Workplace innovation literature review: a converging or diverging research field?

A preparatory study for a research agenda

TNO innovation for life

December 2021

Workplace innovation literature review: a converging or diverging research field?

A preparatory study for a research agenda

Date	December 2021
Authors	Peter R.A. Oeij
	Steven Dhondt
	Adela McMurray
Project number	VP207 060.51698
Report number	TNO 2021 R12732
Contact TNO	Peter Oeij
Telephone	+31622205299
E-mail	peter.oeij@tno.nl

Table of contents

Summary

The scientific and non-scientific literature of workplace innovation is reviewed and categorised against the type of research and the level of analysis. A description is provided how the term workplace innovation is interpreted by authors who apply the term. For the distinguished categories of workplace innovation research the prominent representative examples will be described, i.e. research that contributed to the understanding and dissemination of workplace innovation research. While there is much variety in definitions, approaches and applications, models and tool, measurement and operationalisation, the common ground is that workplace innovation is concerned with the 'advancement of work' and more of less contributes to a 'good jobs strategy'. With this in mind the report outlines four social scientific research streams with 'work' as a central theme, that are possibly connected to advanced work and good jobs, namely sociology and organisation research, safety science and organisation research, economic strategy and human resources research, and psychology and behavioural research. It is concluded that convergence seems hard from a scientific point of view, but looks desirable from a practical standpoint. After all, nobody is against a high quality of work.

Keywords: literature review, workplace innovation, categorisation, divergence, convergence.

1 Introduction

This report provides the most extensive review of the workplace innovation literature to date. In the past years three internationally edited books saw the light of day (Dworschak et al, 2021; McMurray et al., 2021; Oeij et al., 2017), the dedicated European Journal of Workplace Innovation was initiated, and five special issues of journals (Howaldt & Oeij, 2016; Oeij, Rus, Dhondt & Van Hootegem, 2019; Rus, Carter & Roth, 2017, 2019; Totterdill & Exton, 2014a), and many articles were published. This review searched for all publications that use the term workplace innovation.

We contend that workplace innovation is connected to the 'advancement' of jobs, people in jobs, organisations, the performance of organisations, and support renewal and innovation. Either directly or indirectly workplace innovation can be connected to 'high road strategies' and 'good jobs strategies'. Both strategies combine 'advancing' the quality of work with either better economic performance, more innovation and/or more inclusiveness, and a fairer distribution of a company's revenues.

Based on a categorisation of workplace innovation publications we want to clarify the growing field in terms of types of research and levels of analysis. The purpose is to clarify different levels – individual, organisational, societal – that workplace innovation concepts are addressing, and whether or not their focus is on fundamental research, evaluation research, or policy and practice. We shall subsequently give an overview of the research streams that fed into the different approaches to workplace innovation and show their relationships. These streams are sociological organisation research, organisation research from safety science, economical strategy and HR research, and psychological behavioural research of people, work, and organisations. We want to understand where are this research is leading to. The main question for this chapter is if in all these developments, we can identify a converging or rather diverging development in how the topic of workplace innovation is dealt with. In our concluding discussion of these developments, we try to assess whether this divergence/convergence is positive or not, and deduct from it what kind of future work programme may be needed to further improve the status of the topic.

Since this chapter is an analysis of the workplace innovation literature, we must first lay out our intentions in what consecutive steps we have tried to unravel the field, and how this chapter is organised. First we look at what workplace innovation is mainly about when people study the meaning and goal of the concept. There is much difference, but also a certain commonality that is useful to get a grip on the field. The essential element of workplace innovation seems to be to advance work. In a second step we will present a categorisation of the published studies, bases on the type of research and the level of analysis. Our analysis has resulted in seven categories, and of each category we will describe the main representative publications, approaches or models which resulted from an inventory of the literature. The third step is of a historical nature, which begins with a search where the workplace innovation concepts come from and how they have developed. Building on that step we try to take a higher standpoint to overlook the field of studies, streams and strands, in trying to connects the concepts to streams of research in sociology, psychology, economics and management science, that have labour as their main target. In a final step, after having aggregated the literature from single studies to more or less coherent research fields, we discuss if we see more convergence than divergence and what this means for future endeavours.

2 The essential element of workplace innovation is to advance work

Workplace innovation knows many faces. Several approaches are present, several definitions have been proposed. This section presents the main approaches in this book. The clearest distinction between these approaches is the level of analysis they address: individual and group behaviour, the organisation or company, and an industrial sector or society. A logical consequence is that approaches at different levels have different purposes. Individual approaches, for example, target new behaviour, such as innovative behaviour. Organisational approaches are directed at better performance and attracting good staff. Societal approaches aim at better conditions for companies to thrive and for employees to participate in paid work. Another difference is their origin. We will discuss these issues. Where the term workplace innovation comes from and how it has evolved over time will also be explored later. Before we do that, we shall describe what the present variants have in common, and that is that workplace innovation contributes to 'advance', 'improve' or 'progress' either the behaviour of persons, the outcome of processes, or the future situation for people, organisations and society (Costantini et al., 2017). 'Progress' or 'modernisation' refers to the proposition that advancements in technology, science, and social organisation have resulted, and by extension will continue to result, in an improved human condition (see for example Berting, 2006). The notion of 'advancement' can be related to streams in the management, behavioural, work and organisation sciences in the past decades.

Perhaps the simplest distinction of types of 'advancement' is the improvement of either labour or capital. Should an advancement be beneficial to one or the other – i.e. well-being or welfare -, if not both? Underneath this distinction is the question of the division of labour. Production processes and working processes can be split up into more or less tasks, that are allocated to either managing and executing functions, apart from supporting functions. From Adam Smith and Frederick Taylor we learned that under specific circumstances a fine grained division of labour could make a production process highly effective and efficient. However, one of the downsides of Taylorism and Fordism, known for their far going division of labour, is the risk of alienation and discrimination at work, when people carry out meaningless jobs without any autonomy and self-determination to fulfil their human needs. The fifties, sixties and seventies of the former century witnessed the emergence of the wish to 'advance' the quality of working life. That particular 'humanisation of work' was targeted at reducing the division of labour and enhancing employee participation and enriching jobs instead if further simplification of work. Aspects of humanisation to contribute to such advancement were at least six-fold (Van Strien, 1983): 1] healthy workloads and working environments, 2] using and developing human talents, 3] a sense of personal safety and social security, 4] democratic dialogue, voice and participation, 5] a fair pay and distribution of the profits, and, 6] equality and justice. When one is genuinely having an eye for human needs in the design of work, an essential basic ingredient to be used, is organisational, strategic choice: this is almost always an option which one could use (more or better). Such room to manoeuvre implies that the dominance of technological determinism is an unjust proposition and that the homo economicus is an incomplete concept. The practice showed that social aspects were of significant importance compared to the 'technological system' when it comes to productivity, and that rational economic profit maximalisation was not fully in line with personal development and human needs, according to the evidence of several landmark studies, such as in the Hawthorne experiments of Mayo's Harvard group, the Theory X versus Y studies of McGregor, and Maslow's pyramid of human needs. In other words, technological options are not rigid and neither is the rationality of market pressure.

In overcoming the negative effects of the division of labour and limited participation there were at least two options present in the theories and approaches of the fifties and beyond. One was to redesign the production process, and the other one to affect the motivation of employees. Redesigning the production process was taken up by variants of sociotechnical approaches, including business process reengineering and lean management. Their core idea was to install autonomous teams that carried out substantial tasks more or less independently and self-supporting. Limited division of labour created rich team jobs and decision latitude about the team's tasks. The other route to boost the motivation of employees comprised, for example, better working conditions, better pay, more voice for employees, and modifying the workload and stress risks. The first stream paid more attention to re-organizing the work and processes, while the second stream stressed re-organizing the behaviour, attitudes and skills of persons. A third stream can be positioned as a combination of re-arranging the work and the behaviour of working people, through measures in the context of HR-management or 'HR-bundles', and leadership behaviour. Put shortly, one could fit the job better to the person, fit the person better to the job, or adjust the person-job fit from both directions. In all these three streams there could be a different management approach, namely they could be either top down oriented initiatives or bottom up oriented initiatives (Oldham & Fried, 2016). Whether or not the aspects of humanisation were realised, depended partly on the management approach. But not only those managerial philosophies played a role. External factors, like market developments, competition, financial management, technology pushes would determine the room to manoeuvre for people in organisations.

Most workplace innovation approaches are directed at 'advancing' work in one way or another, based on arguments that can be traced back to a combination of humanistic values and economic goals. Over time, we contend, there are different research trajectories eventually leading to the 'advancement' of work, which can also be indicated as a 'good jobs strategy' (Rodrik & Sabel, 2019). Rodrik and Sabel see a good jobs strategy as a manner for a more fair distribution of wealth and profits between management and employees, and to enhance the inclusiveness of people in low-income jobs. Good jobs mean both fair pay and sustainable employability, which imply investments in business models and technology that contribute to a society's cohesion for the long run. Such an approach requires a management strategy that looks ahead, beyond 'not good enough' incremental innovations – i.e. not just tweaking your IT software but a disruptive renewal of your IT architecture –, cost efficiency survival options and limiting the focus to economic and productivity goals. This broader approach converges with the notion of the 'high road' perspective (Gittel & Bamber, 2010; Osterman, 2018; Totterdill, 2011).

"High Road companies see their employees, the communities in which they operate and the products and services they provide as equally important to their financial success. These companies hold a long-term perspective and view the workplace as a means to create significant business and social impact. They reject low-road business models that exploit employees and disregard the environment as the basis for success. High Road Employers know that, logically, their businesses are likelier to thrive and grow when they strengthen their marketplace by operating responsibly and compensating employees fairly." (Website of the American Sustainable Business Council, https://www.asbcouncil.org/high-road-economy).

We suggest that the many workplace innovation approaches contribute to the advancement of work in one way or another. to the next chapter categorises the research in order to better analyse the characteristics of the field.

3   The categorisations of workplace innovation

How can we categorise main approaches of workplace innovation? A literature search has been carried out with the key words 'workplace', 'workplace innovation' and 'innovative workplace' from the present (2021) until 1989 in the databases of Scopus, PsycInfo, PubMed, OSH-ROM and Google Scholar resulting in 426 scientific and non-scientific articles, reports and books. There are 170 publications dealing with 'workplace innovation' and 10 with 'work design as an example of workplace innovation' listed in Annex 1 and Annex 2 respectively. We first give an overview how the term 'workplace innovation' is interpreted by researchers. This is not exactly the same as comparing definitions of workplace innovation, which is not what we intend. There are many definitions. We are interested to distinguish between the intentions of users. For instance, some researchers want to understand behaviour of individuals, others want to highlight organisational characteristics, or evaluate reasons why companies apply workplace innovation. Our interest if types of research and levels of analysis can be helpful to categorise the field, rather than to determine the 'right' definition.

After the overview of interpretations, we demarcate the research from the stream of High Performance Work Systems research, because there is a strong overlap, and this requires an explanation why workplace innovation is distinctive. Subsequently we present our categorisation and thereupon we shall describe the main examples within each of those categories. After that, in the following chapter 4, we will abstract from the separate studies to connect workplace innovation to relevant streams in the social scientific literature on work.

Interpretations and use of the term 'workplace innovation

There is a substantial stream of research that uses (the term) workplace innovation as a steppingstone to capture some form of renewal, mostly other than technological renewal or technological innovation (Eeckelaert et al., 2012; Kesselring et al., 2014; Prus et al., 2017). Not all investigations, however, use a clear definition or a clear measuring construct. Some use the term workplace innovation in their title, but do not spend a word on it in the text (Findlay et al., 2017; Finegold & Wagner, 1998; Kuhn & Weibler, 2021; Marks et al., 1997; Searle, 2008; Verma & Fang, 2003). They often mean innovations in workplaces or in the organisation in general terms (Matthews, 2021). Incidentally authors apply the term but mean something different, such as practices that are in itself the innovation of the workplace or as HRM-practices that can stimulate innovation (Jena and Memon, 2017, for example, actually mean by workplace innovation 'innovative work behaviour'), creative ideas (Lu et al., 2017), introduction of new management concepts as a form of workplace innovation (e.g. Bartram et al., 2018 discuss the introduction of Lean Management in this way), changes in the workplace (e.g. related to the work of employees as in Kuhlmann & Schumann, 2001), or any innovation or renewal that is new to the workplace and thus (called) a workplace innovation but not specified (e.g. Burke & Sheldon, 2010; Han et al., 2020; Hausberg et al., 2017; Hughes et al., 2019). Many use the term workplace innovation as a renewal that is a new 'work(place) practice', often as an example of High Performance Work Systems, pointing to either separate practices or 'bundles' of practices. These studies do not intend to make a contribution to workplace innovation as a distinct field of research, but consider their use of the term workplace innovation as more or less synonymous to HPWS-studies (Balkin et al., 2001; Bamber et al., 2017; Black & Lynch, 2003; Bresnahan et al., 1999; Cho, 2014; Dervojeda et al., 2013; Erickson & Jacoby, 2003; Findlay et al., 2015; Gkiontsi & Karanika-Murray, 2016; Kalmi & Kauhanen, 2008; Kochan et al., 2009; Kraemer-Mbula et al., 2019; Lantz-Friedrich et al., 2016; Long, 1989; Lowe, 2001; McCartney & Teague, 2003, 1997; Verma & Fang, 2003; Zoghi et al., 2010). Several of them are studying the situation in the U.S. and Canada where HPWS is an established field of research. Another group of authors regard workplace innovation in relation to development, like regional economic development and national

innovation systems, that require a form of collaboration among agents and institutions in the innovation system, which is consistent with that particular notion of workplace innovation (Claussen et al., 2009; Lantz & Totterdill, 2004; Pomares, 2018, 2019; Pomares et al., 2016; Svare, 2016; Totterdill, 1999, 2020; Totterdill & Hague, 2004). Then, there is a cluster of authors that use workplace innovation in terms or organisational renewal and design other than the HPWS stream, and distinct from most streams to be discussed below. These authors use the term workplace innovation to study organisational innovation and innovations in the organisation, in relation to learning and other innovative work practices (Lorenz, 2015; Raul & Andrei, 2018), responsible management (Ennals, 2014), professionals in human factor design and ergonomics (Badham & Ehn, 2000), non-technological innovation (Carranza et al., 2020; Watanabe et al., 2021), New Ways of Working (Medik & Stettina, 2014), occupational health risks and safety (Jilcha, 2020a, 2020b; Jilcha et al., 2016), autonomous teamwork in production cells (Isa & Tsuru, 2002), the effect of unionization (Reshef et al., 1993), employee motivation (Palin & Kaartemo, 2016), employee involvement (Hebdon & Hyatt, 1996), democratic dialogue (Garmann Johnsen et al., 2021), human-centered design of digitised industrial work (Hirsch-Kreinsen & Ittermann, 2021), the development of social capital (Hughes et al., 2019), and job satisfaction and wellbeing (Casini et al., 2018). Finally, some researchers apply workplace innovation as an example to explain how a method can be applied to achieve workplace innovation (e.g. Durugbo, 2020, shows how a problem structuring method can help to identify opportunities for workplace innovation), how technology can facilitate workplace innovation (Tan et al., 2015), how design thinking can contribute to workplace innovation (Matthews, 2021), how innovation leadership can be linked to workplace innovation concepts (Oeij, Hulsegge, Preenen & Vaas, 2021a; Totterdill & Wilkie, 2021), how workplace innovation can be linked to frugal innovation (Etse et al., 2021), how workplace innovation can be connected to the development of ecosystems (Dessers & Mohr, 2021), as a way to involve employees in an innovation process (Lohse et al., 2020), and to understand the relation between good jobs and the participation in democratic processes (Dhondt, Oeij & Pot, 2021).

From a helicopter view, one can say that some users point out to workplace innovation as a structural innovation, as an innovation in behaviour and culture, or as a corporate (HR) or supra-corporate (innovation) policy. While some users apply workplace innovation as a process in order to achieve something else – such as better jobs , better productivity – , others consider workplace innovation as an outcome. This seems acceptable as long as it is clear which are the dependent and independent variables. Although this diversity of approaches and uses is understandable, it is not very helpful to arrive at a well demarcated research field. To legitimize that workplace innovation has ground for being a separate field of research, we should, however, explain how it differs from the stream of HPWS studies.

HPWS versus WPI
The difficulty in demarcating workplace innovation (WPI) from High Performance Work Systems (HPWS) is that we have no common, shared definition of WPI. However, Oeij et al., (2015) looked closer at the issue of comparing HPWS in relation to their definition of WPI, which is "a developed and implemented practice or combination of practices that structurally (division of labour) and/or culturally (empowerment) enable employees to participate in organisational change and renewal to improve quality of working life and organisational performance" (Oeij et al., 2015: 14). The main commonality of WPI and HPWS is that both look at 'practices' from which both the business performance and quality of jobs can benefit, which is a gateway to high road solutions. Although, it must be said that quite some HPWS approaches only focus on business performance (Boxall et al., 2019). And several other WPI approaches consider workplace innovation not as a means to improve performance and jobs,

but as an outcome itself. The main distinction between Oeij's WPI-definition and HPWS is in acknowledging a stretch to production management and operations management by the first (Totterdill, Exton, Exton & Gold, 2016), due to its linkage with sociotechnical systems design as developed in the Lowlands approach. The Lowlands approach of 'modern sociotechnics' encompasses the operational design of the production structure, the design of the governance or management structure, and the design of the stream of information, namely the basis IT architecture, as a systems theory (Christis & Soepenberg, 2016; De Sitter et al., 1997; Dhondt, 2021; Kuipers et al., 2020; Van Amelsvoort & Van Hootegem, 2017). This integrated design is based on the basic assumption to combine optimal quality, flexibility, and cost-effectiveness in production with job design, that is optimally conducive to learning opportunities and autonomy in controlling the execution of tasks. That basic assumption goes beyond the (subjectively) experienced job satisfaction of employees as persons, because the (objective) design principles apply to jobs and tasks irrespective of the executor (Van Amelsvoort, 2016). Practices of workplace innovation according to this view go beyond merely HR-practices or HR-bundles, and beyond the personal evaluations like job satisfaction and employee motivation as a measure of adjustment. The quality of work is measured in terms of (objective) job autonomy and decision latitude – control capacity or regulatory capacity in the terminology of modern sociotechnics –, which is not a stringent condition in (most) HPWS approaches. A minimum of a division of labour with a maximum of meaningful assignments is the consequence of the maxim to change 'complex organisations with simple jobs into simple organisations with complex jobs' (De Siter et al., 1997).

A categorisation of workplace innovation approaches

In this Section we will try to categorise the most prominent approaches, i.e., choose the most telling examples that combine a certain type of research and a certain level of analysis. These telling examples are the ones that have a link to theory or a clear distinction as a concept. Examples of conceptualisations that lack such prominent features are the ones that are assessing some kind of innovative behaviour of persons – like creativity or contributing to innovation of the organisation – and or some kind of innovation of workplaces through new behaviour and new measures – such as leadership styles and HR-measures. Such approaches are either too general or part of another specific stream, like the HPWS literature or topics like team innovation, innovation climate, and job crafting. Of course, these conceptualisations are connected to workplace innovation, but do not make a substantial contribution to the field of workplace innovation as a distinct field. Another prominent feature is policy approaches that promote workplace innovation. These do not particularly contribute to workplace innovation as a distinct scientific field, but are intended to contribute to the 'advancement' of work and society. Finally, we shall include approaches that intend to evaluate workplace innovation policies, and those that gauge workplace innovation by selecting variables and building new constructs from existing databases.

