



DIGITAL ORIENTATION DRIVING THE USE OF ARTIFICIAL INTELLIGENCE IN VIET NAM BUSINESSES

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ABSTRACT

This article aims to propose solutions for enhancing digital orientation and fostering the use of artificial intelligence (AI) in the production and business processes of enterprises in Vietnam. The study methodology involves reviewing previous studies to establish a theoretical foundation for the topic, then gathering data from articles and national portals to provide a comprehensive overview of the study's importance and the technology investment landscape in enterprises. The research is conducted within the context of Vietnam, which presents a limitation in terms of generalizability. As a developing country, Vietnam faces challenges in the scattered orientation and application of science and technology, making it difficult to address all related issues comprehensively. Therefore, future research should consider expanding the scope globally, by region, or across different groups of countries (developed, developing, and least developed) to obtain a more nuanced understanding. Research findings indicate a low level of digital technology adoption in Vietnamese enterprises, with business planners showing limited awareness of global development trends. Consequently, it is crucial for the State management board to make timely and appropriate decisions and policies that align with the country's economic situation and the current state of enterprises.

Keywords: Digital Orientation, Artificial Intelligence

1. INTRODUCTION

According to Accenture's survey in 2021, if the growth rate gap between leading and lagging businesses in 2019 was only 2 times, in 2021 that gap had increased to 5 times as shown in the figure below. It can be seen that businesses that apply advanced technology earlier have the opportunity to make greater strides, keep up with development trends, and create more new value.

Based on the report "Top Trends in Tech" by McKinsey & Company, the "Vietnam Innovation Landscape 2021" report, published by the National Startup Support Center (NSSC) and Bambu UP, also highlights 10 prominent technology trends for the next 5 years. The new level of automation and virtualization: 50% of current jobs will be automated by 2025. The future of connectivity: Up to 80% of the world's population will have access to 5G by 2030. Distributed infrastructure: Over 75% of business data will be stored and processed in the cloud by 2025. The next generation of computing: Over \$1 trillion is the potential value of comprehensive quantum computing applications by 2035. Applied AI: Over 75% of all touchpoints in the digital environment will improve in terms of application, personalization, and conversion rates. The

future of programming: Reduce software development and analysis time by 30 times. Trust architecture: Nearly 10% of the global GDP will be related to block chain technology applications by 2027. Bio Revolution: Reduce the cost of human genome sequencing by up to 45 times compared to 10 years ago. Next-generation materials: The number of patents for new materials has grown tenfold between 2008 and 2018. Future of clean technologies: Over 75% of global energy will be produced from renewable sources by 2050.

Grasping this trend, in Vietnam, the Party and the State have promptly formulated decisive policies. Specifically, on June 3, 2020, the Prime Minister approved the 'National Digital Transformation Program until 2025, with a vision towards 2030.' The dual objectives of this program are to develop a digital government, digital economy, and digital society, while fostering the emergence of Vietnamese digital technology enterprises with global capabilities. Vietnam aims to become a digital nation that is stable, prosperous, and at the forefront of experimenting with new technologies and models; fundamentally and comprehensively innovating the governance and operation of the Government, business production and operation, people's way of life and work, and creating a safe, humane, and extensive digital environment.

According to the National Digital Transformation Program, the goals to be achieved by 2025 include the digital economy accounting for 20% of GDP; the minimum digital economy share in each industry and field reaching 10%; annual labor productivity increasing by at least 7%; fiber-optic broadband network infrastructure covering over 80% of households and 100% of communes; widespread access to 4G/5G mobile network services and smartphones; over 50% of the population having electronic payment accounts; Vietnam ranking among the top 50 countries in terms of Information and Communications Technology (ICT) Index and Global Competitiveness Index (GCI), among the top 35 countries in terms of Global Innovation Index (GII), and among the top 40 countries in terms of cybersecurity and safety (GCI)."

The Vietnamese government has been taking necessary steps to create conditions for the development of the digital economy, including:

- (1) Implementing amendments and supplements to regulations and laws in various sectors, including those adopting new business models such as e-commerce, digital finance, and digital banking. Reforming institutional frameworks to attract investment in digital technologies. Enhancing the legal framework for intellectual property protection and allocating resources for the enforcement of intellectual property laws.
- (2) Building e-government and a digital government, reforming the administrative system towards digitization, and improving the quality of human resources. Several components have already been put into operation, such as the national population database, the national land database, the national insurance database, and the national business registration database. The government has also established the E-Government Committee, which is tasked with studying and proposing strategies, mechanisms, and policies to create a legal environment for the promotion and establishment of e-government, serving the implementation of the Industry 4.0.
- (3) Promoting innovation and the digital ecosystem. Various programs to promote the startup and innovation ecosystem have been actively implemented, including the National Technology Agency, the National Technology Innovation Fund, the National Innovation Center, and the National Startup Support Center.

