

BAM Conference Submission

Conference Theme: Towards disruptive sustainability – new business opportunities and challenges

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Title

Exploring the roles of AI competence, knowledge, and culture in digitally transforming organizations utilising AI.

Summary

The past decade has seen digital transformation reach the top of many executive agendas (Alhassan and Soui, 2021; Mikalef and Gupta, 2021). Artificial Intelligence (AI) plays an integral part in nearly all digital strategies in organizations (Correani *et al.*, 2020), leaving virtually no industry untouched by it (Agarwal *et al.*, 2022). There is no doubt that the advent of AI is creating disruptive business opportunities and will continue to do so for the foreseeable future. However, there is evidence to suggest that not all organizations are implementing AI strategically, nor adopting it to reach its full potential (Davenport, 2021; Holström and Hällgren, 2021). A gap exists in understanding the lag in organizational AI adoption.

Research conducted by the authors last year explored AI readiness and intention to adopt AI at an organizational level. Quantitative data was gathered through an online, structured survey. 237 non-executive managers in Australia provided their perceptions of organizational readiness to adopt AI in their professional setting. The empirical data presented in the current paper focuses on the organizational domain.

The research to date represents the first phase of a larger study aimed at informing executive leadership what is required to successfully navigate the complexities of an AI-driven firm. Based on our initial findings, we concluded that successful organizational AI readiness extends well beyond investment into AI technology. We now plan to delve deeper into this critical business issue, further investigating the organizational domains, *AI knowledge*, *AI competence*, and *AI culture*, and their relationship with AI adoption. During the session we will present our research findings to date, we would then welcome feedback from BAM participants regarding any relevant literature that would help inform our future research plans: to guide our research approach and help prioritise elements of the study as it develops. Feedback received on the paper at the conference will help inform and refine our future theoretical and research contributions.

Track:

Organizational Transformation Change and Development Track

Introduction

The past decade has seen digital transformation rise to the top of many executive agendas (Alhassan and Soui, 2021; Mikalef and Gupta, 2021). Organizations have turned to technology to fuel their growth and development plans (Bauer and Wolff, 2022; Hradecky et al., 2022; McKendrick, 2021). Advances in connectivity, data collection, and storage as well as integrated technologies such as IoT, AI and robotics have enabled organizations to achieve greater efficiencies and strong results (Marr, 2015). However, it has become apparent that investing in technology alone, or in silos, is insufficient in creating sustainable growth. Organizations need to transform their people and processes, as well as their technological infrastructure, to create a sustainable competitive advantage.

Firms implement digital transformation initiatives to gain competitive advantage (Kraus *et al.*, 2021) and AI is often at the core of digital transformation endeavors (Brock and von Wangenheim, 2019; Xu *et al.*, 2018). AI, once confined to scientific research (Brock and von Wangenheim, 2019; Frick et al., 2021), is quickly becoming a mainstream topic of investigation and public consumption. There is a developing body of academic literature examining AI and business management (Borges et al., 2021; Brock and von Wangenheim, 2019; Dwivedi et al., 2021; Kitsios and Kamarioutou, 2021), however, there remains a gap in understanding why not all organizations are strategically adopting it (Chatterjee et al., 2021; Davenport, 2021; Karp and Peterson, 2022).

The potential scale and scope of AI and understanding how businesses are harnessing this elusive technology has motivated our initial study. Our research strives to close the gap in explaining how firms are navigating the complexities of AI implementation and adoption while keeping their business relevant and competitive. Our research focuses on AI in the workplace. For the purposes of our research, we define AI as automated machine-based technologies which perform roles and tasks previously performed by humans (Dwivedi *et al.*, 2021). AI, in the context of general-purpose technology, is now more accessible, affordable, and easier to implement (Collins *et al.*, 2021; IBM, 2022). Understanding barriers to adoption can be instrumental to AI adoption (Karp and Peterson, 2022). The first phase of our study examined *AI knowledge*, *AI competence*, and *AI culture* to determine how they influence organizational readiness and intention to adopt AI.

AI knowledge

Having a baseline awareness and understanding of AI is becoming imperative in business today. In our research, we define *AI knowledge* as the collective institutional knowledge of artificial intelligence, the relevant business value, and opportunities it presents an organization with, and the technical requirements and managerial implications associated with AI. There is evidence to suggest a lack of AI knowledge may hinder organizational efforts to implement and adopt technology solutions that incorporate AI (Brock and von Wangenheim, 2019; Cubric, 2020; Frangos, 2022; Mikalef and Gupta, 2021). All employees, including executive leadership, need a basic understanding of AI (Jaiswal *et al.*, 2022) to assess their willingness to trust, accept, and incorporate it into their work (Issa *et al.*, 2022). Developing individual and collective organizational AI knowledge is critical in assessing an organization's AI readiness and successful AI optimization.

AI competence

AI competence is an important indicator of an organization's readiness to adopt AI (Bauer and Wolff, 2022; Chatterjee *et al.*, 2021; Frangos, 2022). We define *AI competence* as the cumulative skills and capabilities which enable the harmonic integration and alignment of organizational human and machine resources. There is evidence which suggests a lack of AI skills is one of the most consequential barriers to AI adoption (Chui and Malhotra, 2018; Mikalef and Gupta, 2021; IBM, 2022). Many organizations will need to invest in developing AI competencies including new strategic, technical, data, and security abilities (Brock and von Wangenheim, 2019). Human resource departments will play an important role in the recruitment of employees with these skills as well as developing, reskilling or upskilling existing employees (Jaiswal *et al.*, 2022).