We developed a grid of workplace innovation approaches using these levels and types of workplace innovation in Table 1. Approaches of workplace innovation appear to be applied at the level of persons and groups/teams, at organisational level, and at the level of policymaking by industrial branches, local, regional, national and international agents. They differ in type. We distinguish first fundamental research, which can be theoretical and / or empirical, and aims to test models and develop evidence-based knowledge. The second type is evaluation research, which studies the presence and dissemination of workplace innovation practices and the effect of policy programmes. The third type of approaches, practice and policy, look at programmes and interventions that are developed to support the practical application of workplace innovation. We discuss these approaches, several of which are related to Chapters of the present book. In so doing we hope to clarify some of the main constructs and concepts

of workplace innovation, and bring order in the approaches, given the theoretical ambiguity associated with the concept until now (Weerakoon & McMurray, 2021).

Table 1: Workplace innovation approaches broken down by level and type

Type / Level	Fundamental research: Testing models and developing evidence-based knowledge	Evaluation research: Developing knowledge for policy and practice	Practice & policy: Programmes and interventions
Persons and groups Individual and team behaviour	1 -WIS [McMurray]	2	3 -SMART [Parker]
Organisations Production systems and HR-systems	4 -WPI TNO-WEA [Oeij] -MWIP [Kibowski] -ERIM Monitor [Volberda] -ISHIP Index [Stam]	5 -EU 2014 [Kesselring] -Eurofound 2015 [Oeij] -WPI-index [Dhondt] -Eurofound 2020 [Van Houten]	6 -TWIN [Amelsvoort/Hootegem] -EUWIN Guide [Totterdill] -5th Element Model [Totterdill]
Regional, National, International institutions High level / institutional strategies and policy / interventions	7	8 -National Programmes in EU -ESF -My Enterprise 2.0 [Oeij] -National Programmes outside EU, like Korea	9 -Policy Model [Alasoini] -EUWIN Policy [EU] -National Agencies

Level of persons and groups

Fundamental research (1)

WIS – Workplace Innovation Scale

The work of McMurray and colleagues (Baxter, 2004; Choudhary et al., 2021; Dang, 2018; McMurray & Dorai, 2003; McMurray et al., 2013, 2021a, 2021b; McMurray & Simmers, 2019; Muenjohn & McMurray, 2016, 2017a, 2017b; Muenjohn et al., 2020; Newnham, 2021; Simmers & McMurray, 2019; Von Treuer & McMurray, 2012; Wipulanusat et al., 2017, 2018, 2020) see workplace innovation as a behavioural, psychological construct. Namely, a psychological construct that is contextual and a process of idea generation created by an individual or team within the workplace and is fostered through an innovative climate (McMurray & Dorai, 2003, p. 8). Their Workplace Innovation Scale (WIS) was designed to identify and measure the behavioural aspects of innovation practices by individuals in their workplace and comprised the four dimensions:

- Organisational innovation, the organisation's strand that innovation is important (five items) (sample item: Innovation in my workplace is linked to its business goals);
- Innovation climate, the shared perception in the organisation to promote innovation (six items) (sample item: I am always given opportunities to try new ideas and approaches to problems);
- Team innovation, a team work environment conducive to innovative behaviour (five items) (example item: In our workplace teams have freedom to make decisions and act on them without needing to ask for permission);

- Individual innovation, behaviour that supports innovation (eight items) (example item: I am constantly thinking of new ideas to improve my workplace).

Workplace innovation thus is innovative behaviour of individuals; it is a behavioural factor affecting an organisation's capacity to innovate. Respondents are employees, and were requested to indicate the level of innovation in the four dimensions in their organisation. The authors regard the four dimensions as four levels – organisation, climate, team, individual – but they exclusively measure it at the level of employee and management opinions. Perhaps it is more accurate to say that the WIS measures perceptions of innovative behaviour at the individual, team, climate and organisational level by individuals working in the organisation. They define workplace innovation as a process of practices occurring at the individual, team, and organisational level within a supportive climate. The WIS is (often) applied as an effect-variable of, for example, locus of control, organisational justice, organisational politics, work values, leadership and organisational climate (or mediated by such variables), but also as an independent variable to explain new product development.

Wipulanusat and colleagues (2017, 2018, 2020) regard workplace innovation, in the same definition as McMurray's and colleagues above, as a contextual social-psychological construct, but based on two dimensions, namely, 'individual creativity' and 'team innovation'. WPI is determined by 'leadership for innovation' and the 'ambidextrous culture for innovation' together constituting the work climate-, and influences the 'career satisfaction' of employees.

Evaluation research (2)

As far as we know there is no workplace innovation-research on 'Developing knowledge for policy and practice' at the level of 'Persons and groups – Individual and teambehavior

Practice and policy (3)

SMART work design
The SMART work design model stems from the job/work design approach (see Annex 2), defined as "the content and organization of one's work tasks, activities, relationships, and responsibilities" or "the study, creation, and modification of the composition, content, structure, and environment within which jobs and roles are enacted" (Parker, Morgeson & Johns, 2017, p. 404; see also Hay et al., 2020a, 2020b; Parker & Jorritsma, 2020). SMART refers to work that is Stimulating, enables Mastery, supports human Agency, is Relational, and has Tolerable demands. Each of these five dimension have a number of subdimensions:

- Stimulating: Adequate skill variety, Sufficient task variety, Problem solving demands
- Mastery: Role clarity, Feedback from others, Task identity
- Agency: Control over scheduling, Control over work methods, Decision making control
- Relational: Support from supervisor and peers, Sense of task significance, Perceived social worth
- Tolerable demands: Moderate time pressure and workload, Manageable emotional demands, Low role conflict.

The method of SMART is something between a design approach and action research. Using steps of the sociotechnical systems design method that an organization applies to implement change, and doing research during that trajectory using the dimensions of the SMART model provides a rich picture of that process. The data collected can be both qualitative and quantitative. The role of the researcher is mainly to study, observe and document the process,

but the researcher can also take the position of the consultant and help to co-create the new work design, based on the assumptions of the SMART model. A design process generally has a design, implementation and operation phase, and in each phase there are barriers, enablers, motivators and accelerators (Hay et al., 2020a). The dimensions of the SMART model are both instructive for the analysis as for the directions of problem solving. The developers contend that SMART work design could help to facilitate effective multi-disciplinary collaboration in (complex) organisations (Hay et al., 2020b). The expected effects of SMART work design are positive effects on harm minimisation, wellbeing, and productivity (https://www.futureofworkinstitute.com.au/smart-workdesign). It should be noted that SMART is not per se limited to the level of persons and groups. The work design approach in general can be connected to organisational and societal levels as well (Parker & Grote, 2021).

Level of organisations

Fundamental research (4)

In the Table we distinguished two types of organisation research: changes in the production system and changes in the HR-system. WPI-interventions that modify the production system are more fundamental than modifying the HR-system, because the HR-measures and policies are supposed to support the present production regime. If such a regime is, for example, bureaucratic with a rigid division of labour than HR-measures alone will not help much to advance the quality of work. Having said that, it should be mentioned that it is not always easy to demarcate these two strands, as they are sometimes mixed in practice. A good example is the case of lean production and lean management. Originally lean production proposed autonomous teamwork with limited division of labour (Womack et al., 1990: 98-103), but the way it was implemented in practice shows a tendency towards cost-reduction practices and rising work pressure (Oeij et al., 2013). However, even in the WPI approaches that are mixed, we can observe they focuson the production systems of the HR system. Many workplace innovation concepts at the organisational level position their application as a contrasting or complementary term to technological innovation (Pot, 2011). The reasoning is that technological innovation may be a necessary condition for change and improvement, but not a sufficient one as long as WPI is lacking. WPI, in this sense, refers to necessary accompanying social and organisational changes that help technological innovation to successfully embed, being applied by employees or taken up by customers, citizens, clients and patients.

We start with approaches that regard changing the production system as essential or conditional.

WPI – TNO-WEA construct

Oeij and Vaas (2016) defined workplace innovation as a strategic renewal in organising and organisational behaviour; it is an organisational capability that consists of four resources: strategic orientation, product-market improvement, flexible work, and organising smarter. Workplace innovation is regarded as an independent variable possibly influencing organisational performance and sickness absence as dependent variables. Their approach is based on Sociotechnical systems theory, the Resource-based view of the firm, Dynamic capabilities, and High-performance work systems. The resources measure the following:

- strategic orientation, being focused on environmental factors raising the urgency for responsiveness and external factors (three items);

- product-market improvement, improving products and finding new markets (two items);
- flexible work, internal variety in the deployment of labour (eight items);
- organising smarter, internal variability in arranging the production process (two items).

Companies that possess such resources dispose of the organisational capability to innovate (Oeij, De Looze, Ten Have et al., 2012a; Oeij, Dhondt & Korver, 2011). This model is based on the construction of data of the Netherlands Employers Work Survey database of more than 5.000 'establishments' (in Dutch WEA, Werkgevers Enquete Arbeid, see Oeij et al., 2011, p. 45). The TNO-WEA construct has been applied several times with the data that were gathered in 2008 and 2010 (De Kok et al., 2014; Oeij et al., 2011, 2012b, 2014; Oeij & Vaas, 2016; see also Pot, 2011: pp. 409-410), and in other countries such as Poland (Mockallo, 2016; 2021) and India (Khan et al., 2021).

MWIP - Measuring Workplace Innovation Practices
Originated from the Fifth Element Model (Totterdill, 2015) is this 'new measure of workplace innovation' (Kibowski et al., 2019). MWIP was assessed as a measure of climate perceptions. Adopting the following working definition, "workplace
innovations are strategically induced and participatory adopted changes in an organisation's practice of managing, organising and deploying human and non-human resources that lead to simultaneously improved organisational performance and improved quality of working life" (Eeckelaert et al., 2012), these authors focus on the practices that can support WI and assess them as the employees' perceptions of workplace climate for WPI. Perceptions of WI practices were measured using a list of 24 items describing four elements:

- jobs and teams (organisation; items 1-6);
- organisational structures, management and procedures (structure; items 7-12);
- employee-driven improvement and innovation (learning; items 13- 17);
- co-created leadership and employee voice (partnership; items 18-24).

The final model that emerged from a confirmatory factor analysis was based on a 19-item scale. This model shifted and eliminated some original items, but included the four original factors. These factors are predictive of both work engagement and job satisfaction, which were selected as effect-variables to test the model.
The MWIP covers topics related to the design of the production system and HR system. The instrument measures opinions and perceptions of individual employees. The authors state that measuring WPI practices at the individual level has inherent limitations. They capture a subjective snapshot of how people view general characteristics of WPI practices. This is both a strength (in not tying responses to particular organisation contexts or interventions) and a weakness (in not identifying the practices in question). Further, individual measures may not fully capture WPI at a team or organisation level (aggregation fallacy risk). Nonetheless, the MWIP provides a different type of information than individualist approaches. The MWIP links perceptions of organisational characteristics to work engagement and job satisfaction, instead of personal characteristics, and this leads to practical ideas for the improvement of organisational conditions.

ERIM Monitor
The ERIM Monitor (The Erasmus Research Institute of Management's 'Erasmus Competition and Innovation Monitor') is yearly research into the competition and innovation capabilities of Dutch firms. The monitor measures 1] management capabilities and leadership styles (dynamic management) ; 2] presence of innovative forms of organising and flexibility (flexible organisations); 4] the development of mature employment relations and working smarter

(working smarter, developing skills and competences); and 4], cooperation and co-creation with external partners (networking across organisations). The measure constitutes together an index of strategic innovation or management innovation, which is called in Dutch the 'social innovation monitor' and overlaps with the EU workplace innovation concepts. The strategic innovation index shows over the years that the business performance depends more on social innovation than on technological innovation, which is an indication for firms of the relevance to investing more in social innovation than they do thus far (Volberda et al., 2011, 2013; Volberda, & Van Den Bosch, 2004; Volberda, Van Den Bosch & Heij, 2013). The social innovation measure is used to explain innovativeness, productivity, and competitiveness. Since 2018 the name changed into the Dutch Innovation Monitor (Nederlandse Innovatie Monitor) and is carried out by the Amsterdam Business School (ABS – University of Amsterdam), in cooperation with SEO Amsterdam Economics (de Jong et al., 2020). Social innovation is no longer a central construct.

ISHIP Index – Workplace innovation construct
ISHIP stands for Intrapreneurship Index, and its goal is to create insight into the conditions (organisational and individual) for entrepreneurship within established organisations (Stam, 2018). The main topics of this instrument are 1] Intrapreneurial behavior and characteristics – individual level activities and competencies, 2] Entrepreneurial organistion – system-level characteristics, and 3] Innovation and firm performance. The ISHIP is a survey in two parts, respectively targeted at employees and innovation experts of the organisation (like innovation managers). The part for innovation experts includes a construct of workplace innovation which is measured by assessing to what extent operating employees or work floor employees are involved with innovation or renewal. It first measures the presence of innovation and then the role of employees in that process (A: Has your company implemented innovations or renewals in the past two year? (you can choose more than one): a. innovation or renewal of a product/ b. innovation or renewal of a service/ c. innovation or renewal of a working method / production process / IT support/ d. innovation or renewal of the work organization / organizational design/ e. innovation or renewal of the deployment of employees/ f. another innovation or renewal which is not mentioned here/ g. none of the above-mentioned innovations or renewals; B: To what extent and in what way are operating employees or work floor employees involved with innovation or renewal?: a. employees in operating functions are (being) actively involved with innovation/renewal/ b. employees in operating functions are (being) involved in decision making of innovation/renewal/ c.employees in operating functions are (being) provided time and space to work on / get used to the innovation/renewal/ d.the autonomy/decision latitude of employees in operating functions is/has been limited as a consequence of the innovation/renewal/ e.supervisors of employees in operating functions actively support those employees which stimulate those employees to participate in the innovation/renewal process/ f.employees in operating functions are not (being) involved in innovation/renewal (innovation /renewal is imposed by management). The WPI-construct has been applied for the first time in a recent survey among Dutch logistics managers (Sharehouse project, forthcoming 2022).

Evaluation research (5)

European Commission – conceptualisation of a WPI construct
The European Commission (EC) considers non-technical innovation as an important contribution to economic progress and social inclusion. Consequently, topics such as workplace innovation were given more attendance. However, what workplace innovation exactly was, was unclear given the propensity of definitions and approaches in practice. Therefore, the EC commissioned exploratory research (Kesselring et al., 2014) into three objectives: 1: Elaborating a consistent concept and definition of WI; 2: Compiling and reviewing

empirical evidence on outcomes of WI; and 3: Recommending meaningful, sound and, practicable indicators for WI. After reviewing the literature and existing statistical (EU level) surveys Kesselring et al., assessed the usefulness of existing indicators for measuring WPI and pointed out existing measurement gaps regarding WPI and options to improve measurement. They identified the main aspects of workplace innovation that lead into the direction of a concept, namely, an input-process-output-outcome scheme to better differentiate different layers (levels) of WPI. The concept is structured according to the following layers and guiding questions:

1. ENABLERS Individual level: Do employees and managers1 have the capability and willingness to engage in workplace innovation?
2. ENABLERS Individual task level: Does the structure of the individual work task (work task, work time, work environment) allow employees and managers to engage in workplace innovation?
3. ENABLERS Organisational level: Which cultural and structural aspects does the organisation provide to help employees and managers to engage in workplace innovation?
4. ENABLERS Societal level: How does workplace innovation reflect, and respond to external economic, social or environmental challenges?
5. PROCESS: How do employees and managers engage in fundamental and continuous processes enabling workplace innovation?
6. RESULTS: What are the results/outputs of workplace innovation?
7. OUTCOMES and IMPACTS: What are the targeted outcomes and impacts of workplace innovation?

Kesselring et al., (2014) screened and compared six specific surveys on their coverage of layers of workplace innovation as defined in the concept on the level of indicators. They found that none of the surveys comprehensively covered the phenomenon of workplace innovation. The various aspects of workplace innovation are indeed surveyed in a very fragmented way across the different surveys that they had examined. The resulting recommendations address the need to understand WPI more comprehensively. "A reduction of WPI to fragmented practices or general questions on organisational change is likely to lead to neglecting the specific characteristics and potential of WPI." (Kesselring et al., 2014: 5). In their conclusion, the authors make suggestions for adaptations of several surveys to measure layers of WPI (CIS – Community Innovation Survey, European Company Survey - ECS, European Working Conditions Survey - EWCS, Innovation Union Scoreboard – IUS).

Eurofound WPI evaluation study
Eurofound commissioned an investigation to evaluate the strategies of companies departing from the question of why and how they apply ideas of workplace innovation (Dhondt et al., 2014; Howaldt et al., 2016; Oeij et al., 2015, 2016a, 2016b, 2017a, 2017b, 2021). In this study, workplace innovation is defined as a developed and implemented practice or combination of practices that structurally (division of labour) and/or culturally (empowerment) enable employees to participate in organisational change and renewal to improve quality of working life and organisational performance (Oeij et al., 2015; Oeij & Dhondt, 2017; Dhondt, forthcoming 2022). Structure refers to the production system and culture to organisational behaviour; HR-practices are a separate category. The 51 case studies of the involved companies were coded on their presence of practices that were either structural changes, cultural changes or applied HR-practices. These practices were then analysed using factor analysis and reliability tests which resulted in seven measures:

- four 'structure elements', namely [1] decision latitude, [2] the organisational model (i.e. extent of division of labour), [3] participation to co-decide in the organisational model, and [4] autonomy and participation.
- three 'culture elements', namely [5] innovative behaviour, [6] bottom-up and people-driven initiative, and [7] participatory implementation.

The seven measures represent 'contextual factors' (1 and 2), 'WPI-related features of practices' (4 and 5), and 'adoption and implementation' (i.e., reasons, motivations and facilitators of WPI) (3, 6, 7), that could explain whether or not a company could be identified as a clear example of a workplace oriented organisation (called 'substantial WPI'). The studied 51 cases uncovered five combinations of those seven measures that all resulted in the identification of workplace oriented organisations, which implies that there were five company strategies or 'roads' to becoming such a company. In addition to this result, a regression showed that one culture variable (innovative behaviour) and two structure variables (decision latitude; autonomy and participation) were responsible for predicting workplace innovation orientation (Oeij et al., 2015, technical report). It is an indication that both the production system and HR-system should be dealt with to achieve workplace innovation. Further, it can be said that the majority of the 51 cases did improve both the company performance and the quality of work, indeed meeting the expectation that WPI should improve both goals simultaneously. And lastly, a process variable proved crucial, as successful companies show to have mature industrial relations between managers, employees, and employee representatives. It so happened that the implementation process of workplace innovation practices reflected constructive cooperation between these organisational agents. Other researchers have been using the insight of this approach and developed projects taking the structural and cultural elements into account and applied it to their (railway) industry (Carranza, De la Rue, Sanchez, 2021; Carranza & Sanchez, 2021).

