

From Readiness to Results: Exploring AI and ChatGPT Adoption, Capabilities, and Business Impact in Hong Kong Organizations

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Abstract

AI and AI-based technologies like ChatGPT are beginning to redefine how firms can create value, make decisions, engage with customers, operate their business, and even build new business models. However, evidence relating to the organizational characteristics required for the successful implementation of AI is limited, especially within the Hong Kong business environment. This study looks at the adoption, implementation, and business implications of AI and ChatGPT within the context of Hong Kong firms and sectors. The objective is to determine the various capabilities and success factors that determine the successful implementation of AI, which includes strategic alignment, support from the leadership, technological capabilities, data availability, employee competencies, organizational culture, ethical management, and change management capability. These findings will serve as the basis for developing a context-based theoretical framework that connects the use of AI technology to organizational capability, implementation factors, and business performance. Another aspect that is considered is the role of business leadership in the use of AI to transform businesses, as well as the issues of privacy, security, ethics, cost of implementation, technical skill, and readiness of employees. This research will not only benefit the academic field of AI readiness and digital transformation but will also give practical advice to Hong Kong businesses.

Introduction

Artificial intelligence (AI) offers the possibility of dramatic changes in the business environment. However, the potential impact of AI on business transformation is still an exploratory topic for business researchers. In particular, the ChatGPT application is a large language model (LLM) AI-based application, developed by Open AI, which has enormous business potential, offering many opportunities. ChatGPT was first publicly released in November 2022. Currently, ChatGPT 4.0 and ChatGPT 3.5 platforms are commonly used in the market and have brought irreversible changes to people's daily lives.

When AI and ChatGPT are used in conjunction with business applications, many valuable insights can be provided to all stakeholders, to capture huge business opportunities. The aims of the proposed project are: to develop an understanding of the innovative business applications of ChatGPT and AI algorithms; to identify managerial perspectives, technical perspectives and issues related to the development framework; investigate business leaders' roles in the era of AI; explore the ethical use of ChatGPT and AI in analytical business applications; and discuss challenges and limitations in the use of ChatGPT in business settings.

Literature Review

Definition of AI and ChatGPT

Artificial Intelligence (AI) is defined as “the ability of a computer or other machine to perform those activities that are normally thought to require intelligence. The branch of computer science concerned with the development of machines having this ability” (<http://www.yourdictionary.com/artificial-intelligence>). According to a recent study, “Artificial intelligence (AI) is defined as human-produced, machine-assisted, structured, organized information. AIs are created using human insight approaches including learning, reasoning, and self-healing” (Prasanth et al., 2023, p. 965). Deep learning, machine learning and AI algorithms are at the core of AI learning.

ChatGPT is a generative AI model that was developed by OpenAI and is based on the Generative Pretrained Transformer (GPT) system architecture. With the help of the Large Language Models (LLMs) from AI, that allow the training of a large amount of text-based data, it enables human-like text dialogues for human conversation (OpenAI, 2023), content creation and code generation. ChatGPT 4.0 and ChatGPT 3.5 are commonly used in the market.

