or “workscape”) of work is that of distributed virtually connected workspaces that match the fluid and dynamic nature of networked knowledge work (Harrison *et al.*, 2003).

People practices: from administrative to experience management

As a rule, changes in people practices have always been complementary to the implementation of other types of WIs. For instance, new work systems based on higher employee participation were associated with programs for employee motivation (Leigh and Gifford, 1999; Martin and Healy, 2009). Profit sharing, pay-for-performance wages were introduced as a necessary condition for fostering employee commitment. As organizations opened up greater space for the exercise of judgment and discretion, there was an increased emphasis upon upskilling, learning and development (Vallas, 1999). High employee participation and work flexibilization influenced also staffing practices, resulting in major use of internal labor markets and flexible staffing. Flexibilization also re-invented work scheduling and brought new employment forms (Hunter, 2000). If on early stages, people practices were organization centered, only recently they have turned to experience centered. For instance, a series of people practices have been reshaped on the basis of gamification idea (Oprescu *et al.*, 2014), e.g., game-based recruitment and selection, serious training games, etc.

Workplace experience: from duty to integrated life experience

Traditional workplaces were organized around the idea that work is a duty and an economic function. They heightened materialism, marginalized sharing and caring, and weakened community. Post-modern workplaces, instead, yearned for high quality of working life, community and spiritual nourishment. New work systems helped individuals to acquire a sense of deeper purpose in work. On the other hand, with the first generation of innovative work systems, work intensification and flexible work generated an urgent call to fix work-family balance and face the privacy needs. Moreover, HRD programs naturally resulted in the transformational movement, and offered what every employee appears to be seeking: holistic living, meaningful and purposeful work (Fenwick and Lange, 1998).

In a moment when organizations embraced the strategy of sensemaking, it heightened employees' consciousness (Biberman and Whitty, 1997). Higher consciousness drove the recognition of needs and raised the expectations toward positive experience.

Workplace culture: from achievements to enjoyment

With the advent of the Japanese production system, the kaizen philosophy penetrated into the workplace. It brought the focus on continuous improvement, resulting in a company-wide intention to use gradual step by step innovation. As a consequence, workplace culture started to evolve toward more open, with focus on information sharing and collaboration. Moreover, as a natural outgrowth of HRD's humanistic caring of employees the paradigm of workplace spirituality emerged (Fenwick and Lange, 1998). This new paradigm encouraged people in organizations to trust each other, share information, cooperate, accomplish mutual objectives, to empower other people, and to use intuition and emotions in reaching decisions. In contrast to Fordist scarcity belief, new workplace culture promoted the "abundance" mentality – a belief that there are abundant resources available to all, so that there is no need to compete for them. Moreover, such cultural transformation enhanced the prophetic imagination, and enabled the thought that there can be the end of the present order and give expression to collective hopes and yearnings. It also brought the dimension of happiness and enjoyment in the workplace, based on the idea of conscious choices and authentic relationships (Vijay and Vazirani, 2011).

Discussion and future research agenda

Our study showed that up to today, on the ontological level there exist serious discrepancies within four research traditions. Scholars from the "container" tradition refer to WI as to an objective stance, a physical milieu of social action, and propose a bureaucratic view of workplaces. In this tradition, innovation is more exogenous than endogenous to the system, which seems a paradox. Scholars from "landscape" tradition take into account objectivity and subjectivity of workplaces; their vision of workplaces is more humanized; and innovation is understood as the result of human actions. In management literature, this tradition is more orthodox as compared to others. Yet, in this tradition, organizations are reduced to the actions of individuals. Such a view ignores the organizational origins of innovation and the interactionist perspective (Courvisanos, 2007), limiting WI to a peripheral role. Scholars from "macro-actor" and "network" tradition try to overcome this limit. While the first treat objectivity and subjectivity of workplaces, along with the visible and the invisible, the second propose an evolutionary view of workplaces. Both traditions are based on the idea of the emergence of novelty (Garud *et al.*, 2015). What is interesting about the "network" tradition is that it uses the whole to explain the parts, and parts to explain the whole. Thus, under this perspective innovation is the result of the collective human agency, even if the actor is a single agent. We invite future research to explore in a more detailed way these four research traditions by bringing examples, highlighting pitfalls, opportunities, possible biases, etc.

