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## **The digital transformation requires workplace innovation: an introduction**

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Motto: “Making existing ideas better or simply use them?”

## 1 Introduction

Workplace innovation (WPI) enhances the innovative capability of an organisation via its dual focus on promoting both high quality jobs and good organisational performance. WPI traces its historic roots back to the human relations and sociotechnical systems approaches of the 1950s. At the time, technological innovation was conceptualised as contrasting with social innovation. Today, the revival of sociotechnical systems thinking suggests that technological innovation alone is no longer enough to make innovation ‘happen’, given that successful innovation requires broader acceptance and embeddedness. This, in turn, suggests that technological innovation is more likely to ‘stick’ if it is accompanied by social and organisational renewal (Oeij et al., 2017). While this, in itself, is not a new insight, an integration of socio-organisational elements with technological and business model innovation seems to be especially relevant in the current economic environment. Given that the knowledge-based and service-oriented economy (also in manufacturing) is dependent on highly skilled employees who are willing and motivated to apply their capabilities for the benefit of the business, a focus on employee engagement and employee involvement (Boxall and Macky, 2014) is paramount next to a focus on technological and business model innovation. In this respect, WPI provides the link between the (market) need of an organisation to change (e.g., via technological or business model innovation) in order to remain competitive while simultaneously striving for outcomes that benefit both the employees and the organisation. As such, WPI is a means, not a goal. Therefore, WPI interventions are, on the one hand, tangible socio-organisational innovations or measures that improve both the quality of work and performance; and, on the other hand, they represent a process in which employees are actively involved in co-developing and implementing those measures. European research has indicated that companies that develop and implement WPI interventions are characterised by ‘mature relationships’ (i.e., closely-knit cooperation) between management and employees (or employee representatives), leaders who engage in supportive leadership styles, and the creation of organisational cultures that are open to renewal from the bottom-up (Eurofound, 2015).

## 2 Disruptive technology and social transformation require WPI

If an inclusive economy is the aim, disruptive technology and social transformation require WPI. The new digital technologies have created an ever faster-changing environment, which has also been heralded as the 4th Industrial Revolution (Schwab, 2016). The predictions for jobs and job quality due to this transformation are dire. For instance, anywhere between 40% to 90% of jobs are predicted to become obsolete (e.g., Frey and Osborne, 2013; Lever, 2017) and the EU is already struggling to meet its Europe 2020 targets for raising employment and reducing the number of people at risk of poverty or social exclusion (<https://ec.europa.eu/eurostat/web/europe-2020-indicators/europe-2020-strategy/headline-indicators-scoreboard>). However, positive alternative futures can exist, if we are able to gauge the impact of new technologies on the future of jobs, business models and welfare in the EU, and if we employ concerted efforts towards creating an inclusive future. We argue that technology is not deterministic but rather that it is socially negotiated by key social actors at various levels such as the firm, industry, regional, national and EU levels (Berting, 1993; Bijker et al., 2012; Child, 1972; Noble, 1984; Perez, 2002). Together, the EU, companies, various stakeholders and employees can contribute to promote the creation of an inclusive digital economy that provides good quality jobs and a decent living for EU citizens if appropriate choices are made. In this respect, we argue that there is space for 'strategic choice' (Child, 1972). One of these choices is to make use of WPI or social innovation as potential interventions in organisations in order to promote inclusiveness. WPI is an integral set of participative mechanisms for interventions relating structural (e.g., organisational design) and cultural aspects (e.g., leadership, coordination and organisational behaviour) of the organisation and its people with the objective to simultaneously improve the conditions for the performance (i.e., productivity, innovation, quality) and quality of working life (i.e., wellbeing at work, competence development, employee engagement). In this definition, 'participative mechanisms for interventions' are synonymous to employee engagement in decision-making processes and represent a precondition for WPI [Oeij and Dhondt, (2017), p.66].