The use of AI and ChatGPT in Business Applications

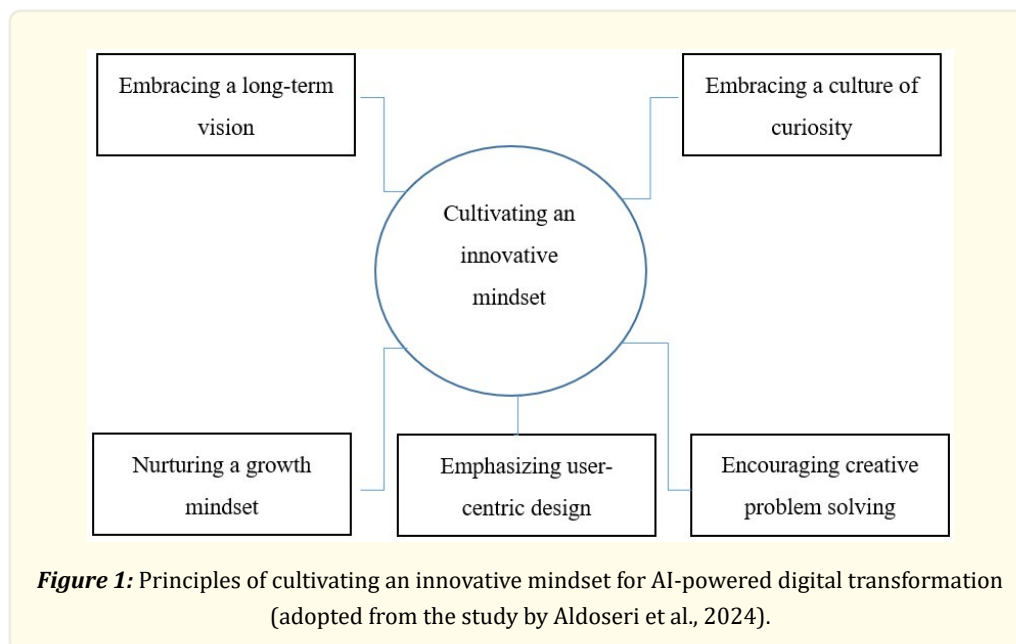
It is estimated that the global artificial intelligence market is worth approximately US\$15.14 billion in 2024 (NASDAQ OMX's News Release Distribution Channel, 2018). AI applications include automated data storage, analysis, and execution without human interference. Sousa, Cardoso and Dias (2024) reviewed the advantages and disadvantages of the use of AI applications. It can fit well with well-specified outputs in a system; however, the complexity of causation in decision making may limit its calculation power. It has also been argued that the prediction power of the neural network in the AI paradigms can be affected by the accuracy of the training data set.

Lee et al. (2024) emphasized the importance of an AI-based business model. According to Nikolaos-Alexandros and Kitsios (2023, p. 30) “AI has been hailed as a revolutionary technology that has the potential to change the way businesses operate”. Jankovic and Curovic (2023) suggested some key areas that integrate AI into business practice: innovation, operational efficiency, environmental impact, impact on green marketing, and human capital development. AI can increase an organization's competitive advantage and enhance its operations (Vezeteu and Nastać, 2024).

Business transformation is a complicated but vital issue for all business leaders. It is believed that AI applications can enable sustainable business transformation (Yavuz et al., 2024). Through a meta-analysis of 263 sustainability reports, from 41 American firms in 2014-2022, they found that the use of AI can bring operational sustainability, environmental sustainability, and social responsibility to the companies.

AI business applications create business values (Cao, 2021). In a study about the use of AI in retail firms, five main function areas were identified from AI applications, they are: customer service management, the management of physical and virtual stores, supply chain management, marketing management, cybersecurity, and risk management.

Five principles of cultivating an innovative mindset for AI –powered digital transformation was suggested by Aldoseri et al. (2024), see Figure 1.



The selected, recent exploratory studies of AI business applications identified the uses and value of AI. It was found that AI has been applied in different business function areas, including Human Resources, Marketing, Retail Operations, Public Relations, Innovation, Risk Assessment and Strategic Business Decision Making.

