



Assessing the current status of data-driven business models and service personalization development in Vietnam

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Abstract

In the digital era, data has emerged as a strategic asset, driving the formation and evolution of modern business models. The growing expansion of data-driven business models and service personalization plays an increasingly vital role in today's socio-economic landscape. However, practical implementation still faces numerous limitations, hindering sustainable data exploitation. Against this backdrop, this paper focuses on assessing the current development of data-driven business models and service personalization trends in Vietnam. Furthermore, the study provides insights into key achievements and existing shortcomings while identifying the underlying causes of these issues. These findings serve as a foundation for proposing comprehensive solutions to foster the growth of Vietnam's data economy.

Keywords: Data business, service personalization, data economy, achievements and limitations, Vietnam

Introduction

In the context of the Fourth Industrial Revolution (Industry 4.0), data is no longer merely a collection of raw figures but has become the "new oil" - a strategic asset that determines firms' competitive advantage. In Vietnam, the rapid development of telecommunications infrastructure and the high rate of Internet penetration have created favorable conditions for the strong growth of data-driven business models. In particular, service personalization and the ability to understand and respond to the specific needs of individual customers through behavioral data analysis are emerging as a new standard across various sectors, ranging from e-commerce and banking - finance to education and healthcare.

However, alongside these remarkable advances, data exploitation in Vietnam continues to face numerous barriers and challenges. Stemming from this reality, this paper aims to assess the current development of data-driven business models in Vietnam in order to identify key achievements, existing limitations, and the underlying causes within the country's data economy.

Theoretical Framework

The data economy constitutes a global digital ecosystem in which data is generated both deliberately and unintentionally, becoming a core productive resource. It encompasses a chain of activities ranging from data collection, storage, processing, and analysis to distribution and exchange, thereby creating economic, commercial, and social value. Within this economy, data simultaneously functions as an intangible asset or commodity that can be valued and exploited, and as essential infrastructure that reshapes industries and sectors.

A data-driven business model refers to a business model in which data plays a central role as a core asset and resource, governing all business operations. This model is built upon a systematic process of data collection, evaluation, analysis, and exploitation (across all levels of data processing), serving as an objective foundation for strategic and operational decision-making, in place of intuition- or experience-based approaches.

Service personalization can be understood as the process of designing, tailoring, and delivering services that align with the specific needs, preferences, and characteristics of individual customers or customer segments. This process is based on data collected from users' behaviors, contexts, and feedback, with the aim of maximizing value for both service users and service providers.

Research Methodology

This study primarily employs a qualitative research approach, combined with synthesis and analytical techniques, to examine the current state of data-driven business practices in Vietnam. Specifically:

- Data collection methods, whereby the authors gather data from reputable domestic sources, including annual reports on the digital economy issued by the Ministry of Information and Communications, statistics from the General Statistics Office of Vietnam, market reports published by major organizations, and relevant academic studies that have been previously published.
- Data analysis and processing methods, including statistical and descriptive analysis to systematize data on growth rates and the scale of the data market in Vietnam; and analytical-synthetic methods to evaluate key achievements and examine existing limitations, thereby identifying the root causes of persistent challenges.

The Current State of the Development of Data-Driven Business Models and Service Personalization in Vietnam

Research on the development of data-driven business in Vietnam first requires an overarching assessment from multiple perspectives. However, within the scope of this study, the development of data-driven business in Vietnam is primarily examined through a chronological approach, focusing on different stages of development over time. As Karl Marx and Friedrich Engels once observed, "In the social production of their life, men inevitably enter into definite relations of production, independent of their will... The totality of these relations of production constitutes the economic structure of society... These relations can only be

understood when examined in their historical development.” Accordingly, an analysis of data-driven business models in Vietnam likewise necessitates a historical perspective, tracing their emergence, evolution, and current state.

Vietnam is a developing country with a relatively high rate of growth in the digital economy and digital transformation. Given that the development of data-driven business models is closely linked to the expansion of the digital economy through the interaction between digitalization and data, this study approaches the development of data-driven business by examining the growth trajectory of Vietnam’s digital economy. Specifically, the analysis is structured around five-year development periods of Vietnam’s digital economy from 2010 to 2025.

