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Responsible Autonomy or Sousveillance? Research to Explore
the Impacts of Digital Taylorism on Knowledge Workers in the
Internet Service Industry.

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Abstract

Facilitated by technological progress and strict containment policies during the COVID-19 pandemics, the application of digital technologies in management is gradually increasing to meet various demands, subjecting employees to algorithm-based control and surveillance. This study seeks to initiate discussions about digital Taylorism experienced by knowledge workers. This development paper critically reviews the current literature on digital Taylorism and algorithm control and its impacts on the labour process, labour relations, and employees' experience of work. It presents a conceptual framework focusing on digital Taylorism as a new way of control in the digital era and explores two recent phenomena, namely autonomy paradox and sousveillance, as results of algorithm-based management. The study is contextualised within the macro-environment of China, assuming that its unique social, cultural, and institutional environment can profoundly impact the targeted phenomenon.

Keywords: Digital Taylorism, Knowledge Worker, Responsible Autonomy, Sousveillance

Word count: 2347

1 Introduction

The rapid development and wide popularity of digital technologies are changing the interactions and relationships in the workplace and the balance of power and control between capital and labour, making millions of workers in multiple sectors worldwide being managed by algorithms (Nojonen *et al.*, 2023). Digital Taylorism, which builds on the principles of scientific management introduced by Frederick Taylor, was proposed to optimise organisational productivity and operational efficiency through work standardisation, algorithmic control, and digital surveillance (Brown *et al.*, 2010). This new forms of management and control threatens responsible autonomy which refers to a management strategy emphasizing on harnessing the adaptability of workers by giving them a degree of autonomy over day-to-day work tasks and encouraging them to adapt to this changing environment in ways that are beneficial to the company (Friedman, 1977). Due to the unique attributes of digital Taylorism, there are increasing academic discussions about its impacts on responsible autonomy, and by extension, how employees can resist the intrusive surveillance of digital Taylorism, known as sousveillance behaviour (Liu, 2023). Despite receiving increasing academic interest, most attention has been focused on platform (or casual) workers (e.g. Park and Ryoo (2023); Möhlmann *et al.* (2021), and there is limited literature on how algorithmic systems manage knowledge workers (Liu, 2023). This study seeks to initiate discussions that will fill this gap. Drawing on the labour process theory, we focus on knowledge workers within the Chinese internet service industry, exploring the forms of digital Taylorism they experience and how the way they work and their attitudes have changed in response to algorithm-based control. This research will focus on China because China's internet service organisations are famous for using an amalgamation of digital surveillance tools and algorithmic management to pursue efficiency, productivity, and profits (Liu, 2023).

2 Research questions and objectives

Algorithms enable new ways to organise work and manage performance. Under digital Taylorism, management is a process embedded in technology and workers are treated as machines (Schildt, 2017). It shifts power from a hierarchy of managers to technological programs which emphasize profit-maximizing through automating and mechanizing the workers and restricting their ability towards the individual initiative and well-being (Uddin and Hossain, 2015). However, due to its primary focus on surveillance and control, digital Taylorism is often associated with low levels of employee discretion and has been shown to be negatively correlated with creativity and satisfaction (Ogbonnaya *et al.*, 2017; Zhao and Wu, 2023). Workers suffer the paradox of autonomy, resulting in strain, exhaustion, and blurred boundaries between work and life (Zhao and Wu, 2023; Mazmanian *et al.*, 2013). Meanwhile, the endless exploitation triggers resistance and contestation, leading to the new phenomena of sousveillance (Taylor and Dobbins, 2021). To date, these new phenomena are under-researched and deserve greater study because they reveal how workers react to digital surveillance, voice their concerns, and resist or dissent against improper managerial control. There needs to be a better understanding of how the digitalisation of management may be changing the norms and culture of professional knowledge work. Therefore, our study is going to address the following questions:

Research question 1: *To what extent does Digital Taylorism as a new frontier of control generate panoptic effects in the workplace?*

Research question 2: *How does digital Taylorism influence the responsible autonomy and sousveillance of knowledge workers in China's internet services industry?*

Research question 3: *How do knowledge workers utilise sousveillance as a form of*

resistance against digital Taylorism, and what are the implications of this resistance for organisational power dynamics and employee autonomy in the workplace?