Apart from new technology, new business models also shape the transformations our economy and society are undergoing. Business model innovation represents both a threat to incumbent firms and industries as well as an opportunity for the creation of new services, and hence, provides the potential for the emergence of new business opportunities and jobs. For instance, the most visible manifestations of these new types of business models are the collaborative economy, the platform economy, the Gig economy and Industry 4.0 (Industry 4.0 is a name given to the current trend of automation and data exchange in manufacturing technologies. It includes cyber-physical systems, the internet of things, cloud computing and cognitive computing; and is commonly referred to as the fourth industrial revolution). The success of these business models is fuelled by digitalisation, automation, and robotisation, which drive fast change and productivity gains. Moreover, key enabling technologies (KETs) have become increasingly important in the creation of new services and new jobs. The six KETs are: new materials and nanotechnology, photonics and micro and nano-electronics, life sciences technologies, artificial intelligence, and digital security and connectivity (European Commission, 2018). Concurrent with technological change and the rise of new business models, our society is also undergoing rapid demographic changes, i.e., an ageing population and

migration. Demographic developments do not only impact the supply of labour and skills but also the demand for new services and social welfare, for example, in health and education and training. Hence, an array of interconnected factors ranging from technological advances, business model innovations to changing demographics impact the potential future of jobs and the overall quality of life.

Two examples of major technological transformations are the digitalisation of production through automation/robotics (also referred to as ‘Industrie 4.0’, given that Germany was most forceful in stressing this strategy – Howaldt et al., 2017) and the digitalisation of work through the platform economy (also referred to as ‘uberisation’ – Warhurst et al., 2017). Both have the capacity to eradicate jobs: the first, by substituting jobs with technology; the second, by using technology to replace jobs with micro-tasks. Both also have the potential of rendering existing skills, tax and welfare systems highly vulnerable to disruption. Indeed, the current scientific and policy discourse is dominated by predictions of mass unemployment, hollowed-out government and social upheaval (e.g., Brynjolfsson and MacAfee, 2014; Frey and Osborne, 2013; Fuchs, 2018; Streek, 2015). However, these new business models and the accompanying technological advances can either lead to the ‘dystopia’ (Fuchs, 2018) that is predicted by much of current discourse, or alternatively, to increased job quality, wealth creation, and socio-economic inclusivity. Although, current scientific understanding of these developments and their socio-economic implications suffers from a lack of systematic evidence, we do know that WPI can buffer the potentially negative social impacts of technology-fuelled innovation (Eurofound, 2015; Oeij et al., 2017).

In this respect, the past decade of WPI is characterised by both push and pull strategies. The push strategy was largely fed by EUWIN’s stakeholder community, which has organised hundreds of meetings across Europe and beyond with companies, policy makers, researchers, labour unions and sectoral organisations (representing the interests of each industry) with the aim of disseminating, cross-pollinating and further developing our current understanding of the application of WPI. EUWIN was (financially) supported by European innovation policy initiatives of the EC, and notably by DG Growth. Most of these meetings dealt with the practice, implementation and applicability of WPI at the national/regional policy level as well as at the company level. The push strategy was aligned with research and consultancy carried out by scientists and practitioners of the EUWIN community, resulting in publications, knowledge dissemination and increased visibility of the concept. As a result, a chain-effect emerged whereby local innovators became interested in learning about WPI and how it could be applied in their local contexts, and local researchers started to study the antecedents and effects of WPI. Moreover, EU bodies such as the European Commission (Kesselring et al., 2014), EU-OSHA (Eckelaert et al., 2012), and Eurofound (2015) commissioned research into WPI, and a number of internationally co-authored publications emerged from these efforts (e.g., Howaldt and Oeij, 2016; Oeij et al., 2017; Rus, 2017). Translated research was even published, for example, in Finnish (Alasoini, 2016), German (Kopp and Ittermann, 2018), Spanish (Pomares et al., 2016), Polish (Struminska-Kutra and Rok, 2017) and Russian (Oeij et al., 2016) publications. Although WPI traces its roots back to longstanding traditions such as sociotechnics and human relations, it has been slow in gaining an established scientifically recognised position of its own. This is partially due to some potential conceptual overlap with already existing literature streams, such as high-performance work systems (HPWS) (Appelbaum et al., 2011), which have made it necessary to clarify the added value of the WPI-concept. WPI differs from HPWS in that

the latter stresses economic performance, whereas WPI insists on the equal importance of quality of work, employee engagement and economic success. Moreover, unlike HPWS, WPI does not limit itself to HR-practices. Instead, it takes a broader view which considers the combination of strategy and structural organisation design as antecedents of performance and quality of work (Eurofound, 2015). Indeed, over the past few years, several empirical publications have emerged that corroborate the positive direct and indirect effect of WPI on both company performance and quality of work (Dhondt and Van Hootegeem, 2015; Dhondt et al., 2017; Oeij et al., 2017). The empirical articles in this special issue add to this growing body of evidence.