In order to face the conceptual fuzziness and instability of WI, the future research may privilege context-aware view of innovation. Scholars may learn more about possible ways to identify and justify relevant boundaries for analysis of WI. One of the possibilities is to account for larger networks (e.g. ecosystems, platforms, communities of practice, foundations, consortia), or to use some available tools for alternative boundaries definition, such as Ulrich's critical systems heuristics (Ulrich and Reynolds, 2010) and boundary critique (Midgley *et al.*, 1998). Future research may explore the boundaries of the concept in relation to the cases of boundaryless, ubiquitous and digital workplaces.

Moreover, as long as WI has the institutionalized nature, the neoinstitutional theory may contribute by explaining the driving forces coming from the organizational environment and the dynamics of innovation within a certain organizational infrastructure (Powell and DiMaggio, 2012).

Given the ephemeral nature of categories, through which the concept of WI is understood, there exists a series of challenges for operationalizing the concept. In order to overcome them, researchers may incorporate context into the analysis, involve repeated observations, or apply comparative analysis (e.g. case study, longitudinal study, cross-sectional study). As our study was explorative in nature, further studies are necessary to support our findings on eight WI dimensions. Scholars may test them either quantitatively (e.g. cluster analysis) or explore qualitatively (e.g. testing with case studies). Qualitative research may contribute by better defining horizontal and vertical boundaries of each category. For researchers working with a bundle approach (Lepak *et al.*, 2006), it may be useful applying our categories on a meso-level to account for the inter-relatedness of different practices by means of qualitative comparative analysis. Different kinds of inter-relatedness between categories may explain a certain pattern of strategic configuration of an organization (e.g. customer orientation, innovation, safety, design).

One of the fundamental prerequisites for understanding the “black box” of WIs is the robust conceptual development. As the existent theoretical framework does not permit to overcome aged dichotomies between micro- and macro-, mental and material, qualitative and quantitative, observation and intervention (Engestrom, 2000), future theoretical advancement is necessary in order to connect different research traditions in a meaningful and coherent manner, and to produce clear and non-chimerical findings.

Practical implications and the role of HR practitioners in the WI

WI has always been ascribed as an HR domain of influence (Howaldt *et al.*, 2016). Yet, it is not clear what is the role of HR practitioners in the WI process and how their efforts are distributed along different dimensions of WI. The wide and comprehensive understanding of the WI process reveals that there are different professional groups working in this field. These professionals form loose and weakly institutionalized group of collective designers, with ill-defined areas of intervention (Badham and Ehn, 2000), and often without any connection point. HR can certainly play an important role in this group by bringing its unique competence (e.g. knowledge of human factor issues, change agency, organizational development, etc.). Basing on insights from our literature review, it is possible to state that there exist many new opportunities for HR to work on WI initiatives in each of the eight dimensions.

As organizations switched from control approach to high employee participation, HR practitioners may act as mediators in reconciling pluralistic views and dilemmas of work organization. Since employees are asked to bring their whole selves at work, there is a call for major consideration of their needs. HR in this sense can promote workplace dialogue and enact the democratic principles. It is as much important for HR to instill a shared vision, promote a collective mindset, and encourage ego-less behaviors in employees. According to the emerging flexibilization trend, HR practitioners may take the opportunity to improve their service in flexible staffing, work scheduling, constant learning, and re-spatialization of work. Moreover, HR service may be delivered 24/7 ensuring the instant support.

While the boundaries of workplaces expand and blur, HR practitioners may account for a wider group of stakeholders and facilitate their engagement in the workplace activities. Furthermore, HR practitioners may work to build relationships with external actors and negotiate the organizational interest in these relationships. The spatial hybridization is a great opportunity for HR practitioners to start collaborating with

workplace designers, IT specialists and facility managers. Experience management, which bases on empathy and meaningfulness, may become a springboard for HR to propose holistic services aiming at sustainability and well-being. As long as in the context of blurred boundaries and flexibility, values are acquiring the role of gravity center, HR department may become the main value champion. Moreover, the evidence on trends in workplace culture is an opportunity to promote within the world of business positive and ethical values of work.