3 Literature review and the conceptual framework

The labour process theory (LPT), with its focus on productive relations, control, and consent in the workplace, provides a theoretical lens to understand the nature and transformation of labour power under capitalism (Braverman, 1998). There are two classical perspectives proposed by the LPT regarding the control of capital over labour: authoritarian control and hegemonic control (Omidi *et al.*, 2023). The former perspective assumes that labour is controlled by capital through various means, forcing them to engage in the labour process. The latter perspective assumes that the organisation cedes part of the autonomy to the labour so that they engage in the labour process proactively without recognising capitalist exploitation. Friedman (1977) synthesised these two perspectives and proposed a bipolar strategy for management control: direct control and responsible autonomy. The direct control strategy treats workers as machines and exerts control through means of rewards and heavy supervision. As an alternative to coercive methods of control, responsible autonomy emphasises aligning workers' goals with those of the organisation to increase their commitment, efforts and passion for work. Yet, the LPT theory also pointed out the disconnection between labour and employer. That is, while employees are expected to engage more in work with a higher level of commitment and passion, employers often refuse to provide job security and career ladders, among others. Such contradiction is intensified under algorithm-based management.

Facing the fierce business environment, employers are compelled to intensify the utilisation of labour power through more rigid surveillance and control (Thompson, 2010). This resulted in the emergence of algorithmic management, also known as digital Taylorism, which represents a crucial trend in the digital era and something new in the evolution of organisational theory. Labelled as scientific management 2.0, this digital version of Taylorism is featured by a high degree of de-composition, digital surveillance, standardisation, and measurement of labour (Schildt, 2017; Beer, 2019). The core of digital Taylorism is the datafication of work and the intensification of performance control with the help of rigid and structured algorithms (Liu, 2023). In line with the Taylorist management principles, digital Taylorism aims to optimise organisational productivity and operational efficiency through work standardisation, algorithmic control, and digital surveillance (Brown *et al.*, 2010). For example, the installation of software on employees' laptops facilitates not only production but also real-time supervision by managers, making them constantly connected (Liu, 2023). However, the high level of work standardisation, algorithmic control and intrusive surveillance may bring more negative outcomes such as reduced flexibility, more symbolic work and, in the worst case, bottom-up resistance, which deteriorated the relationship between labour and capital as emphasised by the LPT (Schildt, 2017; Liu, 2023).

To begin with, since working tasks are modularised, allocated, optimised, and evaluated through algorithms, digital Taylorism has dramatically changed the labour process, leading to a crisis of autonomy for knowledge workers. Algorithms were endowed with societal rights beyond their coding capabilities, leading to imbalanced labour-capital relations (Thomas *et al.*, 2018; Beer, 2019; Uddin and Hossain, 2015). Meanwhile, due to its exploitative nature in pursuing surplus value and monopolisation in task allocation, performance measurement and decision-making, algorithmic management reduces the procedural and distributive justice, making it difficult for knowledge workers to achieve responsible autonomy (Kordzadeh and Ghasemaghahi, 2022; Pan *et al.*, 2018; Leicht-Deobald *et al.*, 2022). Furthermore, there is an autonomy paradox which highlights that the real level of autonomy possessed by knowledge workers, under the veil of responsible

autonomy brought by digital Taylorism management practices, is indeed reduced (Shevchuk *et al.*, 2019). As Wang *et al.* (2019) note, autonomy has fewer positive consequences within today's digital economy but leads to more profound control, intensified workload, over- involvement in work time and blurred work-life boundary, and emotional exhaustion. Such autonomy paradox is intensified by the imbalanced power structure between capital and knowledge workers. As Aloisi and De Stefano (2022) said, algorithm-based control created '*a digital panopticon*', which strengthened the intangible power of management over the workers. Worse, as management practices shift from humans to technological systems, the room for creative adaptation will likely shrink. Knowledge workers must keep working and increase their work intensification within such asymmetric power structures to meet collective expectations and gain access to development resources. In countries like China, which values hard work and dedication, knowledge workers may even rationalise this erosion of practical autonomy as an inevitable by-product of success on the job (Ping and Magasic, 2016).