As one of the earliest countries in the world to promulgate a national digital transformation strategy, the Vietnamese Government has made significant efforts to harness the transformative impact of digitalization in order to unlock new development opportunities for the country. Vietnam’s digital transformation process has been advancing rapidly along three main pillars: digital government, digital economy, and digital society.

The 2010 - 2015 Period: Foundational Stage of the Data Economy

During the initial stage of digital economy development from 2010 to 2015, the rapid expansion of the Internet, mobile technologies, and e-commerce in Vietnam not only enlarged the digital market but also generated a substantial volume of user data, transaction data, and behavioral data. This period laid the foundation for the emergence of a “data economy.” Although Internet infrastructure remained limited at the time - many users primarily accessed the Internet via internet cafés, and online payment systems were still underdeveloped - an IFC survey in 2014 noted that “e-commerce and mobile commerce, supported by the growth of the Internet and smartphones, are expanding their reach in Vietnam. Mobile networks are increasing accessibility and changing the ways consumers interact, compare prices, search for products, and make purchases.”

This observation highlights that the 2010 - 2015 period marked the initial emergence of a data economy in Vietnam. The Internet boom enabled the collection of user information through online interactions, searches, and e-commerce transactions. These transactions, in turn, fostered the development of online payment systems and e-wallets, generating digital financial data that could be used for credit analysis and consumer profiling. During this period, major e-commerce platforms such as Lazada, Shopee, and Tiki entered and expanded in the Vietnamese market, accelerating the growth of e-commerce. These platforms began collecting and analyzing user behavior data, applying basic analytics and gradually transforming user data into a strategic input for business growth.

Overall, between 2010 and 2015, data-driven business activities in Vietnam were primarily concentrated on data collection and storage, with early preparations for data exploitation. Transaction data, mobile data, and payment data grew rapidly, while enterprises started to experiment with data analytics, advertising technologies, and data infrastructure services. Therefore, this period can be considered the foundational stage for the development of a data economy in Vietnam.

The 2016 - 2020 Period: Transition Toward Data Exploitation

The period from 2016 to 2020 witnessed strong and rapid growth in Vietnam’s digital economy. Vietnam emerged as one of the fastest-growing digital economies in the region, with the gross merchandise value (GMV) of the Internet economy accounting for approximately 4% of GDP. The Internet economy reached USD 9 billion in 2018, with a compound annual growth rate (CAGR) of 38% between 2015 and 2018.

Furthermore, between 2019 and 2022, the outbreak of the COVID-19 pandemic accelerated the adoption of contactless e-commerce. Vietnamese consumers increasingly embraced online shopping, leading to a surge in e-commerce across websites, online marketplaces, social commerce platforms, and livestream selling channels. The rapid advancement of information and communication technologies generated massive volumes of data from diverse online sources, posing significant challenges in terms of data collection, storage, processing, and analysis. At its core, the data economy relies on the sharing and exploitation of data across digital platforms to generate new value. As Vietnam’s digital economy expanded, the data economy likewise made substantial progress in building data infrastructures and applying data analytics to create new sources of value for businesses.

According to the 2019 APAC SMB Digital Maturity Index, Vietnam ranked 14th, with 64% of enterprises recognizing and benefiting from government support in digital transformation. In terms of investment, 18% of enterprises invested in cloud computing, 12.7% in cybersecurity, and 10.7% in upgrading IT software systems. These figures indicate that digital transformation had moved beyond a strategic vision and become an immediate and practical necessity for Vietnamese enterprises. During this period, businesses increasingly recognized the strategic value of data. Consequently, the 2016 - 2020 period represents a critical transitional phase, characterized by significant increases in both the quantity and quality of data driven by digital and mobile platforms, alongside a shift in business models toward data exploitation.