- (4) Building legal frameworks for cybersecurity and information security, including the Law on Cybersecurity and the Law on Information Security, both of which were passed by the National Assembly in 2018 (according to the Banking Magazine).

These actions demonstrate the importance of applying artificial intelligence and embracing digital transformation in businesses. However, business managers in Vietnam are still indifferent and lack a clear understanding of the long-term value that digital technologies can bring. Therefore, this research aims to highlight the significance of digital trends and propose solutions for business managers to consider and adjust accordingly, in line with the context and business situation.

2. RESEARCH THEORY

2.1 Digital Orientation

In the study by Nambisan and colleagues (2019), three issues regarding digital orientation were highlighted as follows: Firstly, the processes of value creation and technological infrastructure are becoming increasingly accessible to external parties. As a result, the boundaries of products and services become more flexible, and interfaces become more important (Yoo et al., 2010). To harness the potential benefits of openness and value creation, there needs to be close integration between the company's internal operations and organizational environment and technology. Therefore, the concept of digital orientation requires the integration of internal and external elements of strategy. Secondly, as the use of digital technology steadily increases, the tight integration between specific technological systems and organizational processes and routines becomes crucial (Leonardi, 2011). This calls for the integration of technological and organizational elements of strategy beyond the previously studied IT business linkage mechanisms, where IT strategy is often seen as subordinate or separate from business strategy (Bharadwaj et al., 2013). Such emphasis on integrating internal/external and organizational/technological factors has been proposed in the Strategic Alignment Model (SAM) by Henderson and Venkatraman (1999). When describing a company's strategy along these dimensions, SAM proposes four strategic domains: external/technology, internal/technology, external/organization, and internal/organization, which shape and need to be interconnected.

Similarly, Kindermann and colleagues (2021) argue that digital orientation, as a strategic posture of a firm, focuses on changes brought about by digital technologies such as social networks, mobile applications, and digitalization processes. The result is the integration of two frameworks within the four dimensions of a digital orientation structure: the scope of digital technology (external/technology), digital capability (internal/organization), digital ecosystem coordination (external/organization), and digital architecture configuration (internal/technology). Moreover, digital transformation is inherently associated with strategic changes in the business model due to the implementation of digital technologies (Matt et al., 2020). The nature of digital technology differs fundamentally from nondigital technology (Khin and Ho, 2018). Digital orientation means that a firm is more focused on the digital business market, including the use of digital technologies. In addition to technological aspects, digital orientation also encompasses strategies to promote digital transformation and gain competitive advantages (Rupeika-Apoga et al., 2022).

Quinton and colleagues (2018) found that digital orientation is an intentional strategic positioning of small and medium-sized enterprises to leverage opportunities arising from digital technologies. This positioning involves attitudes and behaviors that support generating and using detailed market information, proactive innovation, and openness to new ideas. Furthermore, in a digital transformation environment, digital orientation is a factor that reflects a company's willingness and commitment to utilizing digital technologies (Khin and Ho, 2019; Saunila et al., 2021a). Digital orientation is a branch of technology orientation that reflects how companies can benefit from opportunities offered by advanced digital technologies through understanding and commitment to using emerging digital technologies (Arias-Perez and Velez-Jaramillo, 2022; Khin and Ho, 2019; Quinton et al., 2018). In summary, digital orientation is understood as the comprehensive process of a business's activities, including management, production, marketing, and direction, all using digital platform applications to improve and optimize business operations. This is a process that requires a complete transformation in terms of orientation, systems, operations, processes, and corporate culture.

2.2 Artificial Intelligence

Artificial Intelligence (AI) is a field of computer science that focuses on finding methods and algorithms that enable machines to perceive information from their environment, learn from it, and make decisions and actions based on the acquired knowledge without explicit guidance from external agents (U Singhania, BK Tripathy, 2018). It is related to the development, advancement, and deployment of computational tools based on intelligent technologies (McGonigle and Mastrian, 2021). As a branch of computer science, AI aims to create machines and computer programs that can intelligently process various tasks as if they have human-like intelligence (Berman, 2013), possess self-awareness, can learn, and plan for the future—or even possess superintelligence, which exceeds the capabilities of any human and extends automation to the accumulation and analysis of data for learning, prediction, and decision-making (Sims, 2022). AI, as a branch of computer science, attempts to mimic human reasoning, learning, and knowledge storage. The goal of AI is to build software and machines that possess the same capabilities as humans (Russell and Norvig, 2009). As AI expands the scope of autonomous agents, the challenge lies in designing these agents to respect a broader set of values and norms that humans demand from ethical agents. Currently, AI is at a stage where it completely dominates human intelligence in specific domains, such as playing chess or Go, X-ray pattern recognition, driving, etc. (Agrawal and Goldfarb, 2019).