The flipside of the push-strategy is the pull-strategy, which is still in its infancy. In this case, pull means that companies and policy makers understand that WPI can enhance organisational performance, improve societal welfare and (employee) well-being. This understanding, in turn, renders them interested in (actively) seeking out and absorbing the available knowledge on WPI. A good example of such a pull strategy is the Scottish government's initiative to setup a program to develop WPI among companies (Exton and Totterdill). However, for the pull strategy to really spread, more companies and governmental bodies would need to start building 'absorptive capacity' for WPI.

We believe that the next steps for WPI, should primarily focus on gaining a stronger foothold in practice, while of course, also aiming at strengthening its scientific recognition. Our motto "Making existing ideas better or simply use them?" underlines the notion that, at this point in time, it might be more useful to balance our effort expenditure in such a way that more emphasis gets placed on practically applying the countless insights we already have on WPI as opposed to reinventing the wheel in term of our theoretical understanding of WPI. We believe that this is important given that technological determinism, which ignores the positive power of socio-organisational interventions in helping new technologies get embedded, adopted and accepted, is still on the rise. In the long run, such determinism will threaten inclusiveness and have negative consequences for large swaths of the population. In this respect, current evidence suggests that WPI can present a viable alternative to technological determinism, given that WPI can simultaneously drive technological, economic and social innovation (Oeij et al., 2018). In light of this, we want to put five topics on the WPI-agenda:

- More dissemination of existing WPI knowledge to private and public organisations, such as the information that can be found in the 'Knowledge bank WPI' (<http://www.workplaceinnovation.org/nl/kennis/kennisbank>).
- Scaling up and scaling out WPI by ensuring that social-organisational design issues become part and parcel of technological innovation, business model innovation, product/service innovation, and organisational implementation of new IT policies (all hardware, software and data management).
- Making tools and education widely available via governmental and educational bodies and sectoral organisations. For instance, the book of Oeij et al. (2017) contains a section on *Practice* including some tools for WPI. Summer schools and short courses are available from WPI Europe (<http://www.workplaceinnovation.eu/>) but similar courses could be included into existing management and HR studies.
- Governmental bodies and/or statistical agencies should start monitoring the effects of WPI measures on organisational performance and quality of work and employment;

the proportion and effects of investments in WPI (and non-technical innovation) in relation to technological and business model innovation; as well as the potentially positive effects of WPI on skill development/employability and social inclusiveness.

- Assessing the right policy mix to support WPI in practice. For instance, Alasoini (2016) suggests that four elements constitute a learning model for successful policies (i.e., innovation programs), namely the
  - 1 context and interaction of the three policy domains of innovation, industrial relations and R&D
  - 2 a learning orientation related to useful practices, monitoring and adoption of local ideas
  - 3 participation, dialogue and mobilisation of agents at workplace and company-level (i.e., social inclusion)
  - 4 financial, staff and time resources.

### 3 The articles in this special issue

This special issue of the *International Journal Technology Transfer and Commercialisation* contains five contributions. Prior to developing this special issue, a symposium on WPI was held during EURAM18, the yearly international conference of the European Academy of Management, in Reykjavik, Iceland (June 2018), where a number of the articles were presented.

The first article ‘Workplace innovation: a review and potential future avenues’, by Diana Rus, Peter R.A. Oeij, Frank D. Pot and Peter Totterdill is setting the stage for the others, as it provides a broader discussion of European WPI policy, theory, research and practice. The authors, co-responsible for publishing a landmark volume on WPI with Springer (Oeij et al., 2017), and producing a special issue on the same topic for the *EWOP in Practice* journal in 2017 (Rus, 2017), deem the time ripe to take stock of what has happened in the field so far, identify commonalities and differences and forge a path towards a more unified body of knowledge regarding WPI. In their article, they aim to:

- 1 summarise the state of the art on WPI policy in Europe
- 2 discuss the similarities and dissimilarities across theoretical and practical approaches to WPI
- 3 identify points of convergence and mutual reinforcement within and across policy, theory, empirical, and practical approaches
- 4 offer pointers for the future of WPI in the areas of policy, theory, research, and practice.