ECS WPI-index
For the above mentioned Eurofound study on workplace innovation, an index was constructed to assess the companies that could be characterised as organisations that scored high on workplace innovation characteristics. This index was used to develop a procedure to select companies from the database of 30.000 companies of the Europan Company Survey 2013 that would constitute the sample of 'best' company case studies (Dhondt et al., 2014). The slightly adjusted theoretical concept of the Fifth Element model (Totterdill, 2015) was used by comparing its four elements 'work organisation', 'learning and reflection', 'structures and systems', and 'workplace partnership' with items of the ECS-questionnaire and selecting a batch that seems useful at face-value. By using Principal Component Analysis a latent structure could be found. The selected items lead to the construction of an index, which was used to calculate scores for each of the companies and its ranking. The ranking was subsequently used for selection purposes. The result did not fully match with the separate factors of the Fifth element model but they nonetheless had a strong face value overlap. The seven-factor solution was: 1) Innovation (product and organizational innovation), 2) voice (employees /employee representatives having a say in decisions and changes), 3) learning and reflection (training and feedback), 4) structure and system (variable pay), 5) work organization

Innovative workplaces – Eurofound2020
Although the report 'Workplace practices unlocking employee potential' based on the 2019 wave of the European Company Survey (ECS) does not conceptualise workplace innovation, it applies a construct that strongly overlaps with it (Eurofound and Cedefop, 2020). The study empirically distinguishes four types of work organisation, based on 'establishments'. 1] 'High

investment, high involvement': Employees have a high degree of autonomy, and management has high expectations of them, matching this with high use of incentives and comprehensive variable pay, widespread training and learning opportunities, and direct involvement of employees in decision-making. Establishments are likely to have an employee representative and are relatively often members of an employer organisation. 2] 'Selective investment, moderate involvement': Employees have some autonomy, and management has moderate expectations of them. Deployment of incentives is moderate, with selective access to variable pay and selective training and learning opportunities. Involvement of employees is irregular or focused around meetings. The percentage with an employee representation structure is average, but establishments are relatively likely to be members of an employer organisation. 3] 'Moderate investment, irregular involvement': Employees have little autonomy, while expectations of them are moderate and matched by limited use of non-monetary incentives. These establishments are relatively likely to offer variable pay, limited training and learning opportunities, and irregularly involve employees in decision-making. The percentage that have employee representation is average, and they are unlikely to be members of an employer organisation. 4] 'Low investment, low involvement': Employees have little autonomy, expectations of staff are low and use of non-monetary incentives or variable pay is low. Learning opportunities are limited, as is employee involvement. Establishments are unlikely to have an official structure for employee representation and are unlikely to be members of an employer organisation. Findings show that "the 'high investment, high involvement' group scores best in terms of workplace well-being and establishment performance, and thus is most likely to generate a win–win outcome. These establishments are found most often in Finland and Sweden, are somewhat more common among large establishments and tend to be relatively prevalent in financial services and the 'other services' sector. Employee representation contributes to a positive outcome – an official structure for employee representation was found most often in establishments whose workplace practices are linked to better workplace well-being and establishment performance." (Eurofound and Cedefop, 2020: p. 1-2). To form these four groupings, latent class analysis was used to group establishments based on common characteristics, such as the bundles of practices they adopted (i.e., Collaboration and outsourcing, Job complexity and autonomy, Proportion of employees with a fixed-term contract or working parttime, Workplace behaviour and motivational levers, Variable pay, Training and skills development, Direct employee participation, and Representative organisations of establishment and employees). (Eurofound and Cedefop, 2020: p. 130-131). The 'High investment, high involvement' type of work organisation is supposed to have much similarity with workplace innovation orientation, as for example defined in the 'organisation-level' approaches, and partly with the 'persons and group-level' approaches in Table 2.

Practice and policy (6)

TWIN – Total Workplace INnovation
TWIN is a design approach for integrated, systemic change in organisations (Van Amelsvoort & Van Hootegem, 2017), which is defined as a renewal of the organisation of work with an integrated view on the division of labour, working relations, and the supporting systems, with the dual aim of improving both performance and quality of working life. The basis is the Lowlands variant of sociotechnical systems design (Dhondt & Van Hootegem, 2015; De Sitter et al., 1997; Kuipers et al., 2020). The job and organisational design assumption are that complex organisations with simple jobs should be transformed into simple organisations with complex jobs, to enable workers to solve problems at the level where problems emerge. This minimizes the division of labour, providing employees and their teams with the highest possible autonomy, a design principle that makes the organisation's production system as a whole

more efficient, effective, quality-driven, flexible, and an inspiring working environment for its people. TWIN provides an approach to how to (re-)design the production structure (the operational process), the control structure (the division of managing, operational, and supporting functions), and the information structure (design of IT and technology so that it supports functionaries instead of controlling and directing them). To enhance employee involvement it is highly recommended to undertake the design process in co-creation with the different stakeholders. In addition to sociotechnical design principles TWIN taps into other approaches to design the support systems - such as the IT architecture, HR-systems, maintenance, and quality systems, shopfloor democracy -, for example Lean thinking, Total Productive Maintenance, Relational coordination theory, and Sociocracy.

EUWIN – Guide to WPI

The EUropean Workplace Innovation Network (EUWIN) has produced a booklet 'your guide to workplace innovation' (Totterdill, Dhondt & Boermans, 2016), meant as a practical tool to help answer the main question how can one actually do workplace innovation?" The guide supports users to address five challenges:

1. Why workplace innovation is important for your company?
2. How workplace innovation will transform your organisation?
3. Where to begin?
4. What are the 'Elements' of workplace innovation?
5. How to achieve commitment from everyone in your organisation?

The core of the guide is formed by the elements of the Fifth Element model (see below, Totterdill, 2015). Users can assess their organisational challenges by identifying their most pressing issues with an inventory (checklist) that deals with the four elements of 'jobs and teams', 'structures, management and procedures', 'employee-driven improvement and innovation', and 'co-created leadership and employee voice'. The guide is supported by a Knowledge Bank that contains films, case studies, articles, and tools about workplace innovation (https://www.workplaceinnovation.org/).

Based on the success of the European workplace innovation network, the Commission now supports workplace innovation through three projects (https://ec.europa.eu/growth/industry/policy/innovation/workplace_en): 1] INNovaSouth improves Southern European SME's entrepreneurial culture, market resilience, and competitiveness. They have developed an online manual of good practices for workplace innovation based on the EUWIN Guide to WPI mentioned above (INNovaSouth, 2020); 2] The RailActivation project has an open innovation ecosystem that aims to create mechanisms for business and organisation so the railway sector can improve workplace innovation. Therefore, RailActivation is working on new mechanisms and tools to anticipate the effects of digitalisation on the railway sector as well as designing the EU railway industry's innovation process transformation from the inside out. 3] Start at Best contributes to new European-led workplace innovation among SMEs. It consists of financial grants to foster workplace innovation in EU countries, especially where the practice is less integrated (i.e. Italy, Ireland and Portugal).

Fifth Element Model

Strongly connected to the European workplace innovation network (EUWIN, see above), is the Fifth Element Model (Totterdill, 2015, 2020; Totterdill & Exton, 2014b). The Fifth Element identifies four bundles (or 'Elements') of working practices with a strong association between high performance and high quality of working life, namely: 1] Jobs, Teams & Technology; 2] Employee-Driven Innovation & Improvement; 3] Organisational Structures, Management and

Procedures, and 4] Co-Created Leadership & Employee Voice. Alignment between these Elements creates a synergy in the form of the 'Fifth Element', a system of mutually interdependent parts that leads to a sustainable culture of innovation and empowerment embedded throughout the organisation. The purpose of the Fifth Element model is to achieve win-win outcomes for organisations and their employees. The model does not want to define workplace innovation too narrowly, it states that it is generally referring to the introduction of any new forms of work organisation and any new forms of direct employee participation, and has increasingly come to be understood in terms of specific workplace practices (https://workplaceinnovation.eu/this-is-workplace-innovation/):

1. It is part of a strategic choice, running through the organisation's entire business model and underpinned by a long-term vision and perspectives, sustainability and ethics.
2. It's strongly associated with the simultaneous achievement of high performance and high quality of working life – and contributing to wider society.
3. Workplace innovation is separate from – but builds on – 'fair work' principles such as job security, living wage, equality & diversity, and opportunities for training and education.
4. Leadership styles, culture, engagement and job satisfaction are not independent but are largely determined by work organisation and the structure of management and control.
5. Workplace innovation is focused on workplace practices grounded in substantial research and case study evidence (see for example Dhondt, Vermeerbergen & Van Hootegem, 2017).
6. It is a systemic approach, recognising the interdependence of job autonomy, self-managed teamworking principles, skills-enhancing technologies, employee-driven innovation, flexible organisational structures, empowering systems, employee voice and co-created leadership.
7. It's based on high levels of employee involvement and empowerment, combining direct and representative participation.
8. It is not a blueprint but comprises generic principles and practices to inspire fresh innovation in each organisation through inclusive dialogue, experimentation and learning.
9. Workplace innovation is not a one-off. It introduces workplace practices and cultures that continually inspire and engage inspire and engage everyone to explore and discover better ways of doing things, harnessing creativity and talent from across the organisation.
10. Workplace innovation doesn't just change organisations – it changes the people who work in them, not least senior team members and managers. It is strongly associated with trust, accountability, curiosity, creativity, coaching behaviours and emotional intelligence, all of which grow with the workplace innovation journey.

The authors claim that these propositions define workplace innovation as a distinctive, robust yet practically-focused approach to organisational transformation. The approach is part of a consultancy method, called the 'Essential Fifth Element', through which companies and individuals and third sector bodies are guided by consultants to apply workplace innovation practices. In this process approach the constructive participation and supportive, enabling leadership play an important role in the adoption of workplace innovation practices (see for example Totterdill & Exton, 2017; Totterdill & Wilkie, 2021). One of the applied instruments is the Workplace Innovation Diagnostic, which is an employee survey designed to assess where change is needed. The Diagnostic focuses on evidence-based workplace practices associated with high performance, engagement and workforce health, and its results indicate specific actions at team, department, site and organisational levels (https://workplaceinnovation.eu/workplace-diagnostic/). The topics of the survey are analogous to the Fifth Element Model and the MWIP - Measuring Workplace Innovation Practices (see earlier, Kibowski et al., 2019).

Fundamental research (7)

To our knowledge there is no workplace innovation-research that can be categorised as 'Fundamental research: Testing models and developing evidence-based knowledge' that fits into the cell of 'Regional, National, International institutions, i.e., High level / institutional strategies and policy / interventions'.

Evaluation research (8)

National WPI Programmes in Europe

In several European countries evaluation research has been carried out to assess the results of workplace innovation programmes (see also the section on 'Practice and policy' (9)), such as Finland, Sweden, Norway, Denmark, Germany, UK, Scotland, Ireland, the Netherlands, Belgium (Flanders), Italy, France, Basque country (Pot, 2011; Alasoini et al., 2010; Totterdill, 2009). Most programmes are 'soft regulation' policies, contrary to hard directives, and try to stimulate and seduce actors to make use of facilities and interventions. The evaluation studies try to assess the effects of programmes by measuring on the one hand economic effects, for example, performance, in terms of labour productivity, cost-savings, quality of services and goods, and quality of operations and customer satisfaction. On the other hand, the quality of working life is measured, for example, in terms of job design, team working, leadership styles, cooperation relationships, development of skills and training, employment opportunities, employee involvement, mental well-being, sickness absence, and job satisfaction. Other topics are labour-management cooperation, the role of unions, the effect of ergonomics, safety, HR-management and HR-practices, and stress management, employee turnover. This list is not exhaustive and in every country the weight is partly on similar, partly on different elements. What evaluations have in common is their assessment of both economic and social outcomes, reflecting the interests of both employer and employee interests. Often there are several positive results reported, but at the same time, a common complaint is that the reach of the programmes and the dissemination and sustainability of results remain limited.

Apart from evaluation research of (policy) programmes there is abundant national and supranational statistical research measuring the state of the art and development of performance and productivity, innovations and investments, technological development, and labour issues and assorted topics, that provide information workplace innovation in more indirect ways.

European Social Fund (ESF)

The European Social Fund Europe's main tool for promoting employment and social inclusion – helping people get a job (or a better job), integrating disadvantaged people into society and ensuring fairer life opportunities for all. Although the ESF is an umbrella regulation, each Member State formulates its policy priorities. Social inclusion and labour participation are key elements in the period 2014-2020, whereas in the former periods 2000-2006 and 2007-2013, more emphasis was on 'work organisation' – at least in the Netherlands and Belgium. This resulted in projects where work organisation was connected to, for example, to HR-practices, and labour participation and training projects in which many companies actively joined. In the Netherlands, social innovation had another connotation than the European terminology at that time (Xavier & Pot, 2012; Dhondt & Oeij, 2014; Howaldt & Oeij, 2016): in Europe social innovation was about new ideas for the benefit of inclusion of social groups, but in the Netherlands it meant improving the work environment in companies in order to get better job

quality and business performance. Due to this situation, and partly a consequence of the role played by the Netherlands Centre of Social Innovation (read: centre of workplace innovation), the ESF activities in the Netherlands focused much on 'work organisation'. In so doing, workplace innovation was also a driver for social innovation, understood as more social inclusion and labour market participation (Oeij, Dhondt, Pot & Totterdill, 2018; Oeij, Dhondt, Žiauberytė-Jakštienė, Corral & Totterdill, 2016b; Pot, Dhondt & Oeij, 2012). In the period 2007-2013 also incumbent staff of companies participated, but in the later period the participants were mainly underprivileged labour market target groups, and applicants shifted almost completely to municipalities and related NGOs. Dominant topics until about 2010 were connected to the themes 'working smarter', 'new employment relationships', and 'flexible work organisations' (Bureau Bartels, 2011).

My Enterprise 2.0

"My Enterprise 2.0" is a regional intervention WPI-programme to enhance the growth and continuity of SMEs in the province of Utrecht in the Netherlands funded by the European Regional Development Fund (Oeij et al., 2014). SMEs were given support from consultancy bureaus to introduce workplace innovation practices. The purpose was that the region's capacity for innovation would then be expanded. The project ran from 2009 to 2012. Altogether, more than four hundred small or medium-sized companies participated. A platform of cooperative organisations was created, which included representatives from the business community, knowledge institutes and governmental bodies. This platform was used to organise over one hundred network meetings, sector-specific meetings, conferences and "smarter working cafés" for entrepreneurs and knowledge networks, to disseminate knowledge. The workplace innovation activities were meant to implement interventions in the field of strategy, the design of primary processes, the deployment of personnel and the management of the company. In most cases, the managers and owners of the SMEs realised these interventions in cooperation with their employees (i.e., employee involvement). The workplace innovation trajectories of the companies were investigated with a pretest posttest survey design. Workplace innovation was defined similarly is in the WPI TNO-WEA approach (see above), as a strategically inspired renewal in the field of organizing and/or organizational behavior and thus represents the capacity of the organization. This capacity includes four sources – namely, "smarter organizing," "flexible working," "improving products and marketing" and "strategic orientation." Together, the four scales measure "workplace innovativeness" or, in other words, the degree to which one can speak of "workplace innovative companies" compared to "non-workplace innovative companies." The investigated effects of the WPI-interventions were the SME's capability to innovate, the performance of the companies, the companies' intended goals (behind the intervention), and the labour productivity.

National WPI-programmes outside Europe
Korea

In South Korea, an initiative for a workplace innovation programme was taken in 2009 by the Korea Workplace Innovation Centre (Pot, 2011). Due to political changes it was stopped between 2011 and 2018, and then revitalised in 2019. The term "workplace innovation," not only includes innovation such as developing new technologies or products, but also creating various social innovations through new or combined interventions for work organisations, HR management, or utilization of existing technologies, like incremental improvements in processes and operations (Bae & Lee, 2017). It is regarded as similar to High Performance Work Systems / Practices (Cho, 2014). The social innovation element refers to people-friendly workplaces and good working conditions for personnel. Workplace innovation should also boost production efficiency and profitability. Workplace innovation, measured as High-Performance Work Practices (as in the OECD Employment Outlook of 2016) in Korea is still

relatively scarce, which is partly explained by the technology-focused mindset of management that reveals limited trust in the abilities and potential of workers, and the confrontational industrial relations between companies and unions. Not only does this lead to the underutilisation of workers' knowledge and involvement, but it also translates into stronger control over workers or efforts to substitute labour for automatization (Bae & Kwon, 2008; Bae & Lee, 2017). Moreover, the governmental bodies put more focus on employment and wage systems than improving the consultation between unions and companies or employee consultation within companies (i.e. industrial relations and employment relations), or, in the words of Korean researchers on cash support to companies instead of enabling capacity building (Bae & Lee, 2017). Unions oppose workplace innovation, believing it to be only the employer's agenda to increase labour intensity. Korea has a company-level unionisation system, where unions are internalised in the company (Bae & Kwon, 2008) – i.e., in larger firms, but practically absent in most SMEs. This implies that unions have limited influence at the sectoral and national level, and consequently a national policy to improve the quality of working life is confronted by the dominance of liberal policies that see such policies as a responsibility of firms themselves. Without the full involvement of major stakeholders and constructive participation between management and labour, workplace innovation cannot take place, and its scarcity is explained by the fact that workplace innovation is perceived as a threat to management authority (Kim & Bae, 2005).

Practice and policy (9)

Policy Model – national innovation systems
At the level of nations and regions, there are programmes to develop and improve work organisation in general, under which we can head workplace innovation programmes Alasoini, 2009a, 2009b; 2018a; 2018b; Alasoini et al., 2010, 2011, and on a dialogical approach of workplace innovation in Norway, see Garmann Johnsen et al., 2021). Finnish researchers have applied a 'best practice framework' of Naschold (1994) to analyse such programmes as a kind of national innovation system that takes six elements into account (Alasoini, 2009a, 2009b). Firstly, Naschold argues that the strategic justification for a workplace development strategy should arise primarily from macro-level industrial policy issues rather than the IR system or the R&D system. Secondly, on the programme and project level, the aim should be to attain an international or global standard, rather than settling for a national or local standard. The programmes and projects of other countries can be an important source of ideas and inspiration for other countries and their workplaces. Thirdly, in development operations the aim should be a type of indirect intervention that combines simultaneous design and process orientation and broad workplace-level participation as opposed to traditional design solutions provided by experts or centralized bargaining solutions by the social partners. An advanced national development infrastructure which comprises a large number of experts is the fourth underpinning element. Naschold considers it very important to pool different kinds of expertise at the national level to support development strategies and not to utilize solely micro-level approaches. Networking between players on the micro level, instead of stand-alone development projects, is the fifth feature of the model. Nationwide networks are crucial for dissemination. The sixth dimension concerns the adequacy of programme resources in relation to the aims of the programme. The financial budget, the number and expertise of the staff and the time span reserved for programme activities form the three critical resources for programmes in the model.

A decade or so later, Alasoini (2019) proposes a new approach in examining ways of increasing the effectiveness of work organisation development programmes (i.e., WPI programmes) aimed at improving both productivity and the quality of working life. The concept

of workplace innovation refers to collaboratively constructed changes in a company's organisational, management or other work-related practices that lead to simultaneous improvements in productivity and quality of working life, which, in turn, also often support other types of innovation (Alasoini, 2019: 8). A WPI programme is a widely used "soft" form of regulation to promote working life reform in different countries. It is a policy instrument. Such a programme has three characteristics: first, development is guided by a shared framework that applies to several work organisations simultaneously; second, the content of the framework has been accepted by management and staff of the work organisations in question and other major stakeholder groups, such as policy-makers, social partners, and researchers, consultants and other experts; and third, the involved work organisations engage in exchange of information, interaction and cooperation.