From Das et al.'s perspective (2015), an AI program is referred to as an intelligent agent. The intelligent agent interacts with the environment. It can perceive the state of the environment through its sensors and then act on the state through its actuators. An important aspect of AI is the control policy of the agent, which implies how the inputs obtained from the sensors are mapped to the actuators, i.e., how the sensors are translated into actions by the agent. This can be achieved through a function within the agent. The ultimate goal of AI is to develop human-like intelligence in machines. However, such a dream can be realized through learning algorithms that attempt to mimic how the human brain learns. Machine learning, a field that has emerged from AI, is of utmost importance as it allows machines to acquire human-like intelligence without explicit programming. However, AI programs also perform more interesting tasks such as web search, image tagging, or spam filtering. In summary, AI is understood as a technological application used to replace humans in production and business activities, managing the tangible

and intangible assets of an enterprise, and ensuring high security and confidentiality to save costs and enhance the business outcomes of the enterprise.

3. RESEARCH METHODOLOGY

This research utilizes qualitative research methods by using secondary data on statistics regarding the level of technology adoption by Vietnamese businesses, data, and supporting documents to demonstrate the current state of digital trends and orientations of managers. The study employs a desk research method to investigate policies and decisions related to government and business digitalization orientations. The literature review method is used to synthesize theories and concepts related to digital orientation and artificial intelligence. These methods are employed to address the research objectives and develop solutions to enhance digital orientation, leveraging the strengths of artificial intelligence.

4. RECOMMENDATIONS

4.1 To enhance Digital Orientation within Businesses

Innovation and organizational transformation through comprehensive digitalization strategy: To achieve digital orientation within an organization, a comprehensive strategy that applies digital technology in all activities needs to be implemented, encompassing management positions to employees. This strategy includes building a digital working environment that fosters a culture of innovation and embraces rapid change. The solutions that help businesses establish this digital orientation include setting digitalization goals, implementing digital operational processes, optimizing organizational structure to facilitate digital technology adoption, and developing detailed implementation plans.

Customer satisfaction through optimized digital customer experience: All business activities revolve around satisfying their customers. Increasing digital orientation within the organization enables businesses to optimize the digital customer experience. Conversely, enhancing the digital experience for customers creates pressure that motivates all members of the organization to leverage internal and external resources to capitalize on digital technology in customer service-related tasks. Currently, enhancing customer experience is a critical trend that helps businesses enhance their competitive capabilities compared to competitors. The faster this is implemented, the more advantages the business gains. Through digital technology, customers can easily experience customer services, as well as core products and services.

Collaborating with technology providers to establish a data-sharing system: To achieve digital orientation, businesses establish a data-sharing system that connects with partners, customers, and suppliers. Technologies such as cloud computing, blockchain, mobile applications, the Internet of Things (IoT), Application Programming Interfaces (APIs), or building an Enterprise Resource Planning (ERP) system can be utilized for this purpose."

4.2 Utilizing artificial intelligence through digital orientation

Collaborating with experts in the field of AI to develop human resources and capabilities in AI within the enterprise is crucial. The knowledge and proficiency of the workforce in utilizing AI technologies are prerequisites for businesses to quickly tap into the advantages that AI offers. Therefore, businesses need to focus on training and developing the capabilities of their staff,

helping them recognize AI as an effective solution to carry out their tasks faster and more efficiently.

Investing in infrastructure and data management is essential when implementing digital technologies. Just as AI relies heavily on high-quality data, businesses need to invest in a robust data infrastructure that supports the collection, storage, and processing of diverse datasets. Additionally, proper data management through privacy protection and information security protocols is crucial.

Emphasizing ethical considerations in the digital transformation process when using AI is essential. Businesses should establish policies, regulations, and guidelines that ensure ethical values are upheld in the use of AI. This ensures transparency and openness in deploying policies, rules, and ethical standards. Consequently, businesses can effectively utilize AI while being aware of and addressing potential risks or crises that may arise.

5. CONCLUSION

Currently, the application of AI technology will continue to develop and become a decisive factor in the success of Vietnamese businesses. To fully exploit the potential of this technology, digital orientation and AI utilization must be considered as a strategic investment and a long-term commitment of businesses. For businesses in Vietnam, implementing digital orientation not only enhances efficiency and optimizes business processes but also brings competitive advantages and sustainable development potential. Therefore, future research can explore the factors influencing digital orientation and their impact on the effectiveness of AI applications to determine this relationship. Alternatively, the research can employ a directional research method to measure the degree of impact of digital orientation on the level of AI utilization in businesses.

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