The 2021 - 2025 Period: Consolidation and Ongoing Challenges

The 2021 - 2025 period reflects both continued progress and persistent challenges in the development of Vietnam’s digital economy in general and data-driven business models in particular. Nevertheless, digital technologies have continued to grow steadily in recent years. According to national statistical authorities, the average contribution of the digital economy to GDP during 2020 - 2023 was approximately 12.62%, with a contribution of 12.33% in 2023. The digital economy’s share of GDP in 2024 is estimated at 18.3%, with an annual growth rate exceeding 20% - approximately three times the GDP growth rate and the fastest in Southeast Asia.

The overall expansion of the digital economy provides a crucial foundation for the development of data-driven business models in Vietnam, in line with global trends where the growth of the digital economy is closely intertwined with the advancement of data-driven business practices. In 2022, cloud computing, artificial intelligence (AI), and big data technologies continued to be widely adopted in Vietnam. The Vietnamese market currently hosts

over 40 cloud service providers, including global firms such as Amazon Web Services (AWS) and leading domestic technology corporations such as VNPT, FPT, and Viettel. These technologies play an essential role in unlocking the potential of previously collected and stored data. However, their application remains relatively limited in scope, primarily aimed at increasing enterprise revenues rather than establishing a fully developed data economy.

Overall, the 2021 - 2025 period demonstrates that Vietnam continues to develop data-driven business models at a stable pace while remaining in the formative stage of shaping its data economy. Efforts are increasingly focused on enhancing data exploitation and application as a transitional step toward a more advanced and mature data economy.

In summary, data-driven business models in Vietnam are closely aligned with the country's national digital economy development strategy. Consequently, assessments of the development speed and maturity of these models largely depend on the level of digital economy development. Based on the foregoing analysis, it can be concluded that Vietnam has made considerable efforts and achieved positive progress toward building a comprehensive and effective data-driven business model.

With respect to service personalization, businesses apply various personalization strategies to their services and products in order to enhance efficiency and stimulate purchasing behavior. When services and products are tailored to individual users or specific user segments, consumers are more likely to increase their usage and engagement. Service personalization has generated significant benefits for both businesses and users, including increased sales revenue, enhanced user experience, and improved customer retention. Accordingly, personalization plays a pivotal role in data-driven business models. In Vietnam, service personalization is primarily concentrated in several key sectors, such as banking and financial services, e-commerce, and tourism.

Banking and Financial Services

In the banking and financial sector, service personalization refers to the use of customer information and data collected by banks to evaluate and analyze customers, thereby enabling the provision of services, information, products, and tailored experiences that align seamlessly with users' contexts and preferences across multiple channels. As a result, many banks in Vietnam have taken the lead in applying advanced technologies to personalize financial services, assisting customers in managing their assets more effectively.

The banking and financial sector in Vietnam can be regarded as one of the industries with the most extensive adoption of personalization practices. Through the systematic collection and analysis of customer data, banks seek to enhance user experience efficiency while generating substantial profits. In addition, financial institutions are continuously investing in the development of technological systems to further unlock data potential. These efforts are expected to deliver increasingly advanced personalized customer experiences, thereby improving customer satisfaction, strengthening loyalty, and promoting sustainable growth for the banking sector.

E-commerce

E-commerce represents one of the fastest-growing sectors in Vietnam, driven by the rapid expansion of the digital

economy and the flexible application of digital technologies. These technologies enable businesses to predict customer demand, automate store operations, enhance interactions, and personalize recommendations and promotional offers for customers. AI-supported personalization is primarily based on the analysis of massive datasets, including users' behaviors, preferences, and historical interactions, in order to generate deep insights that allow platforms to predict and deliver highly relevant content.

The widespread development of e-commerce, combined with the strong technological orientation of businesses, has resulted in a higher level and faster pace of personalization compared to many other sectors. In Vietnam, e-commerce has emerged as a sector with significant potential due to its capacity to apply advanced technologies to personalize services, understand customer needs, and deliver tailored recommendations that align closely with consumer preferences.

