

# COMPLEMENTING DIGITALISATION WITH WORKPLACE INNOVATION

Social innovation within the workplace is called workplace innovation. Without workplace innovation, organisations cannot reap the benefits of digitalisation. Technology does not dictate work organisation and labour relations; there is 'organisational choice'. Yet, there are a number of pitfalls.

*Frank Pot / Steven Dhondt / Peter Oeij / Diana Rus / Peter Totterdill*

## INTRODUCTION

The world has been muddling through several disruptive technological breakthroughs for some time now. Robotics, artificial intelligence and machine learning could fundamentally change the nature of work and impact the future viability of organisations as well as that of the general societal fabric. However, that future is not a given. In light of an ever-globalising market and the rise of the so-called 'second machine-age', companies have become increasingly concerned not only with maintaining productivity, but also with becoming more flexible and innovative. Whereas some companies and public institutions still put their faith in technological innovation alone and focus their resources on 'digitalisation', others have come to realise the limitations of focusing blindly only on technological advancements. Indeed, over the past two decades, awareness has grown among both public and private organisations that technological innovation alone is not enough to face the complex social and economic challenges of the 21<sup>st</sup> century successfully and sustainably.

Instead, the notion has emerged that investments in technological innovation should be complemented with non-technological innovation to stimulate economic growth. An important element in non-technological investments is new forms of organisation and work [1]. As early as the post-war aftermath in Europe, experiments showed how sociotechnical systems design could simultaneously help productivity and the humanisation of work. A number of different terms have been used recently to describe these new organisational approaches that support innovation, such as: high performance workplaces, high involvement workplaces, innovative workplaces, innovative work organisation, workplace development, social innovation in the workplace, relational coordination, employee-driven innovation and workplace innovation. Although the terminology might differ, all these

approaches place a premium on employee participation and a better utilisation of the already existing human talent within organisations, primarily by (re)designing the organisation of work and tasks to enable people to be more effective and creative. Moreover, the shared objective of these approaches is to simultaneously improve the quality of working life (competence development, stress reduction) and organisational performance (productivity, innovative capacity). Furthermore, they support the use of technology for this purpose.

In this chapter, we will use the concept of workplace innovation as an umbrella term for non-technological approaches to innovation. The objective of this chapter is to show how digital technologies alone will not render organisations productive: the organisational concept needs first to be designed to fit the abilities of employees and digital technologies complement this strategy.

## WORKPLACE INNOVATION

Workplace innovation can be described as new and combined interventions in work organisation, human resource management and supportive technologies. Workplace innovation is an inherently social process because it derives from interaction between different stakeholders both within and outside the organisation (depending on the context, these might include managers, employees, unions, shareholders, customers, suppliers, consultants, policymakers and community interests).

**Workplace innovation is an inherently social process because it derives from interaction between different stakeholders both within and outside the organisation.**

In defining workplace innovation, it is important to recognise both process and outcomes. The term describes the participatory process of innovation which leads to empowering workplace practices which, in turn, sustain continued learning, reflection and innovation. It champions workplace cultures and processes in which productive reflection is a part of everyday working life. It builds bridges between the strategic knowledge of the leadership, the professional and tacit knowledge of frontline employees as well as the design knowledge of experts. It seeks to engage all stakeholders in a dialogue in which the force of the better argument prevails. It works towards 'win-win' outcomes in which a creative convergence (rather than a trade-off) is forged between enhanced organisational performance and enhanced quality of working life [2].

The concept of workplace innovation has proliferated in European policy, academic and practitioner circles over the past two decades. For instance, its proliferation across a number of European countries as well as in the policies of DG GROW and DG EMPL of the European Commission suggest that workplace innovation has come to be seen as a valuable resource for achieving economic and social policy goals by ensuring that organisations and the people within them can purposefully engage in healthy, sustainable change and successfully embrace challenges thrown at them by a volatile, uncertain and complex world. Good examples of national initiatives can be found in Germany where high-tech programmes are accompanied by programmes on 'Work 4.0', in Finland with the 'Business, Productivity and Joy at Work' programme and the 'Workplace Innovation Engagement Programme' in Scotland. International networks include the 'European Workplace Innovation Network' (EUWIN) and the 'Global Network for SMART Organization Design'.

## ORGANISATIONAL AND DIGITAL CHOICE

An important barrier for workplace innovation is the erroneous idea that technology dictates how work is organised and what jobs look like. Of course, work organisation and jobs have been changing along with technological innovations. These new technologies have indeed provided new opportunities to design business processes, yet not in a deterministic way. In healthcare there are hierarchical as well as flat organisations using the same technology. An example of the latter is Buurtzorg International, a community care provider based on the professional autonomy of nurses, which started in The Netherlands. Buurtzorg has accomplished a 50 percent reduction in hours of care, improved quality of care and enhanced job satisfaction for employees. Looking at bicycle manufacturing in The Netherlands and Belgium, we see factories with conveyer belts and repetitive work of 90 seconds duration as well as factories where one operator assembles a whole bicycle. Well, if it is not the technology, we may wonder whether economic factors determine work

organisation and job content. However, this also seems only partially to be the case. Research by economists has shown that differences in productivity and profits between companies can be explained by different combinations of management practices and tools. The same market forces lead managers to make different choices about these measures and organisation.

