Introduction to Information Systems Research in Vietnam: Current Progress and New Frontiers

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Abstract The current chapter introduces the book Information Systems research in Vietnam (Volume 2), which seeks to address research opportunities in the Vietnamese environment. It introduces nine selected chapters of the book that cover diverse information systems research topics, including digital advertisements, e-commerce and brand addiction behaviours, artificial intelligence (AI) applications in the aviation industry and solar energy construction, online education effectiveness, information security awareness, potential market for elderly people, and sustainable digital transformation. The chapter further outlines the significance of sustainability in the process of digitization and argues that future IS research may aid in achieving sustainability objectives. Through the assistance of the Vietnam Chapter of the Association for Information Systems (VAIS), this book invites international scholars to conduct collaborative IS research in Vietnam.

Keywords Information systems · Information systems research · Vietnam

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1

1 Introduction

The rapid development of Information Systems (IS) and inevitable surge of new digital technologies have led to an important topic of interest, among scholars and practitioners in Vietnam. IS research in Vietnam is making a great progress with diverse and emerging research topic across various fields like artificial intelligence (AI), learning analytics, and collective intelligence [14]. IS has been at the forefront of the recovery in Vietnamese businesses and society post Covid-19. Its applications leave a footprint on various fields like generative AI, online learning, electronic commerce (e-commerce), deep learning and digital transformation. Building upon the successful foundation established in the book Information Systems research in Vietnam (Volume 1) that sets the background for the shared accountability of IS knowledge in Vietnam [14], this second edition continues to highlight the current frontiers of IS research and practices in Vietnam.

This book aims to address the challenges and seize the opportunities of IS in Vietnamese context, particularly focusing on the impact of emerging IS trends and the Vietnam's unique context. It further aims to provide readers an overview in the Vietnam's IS sector with access to practical IS applications. The book also illustrates how IS research drives digital innovation and emerging technologies to design and support individuals and organizations. By comparing the context of IS applications between Vietnam and other countries, this book will not only assist the Vietnamese IS academics, but also international scholars who are interested in engaging with Vietnamese context.

In this book, we put emphasis on the development of innovative IS artifacts. This book will delve deeper into various emerging IS case studies and applications as well as studies on future IS direction. In particular, the book chapters address the current topic in IS field, including digital advertisements, e-commerce and brand addiction behaviors, AI applications in the aviation industry, AI application for fault detection in solar energy construction, online education effectiveness, information security awareness, potential market for elderly people, and sustainable digital transformation.

By compiling a series of research, case studies, and applications in IS that tackle the challenges and capitalize on the opportunities unique to Vietnam, this book aspires to create a Vietnamese-oriented body of research on IS that can meet the needs of scholars and practitioners to make a positive impact on Vietnam. We hope to provide a valuable point of reference for the IS field in Vietnam and align with the shared vision of the community. The findings from chapters in this book will be instrumental in informing and guiding future strategies and actions, inspiriting both scholars and researchers to effectively navigate the dynamic landscape of IS in Vietnam.

2　IS Research in Vietnam

IS research investigates the use of information technology (IT) in a socio-technical system, involving both individuals, organizations, and IT artifacts. As such, the IS discipline is diverse and dynamic by nature. The first volume of this book has provided a comprehensive overview of IS-related phenomena in Vietnam [14]. We highlighted the usage, application, and expansion of IS to create values in different industries in Vietnam and its vital role in dealing with the COVID-19 pandemic. Drawing on a wide collection of individual-level and organizational-level theories, we explored IS themes ranging from enterprise system, enterprise architectures, supply chain management and outsourcing to information security, and more. Currently, Vietnam has recovered from the pandemic with a fast post-COVID-19 economic recovery, demonstrating its resilience and adaptability in the face of unprecedented challenges. It is, therefore, important to re-examine the advancements of the IS domain along the way. In light of this context, the fields that draw significant attention of the IS practitioners and scholars in Vietnam are the digital transformation process, human-centric AI, deep learning, e-commerce, and online education.

Recently, the topic of digital transformation, AI, and online learning emerge as an important phenomenon across business and management discipline. Regarding the former, Theiri and Alareeni [17] examines the impact of digital transformation on the pandemic within Tunisian banking industry by identifying how digitalization can be leveraged to seize opportunities and develop innovative strategies. Bai et al. [4] attempt to explore the impact of digital transformation on the sustainable development of micro-and small-enterprises amid COVID-19 pandemic. Others touch on how digital transformation further enhances organizational resilience and agility [2]. Enterprises have embarked on digital transformations and initiatives to meet the emergent needs in the post-pandemic era [11].