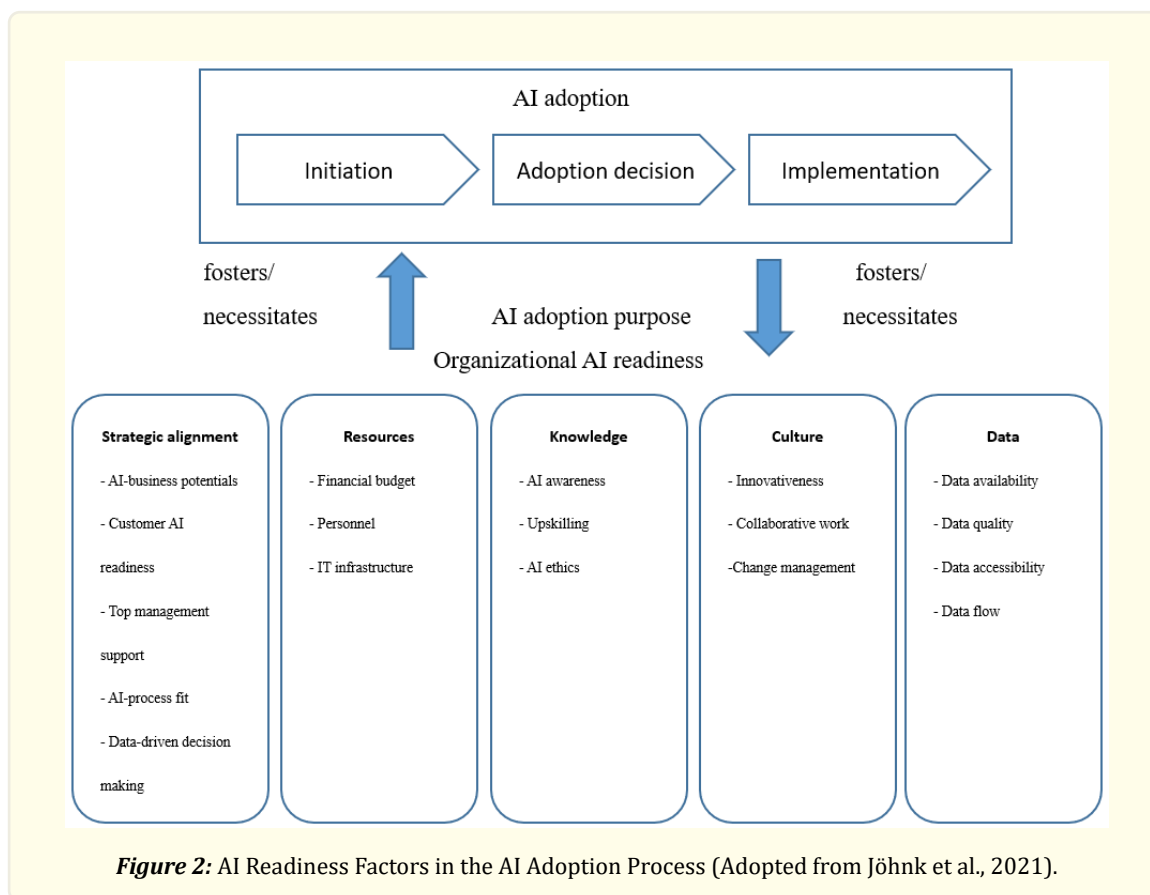
<i>Year of Publication</i>	<i>Authors</i>	<i>Business Applications</i>	<i>Main Constructs Identified</i>	<i>Research Design</i>
2024	Aldoseri, Al-Khalifa & Abdel	Digital transformation.	Values identified: Cultivating an innovative mind-set, embracing a culture of curiosity, encouraging creative problem-solving, emphasizing user-centric design, nurturing a growth mind-set, embracing a long-term vision.	Qualitative research design.
2021	Cao	AI applied to five retail management areas: customer service management, management of physical and virtual stores, supply chain management, marketing management, cybersecurity and risk management	Value creation by: business automation, offering hyper-personalized products and services, creating synergy through complementarity, enabling innovations	Qualitative case study, 54 retailers in different countries

2024	Hossain, Hossain, Nizum, & Naser	CRM	The impact of AI on CRM: enhanced customer service efficiency post-AI integration; data privacy concerns with AI integration; high costs of AI implementation, increased customer retention rates of post-AI integration; reduced response time after integrating AI into CRM systems; positive feedback on AI support from customers; increase in sales performance post-AI integration; overall business performance improvement	Structured questionnaires and qualitative data from in-depth interviews with a sample of 112 selected e-commerce enterprises in Texas, USA
2024	Luft, Kalinowska & Weinert	Company Corporate Image and PR	20 observable variables about the impact of AI for Image Management. Monitoring on-line reviews identified as the most important function	Quantitative research design
2024	Kalogiannidis, Kalfas, Papaevangelou, Giannarakis & Chatzitheodoridis	Risk assessment	Identified NLP as a reliable tool in the risk assessment toolbox	A cross-sectional design and quantitative study of 360 technology specialists from different Greek sectors
2024	Muto, Luongo, Percuoco & Tani	Business Innovation	Entrepreneurial orientation, sustainability orientation, and economic benefits are linked with AI adoption	Quantitative research from a 85 sample of Italian SMEs
2024	Poisat, Cullen & Calitz	Human resources practices	Robotic process automation and ChatGPT are an important function for AI-powered HR	Qualitative research study with 11 senior HR managers in South Africa
2024	Yavuz, Çelik & Altındağ	Sustainable business practices	Three main categories of AI utilization identified: operational sustainability, environmental sustainability and social responsibility	Meta-analysis of 263 sustainability reports from 41 leading American firms listed on Nasdaq, covering the period from 2014 to 2022

Table 1: Selected recent exploratory studies about the uses and value of AI in business applications.

