

Digitalization, Worker involvement and the making of Innovative Workplaces (some very preliminary insights)

WORK IN PROGRESS

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Introduction

- *Initial research question*: What is the significance of digitalization for the development of innovative workplaces, and does it depend on the organizational / managerial and/or institutional context ?
 - innovative workplace” *“a work environment that provides a fertile ground for innovations”* (OECD, 2010: 11): i.e. where employees mobilize their knowledge and other organizational resources to contribute to the emergence of new products and services, and/or new ways of producing and/or selling them
- Workplace innovative capacity depends on “worker involvement”; two dimensions
 - “*discretionary learning*” dimension - refers to workers' capacity to build competencies in their job and to mobilize and use them. It depends on the job content and the nature of the tasks (carrying out complex tasks, solving unforeseen problems, learning new things....). But it relates also to the workers' autonomy, his decision latitude over her own work activity, in particular her control over the order of tasks and the pace of work, and the overall latitude to mobilize her own expertise to organize her daily work.
 - “*participatory*” dimension - refers to degree to which the worker, beyond her own task discretion, has her say on work organization i.e. is involved in improving the work organization or work processes of own department or organization; this dimension refers to “*the capacity of workers to influence decisions as individuals rather than through their representatives*” (Eurofound, 2017: 82).

Introduction

- From workers involvement to innovative workplace
 - Empirical research has shown that task complexity, task discretion, learning opportunities, role breadth, and opportunities to participate are favorable to workers' creativeness and innovative behavior, through a *motivational* path (by increasing workers' motivation to be innovative) and a *cognitive* path (by enhancing workers' capacity to mobilize their abilities and skills to innovate) - see [Gallie, 2018](#). In addition to job security (which favors both the investment in learning and the motivation to be innovative), these elements, that condition worker involvement, are key components of "innovative-conducive" job quality, (Gallie, op.cit.)
 - Innovation is not only the outcome of Research and Development activity, coming from the top to the shop floor under the form of codified knowledge - what [Jensen et. al. \(2007\)](#) call the "*Science, Technology and Innovation (STI)*" mode of innovation; It also depends on being able to integrate the codified knowledge into the productive system so as to develop organizational capabilities. Moreover, innovations - most often incremental - may also come from the shop floor, from workers daily activity of problem-solving and learning => Workers' involvement (in particular the discretionary learning dimension) plays an important role in this "*Doing Using and Interacting*" (DUI) mode of innovation

Introduction

- Rephrasing our research question:
 - How does digitalization impacts **on** (or may interact with) the two dimensions of worker involvement?
 - Is this impact (interaction) mediated by organizational / managerial / institutional factors (i.e. what we will call “the context”)? => If no, we may stick to a “technological deterministic” view of digitalization; If yes, we have to adopt *a* contingency based view of digitalization
 - We will focus here on two important factors that came out: managerial orientations and the role of unions, combining a micro perspective (to account for differences across workplaces) and a macro perspective (to take into account the national context in which these managerial orientations and union attitudes and strategies are embedded)

Introduction

- Method and case selection
 - Focus on one industry: Aerospace, where innovation is a crucial concern
 - Two countries: France and Sweden, with quite different managerial and social dialogue traditions
 - Companies with different positions in the supply-chain: OEMs (**FR-Plane** and **SW-Plane**), and tier-1 / tier-2 suppliers (**FR-Parts1**, **FR-Parts2**, **Sw-Parts**)
 - 12 interviews with experts for mapping the industry background in each country
 - 71 interviews (from 20mn to 3h)
- Outline of the presentation: some very preliminary findings (= insights, not a coherent story yet!)
 - Where the context does not seem to play a (big) role: digitalization, codification of knowledge and potential negative impact on DUI mode
 - Where the context does play a significant role: digitalization, the monitoring of the work process, and consequences on worker involvement
 - What context? Managerial orientations and the role of unions