Digital technologies are accelerating the labour process to the cliff edge of what was possible to endure which triggers serious affective and behavioural resistance (Bain and Taylor, 2000). Resistance behaviours are widely reported in media reports (Li, 2019; Greg, 2022; Bloomberg, 2021). The term *sousveillance* was proposed in digital surveillance research to describe an emerging form of worker resistance (Mann *et al.*, 2003). At present, research into *sousveillance* is scarce, and some pioneer studies have reported a few noteworthy items. *Sousveillance* or loosely defined as 'reverse surveillance' represents a bottom-up resistance activity where those being observed use digital technologies to record the observer (Mann *et al.*, 2003). Benefited from social media and other digital platforms, workers are trying every possibility to document, comment on, and challenge unfair managerial practices, thus fostering a dialectic of digital observation that transcends unequal hierarchies of power and a milieu of digital resistance against inhumane managerial control (Taylor and Dobbins, 2021). Though subtle and still in its infant stage, *sousveillance* signifies a shift in the power dynamics between labour and capital, which may challenge the hegemony of managerial oversight and rekindle the discourse of professional autonomy amidst rigid digital surveillance (Taylor and Dobbins, 2021). Employees (particularly knowledge workers) hope for a more democratised management structure with this inversion of the surveillance model (Fernback, 2013). However, *sousveillance* practices are thought of as informal and are restricted in countries like China as they challenge the hegemonic managerial control in the workplace and can be a breach of organisational decorum and a threat to social stability (Chan and Hui, 2014). It may also trigger a vicious cycle of heightened surveillance and counter-surveillance, and such punitive repercussions may further strain labour relations (Taylor and Dobbins, 2021).

Whatever the result is, the emerging phenomenon of responsible autonomy and *sousveillance* indicates that management is not the paragon of appropriate or expected management practices; alternative voices from the employees are also essential to explore the dynamics and tensions of the labour process and relations in the contemporary workplace. Figure 1 graphised the theoretical framework of our research. We mainly focus on digital Taylorism as a new way of control in the digital era and explore two new phenomena, namely autonomy paradox and *sousveillance*, as results of algorithm-based management. Digital Taylorism, due to its exploitative nature and pursuit of comprehensive control over the labour process, undermines the responsible autonomy of knowledge workers and leads them into the dilemma of the autonomy paradox, where knowledge workers experience heightened control despite a perceived increase in autonomy (Zhao and Wu, 2023; Mazmanian *et al.*, 2013; Wang *et al.*, 2019; Uddin and Hossain, 2015; Schildt, 2017). In response, workers may engage in *sousveillance* to resist managerial control (Mann *et al.*, 2003; Taylor and Dobbins, 2021). These elements are

interlinked, with digital Taylorism creating the conditions for both the autonomy paradox and sousveillance, which in turn affect labour relations and workplace dynamics. Meanwhile, the way labour power is converted into actual productivity depends on many contextual variables, such as the national context, industrial specification, and industrial relation agents (such as labour unions), among others (Möhlmann *et al.*, 2021). Therefore, we place the research within the macro-environment of China and assume that its unique social, cultural, and institutional environment can profoundly impact the targeted phenomenon.