To sum up, HR department along with its traditional functions may acquire the role of a workplace strategist. Working with innovation will require from HR a mastery of reflexive interventions (Schulz *et al.*, 2015), future scenario tools (Saurin *et al.*, 2008; Saurin and Ratcliffe, 2011), as well as competency in work practices development (Nathanael and Marmaras, 2008), participatory methods (Kogi, 2006), and interdisciplinary knowledge.

Other WI professionals may use our findings to introduce informed practices of WI. First of all, our study suggests that practitioners should be attentive to the pro-innovation bias. WI may only be a part of the solution, as it requires the alignment of the whole system – or not even the solution at all. Moreover, it is important to remember that the “universalist” approach to WI cannot work. Research shows that much may depend on the specific combination of initiatives adopted, and there are multiple contingent factors influencing the success of a certain initiative. WI initiatives should have clear objectives and desired outcomes. For this, the study of “demand” or needs may be useful.

Conclusion

In this paper, we do not claim for the comprehensive review of the field of WI as our study has several limitations inherent in the systematic review process. First of all, it is important to keep in mind that WI is just a “black box”, made of bundles of different innovations. There may be a huge amount of innovation literature that is being published using different terminology to denote the phenomenon of the study, therefore WI can remain what we might describe as “dark innovation”. Second, as in any systematic literature review, there is a danger of leaving outside important works because paper titles could not correspond to the contents, and abstracts could have provided not sufficient description. However, our goal was not to provide solutions as how best to study WIs; rather, our goal was to explore many ontological, epistemological and theoretical issues regarding the topic. In conclusion, by building on the major achievements of previous two decades, we may define WI as an intentional comprehensive process of renovation that alters structural, organizational, cultural and experiential characteristics of workplaces with the purpose of bringing new social value. There are many opportunities enclosed in this renovation process and we hope our paper will generate interest and alternative perspectives on addressing WIs in future studies.

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Appendix 1

Criteria	Inclusion	Exclusion	Rationale
Publication date	1996-2016	Before 1996	To focus on literature that regards contemporary challenges, but at the same time to trace evolutionary pattern
Research area	Business and management, HR management, psychology, sociology, anthropology, system science, architecture and design, technology management	Occupational medicine, political science, law, macroeconomics, others	To gain a wide picture on the phenomenon of workplace innovation from organizational perspective
Document type	Scholarly and peer-reviewed articles	Magazines, books, dissertations, periodicals, symposiums, trade magazines, workshops notes	To focus only on high-quality research
Country	All countries	-	To ensure cross-cultural view on the phenomenon
Paper type	Empirical, theoretical, literature review, meta-analysis	Book reviews	To capture all existing studies on the phenomenon
Semantic appropriateness	-	Improper semantic use of terms (metaphorical, non-reflexive, senseless)	To ensure research validity
Nature of findings	Explorative nature	Prescriptive, normative nature	To avoid the biases inherent in best practices
Perspective on workplace innovation	Organization	National policy, economists	To exclude topics that go beyond our disciplinary interest and competence
Industries and sectors	Service, manufacturing, hybrid	No profit, public administration	To gain a wide picture on the phenomenon in organizations based on business and profit logic

Table AI.
Inclusion and
exclusion criteria

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Table AII.
Relevance and
quality criteria

Criteria	Questions
Contribution	Is the article novel and original? Are the presented results of significant importance and impact to advancement in the field of research?
Construct validity	Did the researchers put the construct they intended to study within a semantic net? Did they identify correct operational measures for the construct?
Transparency	Does the article report sufficient information in methodological choices for the study to be replicated?
Data quality	Did they researchers explore different sources of knowledge? Does data strongly support arguments?
Theorizing	Do researchers make explicit the process by which they move from data to explanation/ understanding and theory building? Is the conclusion logically supported by the obtained results?
Confirmability	Did the researchers ground their conclusions in data by showing where the data came from and how they were transformed into findings?
Generalizability	Is the attitude to the generalization in line with researcher's philosophical stances? If researchers claim generalizability, do these follow logically and/or theoretically from the data?
Transferability	Does the study report high contextualization? Is the context integrated into the explanation?