1. Digitalization, codification of knowledge and the DUI mode of innovation

- Common finding in the two countries: new technologies may have induced a transfer from "*embrained knowledge*" (i.e. based in the conceptual skills of the employees) to "*encoded knowledge*" (i.e. Held computer systems.) => potential negative impact on some aspects of *discretionary learning*, and therefore on the *DUI* mode of innovation
- May have played at white collar level (engineers and technicians) with tools such as Computer Aided Design
- More obvious in the case of blue-collars concerning at least with some digital devices:
 - e.g. "*computer numerical control* » (*CNC*) *machining*: Several (senior) workers interviewed both in France and Sweden lamented the loss of the "craft" dimension of their work activity that existed with the traditional turning and milling machine / CNC require higher formal skills, but less tacit knowledge and "know-how" => the work might have lost some interest. This feeling was expressed by a number of (senior) workers.
 - e.g. "*human augmenting*" devices, such as 3D glasses; as they become more and more sophisticated, they may turn workers in "machine augmented" devices (i.e. the human as the "appendage of the machine")
 - Still: awareness among management that too much automation may have negative impact on the innovative capacity of the workers => awareness of the importance of *DUI* (even in France)

2. Digitalization, the monitoring of the work process and worker involvement

- Big contrast between France and Sweden in the overall work organization (in the way lean manufacturing was implemented in particular); in France, a greater emphasis on standardization, centralization and the overall monitoring of the work process; and greater emphasis on the *STI* mode, and less on the *DUI* mode than in Sweden
- The use of digital tools was coherent with the organizational/managerial dominant model in each country:
 - In France: Inflation of indicators and reinforcement of the « management by indicators » with a lot of reporting; less in Sweden => even French managers complained
 - Alternative use of digital tool: 1) to “empower” workers in a relatively decentralized model associated with substantial employee autonomy: more common in Sweden; 2) to better monitor their work, by controlling performance in real time at individual level: more common in France, but with exceptions!

*You know, it is not the technological tool in itself that is important, it is what you do with it [...] the process cannot work without the engagement and the competencies of workers; If you use the tool just to monitor and to prescribe, you will lose the trust of employees, and their engagement; and they will find ways to manipulate the system, to meet the targets set by the indicators, but without doing what you really expected them to do [...] I chose not to use the system to calculate individual performances [...] some uses of this tool could be catastrophic, like "big brother"! [...] (Director of Division B, **FR-Plane**)* but another manager told her: you are not a good manager!

3. Managerial orientations and the role of unions

- Quite different dominant managerial “culture” in the two countries;
 - in *France*, the technocratic top-down, technical rationality oriented; the role of the cast of engineers of the elite technical schools (managers of the AeS big companies come from the most prestigious *Grandes Ecoles*); but the new generation of managers more critical of the dominant managerial model, and looking for new models with higher worker involvement (e.g. the liberated company experiment in **FR-Plane**)
 - in *Sweden*, lower gap between white and blue-collar workers (more skilled in average than in France), and a managerial culture much more friendly to worker autonomy and participation

3. Managerial orientations and the role of unions

- This is not (only, not even mainly) a matter of “culture”: it is also and outcome of the interactions with unions
 - In *Sweden*: the unions (in particular *IF-Metall* the blue-collar union in the metal industry member of LO), have been very active in promoting the so-called socio-technical system (STS) from the 1980s based on high worker involvement; they have been able to build with employers (see for instance the “The Industrial Agreement) a common understanding of industrial production, international competition, competitive strength, competence development, research. But this “capital-labor “consensus must not be overestimated; unions have been able to influence organizational and technological changes to preserve worker involvement from the 1980s because there are powerful at workplace level (high unionization rates)
 - In *France*: the long legacy of the Fordist compromise in which unions traded a high degree of management control over work organization for greater levels of pay and security => workers have no alternative models of management and work organization to promote high worker involvement; moreover, unions are weak and divided at workplace level => very limited power to defend or promote worker involvement when organizational and/or technological innovations are introduced