In same vein, AI disrupts the current state of IS with its potentiality to replace humans, transform conventional way of performing any tasks and augment organizational growth. Research on AI is diverse with its application demonstrated across various fields like business management [7], sustainable entrepreneurship [9]; COVID-19 containment [10], higher education institutions [6], cyberspace and cybersecurity [20], wearable devices [12], geotechnical engineering [3], and many others. With deep learning method, a subfield of AI-based approaches, have been emergently employed in enterprise area like business analytics and business process prediction [13, 16]; healthcare [1]; or supply chain risks [5]. Finally, it is worthwhile to mention the rise of online learning [15], that has become the prevalent study mode. With these recent developments, we expect that IS research in Vietnam can further progress on digital transformation, AI, and online learning.

3   Introducing the Book Chapters

The research interests among IS practitioners and scholars in Vietnam are aligned well with the current body of IS knowledge. Given this diverse array of studies and perspectives, we explore the IS literatures in Vietnam, encompassing emerging topics such as digital transformation, AI, online learning, and e-commerce to understand the problems and seize the opportunities. This book sets out to explore the current state of the IS research fields in Vietnam. In line with this objective, we issued a call for IS research contributions in Vietnam, which resulted in 18 manuscript submissions. Following two rounds of blinded peer-review and revisions, we selected a total of nine chapters for this second volume.

After this introduction chapter, in chapter "Digital Transformation and Gender Representation: A Study of Service Advertisements in Vietnam", Nguyen et al. performed a content analysis of 300 digital service commercials to analyze gender representation in service advertisements in Vietnam. Their results highlighted a shift in gender representation through the two periods (2012–2017 and 2018–2022), in which recent advertisements portrayed more collaboration between female and male representatives, as well as more femvertising messages. Their research shed light on the current situation concerning gender roles and stereotypes in digital advertisements in Vietnam, and provided recommendations for policymakers and advertising professionals to create more balanced and non-stereotypical gender representations in the future.

Next, Le and Tran investigated Vietnamese consumer behaviors with regard to e-commerce and digital financial services during and beyond the pandemic time in chapter "E-Commerce and Digital Financial Services During COVID-19 and Potential for Expansion in Post-Pandemic: Insights from Vietnamese Consumer Behaviors". They collected survey data from five major cities in Vietnam and performed content analysis to explore various consumers' behaviors of online shopping, particularly their health and safety concerns, reasons for online shopping, technology readiness, and their plan to continue using e-commerce services after the pandemic. Their study portrayed the current landscape of e-commerce in Vietnam, and offered insights into transforming online services to sustain e-commerce business and accelerate digitalization.

Bernabeo et al. reviewed literatures on AI in the aviation industry and discussed a roadmap for aviation AI in the context of Vietnam in chapter "Artificial Intelligence for Safety Related Aviation systems: A Roadmap in the Context of Vietnam". In their chapter, various applications of AI for aviation were examined, including autonomous flights, preventive maintenance, air traffic management optimization, and training for staff. This chapter further evaluated the feasibility and challenges of implementing AI for aviation in Vietnam, as well as compared the Vietnam's prospect of using aviation AI with that of other countries.

Chapter "Case Study: Utilising of Deep Learning Models for Fault Detection and Diagnosis of Photovoltaic Modules to Improve Solar Energy Constructions' O&M Activities Quality" presents another case study of AI implementation for

improving solar energy construction's operation and maintenance activities quality. In this chapter, Nguyen-Vinh et al. described in detail their attempt to employ deep learning technique for fault detection and diagnosis of photovoltaic modules to achieve the mentioned objectives.

Chapter "The Impact of Online Learning Facilities and Activities on the Effectiveness of Online Learning for Secondary Education: The Case of Vietnam" provides a unique perspective on the effectiveness of online education in secondary education in Vietnam. In this chapter, Tran et al. surveyed over 5,000 secondary school students from five different provinces in Vietnam, and they performed multiple regression analysis to examine the antecedents of online learning effectiveness. Their findings revealed that learning and teaching activities influenced the effectiveness of online learning to a great extent, whereas online learning facilities also impacted on effectiveness but to a lesser extent.

Chapter "Improve Information Security Awareness of Economics and Management Students" offers an important analysis of information security awareness of economics and management students in Vietnam. Based on survey data collected from 465 students, Nguyen et al. compared information security awareness between students who had received information security training and untrained students. Students receiving information security training demonstrated a higher level of knowledge, awareness, and information security behaviors, which highlighted the importance of the training.