Based on previous work on institutional entrepreneurship and system transitions, the author develops a theoretical framework for analysing the likelihood that WPI-programmes would be successful. Subsequently, he engages in a discussion of how the framework could be used to develop programmes that are more likely to be successful in achieving both improvements in productivity and the quality of working life. First of all, the author contends that present and former WPI-programmes have limited success due to institutional isomorphism, which is the similarity between the systems and processes of institutions. This similarity can be through imitation among institutions or through independent development of systems and processes. The consequence is no or too little innovation or change. The reason is that actors in the system have a contradictory relationship with the present situation and a new situation. Alasoini writes that:

> "It is interesting that the same institutions of the expanded triple helix model that are seen as key promoters of workplace innovation may, under certain circumstances, also act as significant impediments to workplace innovation activities. This inherently contradictory relationship of the various actors towards the development of workplace innovations is rarely explicitly recognized in evaluation studies and other analyses of work organization development programmes." (Alasoini, 2019: p. 24).

Therefore, such inherently contradictory relationships of various actors involved in the expanded triple helix cooperation towards the promotion of workplace innovations and working life reform in general should be made clear. This lays bare the power relationships in such a context – "an issue rarely seriously discussed in the context of work organization development efforts", says Alasoini (2019: p. 27). Agents should operate as institutional entrepreneurs. The concept of institutional entrepreneur refers to change agents who initiate changes that break with the prevailing institutional logic (the isomorphism) within a given context by actively participating in the implementation of these changes through the active mobilisation of resources. In the case of WPI programmes, this means an ability to attract a large number of various stakeholders to join forces in the search for new paradigmatic alternatives to existing established managerial, organisational, or other work-related practices.

Next to these behavioural qualifications, agents should apply the multilevel perspective on sociotechnical transitions (MLP). According to many evaluation studies that have been conducted in different countries, WPI programmes have often been successful in producing significant improvements in productivity and quality of working life in individual work organizations that have participated in publicly supported development projects. However, although the success rate of demonstration (pilot) projects in such programmes is generally good, the experiences of many programmes indicate that the "good practices" that these projects create spread poorly, according to the author. Basically, applying MLP means that agents should use a broader perspective beyond the immediate goals of the WPI-programme.

By making use of the MLP, it is possible to build a more structured framework for analysing external effects of WPI programmes at various 'levels'. Besides changes at the level of individual work organisations, programmes should be able to contribute to increased awareness, knowledge spill overs and the emergence of new cooperative networks around perfectible workplace innovations; in MLP terminology, this process can be called "scaling-up". This framework is expected to realise substantial change not only at the level of organisations, but also among agents of the triple helix stakeholders. The assumption is that this neo-institutional 'structured approach' with its institutional entrepreneurship that is targeting a multi-level sociotechnical transition landscape is a framework that can bring real breakthroughs in motion.

There are different reasons why WPI-programmes come into existence (Pot, 2011). Firstly to maintain the level of welfare and well-being and social inclusion (for example enhance the labour productivity). Secondly to create added value and competitive power (for example develop and utilise new skills and competence of the workforce). Thirdly to enhance the valorisation of innovation by making technology work (for example workplace innovation smoothens technology adoption). And fourthly, to counter technological deterministic management ideologies that underutilise the potential of workplace innovation (for example, research shows that successful performance of organisations depend more on non-technological innovations than merely technological innovations).

Next to WPI-programmes there is a growing attention for workplace innovation in policymaking, for example, at the level of the European Union (Pot et al., 2016, 2017). Of course, the EU and national WPI-programmes are connected to this policymaking. The European Workplace Innovation Network project (EUWIN 2013-2017), for example, which intended to disseminate and stimulate workplace innovation via network meetings across Europe, slowly originated from the Europe 2020 vision and strategy development (since 2009) after the European Commission's DG Enterprise and Industry (later DG Growth) connected its industrial and innovation policy to the topic of workplace innovation. In an earlier phase, the DG Employment, responsible for labour market policy and social security, connected its policy to the growing attention for innovation, in particular, social innovation (in its meaning to support and socially include social groups in new ways), and started with the European Social Fund (ESF). The ESF and its successor EU Programme for Employment and Social Innovation (EaSI) not only promotes employment and social inclusion, but also offered the opportunity for companies to develop projects in the context of workplace innovation. These examples show that integration of policies that can be beneficial to the uptake of workplace innovation is lurking (for an overview of the European policy see Pot et al., 2016, 2017, 2021).

EUWIN Policy – EUropean Workplace Innovation Network

Rooted in approaches and movements to support new ways of working and good quality jobs across Europe, the researchers who advocated workplace innovation started with the formulation of a statement to address politicians and policymakers to back up their initiative: the 'Dortmund Brussels Position Paper on Workplace Innovation' of 2012. That placard struck a sympathetic note in Europe, with The European Workplace Innovation Network (EUWIN) being created in 2013 at the request of the European Commission (DG GROW). The support of Flanders Synergy was instrumental to put the topic of workplace innovation on the agenda of DG GROW. Built on the Competitiveness and Innovation Framework Programme, the objective was to stimulate workplace innovation in Europe by connecting stakeholders from all relevant backgrounds. It was initially led by TNO and Workplace Innovation Limited (now Workplace Innovation Europe CLG). Its aim since then has been consistent: to promote the concept of workplace innovation throughout Europe as a way of enhancing capacity for

product, service and process innovation, increasing business competitiveness and creating better working lives for our citizens. EUWIN grew rapidly as did its impact, reaching over ten thousand people and companies through conferences and workshops. Hundreds of thousands found inspiring cases, articles and evidence on the Knowledge Bank Workplace Innovation (https://www.workplaceinnovation.org/). Hundreds of experts and collaborators pushed the message across to thousands of companies all over Europe. EUWIN also guided the development of major new policy initiatives for workplace innovation in the Basque Country, Scotland and elsewhere. The lessons of the EUWIN-initiative made DG GROW to support several specific funding projects, to run small scale experiments in different countries. The networks supporting EUWIN, decided in 2017 to continue the EU-wide network. Since then EUWIN has functioned as a network run by its partners, supporting activities in several countries and promoting the further development of workplace innovation in European policy frameworks. In 2021, an update of the Dortmund Brussels position paper saw the light, 'Workplace innovation: Europe's competitive edge: A manifesto for enhanced performance and working lives' (EUWIN, 2021). This manifesto summarises the nature, origins and policy significance of workplace innovation, making a case for enhanced recognition throughout Europe's policy eco-system (https://workplaceinnovation.eu/wp-content/uploads/2021/11/EUWIN-MANIFESTO.pdf). Initiatives of a Global Organization and Workplace Innovation Network took off in 2015 but got no strong foothold until now (see the GLO.WIN manifesto at https://stsroundtable.com/wp-content/uploads/GLOWIN-MANIFESTO.pdf).

National Agencies
Aside from national policies (see 8) some European countries developed national practices and programmes that can be linked to workplace innovation. Three examples stand out, as these mention workplace innovation in particular.

The first is the Netherlands Center for Social Innovation (NCSI), established in 2006 jointly by employer organisations, trade unions, universities and a research and technology organisation, and closed in 2012 (Xavier & Pot, 2012). The government plays no active role, because the line of policy is that the social partners are in the lead. Moreover, governmental activities were more focused on technological innovation. Some ministries, however, understood the importance on non-technological innovation and provided financial support. The purpose of NCSI was mainly to disseminate best practices, carry out field experiments, and stimulate research, and was meant as a temporary booster to foster workplace innovation.

A second example is the Belgian initiative Flanders Synergy, started in 2009, which passed into Workitects rather recently (https://workitects.be/over-workitects). Flanders Synergy was an innovation platform with the aim to improve organisations as 'innovative organisations', to make them more competitive and create good quality jobs. Their philosophy was based on modern sociotechnology. The innovation platform functioned both as an expertise center and as a pool of consultants. Its successor Workitects, since 2019, has broadened its services to topics that are needed to make sociotechnical redesign effective, such as leadership, cultural change, teamwork and strategy. Whereas Flanders Synergy consisted of staff that guided change projects, Workitects trains (external) trainers and consultants to carry out the guidance of organisations. The platform transformed into a network.

The third example we mention is Scottish Enterprise, Scotland's national economic development agency (Totterdill & Exton, 2021). In 2016, Scotland set out its vision for the future of work which included a practical blueprint and a new type of dialogue between employers, employees and trade unions, public bodies and the Scottish Government. In

response, Scottish Enterprise launched a portfolio of initiatives to promote workplace innovation, amongst the most significant of which is the two-year pilot Workplace Innovation Engagement Programme (WIEP). The core of WIEP is a programme that brings diverse cohorts of companies together on a nine-month shared journey towards the sustainable transformation of workplace practices. Scottish Enterprise is guided by an external consultancy organisation specialised in workplace innovation change trajectories, namely the Ireland based Workplace Innovation Europe CLG.

4 A historical approach to understanding the concepts and connecting them to streams

This Chapter contains an overview of streams and concepts of research into work, and how that connects to workplace innovation. We start with looking at how concepts of workplace have developed and where they do come from. After that, we connect those concepts to research in the sociological, psychological, economical and management fields of work. Finally we address the question whether we see divergence or convergence in the field of workplace innovation and those streams. Anticipating answering this question we observe at least some convergence of research towards the general topic of 'good jobs'. Our approach is not a chronological overview, but an attempt to understand whether this research has certain commonalities and how that developed over time.

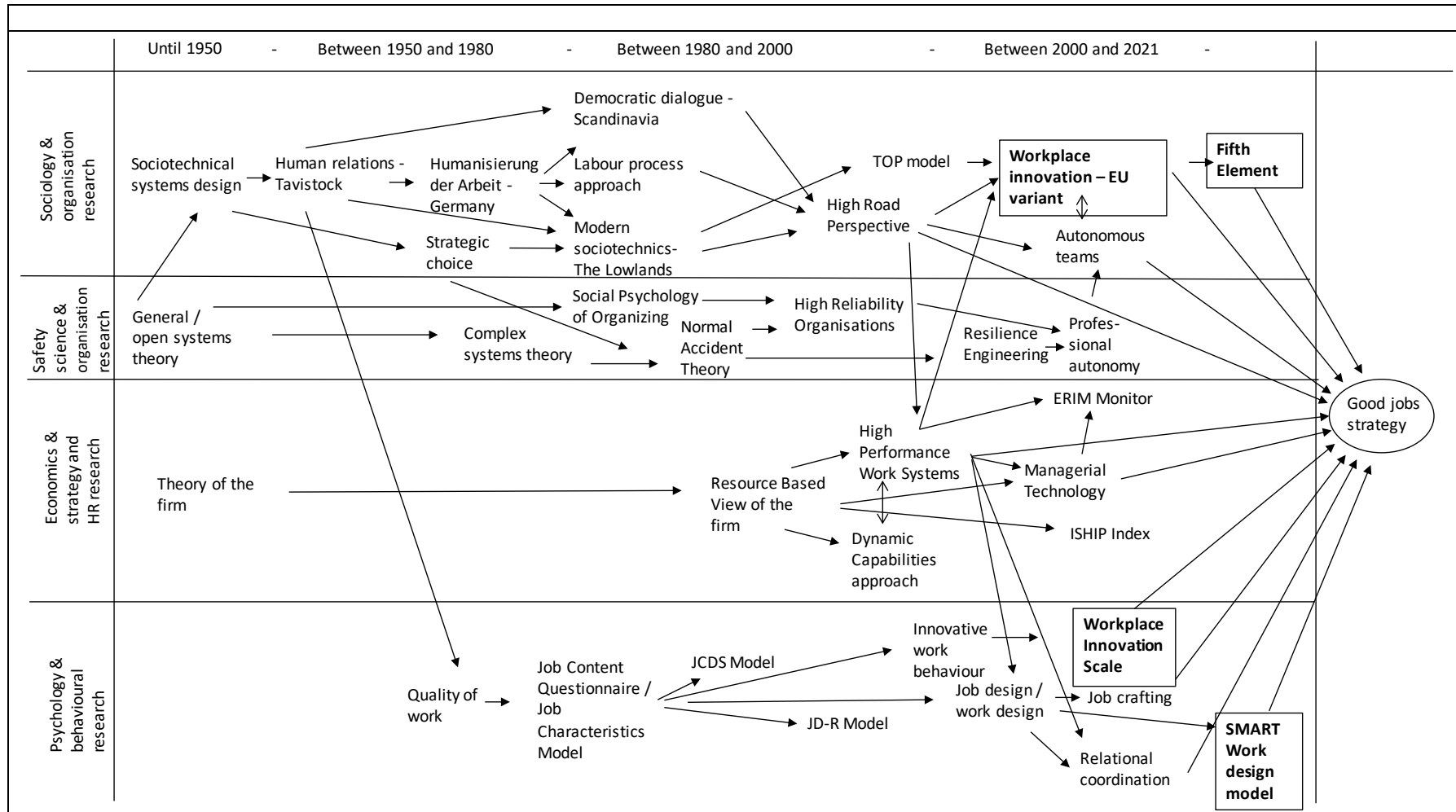*Development of workplace innovation concepts*
Workplace innovation is a concept or construct that is used to either explain characteristics of work, jobs, organisations and behaviour or as a desirable situation in companies and organisations that demand policy support and facilitation from various agents. We looked at workplace innovation from different levels before this, now we turn to the question of where the concept comes from. We contend that all workplace innovation approaches strive to explain or support the improvement of the situation for persons (employees, managers) or the organisation. Indirectly or directly, workplace innovation contributes to more well-being and more welfare for persons, organisations, and society. And although it may not be deliberately stated by its representatives, workplace innovation practices can be easily linked to a 'good jobs strategy' in general terms. As such it follows the initial purpose of the quality of working life movement.

In Europe the term workplace innovation is related to values of the European Social Model (ESM). The ESM is a defining feature of the EU and its Member States, and is meant to capture the European alternative to rampant (neo-liberal) free-market economies (in the US) by providing a model of sensible economic policy-making in which economic, welfare and employment policies form a central part (Rogowski, 2008). The core of the EU policy is to advance economic growth, social inclusion and employment, and stimulate innovation and knowledge development. In this context and as a response to economic setbacks and crises, many projects in Europe, and largely commissioned by the European Commission, dealt with these topics. Not only under the flag of workplace innovation, but often using different names for concepts with great similarities, such as 'new ways of working', 'innovative workplaces' and 'sustainable work systems'. Concrete topics under research were, for example, fighting unemployment, reducing the deskilling of labour, developing new ways of working and organising, new types of work and work organisations, social security programmes and measures, and innovation policies and (re-)skilling the labour force (see Pot, Totterdill & Dhondt, 2016; 2017; 2020). The ESM focussed on the quality of working life and contrasted with global trends towards Lean Production and Japanisation, with their narrow structural emphasis on productivity, and a tendency towards job enlargement rather than job enrichment (Totterdill, 1997). The ESM tries to balance four values: "the humanisation of work through advanced job design and social relations; the widespread scope for innovation throughout the organisation; the design and deployment of technology in ways which maximise workforce potential and environmental protection; and increasing employment to reduce the waste of human resources in the labour market." (Totterdill, 1997: 203).

When exactly the term workplace innovation was coined (in Europe) is hard to tell. References to 'workplace innovation(s)' can be found in literature from the 1990s, generally referring to the introduction of any new forms of work organisation and any new forms of direct employee participation as innovation strategies connected to the notion of embedment in high road infrastructures (Totterdill, 1997; 1999). One of the first attempts to operationalise the concept of workplace innovation was the Hi-Res report (Totterdill, Dhondt & Milsome, 2002), which stands for 'High road concept as a resource to support the creation of new forms on intervention (…)', aiming at a better understanding of the 'high road' and how to get there, which is through a rather messy interplay between several factors. Hi-Res summarised workplace innovation's defining characteristic in terms of the creation of jobs and practices that empower workers at every level of an organisation to use and develop their full range of knowledge, skills, experience and creativity in their day-to-day work, leading to high performance simultaneously with high quality of working life. It built on diverse traditions including both Socio-Technical Systems Design (Mohr & Van Amelsvoort, 2016) and Scandinavian Democratic Dialogue (Gustavsen, 1992), and stressed both content and process factors.

From a historical perspective, we can distinguish streams in research that are related to variants of workplace innovation concepts, and that can be connected towards a tendency to realise 'good jobs'. These streams are located in the field of sociology & organisation research, in safety science & organisation research, in economics & strategy and HR research, and psychology & behavioural research. Moreover, these streams go beyond Europe, implying we can distinguish more geographical approaches of workplace innovation. Although there is overlap between the streams, we tried to demarcate them as accurately as possible in Figure 2, which we shall describe.

Figure 2: Research streams connected to workplace innovation and good jobs strategy

Fields of research that are connected to workplace innovation

The row 'sociology & organisation research' (Watson, 2017) in Figure 2 depicts the development in a timeline of the mentioned European variant of workplace innovation. As said, it goes back to Socio-Technical Systems Design that stresses the joint optimization of the social and technical system for success, in conjunction with the presence of (semi-autonomous) team-based work. From there arrows go over to Human Relations, Humanisierung der Arbeit (Humanisation of work), Strategic Choice, and from there to Democratic Dialogue and Modern sociotechnics. Subsequently, arrows are going to the High-Road perspective, eventually feeding into the EU variant of workplace innovation. What these approaches have in common, at least in Europe (Totterdill, Dhondt & Milsome, 2002), is the weight put on a skilled workforce with decent jobs as a driver for innovation and performance. There is a choice to choose for High Road perspectives, for which it is important that top management is supportive and that power relations are not too asymmetrical (as is suggested by the Labour process approach). The EU variant of workplace innovation is a mixture of sub-variants, as there are definitions by policymakers, researchers, and consultants, who each stress different aspects. Their common ground is the European Social Model and its values. The variant of workplace innovation that is proposed by EUWIN, the European workplace innovation network, is the Fifth Element Model (Totterdill & Exton, 2014b). Expanding the Hi-Res framework, The Fifth Element identifies four bundles (or 'Elements') of working practices with a strong association between high performance and high quality of working life, namely: 1] Jobs, Teams & Technology; 2] Employee-Driven Innovation & Improvement; 3] Organisational Structures, Management and Procedures, and 4] Co-Created Leadership & Employee Voice. Alignment between these Elements creates a synergy in the form of the 'Fifth Element', a system of mutually interdependent parts that leads to a sustainable culture of innovation and empowerment embedded throughout the organisation. The purpose of the Fifth Element model is to achieve win-win outcomes for organisations and their employees. This then links with an arrow to the 'Good job strategy'.

The row 'safety science & organisation research' in Figure 2 takes another route (Woods et al., 2010; Weick & Sutcliffe, 2015). The start is, like in the former row, the Open systems theory. This connects to the theory of Complex Systems and, the complexity view of, the Social Psychology of Organising, and the Normal Accident theory. From there arrows go over into High reliability organising and Resilience engineering. Both theories build on the need of professionals to deal with risks in a non-standard manner because these professionals must find solutions for problems that are difficult to predict and, therefore, very hard to handle. They must be prepared for the unexpected, think out of the box, and suppress the psychological habit to simplify complex issues. For this reason, professional autonomy is indispensable and that requires a design of jobs and teams that can operate highly autonomous. Although the term workplace innovation is not used in this context, the term learning organisation is, and therefore this type of work must take human needs into account that enable professionals to operate flawlessly under tiring conditions. Paradoxically, their work is at times extremely stressful and risky, but at the same time extremely rewarding when operations are successfully ended. Moreover, it is striking that the organisation of work is highly flexible and adaptable during operations, while it is rather bureaucratic and formalistic – namely hierarchic, with formal briefings and debriefings, and intensive training – when there is no disaster to combat. To attract highly qualified staff it makes sense to follow a good jobs strategy. In nuclear plants and power plants, this is often the case, but not always in the case of professions of first responders in, for example, health care institutions. High-reliability organisations consider safety as very important, perhaps the most salient outcome of their processes-, but this may go at the expense of a well-elaborated good jobs strategy.