AI culture

Business academics, practitioners and industry experts agree organizational culture is an essential element in successful AI strategy development, implementation, and adoption (Fountain *et al.*, 2019; Peifer *et al.*, 2022; Pumplun *et al.*, 2019; Watson *et al.*, 2021). Our research defines *AI culture* as organizational culture which understands the value of artificial intelligence and considers it a critical resource to achieving firm success. AI culture respects its human and machine talent and works to develop and support a collaborative environment which optimizes the strengths of all its resources. Consistent themes of creating an AI culture include developing a culture of collaboration (Jöhnk *et al.*, 2021; Weber *et al.*, 2022), innovation (Jöhnk *et al.*, 2021; Ransbotham *et al.*, 2021; Uren and Edwards, 2023) and experimentation (Daugherty and Wilson, 2018; Fountain *et al.*, 2019; Sjödin *et al.*, 2021).

Readiness and intention to adopt AI

Research suggests AI readiness is an indicator of organizational AI adoption (Alsheibani *et al.*, 2018; Nguyen *et al.*, 2022; Uren and Edwards, 2023). Mapping, analyzing, and understanding where a company is at regarding its AI readiness may indicate how successful an AI solution will be accepted by employees. It is important to understand and manage an organization's AI readiness (Alsheibani *et al.*, 2018; Jöhnk *et al.*, 2021) to ensure adoption. This research study positions AI readiness as a predictor variable for Intention to adopt AI.

Research to Date

Methodology

Research to date includes the deployment of a structured questionnaire, designed for quantitative inferential statistical analysis to non-executive managers across Australia. The instrument was delivered electronically through the Qualtrics platform.

Participants

The research targeted 250 Australian managers and after removing suspicious responses, 237 responses were accepted and analysed. Participant profile summary includes 41% of the respondents were female, 57% were male; over two thirds of respondents (69%) had more than 10 years of professional experience; and business functions were evenly distributed across eight integral teams including accounting, customer service, finance, human resources, IT, marketing, operations, and sales.

Participants predominantly came from mid-to-large sized organizations (87%). Industries represented included: agriculture, construction, finance, government, health care, hospitality, information systems, manufacturing, retail, and software. When asked if their company had an AI strategy, responses included 59% affirmative, 19% negative, and 22% were unsure.

Survey

The questionnaire consisted of three sections. The first section included demographic questions to confirm sample diversity and appropriateness. The second section asked a series of questions utilizing a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree), explicitly addressing the research hypotheses. The third and final section consisted of one open-ended question, allowing participants to further contribute general perspectives on AI.

Data Analysis

IBM SPSS software was used to analyze the responses. Linear regression and correlation analysis was conducted to determine statistical significance as well as relationship direction and strength.

Preliminary Findings

Analysis uncovered statistically significant support of three hypotheses at an organizational level¹. Hypothesis 1: *AI knowledge positively influences AI readiness* ($F_{(92, 113)}=183.59$, $p<.05$, $R^2=.45$); Hypothesis 2: *AI competence positively influences AI readiness* ($F_{(106, 98)}=261.08$, $p<.001$, $R^2=.54$); Hypothesis 3: *AI culture positively influences AI readiness* ($F_{(106, 98)}=243.91$, $p<.001$, $R^2=.52$).

In sum, the findings showed that at an organizational level, AI knowledge, competence, and culture positively influence readiness to adopt AI. Based on the findings from this study, it was concluded that successful organizational AI readiness extends beyond investment into AI technology.

Further Development of the Research

Encouraged by the results of this first stage of this research, we would like to further investigate this critical business issue. We plan to explore each of the organizational domains (AI knowledge, competence, and culture) in more detail, to gain further insight on their role in digitally transforming organizations using AI. We have begun to explore possible antecedent variables to these domains in the literature. For example, there is evidence to suggest *AI Understanding* (Chowdhury *et al.*, 2022; Jaiswal *et al.*, 2022; Jöhnk and Wyrski, 2021), *AI skills* (Alsheibani *et al.*, 2019; Bauer and Wolff, 2022; Chatterjee *et al.*, 2021; Chowdhury *et al.*, 2022), and *AI mindset* (Daugherty and Wilson, 2018; Jöhnk and Wyrski, 2021) influence organizational readiness and intention to adopt AI.

¹ Initial study included a total of 7 hypotheses examining *Intention to Adopt AI* at both a managerial level as well as an organizational level (Frangos, 2022). The proposed next stage of the research focuses exclusively on the organization.

We are also considering exploring *AI Culture* differently by positioning it as an outcome variable to *AI Readiness* and *Intention to Adopt*. Finally, we are also interested in the potential role *Trust* (Fountaine *et al.*, 2019; Frick *et al.*, 2021; Uren and Edwards, 2023) might play in mediating or moderating organizational readiness and adoption.

We would welcome guidance from BAM participants on how to prioritise our next studies, to discuss additional relevant literature on this topic, to explore the merits of further quantitative versus complementary qualitative research in the next phases of this research, and to discuss the theoretical and practical implications for this body of research.

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Exploring the roles of AI competence, knowledge, and culture in digitally transforming organizations utilising AI

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