In chapter "Analysis of the Material, Spiritual Needs of the Elderly and Attractive Market Opportunities in Vietnam", Nguyen and Nguyen analyzed elderly people's material and spiritual needs and identified attractive market opportunities to address those needs by using a mixed method approach. Based on interview and survey data, the researchers identified various needs which were grouped into three main categories: (i) health and medical products/services, (ii) specialized food for the elderly, and (iii) social interaction services and activities. The researchers further compared the current state and expectations and identified gaps in those categories of needs, as well as provided insights into the lifestyles and shopping behaviors of elderly people in Vietnam.

In relation to research on branding, Le et al. developed and validated a conceptual model to explain the antecedents of brand addiction and loyal behavior of consumers in chapter "Harmonious and Obsessive Passion Influence Consumers' Support for Technology Products Through Brand Addiction". The researchers analyzed data collected from 417 respondents, and found that harmonious and obsessive passions supported the consumer's brand addiction and subsequently led to their willingness to support a brand after a scandal. The research contributed to the current body of knowledge on consumer-brand relationships and provided practical recommendations for brand managers to take better care of their brand's consumers.

Finally, chapter "Explanation of a Sustainable Digital Transformation Process in a Firm" provided a qualitative case study that investigated sustainable digital transformation process over time in a telecommunication company owned by the state in Vietnam. By combining survey data and interviews with key informants, the researchers developed a framework to describe the sustainable digital transformation

at the company which consisted of three phases: (i) preparation, (ii) trial, and (iii) implementation. The study contributed to the literature on digital transformation processes and especially in the sustainability context, by identifying the influential external factors and their impacts on different stages of the transformation process.

4   Conclusion and Future Outlook

As technologies such as AI, cybersecurity, and digital transformation continue to advance and permeate every aspect of people's lives, IS research plays an important role in developing knowledge of how these technologies impact organizations, individuals, and society at large. The current chapter introduces nine chapter in the book Information Systems research in Vietnam (Volume 2), which seeks to address these emerging technologies. We invite readers to further read the detailed chapters for the insights on IS research and practice in Vietnam.

Regarding future outlook, sustainability has become a critical global concern which attracts tremendous attention from scholars, practitioners, and other stakeholders. Sustainable development practices, which include topics such as improving environmental performance, social responsibility, economic sustainability, and strengthened partnerships, are of increasing importance to organizations and societies [18]. Likewise, current discussions on emerging digitalization topics, including the adoption and appropriation of new digital technologies and digitalized processes, also put emphasis on sustainability issues [8]. IS research, with its multidisciplinary focus on the interactions between technology and humans, can contribute significantly to further our understanding of IS and their impact, especially in addressing sustainability goals. For instance, researchers could investigate IS-related phenomena related to data management, responsible behaviors and ethical considerations of individuals and organizations, transparency of supply chains, and circular economy models, to name a few.

Against this backdrop, we find abundant of opportunities for IS research in Vietnam. A National digital transformation program for Vietnam was issued by the Prime Minister in Vietnam on the 3rd of June 2020 [19], signifies the country's commitment to become a digital nation by 2030. As a result of this program, individuals, business owners, and government officials are encouraged and incentivized to embark on the digitalization journey together, via initiatives such as funding support and sandboxes for hi-tech startups, prioritized STEM training, and revised regulations for emerging technologies such as AI and blockchain. Similarly, Vietnam as a developing country is facing multiple challenges in terms of sustainability, including climate change, environmental degradation, and waste management. In response to the 17 sustainability development goals (SDGs) of the United Nation, Vietnam is committed to implementing the 2030 Agenda through taking practical actions such as enhancing institutional setup and policy frameworks for encouraging foreign and domestic investors to invest and conduct business in line with sustainable development principles. For instance, transparent reporting of corporate social responsibility

and sustainability practices was recently made a requirement for companies listed on the Vietnam's stock market.

Therefore, IS scholars are presented with the opportunity to investigate the digitalization processes and sustainability practices that take place at multiple levels in Vietnam, at their inception, and infused with the unique Vietnamese culture and context. Action research, design science, and other qualitative approaches would be particularly valuable and relevant for exploring highly contextual IS phenomena while generating research impact. We invite research collaboration from international scholars wishing to conduct IS research in Vietnam, and the Vietnam chapter of the Association for Information Systems (VAIS) will provide the venue to effectively facilitate such joint research endeavor.

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