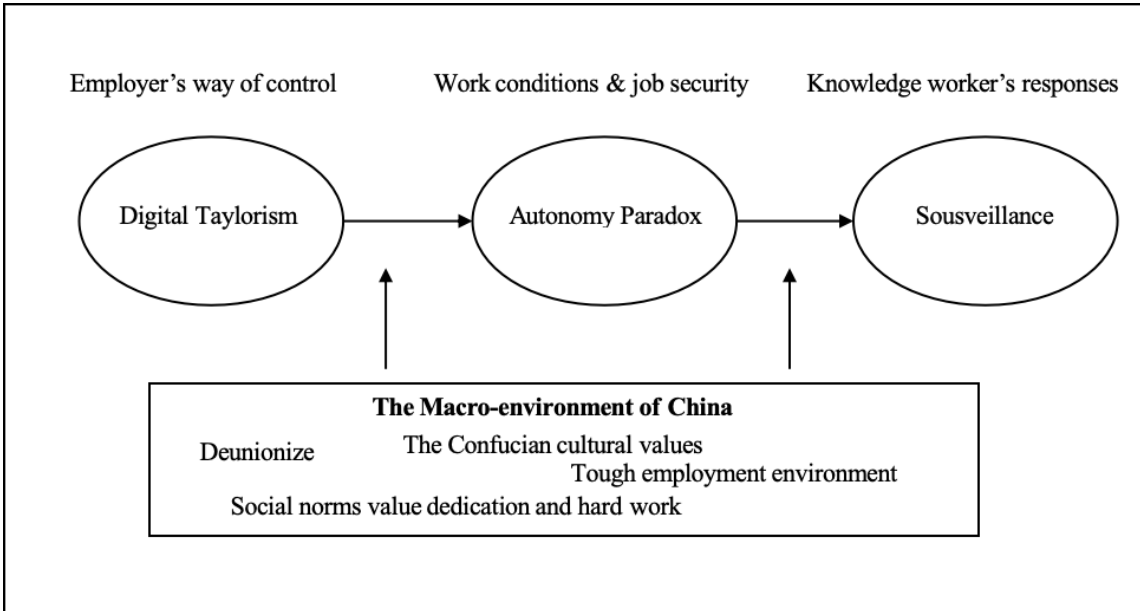


Figure 1: Figure 1: the conceptual framework

4 Next Steps in the development of the paper

As outlined above, this study aims to explore the forms of digital Taylorism experienced by knowledge workers in the Chinese internet service industry and how the way they work and their attitude has changed in response to the algorithm-based control. We are working towards completing a multiple case study from China's internet service industry, which is intensively affected by digital Taylorism and in which the process of interest is transparently observable. We are going to investigate the panoptic effects of digital Taylorism on knowledge workers, exploring their attitudinal and behavioural reactions as a result of restricted autonomy under digital control. Data will be collected through ethnography observations, semi-structured interviews with 30-40 knowledge workers, and a questionnaire survey of the entire workforce of each case company. We will focus on the day-to-day practices, including ways of working and patterns of interaction. The core value of taking this research method is the faithful and authentic representation of people's perceptions of their experience which is critical in theory building (Burawoy, 1998; Eisenhardt, 1989). This way, we expect to get a deeper understanding of how the digital forms of control may impact work conditions and job quality and what impact this may have on the overall working experience, performance (e.g. creativity), and satisfaction of knowledge workers. This will be an essential contribution as the first holistic research into this field and set the direction for future research.

5 Conclusion

This paper thoroughly analyses existing research concerning algorithm-based labour process control in contemporary workplaces and employees' attitudinal and behavioural responses toward the new forms of control. The analysis shows that digital Taylorism as a new frontier of control intensified the tension between managerial control and responsible autonomy while also disrupting the original power structures in the workplace, as outlined by the LPT. Due to its primary focus on surveillance, control, and exploitation, digital Taylorism has been found to be related to many negative outcomes like reduced creativity, low satisfaction, exhaustion, blurred boundaries between work and life, and so forth. In countries like China, where hard work and dedication are valued, employees may turn themselves into self-exploitation behaviour to achieve excellence as expected by their employers. In order to fill in the research gap, this study targeted the knowledge workers in the internet service industry. The main objective is to collect alternative voices from the targeted group of workers to explore the dynamics and tensions of the labour process and relations under algorithm-based management and control. Our study will add to a small but growing body of literature that cares about the well-being of knowledge workers being controlled with rigid and indifferent algorithms. This research is also a timely response to Taylor and Dobbins (2021)'s call for paying more attention to bottom-up employee sousveillance since focusing solely on top-down managerial surveillance created a narrow view.

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