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Artificial Intelligence: Threat or ‘colleague’? Exploring managers’ perceptions of AI in organisations

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Abstract

COVID-19 has brought organizations to reinvent their businesses due to the greater need: employees and customers safety. This paper explores managers’ perceptions of the adoption of AI in the workplace. It considers how they construct new technology adoption and the potential it has to be integrated into work practices. This research in progress paper contributes to the information systems literature by taking a qualitative approach to better understand managers’ perspectives of AI and the contextual factors that influence their decision to adopt. Semi-structured interviews were used to study managers’ perceptions and experiences through which AI might have been considered supportive or a job threat. Overall, pre-liminary findings showed that managers have dealt with technologies that have helped them to perform their managerial duties. However, most of them have displayed doubts related to trust and interpersonal complexity. Interviews unanimously stated that AI cannot (completely) replace managers, but it is of interest how they also highlighted the uncertainty of AI and its future. Future research will further explore the complexities of AI adoption using Cultural-Historical Activity Theory as a framework to understand the transformation of organisational activities through socio-technological practices.

Keywords: Artificial Intelligence, Managers, Automation, Future of Work, Qualitative, Interviews, Cultural-Historical Activity Theory.

1.0 Introduction

Artificial Intelligence (AI) has undergone significant development and sophistication in the last decade (Wamba-Taguimdje et al., 2020; Wiljer & Hakim, 2019). It has the potential to transform not only our everyday lives but also the way organisations make decisions relating to employees, work tasks and customers (Haenlein & Kaplan, 2019). Some predict that AI has the potential to enable greater efficiency, effectiveness and convenience in the workplace through human-machine collaboration, or even worker replacement (Briken et al., 2017; Toms, 2019). Folgieri, (2016) suggests digitalization

could have a negative impact on the future employment rate, while Toms (2019) argues there may be a time when AI becomes the worker rather than just the assistant.

More recently, global events such as the Covid-19 pandemic have meant that many employees are either having to stay at home or work in other areas of the organisation. In particular, monitoring, delivering and supporting tasks have been performed by machines and/or algorithms due to human workforce scarcity. The past year has demonstrated the usefulness of AI technologies in completing human tasks, such as using chatbots for customer service, or robots as cleaners in hospitals (Howard & Borenstein, 2020). Coombs (2020), has also observed how unexpected events like the pandemic could act as a catalyst for businesses to adopt AI, as managers look for new innovative methods of not only competing but also surviving.

Moving from the employment of workers to that of AI requires changes to organisational structure. Therefore, managers must make critical decisions about how and when their organisations adopt AI, or indeed if they should adopt it at all. It could be argued that while AI is not a new topic, the pandemic has reinforced its potential in the workplace (Coombs, 2020), but its success depends on how managers decide to adopt and deploy it throughout the business, particularly if it has the potential to replace them in the future. Previous research in information systems has tended to focus on AI's accuracy and ability to perform functional tasks, rather than how they are perceived, used and integrated into organisational practices where both social and technological artefacts entwine (Beane & Orlikowski, 2014). This research in progress paper explores managers' perceptions of the adoption of AI in the workplace. This research is timely as there have been fresh calls for empirical research to explore how managers decide to adopt AI and where to deploy it (Dwivedi, et al., 2019). This contributes to the information systems literature by adding to the debates around how to better understand and evaluate new configurations of human-machine work in organisational contexts (Faraj et al., 2018).

2.0 AI and the transforming organisational structure

Technological advances are considered just like any other capabilities, which means their introduction becomes a strategic decision. Flexibility is the key according to Tian et al., (2010) because questions of what, when and why there should be a replacement

or implementation have to be answered to make the decision as effective as possible. Berman, (2012), highlighted the importance of departments working together to develop processes which can aid a digital transformation. Folgieri, (2016) found that people were reluctant to suggest that jobs can be done faster and better by machines and automation.