AI Readiness and AI Capability

It is important to review an organization's current AI readiness or AI maturity (Witkowski and Wodecki, 2024). Chaudhuri et al. (2023) also emphasized the importance of maintaining AI capabilities for the sustainability of a family business. With a qualitative in-depth interview study, a total of 18 AI readiness factors and 58 illustrative indicators from five categories were reviewed (see Figure 2) (Jöhnk et al., 2021).



In a study of AI capabilities in companies (Aparecida de Mattos et al., 2024), AI capability was defined in three main areas: tangible (i.e. data, technology and basic resources), human (i.e. technical abilities and business skills), and intangible (i.e. interdepartmental coordination, ability to change the organization and risk propensity).

Nikolaos-Alexandros and Kitsios (2023) also proposed the investigation of AI capabilities in organizations. With a meta-analysis of 139 articles collected from Scopus, Science Direct, and Web of Science databases, they identified tangible resources, leveraging capabilities, human capital, building resources, intangible resources, and structuring resources as organizations' AI capabilities.

Aparecida de Mattos et al. (2024) concluded that it is necessary to allocate resources in order to develop companies' AI capabilities. Data quality, technical architecture and technology are important areas to consider if the implementation of AI-based business applications is to be successful.

The technology-organization-environment TOE framework was proposed by Felemban et al. (2024), to prepare for the adoption of AI in the construction industry in Saudi Arabia. The model was revised and validated through a qualitative interview design. A list of readiness factors were further developed, including: a technological context (relative advantage and technology readiness); an organizational context (senior management support, organizational maturity, and absorptive capacity); and an environmental context (government support, competitive pressure, and external support).

In an earlier qualitative interview study, with respondents from tourism companies in India and Thailand, a list of factors were identified and correlated by the modified total interpretive structural modelling approach (Sharma et al., 2022). These factors are: an AI-skilled workforce, infrastructure, policies and regulations, digital platforms, AI-enabled technologies, AI readiness, AI innovation,

productivity, tourist satisfaction and financial performance.

Another quantitative study was conducted in the Slovakian manufacturing industry, with 386 company samples, and it was confirmed that Industry 4.0 readiness was linked to the likelihood of AI adoption in manufacturing companies (Kovič et al., 2024). Based on the Industry 4.0 index, three digital technologies were emphasized as being digital management systems which enabled resource planning and product lifecycle management: wireless human-machine communication through digital visualization technologies and mobile devices; cyber-physical system-related processes for near-real-time production control systems; and the automation and management of internal logistics and digital data exchange. A quantitative study conducted on accounting and auditing firms in Vietnam, with 143 company respondents, also confirmed the importance of technology readiness for applications linked with AI adoption (Nguyen et al., 2024). Therefore, we can clearly hypothesize that the readiness of AI adoption can be heavily rooted in the digital technology applications used in different industry settings.

Impact of the use of AI in Business

It is commonly believed that AI adoption can help to achieve business sustainability (Badghish and Yasir, 2024). AI-based business applications are poised to shape dramatic changes in the future (Polak and Anshari, 2024). With the help of AI-based tools such as ChatGPT with large training datasets and AI deep learning models, they enable data-driven business decision making. Therefore, it is necessary to understand the precise impact and business benefits of AI business applications. The accurate measurement of the benefits of AI projects is necessary (Gudigantala et al., 2023). Serge-Lopez et al. (2020) proposed that the influence of AI in business can be categorized into: financial performance, marketing performance and administrative performance. Pirvu et al. (2024) investigated the economic and social performance of firms across different European industries with respect to the implementation of AI systems; it was found that AI systems provide positive impacts on human resource performance and economic performance. In addition, Moro-Visconti et al. (2023) conceptualized the value-generating process about the use of AI-powered technologies in business (see Figure 3). They suggested that AI can have a positive impact on a company's scalability and value drivers from: cost reduction, enhanced decision-making, better customer experience and growth of revenue, better business analytics and forecasts, higher productivity and better innovation, increasing business scalability and flexibility, and better risk mitigation. They can all be allocated a monetary value.