Appendix 2

Citation	Year	Discipline	Paper type	Research tradition	Work system	Workplace democracy	High-tech application	Workplace boundaries	Workspace	People practices	Workplace experience	Workplace culture
Drago	1996	Sociology and anthropology	Empirical – quantitative	Humanized landscape	x	x		x		x	x	x
Gonzalez	1996	Sociology and anthropology	Conceptual	Humanized landscape	x	x						x
Biberman and Whitty	1997	Business and management	Conceptual	Humanized landscape	x	x					x	x
Lewchuk and Robertson	1997	Business and management	Empirical – quantitative	Humanized landscape	x							
Robertson Smith	1997	Sociology and anthropology	Conceptual	Humanized landscape	x					x		
Fenwick and Lange	1998	Sociology and anthropology	Conceptual	Humanized landscape						x	x	
Godard	1998	Business and management	Empirical – quantitative	Humanized landscape	x					x		
Horgen and Joroff	1998	Architecture and design	Empirical – qualitative	Socio-material macro-actor	x				x			
Olson	1998	Technology management	Conceptual	Socio-material macro-actor	x		x					
Barrett and Walsham	1999	Business and management	Empirical – mixed methods	socio-material macro-actor	x		x					
Geary	1999	Business and management	Empirical – quantitative	Humanized landscape	x							
Leigh and Gifford	1999	Business and management	Empirical – quantitative	Built container	x					x		
Vallas	1999	Sociology and anthropology	Conceptual	Polyadic network	x	x		x				
Badham and Ehn	2000	Architecture and design	Conceptual	Socio-Material macro-actor	x		x					
Engstrom	2000	Architecture and design	Empirical – qualitative	Polyadic network	x	x		x				
Hunter	2000	Business and management	Empirical – quantitative	Humanized landscape	x	x				x		

(continued)

Table AIII. Details of the literature review

Table AIII.

Citation	Year	Discipline	Paper type	Research tradition	Work system	Workplace democracy	High-tech application	Workplace boundaries	Workspace	People practices	Workplace experience	Workplace culture
Lindbeck and Snower	2000	Business and management	Conceptual	Humanized landscape	x		x			x		
Osterman	2000	Business and management	Empirical – quantitative	Humanized landscape	x							
Savolainen	2000	Business and management	Empirical – qualitative	Humanized landscape	x	x				x		
Axtell <i>et al.</i>	2001	Architecture and design	Empirical – qualitative	Socio-material macro-actor	x		x					
Balkin <i>et al.</i>	2001	Business and management	Empirical – quantitative	Humanized landscape	x	x						
Godard	2001	Business and management	Empirical – quantitative	Humanized landscape	x						x	
Harrison <i>et al.</i>	2001	Business and management	Empirical – qualitative	Humanized landscape	x	x						
Parkeret <i>et al.</i>	2001	Organizational psychology	Conceptual	Built container	x							
Sparks <i>et al.</i>	2001	Organizational psychology	Conceptual	Humanized landscape							x	
Vos and van der Voordt	2001	Architecture and design	Conceptual	Socio-material macro-actor	x		x		x		x	
Altman	2002	Business and management	Conceptual	Humanized landscape	x	x					x	
Anderson-Connolly <i>et al.</i>	2002	Sociology and anthropology	Empirical – quantitative	Humanized landscape	x						x	
Bailey and Kurland	2002	Business and management	Conceptual	Socio-material macro-actor			x				x	
Gant <i>et al.</i>	2002	Business and management	Empirical – quantitative	Built container	x					x		
Gephart <i>et al.</i>	2002	Business and management	Conceptual	Built container	x						x	
Allvin and Aronsson	2003	Sociology and anthropology	Conceptual	Humanized landscape				x				
Cairns	2003	Architecture and design	Conceptual	Polyadic network					x			

(continued)