Delegating decision making to AI involves risks. There is a need to understand not only how AI can be successful but also what happens when it fails. Although companies like IBM have demonstrated the potential role for AI in the future (Bhan, 2020), researchers should still consider the possible disadvantages or negative consequences. Given that organisations are made up of people, understanding managers perceptions is important due to the disruptive nature it can have on the workforce, through de-skilling, replacement and job losses. This has been demonstrated in studies such as Berman, (2012) and Lambrou et al., (2019) where improved efficiency in supply chains and data management led to uncertainty and negativity for employees working inside companies which have not yet embraced digitalization. Others such as Pachidi et al. (2020) demonstrated how the use of predictive technologies led to the replacement of a sales team. Whereas Lebovitz, (2019), studied the integration of AI within a radiology setting and found that in high judgement work which could be life or death, AI often produced further ambiguity. Despite the quality of AI technology, users had to take charge and overrule AI outputs to reduce ambiguity and rely on their knowledge to inform decision making (Lebovitz, 2019). Similarly, Fry (2018), suggests AI can be used as a support function, rather than to replace human work. For example, within healthcare, it may be more effective for a machine to narrow down the ‘road’ in which doctors can then make a diagnosis. This leads to questions of what role AI should play within an organisation and how it can best support workers with decision making?

While the technology adoption literature, such as the Technology Acceptance Model (TAM) (Davis, 1989), Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatsh et al., 2003) and Value-based Adoption Model (VAM) (Kim et al., 2007) have provided models to understand factors influencing technology adoption, they do not provide the richer detail of the nuances and complexities of why there is, for example, use or non-use. When a new technology such as AI has the potential to replace an employee’s role, there are likely to be other factors at play, such as who the

technology will benefit and how it might impact the organisational structure. It could be argued, that more qualitative research which aims to evaluate the delegation of decision making to machines is needed when it involves potentially replacing a human workforce (Von Krogh, 2018).

3.0 Methodology

Following an interpretivist grounded theory approach, senior managers were selected due to their strategic decision-making role within the company. Table 1 shows the participants role, department and industry. So far, six semi-structured in-depth interviews have been conducted with senior managers from a range of industries and departments to explore their perceptions and experiences with AI. In line with the qualitative approach, a non-probability sampling strategy was adopted in order to find participants who were suitable for the research objective. The selection of participants was based on a purposive technique (Wahyuni, 2012). Although this strategy could ‘compromise diversity’ (Ritchie and Lewis, 2003), sometimes this technique was the only option, due to difficulties in recruiting participants during the pandemic. Follow up research will aim to gain a more diverse spread of participants.

Participant	Gender	Current role	Department	Industry
I1	Female	Deputy Director	Digital Service and Transformation	Public services
I2	Female	Senior commercial manager	Sales and customers relations	Food
I3	Male	Senior product development manager	Product development	Information technology
I4	Male	Director of customer operations	Customer operations	Food
I5	Male	Chief researcher	Research and Innovation	Telecommunication
I6	Male	Vice president	Technology and platform	Media & Entertainment

Table 1. Participants interviewed

An interview guide was prepared and used to ensure key topics were covered. Interviews were conducted during the Covid-19 pandemic and therefore took place over video conferencing platforms such as Zoom. Interviews lasted between 45 mins to 1 hour and were video or audio recorded and fully transcribed. All interview participants and organisations have been anonymised.

During the coding of the interviews, transcripts were thematically analysed in line with grounded theory through a number of steps (Glaser and Strauss, 1967). Firstly, transcripts were read line by line and an open coding strategy was applied. This led to a series of codes being developed. The next stage was re-coding, which later became 10 sub-themes. The data was then organised into the four key themes presented below.

4.0 Preliminary findings

The data analysis identified four key themes: 1) perceptions of AI; 2) interpersonal complexity; 3) trustworthiness; 4) future expectations.

4.1 Technological advancements perceived as a ‘double-edged sword’

Positive attitudes towards technology were common in the managers.

I come to our customers. What's the most effective use of our money? How you know so? Where do we get the best returns with customers and what has the best sales effect versus financial return? So that's something we're very much starting to use the AI to help us to make those decisions rather than relying on individuals to analyse that. (I4)

Some of the managers acknowledged the advantages of technology but pointed out the flaws created by the technology at times being unreliable.

I know the information that I need to do my job, yeah, so, I could actually crack on that do it but now I'm part of a bigger organization and therefore I have to use some of those tools. (I3)

The manager also expressed concerns about the AI decision-making process.

My first instinct will be to actually try to work out well, why have you got what? Why have you told me that? What information, yeah, have you pulled together to make that to make that decision? (I3)

A further participant questioned whether AI could replace a human management system due to the complex nature of a certain task. These perceptions are in line with the concerns expressed in Lebovitz (2019) study of Radiographers.

