

Is algorithmic management compatible with innovation and human creativity?

A systematic literature review

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Algorithmic management: definition

- Definition: software algorithms' taking over managerial functions and decisions (Noponen et al., 2024), “use of computer-programmed procedures for the coordination of labour input in an organisation” (Baiocco et al., 2022)
- Emerging practice, employed in:
- Regular workplaces, along more traditional management practices ; e.g.: Robotic Process Automation, ticketing systems, etc.
- Uber and the likes which are built on it : order processing and task management, delivery assignment & tracking, quality control, etc.

Algorithmic management: features

- Is it SM2.0? ‘Taylorism on steroids’?
- Taking over routine tasks, thus creating more employee autonomy and creative jobs (Kaasinen et al. 2020)?
- Submission of human behavior to algorithms (Schildt, 2017)?
- Possible conflict with the dynamics of innovation: the major driver of contemporary businesses. Execution innovation dilemma.

Focus of study: How this dilemma is being reconciled? Favoring what and who?

Research method and data

- Systematic literature review: intersection between algorithmic management and innovation & creativity
- Two Scopus searches with keyword sets:
"algorithmic management" AND "creativity" + "algorithmic management" AND "innovation"
- **17 articles** included in the study, published between 2019-2024
- Article fields ranging from labour law, to management and sociology
- **Discourse analysis** focusing on: empirical or theoretical domain, rhetoric around AM, its effects on innovation, what causality is envisioned between AM and innovation and creativity, method (review, qualitative, quantitative, etc.), scope (case study, national, global, etc.), and organizational focus.

Research method: coding examples

Causality direction

Domain:
Algorithmic born

- “informal work-family practices developed by women platform workers to maintain ... income... but serves to improve the value creation of the platform rather than the work-lives of women workers” (James, 2021)
- “workers to focus their efforts on aspects of work that are being monitored and quantified” (Gagne et al., 2022)

Causality direction
Negative effect

Negative effect
Conceptual structure:
subjectivity

Findings-1: rhetorical and conceptual structure

Rhetorical structure

- Transformative
- Challenging
- Vital
- Controlling
- Demanding
- Unavoidable

Co-concepts

- | | |
|--------------------------|--------------------|
| ● Algorithmic capitalism | ● Restrictive |
| ● New capitalism | ● Control-oriented |
| ● Controlling | ● Monitor |
| ● Demanding | ● Inhibit |
| ● (In)flexible | ● Decide |
| | ● Control |

Findings-2: empirical domains

Two clear empirical domains:

- Relatively recent business models which are built on algorithms (so called gig-economy, online labor platforms, etc.) and business enterprises built on them such as Uber, Fiverr, Upworks etc. (“algorithmic born organizations”)
- The effect of algorithmic management on more traditional enterprises (“algorithm infused organizations”)

Findings-3: causal effects

Causality direction

In “algorithmic born organizations”: AM as an outcome of innovation

In “algorithm infused organizations”: AM as innovation

Positive effects

X

Less routine more meaningful tasks
Allow use of skills to problems
More data

Negative effects

Demanding jobs
Neoliberal work conditions
Algorithmic subjectivity
~~Inhibits creativity~~
Less room for creative adaptation
Less worker freedom in decision making
Less self determination

Discussion & implications

- Techno-determinism → loss of critical perspectives, taking technology as value-neutral instrument that occurred independent of individuals by itself
- The state of human agency in algorithmic management: human as object rather than subject in decision making, hence in creativity, innovation, and adaptive change
- The paradox of agency? Who really is the agent? AM or individuals (managers, workers etc)? Most of the management approaches treat AM as if it is an agency. This deprives such approaches from developing and discussing “ethical” issues. If we take as agent individuals who develop and use AM, then we have to develop an agenda for ethical use of AM.
- To empower or inhibit: an organizational and institutional choice
- For managers, navigating a business landscape which is increasingly infused with AM will require a better understanding of strategic contingencies and institutional compatibility of the choices

Thank you

Questions?

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