The third row 'economics & strategy and HR-research' that we present here (in Figure 2) has a focus on the effects of HR-bundles and intangibles of organisational performance. The Resource-based view of the firm (RBV), stemming itself from the Theory of the firm, studies the strategic resources a firm can exploit to achieve sustainable competitive advantage (Barney, 1991). The RBV proposes that firms are heterogeneous because they possess heterogeneous resources. This means that firms can have different strategies because they have different resource mixes. The RBV focuses managerial attention on the firm's internal resources to identify those assets, capabilities, and competencies with the potential to deliver superior competitive advantages. In a similar vein, the theory of Dynamic Capability is about the capability of an organisation to purposefully adapt an organisation's resource base. The resource-based view of the firm emphasizes sustainable competitive advantage; the dynamic capabilities view, on the other hand, focuses more on the issue of competitive survival in response to rapidly changing contemporary business conditions (Teece, Pisano & Shuen, 1997). Both theories have inspired developers of the High Performance Work Systems theory that studies which elements of 'HR-systems, bundles and measures' contribute to a firm's competitive advantage. Eileen Appelbaum and her colleagues (2000) compared traditional production systems with flexible high-performance production systems involving teams, training, and incentive pay systems in three industries. The plants utilising high-involvement practices showed superior performance. Besides, workers in the high-involvement plants showed more positive attitudes, including trust, organisational commitment, and intrinsic enjoyment of the work. Various studies have demonstrated links with productivity. It is often linked to the notion of employee voice and empowerment (Boxall et al., 2019; Boxall & Winterton, 2018). On the one hand, the elements of high-involvement and high-commitment of employees, which is part of the HPWS concept, fed into the workplace innovation concepts applied by EU researchers (see first row 'Sociology & organisation research'). On the other hand it nourished economic and strategic research that was interested to investigate the effect of intangibles on business performance, such as studies into Managerial technology by Bloom and Van Reenen (2010). The managerial technology theory states that some aspects of management are considered as a technology or "best practice", and that adopting organisational best practices would improve productivity in a typical firm. Bloom & Van Reenen identify several basic management practices, that, for example, point to human resources management measures, company governance measures, and performance monitoring measures.

The RBV and HPWS stream influenced the construction of the ERIM Monitor and, to a lesser extent, the ISHIP index, which were discussed earlier. The ERIM Monitor (in full: The Erasmus Research Institute of Management's 'Erasmus Competition and Innovation Monitor') is a yearly research into the competition and innovation capabilities of Dutch firms. The monitor measures 'social innovation' and has a strong overlap with the EU workplace innovation concepts. The monitor shows over the years that the business performance depends more on social innovation than on technological innovation, which is an indication for firms of the relevance to investing more in social innovation than they do thus far (Volberda et al., 2013; Volberda, & Van Den Bosch, 2004). ISHIP stands for Intrapreneurship Index, and its goal is to create insight into the conditions (organisational and individual) for entrepreneurship within established organisations (Stam, 2018). The ISHIP index (Intrapreneurship index) includes a construct of workplace innovation which is measured by assessing to what extent operating employees or work floor employees are involved with innovation or renewal. In this stream of economic and strategy related studies there is less attention for a good jobs strategy. It is absent in the ERIM Monitor and ISHIP Index, which both will be discussed further in the next section, and only partially related to the managerial technology studies.

The fourth and final row 'psychology & behavioural research' has its focus on individual and group or team behaviour. The basis is the experiences of the Human Relations school and the

Quality of work movement. The driving force was the question of how work can satisfy fundamental human needs (Parker et al., 2017). Job characteristics theory is a work design theory, and it provides core characteristics for enriching jobs in organisational settings, namely skill variety, task identity, task significance, autonomy, and feedback. These characteristics affect five work-related outcomes (i.e. motivation, satisfaction, performance, and absenteeism and turnover) through three psychological states (i.e. experienced meaningfulness, experienced responsibility, and knowledge of results) (Hackman & Oldham, 1975). In 1980, Hackman and Oldham modified the Job Characteristics Theory. The main changes included the addition of two more moderators- Knowledge and Skill and Context Satisfaction, removal of the work outcomes of absenteeism and turnover, and increased focus on Internal Work Motivation. Several of the outcome variables were removed or renamed as well. In addition to the theory, Oldham and Hackman also created two instruments, the Job Diagnostic Survey (JDS) and the Job Rating Form (JRF), for assessing constructs of the theory (Hackman & Oldham, 1980).

The Job content questionnaire (JCQ) has its roots in the functioning of stress theory and is a questionnaire-based instrument designed to measure the content of a respondent's work tasks in a general manner (Karasek et al., 1998). The JCQ originated from the Job-Control/Job-Demand-Control model (Karasek, 1979; Karasek & Theorell, 1980). The three central scales are Decision Latitude (a combined scale of Skill Discretion and Decision Authority), Psychological Demands, and Social Support (a combined scale of Supervisor and Coworker Support). These are used to measure the high-demand/low-control/low-support model of job strain development. The demand/control model predicts, first, stress-related risk and, second, active-passive behavioural correlates of jobs. The JCQ has been elaborated over the years and is still expanding. Other aspects of work demands are assessed as well, such as Physical Demands and Job Insecurity. Nowadays there is a JCQ1 and a JCQ2 which is a multi-level questionnaire, allowing worker's job content to be assessed at the job level and the company level. Even more elaborations are underway (https://www.jcqcenter.com/questionnaires-jcq-jcq2/).

Another branch that is connected to the Job Characteristics model and the Job content questionnaire is the Job-Demands Resources model (Bakker & Demerouti, 2014, 2017). The JD-R is used to predict employee burnout and engagement, and consequently, organisational performance. The JD-R model assumes that employee well-being is explained by job demands and job resources. Research has provided evidence for the existence of two simultaneous processes: the health process and the motivational process. High job demands exhaust employees' mental and physical resources and therefore lead to the depletion of energy and health problems (i.e., the health process). In contrast, job resources foster employee engagement and extra-role performance (i.e., the motivational process). Several studies have shown that job resources may buffer the impact of job demands on stress reactions. In addition, research has confirmed that job resources have motivational potential particularly when job demands are high. However, it is less clear what demands are most significant, and what features of the work meet these demands (Oldham & Fried, 2016). While the JD-R model and the Job Demands-Control-Support model of Karasek (1979) are both concerned with individual well-being, the latter plays a larger role in the design of jobs and organisations (mainly at the team level as in modern sociotechnology), whereas the first plays a larger role in the management of burn-out, stress and engagement (mainly at the individual level). The JD-R model includes more subjective or personal job resources than Karasek's model, whose focus is on objective job characteristics as job resources.

Another offspring of the quality of work movement is the stream of job design and work design (Knight & Parker, 2021; Oldham & Fried, 2016; Parker et al., 1997, 2017a, 2017b, 2020). Job design refers to the actual structure of jobs that employees perform, thus job design focuses on

the work itself, i.e., the tasks and activities that employees complete for their organisation on a daily basis (Oldham & Fried, 2016). Work design is broader and encompasses also the organisation of work, the crafting of work and includes the team level (Parker et al., 2017). Job design dates back to the days of Taylor and scientific management when job simplification and standardisation were key to improve operations and profit. Counter-productive behaviours such as tardiness, productivity restrictions, and soldiering behaviour, however, made people aware that jobs should be enriched instead of simplified to improve productivity. This inspired the quality of work movement, for example, in the Motivation-Hygiene theory of Herzberg. To enhance employee performance and job satisfaction work should include 'motivators' to foster employee responsibility, achievement, competence, recognition, and advancement (Oldham & Fried, 2016). Job / work design is a core element of the Job Characteristics model and its successors the Job-Demand-Control model and Job Demand- Resources model, and its more recent variant of Job Crafting (Wrzesniewski & Dutton, 2001). Small wonder that job / work design overlaps with these theories and sociotechnical-systems design and autonomous team-approaches. In the early years, job design stressed characteristics, like task variety, autonomy, task identity and feedback, that could enrich jobs by countering simplification and standardisation and thus motivate employees. When, by the end of the century, a global shift had taken place from a manufacturing economy to a knowledge and service economy, other job characteristics grew stronger. These were social dimensions of work, for example, interactions, feedback and social support (Oldham & Fried, 2016). Regarding the effects of job design, job satisfaction and better performance were of central interest in the beginning. But in later years there came more appreciation for a broader impact on individuals and their organisations, such as health, well-being, safety, innovation and profitability. Since the eighties, there was a growing consideration for the design of work performed by teams, with major topics like autonomy, self-determination and self-directed teams, and team task-interdependency. New fields were opened up that were connected to teams such as group dynamics, team effectiveness, and team leadership (Parker et al., 2017). Job / work design partly evolved into the practice of job crafting in the 2000s (Wrzesniewski & Dutton, 2001; Tims et al., 2013a) and into team crafting and collective job crafting in the 2010s (Tims et al., 2013b). The essential question is here how individuals and teams can 'craft' their jobs, modify their tasks within certain limits, namely their job discretion, and make their work more meaningful. In reverse, job / work design can create room to manoeuvre for employees such that it affects their roles. Think for example of role breadth, extra-role behaviour / organisational citizenship behaviour, proactive work behaviour, which can be linked to the concept of role orientation, that captures how individuals (and teams) construct their roles in different ways, and, related to the world of work promote better job performance (Parker et al., 1997; 2017). This role orientation approach was further developed into the SMART work design model, one of the latest branches of the job / work design stream. The SMART work design model consists of a selection of the existing job characteristics studied in the past 50 years, namely Stimulation (based on skill and task variety), Mastery (based on role clarity and task identity), Agency (based on autonomy), Relations (based on social support and feedback), and Tolerable demands (tolerable workload and stress risks), which shall be discussed later (Hay et al., 2020a; 2020b).

A final branch to mention is Relational Coordination (Gittel, 2016), which is a mutually reinforcing process of communicating and relating for the purpose of task integration. Relational Coordination (RC) proposes that highly interdependent work is most effectively coordinated through relationships that are characterized by shared goals, shared knowledge and mutual respect, and that are supported by frequent, timely, accurate and problem-solving communication. Research shows an association between RC and a wide range of positive performance outcomes for organisations and employees. The design of work systems can support or undermine RC. RC is first of all communicating and relating for the purpose of task

integration – a powerful driver of performance when work is interdependent, uncertain and time-constrained. RCs key concept is 'team work' (Gittell, 2016). RC can therefore be seen as a special type of job / team design and element of High Performance Work Systems.

A relevant observation about the job / work design stream is that one part of this community studies the psychological antecedents, moderators, mediators, outputs and outcomes in terms of behaviours, attitudes and states, and where the main relation under investigation is the one between person and job. The other part of the community seems driven to assess the conditions of 'good' jobs and work in how the production process and operational process is organised and designed, more or less irrespective of the persons that hold these jobs. That part pays more attention to how technology and innovations are applied, and what is the range of options for alternatives to the design of jobs, workplaces and organisations. The first part of the community is dominated by researchers and professionals with a psychological background, while the second part is dominated by researchers and professionals with a sociological background, or a background in business administration or engineering / operations management. Eventually, all approaches support the achievement of 'good jobs' in one way or another. We, however, contend that psychologists underuse their potential for change because their overlooking production and operation management issues, due to a lack of expertise (Karanika-Murray & Oeij, 2017a, 2017b).

A final sub-stream of the quality of work movement to mention here is 'Innovative work behaviour' (IWB) (Janssen, 2000; Scott & Bruce, 1994; 1998; West & Farr, 1990). Despite the many empirical studies using this concept, the literature lacks a detailed definition and conceptualisation of IWB, which leaves De Spiegelaere et al., (2018) to conclude that innovative work behaviour deals with employee behaviour aimed at bringing about innovations. These innovations can be products, processes, procedures or ideas that are new and intended to benefit the relevant unit of adoption. Innovative work behaviour, as with the parent concept of innovation, is a broad concept and has a strong overlap with other concepts such as creativity in the workplace (Amabile, 1996), intrapreneurship (Bosma et al., 2010), organisational citizenship behaviour (Organ et al., 2006), personal initiative / taking charge (Frese & Fay, 2001), and employee-driven innovation (Høyrup, 2012). The workplace innovation scale (WIS) of McMurray and colleagues, discussed earlier, originated from this stream of psychological behaviour (McMurray & Dorai, 2003).

5 Diverging or converging concepts? Discussion and avenues for future endeavours

This final section will draw conclusions and formulate points of discussion.

Conclusion

More than 426 publications were searched and screened to assess 170 dealing with 'workplace innovation' and another 10 with 'work design as an example of workplace innovation'. We observed that the publications differ a lot in their use of the concepts of workplace innovation. Many researchers only do lip service to the term but do not contribute to the elaboration or understanding of workplace innovation. In order to get a grip on the literature we developed a categorisation grid with one dimension on the type of research – 1] fundamental, 2] evaluation, 3] practice and policy – and another one on the level of analysis – 1] persons and groups, 2] organisation, 3] regional, national and international institutions. For the nine cells we selected research which is making a substantial contribution to the field of workplace innovation as a distinct field, including policy approaches that promote workplace innovation. We called these prominent approaches, as they are telling examples that combine a certain type of research and a certain level of analysis, that have a link to theory or a clear distinction as a concept. Two of the nine cells remained empty.

Among the type of fundamental research, i.e. testing models and developing evidence-based knowledge, there is one main example at the individual level which is the Workplace Innovation Scale (WIS). Much research with this psychological measurement instrument has been carried out in Australia and Asia. The other cell of fundamental research is dominated by European research at organisational level. Here four measuring instruments are positioned that are surveys to investigate the presence of organisational elements of workplace innovation characteristics, namely WPI TNO-WEA, MWIP, ERIM Monitor and ISHIP Index. We observe that that there is almost no interaction between the psychological approach and organisational approaches. Since recently both strands do refer to each other, but use different definitions of workplace innovation. Perhaps this is an indication for the need of multi-level research designs that investigate individual and organisational levels in relation to each other. At the regional/national/international level no fundamental research into workplace innovation is present.

The type of evaluation research, aimed at developing knowledge for policy and practice, is only found at organisational and higher levels, like industries, regions and national level. Organisation level research are European studies by the European Commission and Eurofound trying to empirically capture the workplace innovation characteristics of companies and comparing these across Europe, or making inventories of variables that (can) measure characteristics of workplace innovation (in diverse European datasets). Higher level research into workplace innovation are national programmes within Europe and in Korea, evaluation research into EU subsidy programmes, and evaluation of regional workplace innovation programmes. The purpose of the type of evaluation research is either to better understand empirical practices, or to get a grip on what should be done from a policy perspective to support workplace innovation. Definitions of workplace innovation are often rather broad.

The practice and policy research type is dominated by tools and models for practice. At the level of persons and groups the SMART model is positioned which supports the practice of job design and work design. At organisational level there are organisational design tools (TWIN) and consultancy methods or guides (EUWIN Guide, 5Th Element Model). At the regional, national

and international level we observed policy models to support workplace innovation and analyse and classify approaches in various countries, specific policy supporting bodies in Europe (EUWIN) and in certain countries (Netherlands, Belgium, Scotland). These examples also apply rather broad definitions of workplace innovation. It can be stated that policy approaches sometimes use workplace innovation as a term to cover many different topics. It is no surprise that 'opportunistic' proponents of specific change may use present fashion fads as a carrier for their interests. Likewise, workplace innovation propagandists take every opportunity to frame related policy and practices as an example of welcomed workplace innovation policy directions.

In conclusion the theoretical and empirical development of the field of workplace innovation are scattered. Convergence requires active discussion and exchange of viewpoints between users and looking for common research, political and practical goals. On the other hand, the present applications of workplace innovation serve different goals, or goals that only broadly cover similar topics, making it unpractical and less desirable to strive for scientific convergence, which could put 'the advancement of work' at risk. Concerning practical convergence, however, it would be recommendable to stress the good jobs strategy as a common goal for all of the concepts.

Discussion points

Is the shortfall of good jobs to be viewed as a massive market failure, a gross economic malfunction instead of a source of inequality and economic exclusion (Rodrik & Sabel, 2019)? This report is written in a time which is characterised by ongoing digitisation and COVID-19. Digitisation is related to new technological applications like datascience, AI, VR/AR, machine learning and algorithms and nanotechnology, but also to ongoing automation and robotisation. As it affects IT-hardware and IT-software in almost any thinkable business the influence is pervasive, and at the same time pretty unpredictable in its effects on the quality and quantity of work. The effects can be either positive or negative, largely depending on the choices made by decision makers who are surrounded by a volatile and fast changing world (Parker & Grote, 2020). While long term vision, the drive for sustainability, a greener economy and empowering employees might favour the mindset towards a good jobs strategy, there is pressure to keep costs controllable and limited room to invest in long term goals. That pressure comes from the economic threat related to COVID-19 and the competition that may force companies to replace employees by cheaper modes of production.

Against the background of digitisation, technological innovation, and new business models, the distribution of economic value issues must be taken into account, for which a workplace innovative organisation could offer solutions. Much research indicates that employees receive less and less of the added value that is created in organisations (Elsby, Hobijn & Sahin, 2013). Commitment to workplace innovative ways of producing requires at least a discussion about how the extra profit is distributed (Dhondt 2021; Osterman, 2018; Rodrik & Sabel, 2019). The introduction and impact of new technology is largely a matter of strategic choice by decision makers. In the sociotechnical approach of workplace innovation for example, the organisation design sequence is that the work processes must first be organised, and only then automated. In practice, a lot of technology comes off the shelf and there is not much to organise. Bloom et al., (2014) indicate that information technology and communication technology have a different impact on how organisations function. Information technology ensures that employees themselves have access to all the information they need to process. This technology encourages a broadening of tasks. Communication technology, on the other hand, ensures that management has a better view of the work and will be more inclined to manage processes centrally. Specialisation of the work is a logical choice. In a similar vein Autor and Salomons (2018) point to the automation choice between augmenting employees or replacing them.

We know from decades-long research that the way new technologies are being implemented results in changes in jobs or tasks. Some jobs improve in content; some become worse. Much discussion in industries is on the possibilities for reskilling and upskilling of work. The general trend seems to be that technology is skill-biased (Acemoglu 2002). More digital technologies require that companies do more training and develop T-shaped job profiles (EMPIRICA et al., 2020). T-shaped skills refer to both specialist and generalist knowledge. Many industries in advanced economies indicate they are confronted with personnel shortages and have great difficulties in attracting relevant staff. A major concern is to support the implementation into more high-quality jobs and prevent the continuation or increase of bad jobs.