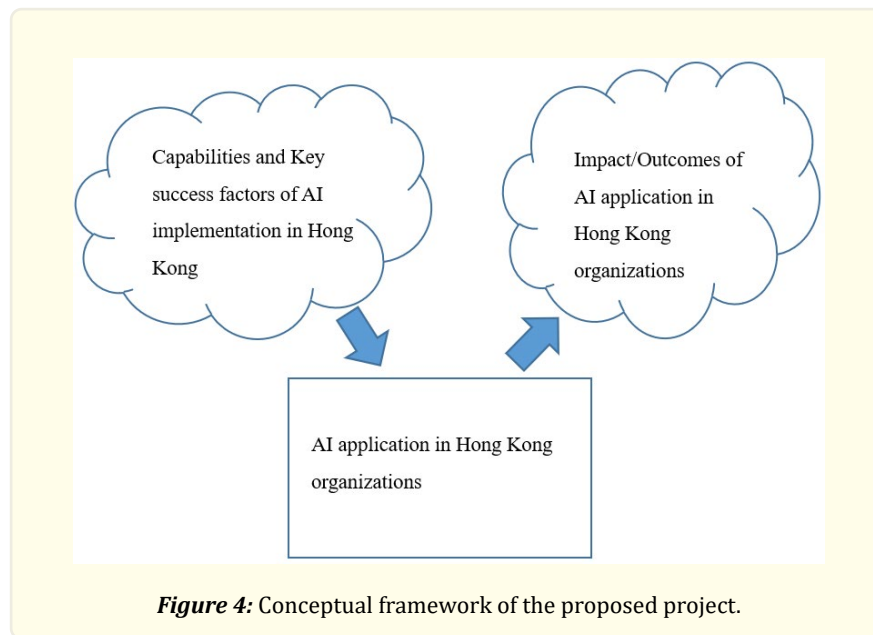
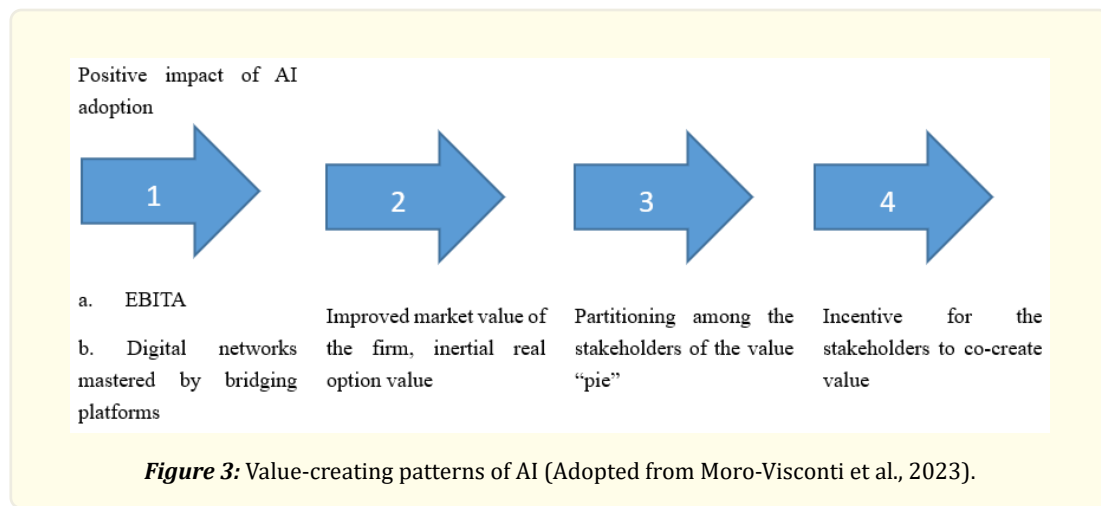
Challenges of AI-based business applications

Technically, Sarker (2022) proposed a comprehensive review of the use of AI in business and ten AI techniques were commonly adopted. The techniques are: machine learning, deep learning, natural language processing, knowledge discovery, rule-based decision making, fuzzy logic processing, expert systems, case-based reasoning, visual analytics and hybrid systems. Decision rules, learning algorithms, and the accuracy of training datasets of AI applications are critical for the success of the AI implementation in organizations.