4.1.1 Free up managers time

Pachidi et al. (2020) demonstrate how AI can replace workers. In this study, managers suggested that AI could be used to support them by freeing up time to work on more creative tasks.

If something can come along and take along away my boring conversations around budgets, I will be so happy 'cause it means I could concentrate on the exciting stuff (...)I find it fun because the sorts of stuff that it will do is the sorts of stuff that probably I'm not that excited about doing. (II)

Therefore, rather than replace workers as Toms (2019) suggests, AI could reshape their role.

4.2 Interpersonal complexity

Social interaction is one of the main concerns that managers raised about AI. Most managers believed that implicit meanings and social cues that are common in human interaction cannot be replicated by machines due to the high complexity of tacit knowledge in work settings.

What a machine doesn't necessarily know is that, you know, there might be a movie that's got certain themes in it, which aren't necessarily completely explicit, um, from the language or the, the scenery or

whatever. But would then make that movie kind of completely unsuitable for the audience. (I6)

While AI may not replace human interaction, managers highlighted the importance of technologies in supporting people overcome social distances (e.g. managing teams during COVID-19 pandemic). These findings link with Wendt et al., (2009) and Bhan, (2020) in that managers still need to communicate personally with their teams.

4.3 Trustworthiness

The concept of trust frequently emerged from the interviews. Managers suggest AI cannot be trusted without human supervision.

Yeah to me, is about building trust(...)something that I have learned: trust between people (...) People come back to you. Yeah employees stick with you yeah um suppliers, customers work with you for years. (I3)

This confirms the importance of trust in organisational settings and suggests it would be difficult to replicate with AI and machines, particularly when it comes to business-critical decisions that could potentially damage the organisation.

4.4 Future expectation

Unanimously, managers stated that while AI was useful for dealing with repetitive tasks, it currently lacked the capability to fully replicate human interaction. Managers emphasised that the human touch is an indispensable requisite in today's workplace and that while their role requires the management of people, their jobs are safe.

I think the manager's role and leader's role will change. But It depends on the business and it depends on the situation. Cause I say something like you can, you can automate processes and you can use technology to get better flow of information, how your processes and systems work. Um, but fundamentally, whilst you've still got people employed. (I4)

5.0 Future research

This paper contributes by creating the basis for future research exploring managers' perceptions of AI adoption and how it may change the managers' role. So far the study suggests that AI adoption and use for managers might be more complex than just use/non use, that some models such as TAM suggest. Therefore it's not necessarily a case of if a technology is adopted or not, but an iterative process of adoption that gradually embeds itself in organisational practices as its capabilities develop. As technology such as AI becomes more advanced and complex, it's likely that current models of technology adoption will need to develop to reflect this.

While most managers interviewed utilise technology, even within the current COVID context where AI has been suggested to have more potential (Coombs, 2020), AI is still considered a mere tool to perform analytical and repetitive tasks, which may limit its wider adoption. In this study, managers view AI as a potentially supportive tool and not something that works without human supervision. AI is believed to be a tool to free up the manager from what may be considered mundane tasks and enable them to engage with more creative tasks, that require collaboration and innovative thinking. However, the opportunity to replace managers with AI relies on the possibilities that in the future machines will be advanced enough to mirror human cognitive and social processes.

The next steps for the research are to further explore and validate the emerging themes through more semi-structured in-depth interviews of managers, particularly where their role may have already been impacted by AI technologies. It could be that the pandemic has enabled a time for reflection to allow new attitudes to develop and a potential for new work configurations to emerge. Future research will aim to explore conceptual frameworks that help to explain a more iterative process of technology adoption and digital transformation. One such framework is Cultural-Historical Activity Theory (CHAT) (Engeström, 1987). CHAT has become more recently established in IS (see Karanasios, 2018) and seeks to understand the transformation of organisational activities through socio-technological practices, which are embedded within a cultural-historical context. It takes a holistic view of technology adoption, where people, tools and practices are interwoven and co-exist (Nardi & O'Day, 1999). This might help to better understand not just how technology is adopted, but what contradictions emerge

within that process and how that enables a ‘developmental trajectory’ (Foot, 2014) as AI advances.

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