At the same time, digital technologies are also a threat to 'good jobs'. Digital technology has the potential to shape organisations. An example is the rise of platform work and click-work (Dhondt et al., 2021). Organisations driven by these technologies tend to centralise all decision making and reduce work to top-down assignments. The contribution of the worker (note they are not 'employees') to what they do and how they do it is very limited. Not only does the worker not get much out of work financially, but they also learn very little from their work situation. Long working days and bad work situations do not stimulate socially innovative behaviour (Warhurst & Dhondt 2020). Another threat is that digital technologies ensure a strong centralisation of decisions and standardisation of work in companies. Software developments such as Enterprise Application Integration (EAI) allowed companies to start integrating all company management domains. Technical integration was seen as a precondition for managerial and cultural integration in very large firms. The EAI technologies allowed companies to eliminate differences in practices between parts of companies and all employees' work practices. Quality of work, use of skills and ownership of employees are affected negatively: instead of good jobs (or active work as Karasek calls it; Karasek & Theorell, 1990), there was more passive and stressful work and sometimes pointless work.

Moreover, an increase in the impact of digital technology is expected. Although the number of robots remains low in industry (Müller et al., 2019), the application of Artificial Intelligence in worker management systems can have unforeseen consequences for employees' autonomy (Das et al., 2020; Zuboff 2019). Employees are unaware what is driving them, thus lose the opportunity to learn from work. Learning of the machine is part of the algorithm and the unlearning of humans (Dhondt et al., 2021).

In practice, there is a broad set of technologies and employees and managers will have to be aware of how they shape their composition of technology, for which a design theory can be a useful tool. In this respect it is important to consider how employees can be involved in decisions to shape technology and organisation (Dhondt, 2021). To create human-centered workplaces the 'old' sociotechnical notion of a 'joint optimisation' of work, organisation and technology is still valid (Hirsch-Kreinsen & Ittermann, 2021).

Coda

This report is a preparatory literature study for a research agenda on workplace innovation. That research agenda will be prepared as a book chapter (planning for publication is 2022). Apart from that, our purpose was to bring together all research that we could find with a connection to 'workplace innovation'. By including research that was not published in academic journals alone, but in books, reports, grey publications and on websites, we could make an overview and a categorisation based on many sources. The categorisation in table 1 makes clear that there are several researchers in the field that hardly connect to each other. Only since 2020-2021 we have seen researchers from different disciplines start referring to each other's work (McMurray

et al., 2021b). There are even fewer cross-references between authors working in different research streams beyond the focused topic of workplace innovation in Figure 2, requiring us to think about realistic linkages of cooperation and cross-fertilizing of those striving after a 'good jobs strategy'.

General references

Acemoglu, D. (2002). Directed technical change. *Review of Economic Studies*, 69, 781–809.

Amabile, T. (1996). *Creativity in context: update to the social psychology of creativity*. Westview Press.

Appelbaum, E., Bailey, T., Berg, P., & Kalleberg, A. L. (2000). *Manufacturing Advantage. Why High-Performance Work Systems pay off*. Ithaca, NY: Cornell University Press.

Autor, D. & Salomons, A. (2018). 'Is automation labor-displacing? Productivity growth, employment, and the labor share'. BPEA Conference Drafts, March 8–9, 2018. Brooking Papers on economic activity.

Bakker, A. B., & Demerouti, E., (2014). Job Demands–Resources theory. In: Peter Y. Chen and Cary L. Cooper (Eds.), *Work and wellbeing: A complete reference guide, Volume III* (pp. 1-28). Chichester, etc.: John Wiley & Sons.

Bakker, A. & Demerouti, E. (2017). Job Demands–Resources Theory: taking stock and looking forward. *Journal of Occupational Health Psychology*, 22(3), 273–285.

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99–120.

Berting, J. (2006). *Europe: A heritage, a challenge, a promise*. Delft (Netherlands: Eburon.

Bloom, N. & Van Reenen, J. (2010). Why do management practices differ across firms and countries? *Journal of Economic Perspectives*, 24 (1), 203-224.

Bloom, N., Garicano, L., Sadun, R. & Van Reenen, J. (2014). The Distinct effects of information technology and communication technology on firm organization. *Management Science*, 60(12), 2859-2885. https://doi.org/10.1287/mnsc.2014.2013

Bosma, N., Stam, E., & Wennekers, S. (2010). *Intrapreneurship: An international study*. Zoetermeer (Netherlands): EIM Business and Policy Research.

Boxall, P., Huo, M.-L., Macky, K., & Winterton, J. (2019). High-involvement work processes and systems: A review of theory, distribution, outcomes, and tensions. In: M. Ronald Buckley, Anthony R. Wheeler, Jonathon R. B. Halbesleben (Eds.), *Research in Personnel and Human Resources Management, 37*, 1-52.

Boxall, P., Winterton, J. (2018). Which conditions foster high-involvement work processes? A synthesis of the literature and agenda for research. *Economic and Industrial Democracy*, 39(1), 27-47. doi: 10.1177/0143831X15599584

Bureau Bartels (2011). *Evaluatie tijdvak 1 actie E sociale innovatie van het ESF-programma* 2007-2013. Amersfoort: Bureau Bartels.

Christis, J. & Soepenberg, E. (2016). Lowlands Socio-technical Design Theory and Lean Production. In: B. Mohr & P. Van Amelsvoort (Eds.), *Co-creating humane and innovative communities of work* (pp. 303-325). Portland: Gloabal STS Press.

Das, D., R. de Jong and L. Kool, with the assistance of J. Gerritsen (2020). *Valued at work. Limits to digital monitoring at the workplace using data, algorithms and AI*. The Hague: Rathenau Instituut.

De Sitter, L. U., Den Hertog, J. F., & Dankbaar, B. (1997). From complex organisations with simple jobs to simple organisations with complex jobs. *Human Relations*, 50(5), 497–534.

De Spiegelaere, S., Van Gyes, G., & Van Hootegem, G. (2018). Innovative work behaviour and performance-related pay: rewarding the individual or the collective?. *The International Journal of Human Resource Management*, 29(12), 1900-1919.

Elsby, M. W. L., Hobijn, B. & Sahin, A. (2013). 'The Decline of the U.S. Labor Share'. Brookings Papers on Economic Activity – Fall.

EMPIRICA/PwC/ISSIP (2020). *Skills for industry. Fostering new services and jobs creation. Interim Report*. Brussels: European Commission.

Frese, M., & Fay, D. (2001). Personal initiative: An active performance concept for work in the 21st century. *Research in Organizational Behavior*, 23, 133–188.

Frey, C.B. & Osborne, M.A. (2017). The future of employment: How susceptible are jobs to computerisation? *Technological Forecasting and Social Change*, 114, issue C, 254-280.

Gittell, J.H. & Bamber, G.J. (2010). High- and low-road strategies for competing on costs and their implications for employment relations: international studies in the airline industry. *The International Journal of Human Resource Management*, 21(2), 165-179, DOI: 10.1080/09585190903509464

Gittell, J. H. (2016). *Transforming relationships for high performance. The power of relational coordination*. Stanford, California: Stanford University Press.

Gustavsen, B. (1992). *Dialogue and development*. Maastricht: Van Gorcum.

Hackman, J. R. & Oldham, G. R. (1975). Development of the job diagnostic survey. *Journal of Applied Psychology*, 60(2), 159–170.

Hackman, J. R. & Oldham, G. R. (1980). *Work redesign*. Reading, MA: Addison-Wesley.

Høyrup, S. (2012). Employee-driven innovation: a new phenomenon, concept and mode of innovation. In Høyrup, S. et al., (Eds.), *Employee Driven Innovation: a new approach* (pp. 3–34). London: Palgrave Macmillan.

Janssen, O. (2000). Job demands, perceptions of effort-reward fairness and innovative work behaviour. *Journal of Occupational and Organizational Psychology*, 73(3), 287–302.

Karasek, R. A. (1979). Job demands, job decision latitude, and mental strain: Implications for job redesign. *Administrative Science Quarterly*, 24, 285–308.

Karasek, R. A., Brisson, C., Kawakami, N., Houtman, I., Bongers, P., & Amick, B. (1998). The Job Content Questionnaire (JCQ): An instrument for internationally comparative assessment of psychosocial job characteristics. *Journal of Occupational Health Psychology*, 3, 322–355.

Karasek, R. A., & Theorell, T. (1990). *Healthy work: Stress, productivity, and the reconstruction of working life*. New York: Basic Books

Kuipers, H., Van Amelvoort, P. & Kramer, E.-H. (2020). *New ways of organizing: alternatives to bureaucracy*. Leuven / Den Haag: Acco.

Mohr, B.J. & Van Amelsvoort, P. (Eds.) (2016): *Co-creating humane and innovative organizations: Evolutions in the practice of socio-technical system design*. Portland, Maine, USA: Global STS-D Network Press.

Muller, C., Graf, B., Pfeiffer, K.,. Bieller, S., Kutzbach, N. & Rohricht, K. (2019). *World Robotics 2019 – Service Robots*. IFR Statistical Department. Frankfurt am Main: VDMA Services GmbH.

Naschold, F. (1994): The politics and economics of workplace development: A review of national programmes. In: Kauppinen, T. and Lahtonen, M. (Eds.), *National action research programmes in the 1990s*. Labour Policy Studies 86 (pp. 109-155). Helsinki: Ministry of Labour.

Oeij, P.R.A., Dhondt, S., Rus, D. & Van Hootegem, G. (2019). The digital transformation requires workplace innovation: an introduction. *International Journal of Technology Transfer and Commercialisation*, 16(3),199-20.

Oeij, P.R.A., Dhondt, S. & Wiezer, N.M. (2006). Organisational conditions for low stress-risk jobs: Europe's case. *European Journal of Social Quality*, 6(2), 81-108.

Oeij, P., Kraan. K. & Dhondt, S. (2013). Work teams and psychosocial risks and work stress. *OSH WIKI*. Retrieved from:
https://oshwiki.eu/wiki/Work_teams_and_psychosocial_risks_and_work_stress

Organ, D. W., Podsakoff, P. M., MacKenzie, S. B., & MacKenzie, S. B. (2006). *Organizational citizenship behavior: its nature, antecedents, and consequences*. Thousand Oaks , CA: SAGE.

Osterman, P. (2018). In Search of the High Road: Meaning and Evidence. *ILR Review*, 71(1), 3–34. https://doi.org/10.1177/0019793917738757

Rodrik, D. & Sabel, C. (April 2019). Building a Good Jobs Economy. Working Paper. John F. Kennedy School of Government at Harvard University. Retrieved from: http://j.mp/2G5tnvX.

Rogowski, R. (2008). Introduction. In: R. Rogowski (Ed.), *The European Social Model and Transitional Labour Markets: Law and policy* (pp. 1-6). Farnham, UK / Burlington VT, USA: Ashgate.

Scott, S. G., & Bruce, R. A. (1994). Determinants of innovative behavior: A path model of individual innovation in the workplace. *Academy of Management Journal*, 37(3), 580–607.

Scott, S. G., & Bruce, R. A. (1998). Following the leader in R&D: the joint effect of subordinate problem-solving style and leader-member relations on innovative behavior. *IEEE Transactions on Engineering Management*, 45(1), 3– 10. doi:10.1109/17.658656

Teece, D., Pisano, G. & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, 18(7), 509–533.

Tims, M., Bakker, A.B. & Derks, D. (2013a). the impact of job crafting on job demands, job resources, and well-being. *Journal of Occupational Health Psychology*, 18 (2), 230–2401076

Tims, M., Bakker, A. B., Derks, D., & van Rhenen, W. (2013b). Job Crafting at the Team and Individual Level: Implications for Work Engagement and Performance. *Group & Organization Management*, 38(4), 427–454. https://doi.org/10.1177/1059601113492421

Van Amelsvoort, P. (2016). Human talent mobilization: Improving both quality of working life and productivity by organizational design in the Lowlands. In: B. Mohr & P. Van Amelsvoort (Eds.), *Co-creating humane and innovative communities of work* (pp. 73-98). Portland: Gloabal STS Press.

Van Strien, P.J. (1983). Wat betekent humanisering van de arbeid? In : C. de Galan, M. R. van Gils & P. J. van Strien (Eds.), *Humanisering van de arbeid* (pp. 15-49). Assen: Van Gorcum (in Dutch).

Warhurst, C. & Dhondt, S. (2020). The challenges and opportunities in the digitalization of production. In: Oesterreichische Nationalbank (2020), *25 years of the EU's Northern Enlargement* (pp. 51–57), 47th Economics Conference 2020, Vienna: Oesterreichische Nationalbank.

Watson, T.J. (2017). *Sociology, work and organisation* (7th ed.; 1st ed. 1980). London etc.: Taylor & Francis.

Weick, K. E. & Sutcliffe, K. M. (2015). *Managing the unexpected. Sustained performance in a complex world* (3d ed.; 1st ed. 2001). Chichester: Wiley.

West, M. A., & Farr, J. L. (1990). *Innovation and creativity at work*. Oxford: John Wiley.

Woods, D., Dekker, S., Cook, R., Johannesen, L. & Sarter, N. (2010). *Behind human error* (2nd ed.; 1st ed. 1994). Ashgate: Surrey and Burlington.

Womack, J., Jones, D. and Roos, D. (1990) *The machine that changed the world: the story of Lean Production, How Japan's secret weapon in the global auto wars will revolutionize Western industry*. New York: Harper Perennial.

Wrzesniewski, A. & Dutton, J.E. (2001). Crafting a job: Revisioning employees as active crafters of their work. *Academy of Management Review*, 26, 179-201.

Xavier, M. & Pot, F. (2012). *Doorgeven = aanpakken. Tussenstand van 10 jaar sociale innovatie* (State of the art of 10 years of workplace innovation in the Netherlands)(in Dutch). NCSI: Rotterdam.

Zuboff, S. (2019). *The age of surveillance capitalism: The fight for a human future at the new frontier of power*. London: Profile.

Annex 1: Workplace innovation references

Alasoini, T. (2009a). Strategies to promote workplace innovation: a comparative analysis of nine national and regional approaches. *Economic and Industrial Democracy*, 30 (4), 614-642.

Alasoini, T. (2009b). Alternative paths for working life reform? A comparison of European and East Asian development strategies. *International Journal of Action Research*, 5(2), 155-183. https://nbn-resolving.org/ urn:nbn:de:0168-ssoar-379796.

Alasoini, T. (2018a). Learning networks as a vehicle for improving the generative capacity of working-life development programmes. *Action Research*, 16(1), 105-122.

Alasoini, T. (2018b). Nordic Working Life Development Programs and the Tricky Problem of Scaling-up. *Nordic Journal of Working Life Studies*, 8(4), 71-91.

Alasoini, T. (2019). Promoting workplace innovations: Reconsidering the role of development programmes from a neo-institutional perspective. *European Work and Organisational Psychology in Practice, Issue 11*. Special Issue on Workplace Innovation, Vol. 2, 7-31.

Alasoini, T., Lahtonen, M., Rouhiainen, N., Sweins, C., Hulkko-Nyman, K., & Spangar, T. (Eds.). (2011). *Linking theory and practice: Learning networks at the service of workplace innovation*. Helsinki, Finland: Tekes.

Alasoini, T., Ramstad, E., Heikkilä, A. and Ylöstalo, P. (2010). Workplace innovation in Finland: Towards sustainable productivity growth? *Budapest Management Review*, 41 (9), 2–16.

Bae, K.-S. & Lee, C.-W. (2017). *Innovation needed for workplace innovation policies*. KLI Working Paper 2017-16, November 30, 2017. Seoul: Korea Labor Institute.

Bae, K.-S. & Kwon, H. (2008). *Workplace innovation: Direction and government policies*. Unpublished document. Seoul: Korea Labor Institute.

Badham, R. & Ehn, P. (2000). Tinkering with technology: Human factors, work redesign, and professionals in workplace innovation. *Human Factors and Ergonomics in Manufacturing*, 10(1), 61–82.

Balkin, D. B., Tremblay, M., & Westerman, J. (2001). Workplace innovations in large, unionized Canadian organizations. *Journal of Business and Psychology*, 15(3), 439–448. https://doi.org/10.1023/A:1007822717297.

Bamber, G., Bartram, T. & Stanton, P. (2017). HRM and workplace innovations: Formulating research questions. *Personnel Review*, 46(7), 1216–1227.

Bartram, T., Stanton, P., Bamber, G. J., Leggat, S. G., Ballardie, R., & Gough, R. (2020). Engaging professionals in sustainable workplace innovation: medical doctors and institutional work. *British Journal of Management*, 31(1), 42-55.

Baxter, D. (2004). *Perception of organisational politics and workplace innovation: An investigation of the perceptions and behavior of staff in an Australian IT services organization*. Doctoral dissertation Swinburne University of Technology, Australia.

Beblavý, M., Maselli, I., & Martellucci, E. (2012). *Workplace innovation and technological change*. CEPS Special Reports. Brussels, Belgium: Centre for European Policy Studies.

Black, S.E. & Lynch, L.M. (2004). What's driving the new economy?: the benefits of workplace innovation. *The Economic Journal*, 114(493), F97–F116.

Bresnahan, T.F., Brynjolfsson, E. & Hitt, L.M. (1999). Information technology, workplace innovation, and the demand for skilled labor: firm level evidence. In: Margaret M. Blair and Thomas A. Kochan, (eds.), *The New Relationship* (pp. 145-84). Washington, D.C.: The Brookings Institution.

Burke, C. & Sheldon, K.(2010). Encouraging workplace innovation using the 'world cafe' model. *Nursing Management*, 17(7), 14-19.

Carranza, G., Garcia, M. & Sanchez, B. (2020). Activating inclusive growth in railway SMEs by workplace innovation. *Transportation Research Interdisciplinary Perspectives*, 7(100193), 1-8, https://doi.org/10.1016/j.trip.2020.100193.

Carranza, G. & Sanchez, B. (2021). Innovation methodologies to activate inclusive growth in the organization. *InTechOpen* (open access book chapter), DOI: 10.5772/intechopen.99150.

Carranza, G., De la Rua, O. & Sanchez, B. (2021). A policy response to workshop innovation for the rail sector (version 1, 14 sep. 2021). *Open Research Europe*, 1, 108, https://doi.org/10.12688/openreseurope.13933.1.

Casini, A., Bensliman, R., Callorda Fossati, E. et al., (2018). Is social innovation fostering satisfaction and well-being at work? Insights from employment in social enterprises providing long-term eldercare services. *Voluntas*, 29(6), 1244–1260. https://doi.org/10.1007/s11266-018-0001-3.

Cho, S.-J. (2014). Workplace innovation and the work process. In: K.-S. Bae (Ed.)., *Employment relations in South Korea* (pp. 194-207). Seoul: Korea Labor Institute.

Choudary, A.I., McMurray, A. & Muenjohn, N. (2021). Impact of workplace innovation on organisational performance: A cross country comparative analysis of entrepreneurial ventures. In: Adela McMurray, Nuttawuth Muenjohn & Chamindika Weerakoon (Eds.), *The Palgrave Handbook of workplace innovation across developed and developing countries* (pp. 445-460). London: Palgrave Macmillan.

Claussen, T., Haga, T. & Ennals, R. (2009). Integrated innovation. In: T.P. Nolin (Ed.), *Handbook of regional economics* (pp. 19-87). Hauppauge, NY: Nova Science Publishers.

Costantini, A., Sartori, R. & Ceschi, A. (2017). Reviewing psychological facets of workplace innovation. *European Work and Organisational Psychology in Practice*. Special Issue on Workplace Innovation, Vol. 1, 6-18.

Dang, N.H.T. (2018). *Workplace innovation and new product development in Vietnamese manufacturing small and medium-sized enterprises*. Doctoral dissertation RMIT University, Melbourne, Australia.

De Jong, G., Koeman, N., Volberda, H. & Heij, K. (2020). *Het Nederlandse innovatielandschap in roerige tijden. Resultaten van de Nederlandse Innovatie Monitor 2020*. Amsterdam: SEO.