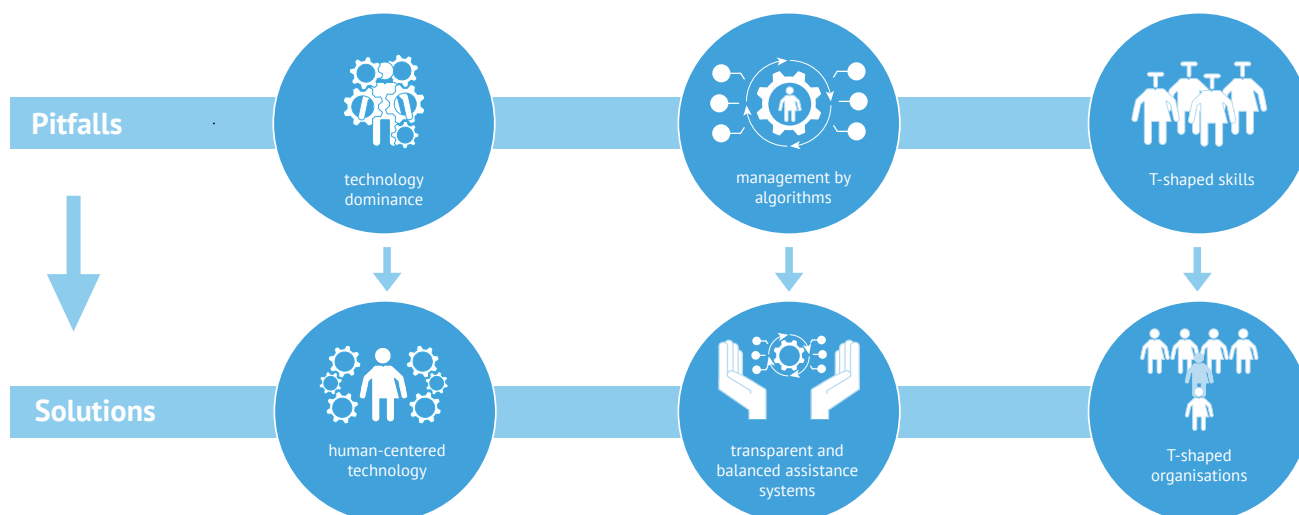
Making the right choices about organisation, however, is becoming more and more important. The types of investments required to render companies profitable have shifted over time. There is a clear shift of focus from tangible investments in hard technological innovations (machines, buildings etc.) to intangible investments such as research, ICT and managerial practices, such as work organisation. Different human resources, skills and styles of leadership lead to productivity differences. The OECD calls these 'Knowledge-Based Capital' (KBC). Because these non-tangible investments are rising quite steeply, organisations need to consider their chosen strategy more carefully. Companies need to understand the importance of their 'organisational choice', instead of blindly following technology.

In the era of digitalisation and Internet of Things, sometimes called Industry 4.0, organisational models still favour technology. Industry 4.0 enables new forms of digital process analysis, control, and optimisation based on real-time information exchange, big data, and machine learning, along with the use of assistance systems that provide information in the work process in a situation-specific and in real-time. But, networking of assembly parts, linking transport carriers to processes, integrating machines and robots, and using measurement instruments in the right way, all require sensible organisational solutions.

**Technology can never take care of itself, whether we talk about the Computer Integrated Manufacturing era of the 1990s or about Industry 4.0.**

All these technologies seem neutral at first. However, the dialogue is riddled with technology dominant thinking. Most discussions about Industry 4.0 are about optimising technology and ICT-infrastructure. Such thinking sees employees as complementing technology, not as creating value for the organisation. The technology dominant thinking pits the skills of employees against the complexity of technology. Hence, in comparison, employees always lose out.

Technology can never take care of itself, whether we talk about the Computer Integrated Manufacturing era of the 1990s or about Industry 4.0. We need to acknowledge this.



## Mastering technologies

The organisational concept needs to dominate technological choices. This will be easier in the future since technologies are becoming cheaper by the year. Yet, the investment decision for companies gets harder: how to devise an organisational set-up that allows employees to maximise both the use of technology and personal skills?

## SOME PITFALLS IN DESIGNING WORKPLACE INNOVATION

### Pitfall 'starting with technology'

The first trap operational managers fall into is kicking off the new organisational design from the technology side, because, too often, hardware and software are seen as the money makers. The result is almost certainly a sub-optimal integration of work organisation and technology. The potential of the technology is never attained. Apart from skyrocketing costs, it takes months and sometimes years to align technology and work organisation, if this ever occurs. This is even worse when employees, the end-users, have not been involved and the technology does not support them, which most certainly leads them to see the technology as serving top-down control. History is filled with examples of disastrous technology-driven investments. 'Halle 54' for example was a failed experiment in 1983, in which the German Volkswagen car company hoped that a fully automated plant would solve its quality and productivity problems [3].