Tourism

In the tourism sector, personalization activities have also increased significantly. Contemporary tourists increasingly expect to be treated as unique individuals, each with distinct preferences, habits, and specific needs. In response to these expectations, tourism service providers have incorporated personalized service models and supplementary offerings to deliver experiences that are better aligned with customers' needs and financial capabilities.

Accordingly, Vietnam's tourism industry is well positioned to optimize tourism products and services through the personalization of local experiences for visitors. This approach represents a substantial development opportunity, as achieving higher levels of tourist satisfaction not only enhances competitiveness but also enables the industry to more fully exploit its potential through the personalization of tourism services in Vietnam.

Practical Assessment of Implementation in Vietnam

1. Achievements

In the context of the rapid development of the data economy and the growing trend toward service personalization, tax administration in Vietnam has achieved notable progress through the application of digital technologies and the exploitation of big data for supervision, risk analysis, and enhanced revenue collection efficiency.

First, Vietnam's tax legal framework has, to an initial extent, been capable of covering digital economic activities, including data-driven business models. Key tax laws such as the Law on Tax Administration, the Law on Value-Added Tax (VAT), the Law on Corporate Income Tax (CIT), and the Law on Personal Income Tax (PIT) contain provisions that allow tax authorities to manage income and revenue arising from the provision of services on digital platforms. In general, where data-driven business activities have not yet manifested in distorted or evasive forms, existing tax regulations can still be applied to regulate such activities. Nevertheless, further amendments and supplements remain necessary to regulate data-driven business in a more comprehensive and effective manner.

In 2025, according to the General Department of Taxation (Ministry of Finance), revenue from e-commerce increased by as much as 60%, largely due to intensified retroactive tax collection for previous years and stricter management of online transaction data. This development serves as concrete

evidence of the efforts undertaken by competent authorities to rigorously enforce the tax legal framework, ensuring that regulatory loopholes do not lead to revenue losses in the fields of e-commerce and data governance.

Second, the Government and tax authorities have demonstrated increasing awareness and responsiveness to data-driven business activities in Vietnam. The current tax legislation has largely incorporated provisions governing taxation in e-commerce and digital platform-based business activities. Although there is no specific legal provision explicitly regulating “data-driven business,” the broad regulatory scope reflects the early recognition by legislators and tax administrators of the characteristics of the digital economy, in which data plays a central role.

In recent years, the State has promulgated and amended several important legal documents, including tax laws related to e-commerce and the management of business data. From 1 July 2025, a series of new tax policies are scheduled to take effect, introducing significant changes to tax compliance obligations for individuals and enterprises. Notable measures include amendments to the VAT Law, new requirements for tax declaration and payment for business activities conducted on e-commerce platforms, the continued application of VAT reductions, and the use of personal identification numbers in place of tax identification numbers in certain cases. These reforms represent concerted efforts to establish a legal framework aligned with the evolving realities of the digital business environment.

Third, tax authorities have progressively applied digital technologies in the management and supervision of data-driven business activities. The nationwide implementation of electronic invoices, along with the integration of transaction data from e-commerce platforms, payment gateways, and banking systems, has enhanced revenue transparency and provided a legal basis for taxation in the data economy.

According to the General Department of Taxation, the implementation of Directive No. 18/CT-TTg dated 30 May 2023, issued by the Prime Minister on data connectivity and sharing for e-commerce management and tax loss prevention, has been identified as a key priority. Tax authorities have strengthened data linkages with national population databases (Ministry of Public Security) for taxpayer identity verification; business registration databases for legal status monitoring; the Ministry of Industry and Trade for updates on e-commerce platforms; and the State Bank of Vietnam for monitoring bank and e-wallet transactions. These reforms represent significant institutional changes aimed at improving the effectiveness of tax administration in digital and data-driven business activities. Through internal reforms, Vietnam’s tax authorities have demonstrated considerable efforts to keep pace with the rapid development of new business models.

2. Limitations and Underlying Causes

Despite these achievements, numerous limitations persist, particularly in controlling data-driven business and personalized services, which are inherently cross-border and difficult to value. A comprehensive assessment of both achievements and shortcomings in tax administration within this field provides a critical foundation for proposing policy solutions to refine tax regulations in line with the realities of the digital economy.