In addition, Gurjar et al. (2024) noted the challenges and limitations of AI technology in business, including ethical concerns, data privacy, security issues, technical expertise and knowledge of AI technologies, and high implementation costs. Similarly, Amankwah-Amoah and Lu (2024) also identified that the institutional dysfunction of AI technologies adopted in organizations, poor infrastructure in large-scale AI implementation, a lack of AI-skilled experts and poor access to the latest technology are the barriers faced when trying to apply AI to businesses in Africa.

Framework of Hong Kong AI Implementation and Impact

Using the grounded theory approach of Glaser and Strauss (1967), organizations' AI capabilities and impacts were derived from the qualitative data obtained from the proposed project. In agreement with previous research, the proposed parameters of this framework are shown in Figure 4 below.



Theoretical Implications

This research provides a number of theoretical implications for studies related to AI, generative AI, digital transformation, and organizational capabilities. First, this study contributes to the literature on AI adoption by expanding the dichotomous nature of this concept beyond whether or not the organization uses AI and by focusing on organizational processes in which AI and ChatGPT are transformed into value in organizations. In this way, the framework introduced here treats the use of AI as an intermediate organizational phenomenon that is influenced by organizational capabilities and factors of success, rather than a technology whose implementation results in automatic success. This approach is important since firms may apply the same AI and still have very different results due to their organizational characteristics.

The second contribution of the research relates to the field of organizational readiness in which there are a number of components studied independently from each other. Readiness studies focus on strategy alignment, resources, knowledge, culture and data, while

capability studies make distinctions between tangible, human and intangible resources. The current study combines these two approaches in a Hong Kong business setting and investigates how these dimensions influence each other. Thus, the research views AI readiness not only as a checklist of characteristics and prerequisites prior to adopting an innovation but as a multifaceted organizational capability that develops before, during, and after adoption.

The research contributes to the literature on the resource-based approach and dynamic capabilities in the field of AI-based transformation. The value associated with the use of AI technologies cannot emerge only from buying expensive software, getting access to large language models, or implementing ChatGPT in various parts of the business. Instead, value is created by an ability to combine technologies with valuable data, expertise, process knowledge, leadership involvement, and the ability to modify existing processes. The research therefore conceptualizes the concept of AI capability as a package of complementary resources instead of a technical capability.

Conclusion

The advent of artificial intelligence (AI) technology and other generative AI tools like ChatGPT is increasingly gaining significance for transforming businesses. They not only have possibilities in automation but can offer a wide range of applications, including better decision-making, customer engagement, innovations, marketing, human resource management, risk evaluation, knowledge generation, and efficiency in operations. It should be noted, however, that just the adoption of AI technology will not generate business value. The ability of AI technologies to offer value to a business organization depends on the readiness of an organization to utilize the technology within the context of strategic direction, availability of data, infrastructure, skills of personnel, commitment from leaders, and change management. This study addresses an important void in the existing literature. Despite the identification by earlier research of several possible advantages of AI such as cost savings, analytics and forecasting, improvement in customer experience, productivity, innovation, scalability, and risk management, knowledge about the process of implementation is rather disjointed. Existing literature often discusses readiness for AI, technical capacity, organizational support, quality of data, or business performance separately. The proposed research seeks to integrate all of these aspects in one theoretical model where AI usage by Hong Kong organizations is linked to organizational capacities and implementation success factors, leading to business performance.

One of the key contributions of the study is the acknowledgment of the multidimensional and developmental nature of AI readiness. It implies such aspects as strategic fit between the AI endeavors and the corporate strategy; sufficient resources such as finance, manpower, and technology; awareness and competencies of employees concerning AI; innovation and collaboration among employees; and access to quality and available data. Such factors should not be considered as prerequisites preceding AI usage, but rather competencies that need to be constantly developed by organizations along their path from experimental engagement with AI to its adoption, implementation, scaling, and governance.

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