**Lessons learned:** First design the work organisation, then design digital technologies to support this organisation. Employees need to be at the centre of organisational design.

### Pitfall 'management by algorithms'

According to research by Eurofound, the Internet of Things may positively change work processes. Quality management is expected to improve due to more advanced analytics of process data. Processes will be more efficient, and failure will often be predicted by data. Internal and external collaboration will increase: externally with more partners in the value network, internally between human and machine. Interactions will be more digital, and decisions will be assisted by intelligent systems based on data. Processes will be less standardised (customisation). Decision-making may, therefore, also be devolved to the work floor [4]. This is the technologists' hope. Reality is however somewhat harsher. Logistics companies have access to sophisticated (AI-driven) planning tools for huge warehouse operations. Only too often, managers find out that their planners turn off the software options meant to support the planning. This is not because of the planners' bad-will, but simply because they cannot understand why the software has made choices different from theirs. They fear that shopfloor-based-experiential knowledge may take the backseat to data-based optimisation, and operators still have serious doubts whether the 'black-box' decisions made by AI are optimal. Employees understand that the expansion of digital knowledge management and assistance systems is a major risk for standardised working routines, leading to less autonomy in their jobs.

**Lessons learned:** Algorithms and assistance systems should be transparent and subject to discussion among management and employees using criteria for job quality such as autonomy, stress prevention and competence development.

**Pitfall ‘attention for skills only’**

The current debate about digital skills sees the current employee, whatever his/her educational background, as incapable of matching the requirements of the 21<sup>st</sup> century or of developing ‘T-shaped skills’ with their over-insistence on digital skills, flexibility, innovative work behaviour etc. The reality is that T-shaped skills require T-shaped organisations. It is impossible, no matter how well-studied the individual may be, to be an expert in several disciplines and systems. However, collaboration between such specialists does generate superior organisations. Organisations need to be shaped to allow such collaboration, and also to make sure that these skills are maintained and developed over time. It is clear that a command-and-control organisation will not be supportive of such developments.

**Lessons learned:** To benefit from 21<sup>st</sup> century skills, organisations should develop a ‘participation & trust’ management regime, entering the 21<sup>st</sup> century themselves.

**CONCLUSION**

Workplace innovation is a member of the family of social innovation. Given that technological and business model innovations alone are not sufficient to enhance opportunities for businesses and employment, awareness is rising that better use should be made of human talents and new ways of organising and managing. Such a perspective fits well within the long European tradition of seeking convergence between market-oriented policies and a healthy socio-economic environment. Although the evidence supports the role of innovative work practices in underpinning improvements in organisational performance and job quality, it is striking that so few companies in Europe seem willing to introduce them. That being said, the number of companies introducing workplace innovation practices is growing, partially also spurred by new challenges posed by Internet of Things and Artificial Intelligence. Organisations can only benefit from digitalisation if workplace innovation lies at the core of investments in new digital technologies. Being aware of ‘organisational choice’, management can actively choose to take workplace innovation as a departure point for innovation. That is, if they embrace the idea that employee engagement is crucial for productivity improvement and enhancing the innovation capacity of the organisation. In this respect, the first and most obvious thing managers could do is to simply ask their employees how the work organisation could be improved and how technology could support that [5].

**REFERENCES**

- [1] Oeij, P. R. A./ Rus, D./ Dhondt, S./ Van Hootegeem, G. (Guest Eds.) (forthcoming): Special issue of International Journal of Technology Transfer and Commercialisation: Workplace innovation in the era of disruptive technologies.
- [2] Founding theories and empirical evidence can be found in: Oeij, P. R. A./ Rus, D./ Pot, F. (Eds.) (2017): Workplace innovation. Theory, research and practice. Springer: Cham.
- [3] Howaldt, J./ Kopp, R./ Schultze, J. (2017): Why Industrie 4.0 needs workplace innovation: A critical essay about the German debate on advanced manufacturing. In: Oeij, P. R. A./ Rus, D./ Pot, F. (Eds.): Workplace innovation. Theory, research and practice. Springer: Cham, pp. 45-63.
- [4] Scholten, C. (2018): Industrial internet of things: Digitisation, value networks and changes in work. Eurofound: Dublin.
- [5] Supporting tools are available, e.g.: Workplace Innovation Limited (2019): Your Guide to Workplace Innovation. Workplace Innovation Europe: Dublin. Internet: [www.workplaceinnovation.eu/announcements-your-guide-to-workplace-innovation](http://www.workplaceinnovation.eu/announcements-your-guide-to-workplace-innovation). [Last accessed 05.06.2019]

**Image Credits:**  
p. 45: Steven Dhondt