First, the effective and comprehensive application of tax regulations to data-driven business activities remains problematic, especially with respect to identifying and verifying taxable entities. In cases where individuals or organizations collect, analyze, share, or trade data without formal business registration (i.e., lacking tax codes, invoices, or operating licenses), tax authorities face significant challenges in proving that such activities legally constitute “business activities.” Moreover, identifying taxpayers, determining legally responsible entities, and collecting evidence of revenue, contracts, or cash flows arising from data transactions remain highly constrained. This situation reflects a legal gap in the taxation and regulation of informal data-driven business activities within the digital economy.

The primary cause lies in the fact that Vietnam’s tax legal system is still in the process of adapting to emerging data-driven business models, while lacking a unified mechanism for determining data valuation, ownership, and origin. Furthermore, the rapid growth of informal, cross-border, and decentralized data-related activities further complicates the ability of tax authorities to identify, manage, and apply appropriate tax policies. The absence of a clear legal classification of data as “goods,” “services,” or “intangible assets” creates uncertainty in the application of VAT, CIT, and PIT to data-driven business activities, particularly when such activities are conducted without formal registration.

Second, determining the actual revenue of individuals, household businesses, or enterprises operating on digital platforms is particularly challenging when transactions lack transparency, invoices are absent, or alternative payment methods are used. Data transactions, despite possessing characteristics of tradable commodities, are not governed by specialized legal regulations. This regulatory gap allows businesses and individuals to exploit loopholes by conducting informal transactions through various payment methods, resulting in transactions that either do not generate invoices or generate invoices that fail to reflect the true transaction value.

This challenge largely arises because most data transactions occur on digital platforms and are settled via international cards, e-wallets, or even cryptocurrencies, without accompanying invoices or supporting documentation. As a result, enterprises and individuals may conceal or underreport revenues, thereby undermining the effectiveness of tax revenue collection.

Third, significant challenges exist in valuing data for tax assessment purposes. As data is not a tangible commodity, determining or measuring the revenue generated from data-related activities is inherently complex. In addition, valuation practices often lack transparency and are primarily based on internal enterprise assessments, creating substantial difficulties for tax authorities in determining taxable values in data-driven business activities.

This challenge stems from the fact that data is not a conventional consumer good; its value is highly context-dependent, complementary to other assets, and lacks a transparent market for exchange. Consequently, determining a “sale price” - and thus the tax base for VAT, CIT, or PIT - becomes particularly complicated.

Fourth, limitations remain in the administrative and technological capacity of tax authorities. Data-driven business transactions are intangible, difficult to quantify, and frequently conducted across borders via digital

platforms, making it increasingly complex to identify the nature of transactions and the relevant taxable entities.

These limitations are attributable to the fact that tax officials have not yet fully adapted to modern management approaches, particularly in the application of advanced technologies in tax administration. The processes of data exploitation and distribution require in-depth expertise in information technology, artificial intelligence, and digital economics. However, tax authorities continue to encounter operational challenges in managing digitalized systems, especially in data-related business supervision. Additionally, shortages of personnel with advanced data analytics skills further constrain the capacity for effective monitoring and enforcement.

Conclusion

This paper has outlined a comprehensive overview of the current development of data-driven business models and service personalization in Vietnam. The findings indicate that Vietnam possesses substantial potential, supported by impressive digital economy growth rates and the rapid adaptability of the business community. Achievements in optimizing customer experience and digitally transforming business processes provide clear evidence of progress in the right direction.

Nevertheless, to truly transform data into a driver of sustainable growth, Vietnam must urgently address existing bottlenecks related to the legal framework, connectivity infrastructure, information security vulnerabilities, and shortages of highly specialized human resources. Strengthening the legal framework and fostering a data-driven governance culture will be critical in enabling Vietnamese enterprises not only to remain competitive in the domestic market but also to enhance their position within the global digital economy.

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