De Kok, J., Doove, S., Oeij, P. & Kraan, K. (2014). *Scale effects in workplace innovations*. Zoetermeer (Netherlands): EIM Business and Policy Research.

Dervojeda, K., Verzijl, D., Nagtegaal, F., Lengton, M. et al., (September 2013). *Workplace innovation: Solutions for enhancing workplace productivity. Case Study 10*. Business Innovation Observatory. European Union, EC, DG Enterprise and Industry.

Dessers, E. & Mohr, B.J. (2021). A prototype of designing workplace innovation within a care ecosystem context. In: Adela McMurray, Nuttawuth Muenjohn & Chamindika Weerakoon (Eds.), *The Palgrave Handbook of workplace innovation across developed and developing countries* (pp. 597-616). London: Palgrave Macmillan.

Dhondt, S. (2021). Workplace innovation: concept and basic principles. In: Dworschak, B., Senderek, R. & Kopp, R. (Eds), *Workplace innovation and leadership* (pp. 41-54). Gevelsberg (Germany): EHP-Verlag Andreas Kohlhage.

Dhondt, S. (forthcoming 2022). Workplace innovation. In: Howaldt, J. & Kaletka, C. (eds.) *Encyclopedia of Social Innovation*. Cheltenham, UK, Northampton, MA, USA: Edward Elgar Publishing Ltd.

Dhondt, S. & Hootegem, G. Van (2015). Reshaping workplaces: Workplace innovation as designed by scientists and practitioners. *European Journal of Workplace Innovation*, 1(1), 17–24.

Dhondt, S. & Oeij, P. (2014). Social innovation related to innovation in management studies. In: J. Howaldt, Butzin, A., Domanski, D., Kaletka, C. et al., *Theoretical approaches to social innovation – A critical literature review* (pp.122-150). Social Innovation: Driving force of social change - SI-Drive [EU Seventh Framework Programme].Dortmund: Sozialforschungsstelle, TU Dortmund.

Dhondt, S., Oeij, P.R.A. & Pot, F.D. (2021). Digital transformation of work: spill-over effects of workplace innovation on social innovation. In: J. Howaldt, C. Kaletka, A. Schröder (Eds.), *Social Innovation Research Agenda – Digital transformation, work and social innovation* (pp. 99-116). Cheltenham, UK, Northampton, MA, USA: Edward Elgar Publishing.

Dhondt, S., Preenen, P., Oeij, P., Corral, A., Isusi, I., Totterdill, P. & Karanika-Murray, M. (2014). *European Company Survey: Construction of the Workplace Innovation Index and selection of companies.* Hoofddorp: TNO.

Dhondt, S., Van der Zee, F., Preenen, P., Kraan, K., & Oeij, P.R.A. (2020). Dominant technology and organization: impact of digital technology on skills. In: Hans Schaffers, Matti Vartiainen and Jacques Bus (Eds.), *Digital Innovation and the future of work* (pp. 259-284). Rivers Publishers: Gistrup (Denmark).

Dhondt, S., Vermeerbergen, L., & van Hootegem, G. (2017). Evidence of Workplace Innovation from Organisational and Economic Studies. In P. R. A. Oeij, D. Rus, & F. D. Pot (Eds.), *Workplace Innovation: Theory, Research and Practice* (Aligning Perspectives on Health, Safety and Well-Being) (pp. 63–78). Cham (Switzerland): Springer.

'Dortmund Brussels Position Paper on Workplace Innovation' (2012).

https://wp.kennisbanksocialeinnovatie.nl/wp-content/uploads/2020/08/Dortmund_Brussels_Position_Paper_on_Workplace_Innovation_26th_June_2012.pdf

Durugbo, C. M. (2020). Affordance-based problem structuring for workplace innovation. *European Journal of Operational Research*, 284(2), 617-631.

Dworschak, B., Senderek, R. & Kopp, R. (Eds)(2021). *Workplace innovation and leadership*. Gevelsberg (Germany): EHP-Verlag Andreas Kohlhage.

Eeckelaert, L., Dhondt, S., Oeij, P., Pot, F., Nicolescu, G.I., Trifu, A. & Webster, J. (2012). *Review of workplace innovation and its relation with occupational safety and health.* Report

for EU-OSHA (European Agency for Safety and Health at Work). Luxembourg: Publications Office of the European Union, 2012. DOI: 10.2802/50497

Ennals, R. (2014). Workplace innovation. In: R. Ennals (Ed.), *Responsible management: Corporate responsibility and working life* (pp. 111-129). Berlin, Heidelberg: Springer.

Erickson, C.L. & Jacoby, S.M. (2003). The effect of employer networks on workplace innovation and training. *Industrial and Labor Relations Review*, 56(2), 203–223.

Etse, D., McMurray, A. & Muenjohn, N. (2021). Frugal workplace innovation: A conceptual framework. In: Adela McMurray, Nuttawuth Muenjohn & Chamindika Weerakoon (Eds.), *The Palgrave Handbook of workplace innovation across developed and developing countries* (pp. 391-405). London: Palgrave Macmillan.

Eurofound and Cedefop (2020), *European Company Survey 2019: Workplace practices unlocking employee potential* (G. Van Houten and G. Russo). European Company Survey 2019 series. Luxembourg: Publications Office of the European Union.

EUWIN (2021). Workplace innovation: Europe's competitive edge: A manifesto for enhanced performance and working lives. https://workplaceinnovation.eu/wp-content/uploads/2021/11/EUWIN-MANIFESTO.pdf.

Findlay et al., P. (March 2015). *Workplace innovation in small to medium sized enterprises in Scotland*. Booklet by 'The Innovating Works…Team'. Retrieved from www.innovatingworks.org.uk.

Findlay, P., Lindsay, C., McQuarrie, J., Bennie, M., Corcoran, E. D. & Van Der Meer, R. (2017). Employer choice and job quality: Workplace innovation, work redesign, and employee perceptions of job quality in a complex health-care setting. *Work and Occupations*, 44(1), 113–136.

Finegold, D. & Wagner, K. (1998). The search for flexibility: Skills and workplace innovation in the German pump industry. *British Journal of Industrial Relations*, 36(3), 469–487.

Garmann Johnsen, H.C., Hildebrandt, C., Alaksen, H., Ennals, R. & Knudsen, J.P. (2021). The dialogical approach to workplace innovation. In: Adela McMurray, Nuttawuth Muenjohn & Chamindika Weerakoon (Eds.), *The Palgrave Handbook of workplace innovation across developed and developing countries* (pp. 155-177). London: Palgrave Macmillan.

Gkiontsi, D., & Karanika-Murray, M. (2016). Dealing with economic and demographic challenges: Workplace innovation practices as a timely and effective response to older workers' needs. *European Journal of Workplace Innovation*, 2(1), 25-42.

Han, H., Ariza-Montes, A., Giorgi, G., & Lee, S. (2020). Utilizing green design as workplace innovation to relieve service employee stress in the luxury hotel sector. *International Journal of Environmental Research and Public Health*, 17(12), 4527 (pp. 1-12).

Hausberg, J., Hülsdau, M., Moysidou, K., & Teuteberg, F. (2017). Employees' adoption of workplace innovations. *INFORMATIK*, 1399-1411.

Hebdon, R., & Hyatt, D. (1996). Workplace innovation in the public sector: The case of the Office of the Ontario Registrar General. *Journal of Collective Negotiations in the Public Sector*, 25(1), 63-81.

Hirsch-Kreinsen, H. & Ittermann, P. (2021). Digitalization of work processes: A framework for human-oriented work design. In: Adela McMurray, Nuttawuth Muenjohn & Chamindika

Weerakoon (Eds.), *The Palgrave Handbook of workplace innovation across developed and developing countries* (pp. 271-293). London: Palgrave Macmillan.

Howaldt, J. & Oeij, P.R.A. (Eds.) (2016). Workplace innovation – Social innovation: Shaping work organisation and working life. Special issue of *World Review of Entrepreneurship, Management and Sustainable*, 12(1), 1-129.

Howaldt, J., Oeij, P., Dhondt, S. & Fruytier, B. (2016). Workplace innovation and social innovation: An introduction. *World Review of Entrepreneurship, Management and Sustainable Development*, 12(1), 1–12.

Hughes, H. A, Myers, J. & Ward, P. (2019). The accrual and use of social capital in workplace innovation: A conceptual framework. In: T. Brychan Celfyn and L.J. Murphy (eds.), *Innovation and social capital in organizational ecosystems* (pp. 98-130). Hershey, PA: IGI Global.

INNovaSouth (2020). *Online innovation methodology: manual*. Horizon 2020 project number 861874. https://www.innovasouthproject.eu/wp-content/uploads/manual/INNOVASOUTH-MANUAL-english.pdf

Isa, K. & Tsuru, T. (2002). Cell production and workplace innovation in Japan: Toward a new model for Japanese manufacturing? *Industrial Relations: A Journal of Economy and Society*, 41(4), 548-578.

Jena, L.K. & Memon, N.Z. (2018). Does workplace flexibility usher innovation? A moderated mediation model on the enablers of innovative workplace behavior. *Global Journal of Flexible Systems Management*, 19(1), 5–17. doi.org/10.1007/s40171-017-0170-8.

Jilcha, K. (2020a). A new integrated system of safety and health model development for manufacturing industries: a case of Ethiopia. *Journal of Ergonomics*, 10(4), no. 265, 1-7. Doi: 10.35248/2165-7556.20.10.265.

Jilcha, K. (2020b). Workplace innovation for social sustainable development. In: J.C. Sánchez-García and B. Hernandez-Sanchez (Eds.), *Sustainable Organizations - Models, Applications, and New Perspectives* [Working Title]. InTechOpen book chapter. DOI: 10.5772/intechopen.93791.

Jilcha, K., Kitaw, D. & Beshah, B. (2016). Workplace innovation influence on occupational safety and health. *African Journal of Science, Technology, Innovation and Development*, 8(1), 33–42.

Kalmi, P. & Kauhanen, A. (2008). Workplace innovations and employee outcomes: evidence from Finland. *Industrial Relations*, 47(3), 430–459.

Karanika-Murray, M., & Oeij, P.R.A. (2017a). The role of work and organisational psychology for workplace innovation practice: From short-sightedness to eagle view? *European Work and Organisational Psychology in Practice*. Special Issue on Workplace Innovation, Vol. 1, 19-30.

Karanika Murray, M. & Oeij, P. (2017b). How can work and organizational psychologists fortify the practice of workplace innovation? In: Peter R.A. Oeij, Diana Rus, Frank D. Pot (Eds), *Workplace Innovation: Theory, Research and Practice* (pp. 339-354), Series 'Aligning Perspectives on Health, Safety and Well-Being'. Springer: Cham (Switzerland).

Kesselring A., Blasy, C. & Scopetta A. (2014). *Workplace Innovation: Concepts and indicators*. Brussels: European Commission, DG Enterprise and Industry.

Khan, M., Raya, R.P. and Viswanathan, R. (2021). Enhancing employee innovativeness and job performance through a culture of workplace innovation, *International Journal of Productivity and Performance Management*, https://doi.org/10.1108/IJPPM-09-2020-0466.

Kibowski, F., Baguley, T., Totterdill, P. & Karanika-Murray, M. (2019). A new measure of workplace innovation. *European Journal of Workplace Innovation*, 5(1), 61-81. DOI: 10.46364/ejwi.v5i1.557

Kim, D.-O. & Bae, J. (2005). Workplace innovation, employment relations and HRM: Two electronics companies in South Korea. *The International Journal of Human Resource Management*, 16(7), 1277–1302.

Kochan, T.A., Appelbaum, E., Gittell, J.H., Leana, C. & Gephardt, R.A. (2009). *Workplace innovation and labor policy leadership: a challenge to business, labor, and government*. CEPR Report. Washington, DC: Center for Economic and Policy Research. Retrieved from https://cepr.net/documents/publications/workplace-2009-04.pdf

Kuhlmann, M. & Schumann, M. (2001). What's left of workers' solidarity? Workplace innovation and workers' attitudes toward the firm. In: S.P. Vallas (Ed.), *The transformation of work* (pp. 189-214). Amsterdam etc.: JAI.

Kuhn, T. & Weibler, J. (2021). Ethics as Workplace Innovation? – An orientation for the well-intentioned. In: Dworschak, B., Senderek, R. & Kopp, R. (Eds), *Workplace innovation and leadership* (pp. 181-202). Gevelsberg (Germany): EHP-Verlag Andreas Kohlhage.

Lantz, A. & Totterdill, P. (2004). Linking workplace innovation and regional development: Towards new roles for the university sector. In: Fricke, W. and Totterdill, P. (Eds), *Action research in workplace innovation and regional development* (pp. 183-205). Amsterdam: John Benjamins.

Lantz-Friedrich, A., Sjöberg, A. & Friedrich, P. (2016). Leaned teamwork fattens workplace innovation: the relationship between task complexity, team learning and team proactivity. *European Journal of Work and Organizational Psychology*, 25(4), 561–569.

Lohse, A., Rockstroh, S., Dettmann, A., & Bullinger, A.C. (2020). Technology management as a social process - Workplace innovation for visualizing production data in Smes. In: CINet (Eds.), *Practicing Continuous Innovation in Digital Ecosystems, International Continuous Innovation Network Conference (CINet)* (pp. 421-428).

Long, R.J. (1989). Patterns of workplace innovation in Canada. *Relations industrielles/ Industrial Relations*, 44(4), 805–826.

Lorenz, E. (2015). Work organisation, forms of employee learning and labour market structure: Accounting for international differences in workplace innovation. *Journal of the Knowledge Economy,* 6(2), 437–466.

Lowe, G. S. (2001). *Employer of Choice? Workplace Innovation in Government: A Synthesis Report*. Ottawa: Renouf Publishing.

Lu, J. G., Hafenbrack, A. C., Eastwick, P. W., Wang, D. J., Maddux, W. W., & Galinsky, A. D. (2017). "Going out" of the box: Close intercultural friendships and romantic relationships spark creativity, workplace innovation, and entrepreneurship. *Journal of Applied Psychology*, 102(7), 1091-1108.

Marks, A., Findlay, P., Hine, J., Thompson, P., & McKinlay, A. (1997). The manufacturing of management strategy: Workplace innovation and employment relations in the Scottish spirits industry. *Management Research News*, 20(2/3), 21.

Matthews, J. (2021). Design thinking and workplace innovation interface. In: Adela McMurray, Nuttawuth Muenjohn & Chamindika Weerakoon (Eds.), *The Palgrave Handbook of workplace innovation across developed and developing countries* (pp. 507-520). London: Palgrave Macmillan.

McCartney, J. & Teague, P. (1997). Workplace innovations in the republic of Ireland. *The Economic and Social Review*, 28(4), 381–399.

McCartney, J. & Teague, P. (2004). The use of workplace innovations in Ireland: A review of the evidence. *Personnel Review*, 33(1), 81–109.

McMurray, A.J. & Dorai, R. (2003). Workplace innovation scale: a new method for measuring innovation in the workplace. Paper for *5th International Conference Organizational Learning and Knowledge*, 30 May-2 June, Lancaster University, Warwick, United Kingdom.

McMurray, A.J., Islam, M. M., Sarros, J. C., & Pirola-Merlo, A. (2013). Workplace innovation in a nonprofit organization. *Nonprofit Management & Leadership*, 23(3), 367-388.

McMurray, A.J., Muenjohn, M. & Scott, D. (2021a) Measuring workplace innovation: scale development. *Journal of Small Business Management:* http://doi:10.1080/00472778.2020.1844490

McMurray, A.J., Muenjohn, M. & Weerakoon, C. (Eds.) (2021b). *The Palgrave handbook of workplace innovation*. London: Palgrave McMillan. DOI 10.1007/978-3-030-59916-4.

McMurray, A.J & Simmers, C.A. (2019). The relationship between locus of control and workplace innovation. Paper presented at *The ISPIM Innovation Conference*, 16-19 June 2019, Florence, Italy.

Medik, V. L, & Stettina, C. J. (2014). Towards responsible workplace innovation: The rise of NWW in public knowledge organizations and their impact on governance. In: *2014 International Conference on Engineering, Technology and Innovation (ICE)* (pp. 1-9). IEEE.

Mockałło, Z. (2016). Workplace innovation and employees' innovativeness: psychosocial working environment perspective. In: Marta Strumińska-Kutra & Bolesław Rok (Eds.), *Workplace Innovation. Between efficiency and the quality of working life* (in Polish). Warsaw: Poltext.

Mockałło, Z. (2021). Workplace innovation and quality of working life – evidence from Poland. *EUWIN Bulletin*, Part Two of EUWIN's Spring/Summer 2021 Bulletin, https://workplaceinnovation.eu/workplace-innovation-and-quality-of-working-life-evidence-from-poland/

Muenjohn, N., Ishikawa, J., Kongsamutr, N., Muenjohn, P., Montague, A., & Suzumura, Y. (2020). Comparing perceptions of leadership, innovation and performance in Asian SMEs. *Asia Pacific Business Review*, pp. 1-15, doi.org/10.1080/13602381.2020.1810399

Muenjohn, N. & McMurray, A. (2016). The impact of leadership on workplace innovation in Thai and Vietnamese SMEs. *The Journal of Developing Areas*, 50(5), 479–486.

Muenjohn, N. & McMurray, A. (2017a). Leadership and Workplace Innovation: An investigation of Asian SMEs. In: N. Muenjohn & A. McMurray (Eds.), *The Palgrave handbook of leadership in transforming Asia* (pp. 201-212). London: Palgrave Macmillan.

Muenjohn, N. & McMurray, A. (2017b). Design leadership, work values ethic and workplace innovation: An investigation of SMEs in Thailand and Vietnam. *Asia Pacific Business Review*, 23(2), 92–204.

Newnham, L. (2021). Workplace innovation in government organizations and its relationship with organizational culture. In: Adela McMurray, Nuttawuth Muenjohn & Chamindika Weerakoon (Eds.), *The Palgrave Handbook of workplace innovation across developed and developing countries* (pp. 79-98). London: Palgrave Macmillan.

Oeij, P.R.A., De Looze, M.P., Ten Have, K., Van Rhijn, J.W. & De Graaf, H.A.L.M. (2012a). From productivity strategy to business case: choosing a cost-effective intervention for workplace innovation. *Journal of Centrum Cathedra - The Business and Economics Research Journal*, 5 (2), 171-184.

Oeij, P., De Vroome, E., Bolland, A., Gründemann, R. & van Teeffelen, L. (2014). Investing in workplace innovation pays off for SMEs: A regional innovation initiative from the Netherlands. *International Journal of Social Quality*, 4(2), 86–106.

Oeij, P. & Dhondt, S. (2017). Theoretical approaches supporting workplace innovation. In: Peter R.A. Oeij, Diana Rus, Frank D. Pot (Eds), *Workplace Innovation: Theory, Research and Practice* (pp. 63-78), Series 'Aligning Perspectives on Health, Safety and Well-Being'. Springer: Cham (Switzerland).

Oeij, P., Dhondt, S. & Korver, T. (2011). Workplace innovation, social innovation, and social quality. *International Journal of Social Quality*, 1(2), 31–49.