The authors conclude that WPI interventions might be crucial for successful organisational performance and high-quality jobs in a time where rapid technological change poses both challenges and presents opportunities in terms of new forms of organising and new skillsets.

A highly practical policy approach to WPI is discussed by Rosemary Exton and Peter Totterdill, in the second article about ‘Unleashing workplace innovation in Scotland’. WPI has been adopted as a key policy strand within the Scottish Government’s

inclusive growth strategy, which includes the pilot Workplace Innovation Engagement Programme (WIEP), led by the authors of this paper. WIEP seeks a systemic approach to change and combines formal learning, action learning, individual support for key personnel, and external facilitation of in-company dialogue events. Their paper explores the significance of WIEP as a policy intervention and analyses the experiences of the ten companies that took part in the first program cohort. As such, they report a broad array of successful outcomes ranging from improved levels of engagement, enhanced leadership and management competencies to improvements in leading change management for WPI and tangible economic benefits. Moreover, the article highlights some valuable lessons for the design of future programs.

New research into WPI comes from Katarina Putnik, Peter R.A. Oeij, Steven Dhondt, Wouter Van Der Torre and Ernest M.M. De Vroome. This third contribution to the special issue – ‘Innovation adoption of employees in logistics: individual and organisational factors related to the actual use of innovation’ – focuses on WPI in a specific industry sector, namely the transport and logistics sector. The authors show that organisations which pay attention to both individual aspects, like making innovative behaviour possible, and organisational aspects, in casu applying WPI, enable employee innovation adoption. In this study, WPI was operationalised as consisting of a combination of high job autonomy, high team voice and engaging shop floor personnel in decision making concerning innovation. The study shows that, under these conditions, employees perceive innovations within their organisation as both easy to use and useful for their own work, which, in turn, leads them to adopt and use these innovations. Those companies that apply WPI (only 10% in the sample is doing this) see an increase of up to 90% in the innovation adoption of their employees, suggesting that WPI is crucial to enhance the innovation capability of firms.

Eurofound, the European Foundation of Working and Living Conditions, collects relevant data on work and organisational topics. In the fourth article – ‘The human factor in innovation: implications for policies and practices’ – Valentina Patrini and Stavroula Demetriades report on a quantitative analysis of Eurofound’s European Company Survey (ECS). This article highlights how organisational aspects of innovation are addressed in policy making, particularly through innovation support measures. Their study combines new research in ten European countries on innovation support measures with an examination of the effect of workplace practices on innovation, based on the ECS. A key finding is that policy support measures at the national (or regional) levels tend to focus on technological innovation but neglect organisational innovations. The message is that, while WPI is underused, so are the opportunities for successful innovation.

The last article by Ralf Kopp, Steven Dhondt, Hartmut Hirsch-Kreinsen, Michael Kohlgrüber and Paul Preenen, entitled ‘Sociotechnical perspectives on digitalisation and Industry 4.0’, argues that the sociotechnical systems approach and theory (STS) are especially relevant in the current period of rapid digital transformations. The authors argue for the use of an integral approach when it comes to designing labour, organisations and jobs, an approach which is badly needed but underused in industry sectors such as logistics and the processing industry (e.g., food processing and chemicals). They conclude that, given the context of digital transformation, the time is ripe to apply a combination of insights from STS and WPI in order to create skill-oriented work and work structures that enhance learning, instead of the opposite.

#### 4 Coda

This collection of articles on WPI not only brings the study of WPI a step further, but also provides additional evidence that WPI is beneficial to innovation, economic improvement, and employee engagement. The first article of this special issue concludes that WPI cannot be left to serendipity or the efforts of a few WPI champions, if it is to become part and parcel of the organisation. Instead it needs to be nurtured and managed as a deliberate act that actively engages stakeholders. We agree and hope that this issue will help us learn from practitioners how to make WPI a sustained and sustainable organisational practice.

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