Citation	Year	Discipline	Paper type	Research tradition	Work system	Workplace democracy	High-tech application	Workplace boundaries	Workspace	People practices	Workplace experience	Workplace culture
Erickson and Jacoby	2003	Business and management	Empirical – mixed methods	Humanized landscape	x							
Hacker	2003	Organizational psychology	Conceptual	Humanized landscape	x						x	
Miozzo and Ramirez	2003	Technology management	Empirical – qualitative	Socio-material macro-actor	x		x					
Harder <i>et al.</i>	2004	Business and management	Conceptual	Polyadic network	x							
Lindahl	2004	Architecture	Conceptual	Built container				x		x		
McCartney and Teague	2004	Business and management	Conceptual	Built container	x					x		
Halford	2005	Sociology and anthropology	Empirical – mixed methods	Polyadic network			x		x		x	
Lomba	2005	Sociology and anthropology	Empirical – qualitative	Humanized landscape	x							
Sewell	2005	Sociology and anthropology	Conceptual	Humanized landscape	x		x					
Smith	2005	Business and management	Conceptual	Humanized landscape	x					x		
Vaast and Walsham	2005	Technology management	Empirical – qualitative	Socio-material macro-actor	x		x					
Hassanain	2006	Architecture and design	Conceptual	Built container			x		x			
Shih <i>et al.</i>	2006	Business and management	Empirical – quantitative	Humanized landscape	x					x		
Chan <i>et al.</i>	2007	Business and management	Conceptual	Built container	x		x		x			
Thompson	2007	Business and management	Empirical – qualitative	Humanized landscape	x					x		
Khanna and New	2008	Business and management	Empirical – qualitative	Humanized landscape	x		x		x		x	

(continued)

Table AIII.

Table AIII.

Citation	Year	Discipline	Paper type	Research tradition	Work system	Workplace democracy	High-tech application	Workplace boundaries	Workspace	People practices	Workplace experience	Workplace culture
Martinez-Sánchez <i>et al.</i>	2008	Business and management	Empirical – quantitative	Humanized landscape	x			x		x		
Maxwell	2008	Business and management	Conceptual	Humanized landscape	x					x		
Lin <i>et al.</i>	2009	Technology management	Empirical – qualitative	Socio-material macro-actor	x		x	x			x	
Martin and Healy	2009	Sociology and anthropology	Empirical – qualitative	Built container	x					x		
Plesner	2009	Technology management	Conceptual	Socio-material macro-actor	x		x					
Askenazy and Caroli	2010	Sociology and anthropology	Empirical – quantitative	Humanized landscape	x		x			x	x	
Johansson	2010	Organizational psychology	Empirical – qualitative	Built container	x		x					
Marques	2010	Business and management	Empirical – qualitative	Humanized landscape							x	x
Stam and Stanton	2010	Technology management	Empirical – qualitative	Socio-material macro-actor	x		x				x	
Kelly <i>et al.</i>	2011	Sociology and anthropology	Empirical – quantitative	Humanized landscape	x					x	x	
Miles and Muuka	2011	Business and management	Conceptual	Humanized landscape		x						
Van Meel	2011	Architecture and design	Conceptual	Humanized landscape	x				x			
Vijay and Vazirani	2011	Business and management	Empirical – quantitative	Humanized landscape						x	x	x
Vo	2011	Business and management	Empirical – qualitative	Humanized landscape	x						x	
Angelis and Fernandes	2012	Business and management	Empirical – quantitative	Built container	x		x			x		
Blok <i>et al.</i>	2012	Architecture and design	Empirical – quantitative	Humanized landscape	x		x	x				x
Cloutier <i>et al.</i>	2012	Sociology and anthropology	Empirical – qualitative	Humanized landscape	x					x	x	

(continued)

Citation	Year	Discipline	Paper type	Research tradition	Work system	Workplace democracy	High-tech application	Workplace boundaries	Workspace	People practices	Workplace experience	Workplace culture
Della Torre and Solari	2013	Business and management	Empirical – quantitative	Humanized landscape	x					x		
Laing and Baccave	2013	Architecture and design	Empirical – qualitative	Polyadic network	x				x	x		
Woolliams and Trompenaars	2013	Business and management	Empirical – qualitative	Humanized landscape	x		x		x			x
Cagliano <i>et al.</i>	2014	Business and management	Empirical – qualitative	Built container	x					x		x
Cole <i>et al.</i>	2014	Architecture and design	Empirical – qualitative	Polyadic network	x				x			x
Oprescu <i>et al.</i>	2014	Organizational psychology	Conceptual	Humanized landscape						x	x	x
Perlow and Kelly	2014	Sociology and anthropology	Empirical – qualitative	Humanized landscape	x					x	x	x
Winter <i>et al.</i>	2014	Technology management	Conceptual	Polyadic network	x		x					
Ruostela <i>et al.</i>	2015	Technology management	Empirical – qualitative	Polyadic network	x		x		x		x	

Table AIII.

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