Oeij, P., Dhondt, S., Kraan, K., Vergeer, R. & Pot, F. (2012b). Workplace innovation and its relations with organisational performance and employee commitment. *Lifelong Learning in Europe*, 4, 2012.
https://www.researchgate.net/publication/271898232_Oeij_PRA_Dhondt_S_Kraan_KO_Vergeer_R_Pot_FD_2012_Workplace_Innovation_and_its_Relations_with_Organisational_Performance_and_Employee_Commitment_LLinE_Lifelong_Learning_in_Europe_42012_httpwwwllinefien

Oeij, P., Dhondt, S., Pot, F., Totterdill, P. (2018). Workplace innovation as an important driver of social innovation. In: Howaldt, J., Kaletka, C., Schröder, A., Zirngiebl, M. *Atlas of Social Innovation – New Practices for a Better Future* (pp. 54-57). Dortmund: Sozialforschungsstelle, TU Dortmund.

Oeij, P., Dhondt, S., Žiauberytė-Jakštienė, R., Corral, A., & Preenen, P. (2017a). Implementing workplace innovation across Europe: Why, how and what? *European Work and Organisational Psychology in Practice*. Special Issue on Workplace Innovation, Vol. 1, 46-60.

Oeij, P., Dhondt, S., Žiauberytė-Jakštienė, R., Corral, A. & Preenen, P. (2017b). Implementing workplace innovation; why, how and what. In: Peter R.A. Oeij, Diana Rus, Frank D. Pot (Eds), *Workplace Innovation: Theory, Research and Practice* (pp. 149-170), Series 'Aligning Perspectives on Health, Safety and Well-Being'. Springer: Cham (Switzerland).

Oeij, P., Dhondt, S., Žiauberytė-Jakštienė, R., Corral, A., & Totterdill, P. (2016a). Implementing Workplace Innovation across Europe: why, how and what? *Economic and Social Changes: Facts, Trends, Forecast*, 5(47), 195-218. (in English and in Russian).

Oeij, P.R.A., Dhondt, S., Žiauberytė-Jakštienė, R., Corral, A. & Totterdill, P. (2016b). Workplace innovation as social innovation in European companies. Paper for *The ISPIM Innovation Summit*, Kuala Lumpur, Malaysia on 4-7 December 2016. Retrieved from https://www.researchgate.net/publication/311844095_Workplace_innovation_as_social_innovation_in_European_companies

Oeij, P., Hulsegge, G., Preenen, P. & Vaas, F. (2021a). Leadership and innovation in logistics in the Netherlands: a leadership tool from a workplace innovation perspective. In: Bernd Dworschak, Roman Senderek, Ralf Kopp (Eds), *Workplace innovation and leadership* (pp. 83-104). EHP-Verlag Andreas Kohlhage; Gevelsberg (Germany) (2020-2021).

Oeij, P.R.A., Preenen, T.Y.P. & Dhondt, S. (2021b). Workplace innovation as a process: Examples from Europe. In: Adela McMurray, Nuttawuth Muenjohn & Chamindika Weerakoon (Eds.), *The Palgrave Handbook of workplace innovation across developed and developing countries* (pp. 199-221). London: Palgrave Macmillan.

Oeij, P.R.A., Preenen, P.Y.T., Van der Torre, W., Van der Meer, L., Van den Eerenbeemt, J. (2019a). Technological choice and workplace innovation: Towards efficient and humanised work. *European Public & Social Innovation Review*, 4(1), 15-26.

Oeij, P.R.A., Rus, D., Dhondt, S. & Van Hootegem, G. (Eds.) (2019b). Workplace innovation in the era of disruptive technologies. Special Issue of *International Journal of Technology Transfer and Commercialisation*.16(3), 199-309. DOI: 10.1504/IJTTC.2019.10021355.

Oeij, P., Rus, D., & Pot, F.D. (2017). *Workplace innovation: Theory, research and practice*. Cham, Switzerland: Springer.

Oeij, P.R.A. & Vaas, F. (2016). Effect of workplace innovation on organisational performance and sickness absence. *World Review of Entrepreneurship, Management and Sustainable Development*, 12 (1), 101-129.

Oeij, P., Žiauberytė-Jakštienė, R., Dhondt, S., Corral, A., Totterdill, P., Preenen, P. (2015). *Workplace innovation in European companies*. Report for Eurofound. Luxemburg: Publications Office of the European Union.

Palin, K., & Kaartemo, V. (2016). Employee motivation to participate in workplace innovation via in-house crowdsourcing. *European Journal of Workplace Innovation*, 2(2), 19-40.

Pomares, E. (2018). Alternative learning frameworks: workplace innovation programmes and smart specialisation policies in the Basque Country. *International Journal of Action Research*, 14(2/3), 181-201. https://doi.org/10.3224/ijar.v14i2-3.08

Pomares, E. (2019). Revising workers participation in regional innovation systems: a study of workplace innovation programmes in the Basque Country. *European Journal of Workplace Innovation*, 5(1), 31-39.

Pomares, E., Luna, Á. & Unceta, A. (2016). Patterns of regional and workplace innovation in the Basque Country: Challenges and lessons from Gipuzkoa. *European Journal of Workplace Innovation*, 2(2), 107-126.

Pot, F. (2011). Workplace innovation for better jobs and performance. *International Journal of Productivity and Performance Management*, 60(4), 404–415.

Pot, F. & de Korte, T. (2011). Workplace innovation and new industrial relations. In: Jeschke S., Isenhardt I., Hees F., Trantow S. (Eds.), *Enabling Innovation: Innovative capability – German and international views* (pp. 243-247). Berlin, Heidelberg: Springer.. https://doi.org/10.1007/978-3-642-24503-9_25

Pot, F. & Dhondt, S. (2016). Workplace innovation. In: B. Mohr & P. Van Amelsvoort (Eds.), *Co-creating humane and innovative communities of work* (pp. 201-222). Portland: Gloabal STS Press.

Pot, F., Dhondt, S. & Oeij, P. (2012). Social innovation of work and employment. In Franz, H-W., Hochgerner, J. and Howaldt, J. (Eds.), *Challenge social innovation. Potentials for business, social entrepreneurship, welfare and civil society* (pp. 261–274). Berlin: Springer.

Pot, F., Dhondt, S., Oeij, P., Rus, D., & Totterdill, P. (2019). Complementing digitalisation with workplace innovation. In: Howaldt, J., Kaletka, C., Schröder, A., Zirngiebl, M. (eds.), *Atlas of Social Innovation II* (pp. 42-46). Oekoem Verlag, München (ISBN: 978-3-96238-157-8).

Pot, F., Totterdill, P. & Dhondt, S. (2016). Workplace innovation: European policy and theoretical foundation. *World Review of Entrepreneurship, Management and Sustainable Development*, 12(1), 13–32.

Pot, F., Totterdill, P. & Dhondt, S. (2017). European policy on workplace innovation. In: Peter R.A. Oeij, Diana Rus, Frank D. Pot (Eds), *Workplace Innovation: Theory, Research and Practice* (pp. 11-26), Series 'Aligning Perspectives on Health, Safety and Well-Being'. Springer: Cham (Switzerland).

Pot, F., Totterdill, P., & Dhondt, S. (2020). Workplace innovation supports implementation of European Pillar of Social Rights. *European Journal of Workplace Innovation*, 5(2), 173–185.

Pot, F., Totterdill, P., & Dhondt, S. (2021). Developing workplace innovation policies in the Europan Union. In: Adela McMurray, Nuttawuth Muenjohn & Chamindika Weerakoon (Eds.), *The Palgrave Handbook of workplace innovation across developed and developing countries* (pp. 41-56). London: Palgrave Macmillan.

Prus, I., Nacamulli, R.C.D. and Lazazzara, A. (2017). Disentangling workplace innovation: a systematic literature review. *Personnel Review*, 46 (7), 1254-1279. https://doi.org/10.1108/PR-10-2016-0267.

Putnik, K., Oeij, P., Dhondt, S., Van der Torre, W., De Vroome, E.& Preenen, P. (2019). Innovation adoption of employees in the logistics sector in the Netherlands: The role of workplace innovation. *European Journal of Workplace Innovation*, special issue 'Socio-Technical Systems theory (STS) in manufacturing', 2019, 4(2), 176-192.

Raul, E. & Andrei, M. (2018). Spatial economic impacts of workplace innovation in EU-28 and Norway. *Annals - Economy Series*, 3, 253-260. Retrieved from

https://ideas.repec.org/a/cbu/jrnlec/y2018v3p253-260.html   ; https://www.utgjiu.ro/revista/ec/pdf/2018-03/34_Erdei.pdf

Reshef, Y., Bemmels, B., & Wolfe, R. A. (1993). The effect of unionization on workplace innovation. *Economic and Industrial Democracy*, 14(1), 109-131.

Rus, D., Carter, A. & Roth, C. (Eds.)(2017). Workplace innovation Special edition Vol. 1, EAWOP in Practice, 11, 1-87. Retrieved from

http://www.eawop.org/ckeditor_assets/attachments/1046/specialissue_part1_2017_full.pdf?1535712991 [European Work and Organisational Psychology in Practice].

Rus, D., Carter, A. & Roth, C. (Eds.)(2019). Workplace innovation Special edition Vol. 2, *EAWOP in Practice*, 11, 1-129. Retrieved from http://www.eawop.org/ckeditor_assets/attachments/1144/inpractice_2019_special_issue_11_full.pdf?1557399438 [European Work and Organisational Psychology in Practice].

Rus, D., Oeij, P., Pot, F. & Totterdill, P. (2019). Workplace innovation: A review and potential future avenues. *International Journal of Technology Transfer and Commercialisation*, 16(3), 208-227.

Searle, B. (2008). Stages of workplace innovation: Personal and situational influences. In: S. Boag (Ed.), *Personality down under: Perspectives from Australia* (pp. 93-102). Hauppauge, NY: Nova Science Publishers.

Simmers, C.A. & McMurray, A.J. (2019). Organisational justice and managing workplace innovation: how important are formal procedures? *International Journal of Innovation Management*, 23(3), 1-21. https://doi.org/10.1142/S1363919619500269

Stam, F.C. (2018). *ISHIP Intrapreneurship Index 2018*. Deliverable of the NWO Project 'Intrapreneurship - Enabling Talent for Innovation', project number 409-13-210. Utrecht: Utrecht University, 2018.

Svare, H. (2016). User-producer dialogue, workplace innovation, and knowledge in a regional innovation system. *Journal of the Knowledge Economy*, 7(2), 565–586.

Tan, H., Resmini, A., Tarasov, V. & Adlemo, A. (2015). Workplace innovation in Swedish local organizations - technology aspect. In: W. Abramowicz (Ed.), BIS 2015 *Workshops - International Conference on Business Information Systems* (pp. 139-147). Cham: Springer.

Totterdill, P. (1997). Workplace innovation, competitiveness and employment in a traditional industry. *AI & Society*, 11(1/2), 202-217.

Totterdill, P. (1999). Workplace innovation as regional development. *Concepts and Transformation*, 4(1), 23-43.

Totterdill P. (2011). New forms of work organization and the *High Road* to innovation: European experiences. In: Jeschke S., Isenhardt I., Hees F., Trantow S. (Eds.) *Enabling Innovation: Innovative capability – German and international views* (pp. 165-178)., Berlin, Heidelberg: Springer. https://doi.org/10.1007/978-3-642-24503-9_18

Totterdill, P. (2017). Workplace innovation as regional economic development: Towards a movement? *International Journal of Action Research*, 13(2), 129-153.

Totterdill, P. (2015). Closing the Gap: The Fifth Element and Workplace Innovation. *European Journal of Workplace Innovation*, 1(1), 55-74.

Totterdill, P. (2020). Workplace innovation and Industry 4.0: creating synergies. In: Hans Schaffers, Matti Vartiainen and Jacques Bus (Eds.), *Digital Innovation and the Future of Work* (pp. 197-223). Rivers Publishers: Gistrup (Denmark).

Totterdill, P. with Exton, O., Exton, R., & Sherrin, J. (September 2009). *Workplace innovation policies in European countries: A Report to KOWIN*. Nottingham: UK Work Organisation Network.

Totterdill, P., Dhondt, S. & Boermans, S. (2016). *Your guide to workplace innovation*. European Workplace Innovation Network, EUWIN. European Commission, DG GROW.

Totterdill, P., Dhondt, S. & Milsome, S. (2002). *Partners at work?: A report to Europe's policy makers and social partners*. Report of the Hi-Res Project commissioned by European Commission, DG Research.

Totterdill, P. & Exton, R. (Eds.)(2014a). Unleashing workplace innovation. Special Issue of *Strategic Direction*, 30 (9), 1-40.

Totterdill, P. & Exton, R. (2014b). Defining workplace innovation: the fifth element. *Strategic Direction*, 30 (9), 12-16.

Totterdill, P. & Exton, R. (2017). Creating the bottom-up organization from the top: Leaders as enablers of workplace innovation. *European Work and Organisational Psychology in Practice*. Special Issue on Workplace Innovation, Vol. 1, 73-87.

Totterdill, P. & Exton, R. (2021). Workplace innovation in practice: Experiences from the UK. In: Adela McMurray, Nuttawuth Muenjohn & Chamindika Weerakoon (Eds.), *The Palgrave Handbook of workplace innovation across developed and developing countries* (pp. 57-78). London: Palgrave Macmillan.

Totterdill, P., Exton, O., Exton, R. & Gold, M. (2016). High-performance Work Practices in Europe: Challenges of diffusion. *European Journal of Workplace Innovation*, 2(1), 63-81.

Totterdill, P. & Hague, J. (2004). Workplace innovation as regional development. In: Fricke, W. and Totterdill, P. (Eds), *Action research in workplace innovation and regional development* (pp. 43-79). Amsterdam: John Benjamins.

Totterdill, P. & Wilkie, N. (2021). Workplace innovation, co-created leadership and emotional intelligence. In: Dworschak, B., Senderek, R. & Kopp, R. (Eds), *Workplace innovation and leadership* (pp. 55-81). Gevelsberg (Germany): EHP-Verlag Andreas Kohlhage.

Vaas, F., Žiauberytė-Jakštienė, R. & Oeij, P. (2017). Case studies can support definitions of workplace innovation in practice. *European Work and Organisational Psychology in Practice*. Special Issue on Workplace Innovation, Vol. 1, 61-72.

Van Amelsvoort, P. & Van Hootegem, G. (2017), Towards a total workplace innovation concept based on sociotechnical systems design. *European Work and Organisational Psychology in Practice*. Special Issue on Workplace Innovation, Vol. 1, 31-45.

Verma, A. & Fang, T. (2003). Workplace innovation and union status: Synergy or strife. *Proceedings of the 55th Annual Meeting*, Industrial Relations Research Association, Ithaca, NY, pp. 189–90.

Volberda, H., Jansen, J., Tempelaar, M., Heij, K. (2011). Monitoren van sociale innovatie: slimmer werken, dynamisch managen en flexibel organiseren. [Monitoring of social innovation: smarter work, dynamic management and flexible organising.] *Tijdschrift voor HRM,* 1, 85-110.

Volberda, H.W. & Van Den Bosch, F. A. J. (2004). *Rethinking the Dutch innovation agenda: Management and organization matter most*. ERIM Report Series ERS-2004-STR. Rotterdam: Erasmus University.

Volberda, H.W., Van Den Bosch, F.A. & Heij, C.V. (2013) Management innovation: management as fertile ground for innovation. *European Management Review*, 10:, 1-15. https://doi.org/10.1111/emre.12007.

Von Treuer, K. & McMurray, A.J. (2012). The role of organisational climate factors in facilitating workplace innovation. *International Journal of Entrepreneurship and Innovation Management*, 15(4), 292–309.

Watanabe, K., Takenaka, T. & Okuma, T. (2021). Digitalization toward innovative workplaces: service engineering research in Japan. In: Adela McMurray, Nuttawuth Muenjohn & Chamindika Weerakoon (Eds.), *The Palgrave Handbook of workplace innovation across developed and developing countries* (pp. 243-258). London: Palgrave Macmillan.

Weerakoon, C. & McMurray, A. (2021). The introduction: an overview to workplace innovation research. In: Adela McMurray, Nuttawuth Muenjohn & Chamindika Weerakoon (Eds.), *The Palgrave Handbook of workplace innovation across developed and developing countries* (pp. 3-21). London: Palgrave Macmillan.

Wipulanusat, W., Panuwatwanich, K. & Stewart, R.A. (2017). Workplace innovation: exploratory and confirmatory factor analysis for construct validation. *Management and Production Engineering Review*, 8(2), 57–68.

Wipulanusat, W., Panuwatwanich, K., & Stewart, R. A. (2018). Pathways to workplace innovation and career satisfaction in the public service: The role of leadership and culture. *International Journal of Organizational Analysis*, 26(5), 890–914. https://doi.org/10.1108/IJOA-03-2018-1376

Wipulanusat, W., Panuwatwanich, K., Stewart, R. A., Arnold, S. L., & Wang, J. (2020). Bayesian network revealing pathways to *workplace innovation and career satisfaction in the public service. Journal* of Management Analytics, 7(2), 253-280.

Zoghi, C., Mohr, R. D., & Meyer, P. B. (2010). Workplace organization and innovation. *Canadian Journal of Economics/Revue canadienne d'économique*, 43(2), 622-639.

Annex 2: Work design references as an example of WPI

Hay, G. J. Hay, Klonek, F.E. & Parker, S.K. (2020a). Diagnosing rare diseases: A sociotechnical approach to the design of complex work systems. *Applied Ergonomics, 86* (article 103095), https://doi.org/10.1016/j.apergo.2020.103095.

Hay, G., Klonek, F., Thomas, C., Bauskis, A., Baynam, G. & Parker, S. (2020b). SMART work design: Accelerating the diagnosis of rare diseases in the Western Australian Undiagnosed Diseases Program. *Frontiers in Pediatrics*, 8 (Article No. 582), 1-5. DOI 10.3389/fped.2020.00582

Knight, C. & Parker, S.K. (2021). How work redesign interventions affect performance: An evidence-based model from a systematic review. *Human Relations*, 74(1), 69-104.

Oldham, G. R., & Fried, Y. (2016). Job design research and theory: Past, present and future. *Organizational Behavior and Human Decision Processes*, 136, 20–35. https://doi.org/10.1016/j.obhdp.2016.05.002

Parker, S.K. & Grote, G. (2020), Automation, algorithms, and beyond: why work design matters more than ever in a digital world. *Applied Psychology: An International Journal*. https://doi.org/10.1111/apps.12241

Parker, S. K., & Jorritsma, K. (2020). Good work design for all: Multiple pathways to making a difference. *European Journal of Work and Organizational Psychology*, pp. 1-13, doi.org/10.1080/1359432X.2020.1860121

Parker, S.K., Knight, C. & Ohly, S. (2020). The changing face of work design research: Past, present, and future directions. In: Wilkinson, A., Bacon, N., Snell. S. & Lepak, D. (Eds.). *The Sage Handbook of Human Resource Management* (pp. 402-420). London: Sage. DOI:http://dx.doi.org/10.4135/9781529714852.n24

Parker, S.K., Morgeson, F.P., & Johns, G. (2017). One hundred years of work design research: Looking back and looking forward. *Journal of Applied Psychology,* 102(3), 403.

Parker, S.K., Van den Broeck, A., & Holman, D. (2017). Work design influences: A synthesis of multi-level factors that affect the design of jobs. *Academy of Management Annals*, 11(1), 267–308.

Parker, S. K., Wall, T. D., & Jackson, P. R. (1997). "That's not my job": Developing flexible employee work orientations. *Academy of Management Journal*, 40(4), 899–929. https://doi.org/10.2307/256952