Customer satisfaction and loyalty in Thai e-commerce

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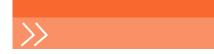
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Abstract

PURPOSES: To investigate the influence of brand trust, AI service, self-convenience, personalized customization, and omnichannel marketing on customer satisfaction in online purchasing in Thai e-commerce and the relationship between customer satisfaction and e-loyalty in Thai e-commerce among customers in Bangkok. METHODS: Sample survey research of 400 customers in Thai e-commerce. Questionnaires were sent directly to respondents in Bangkok by google link, and all of them were returned. RESULTS: Omnichannel marketing, brand trust, and AI service were significantly related (p<0.05) with customer satisfaction. The customer satisfaction significantly influenced on e-loyalty (p<0.01). THEORETICAL/POLICY IMPLICATIONS: The retailers involved in e-commerce could use the research results as guidelines for management. The omnichannel marketing, brand trust, and AI service play a significant role in customer satisfaction that retailers could be concerned with.

Keywords: Customer satisfaction, loyalty, e-commerce, online purchasing



ความพึงพอใจ และความภักดีของผู้บริโภคในระบบพาณิชย์อิเล็กทรอนิกส์ไทย

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าเทคัดย่อ

วัตถุประสงค์ เพื่อศึกษาอิทธิพลด้านความน่าเชื่อถือของตราสินค้า บริการปัญญาประดิษฐ์ ความ สะดวกสบายส่วนบุคคล การปรับเปลี่ยนสินค้าให้เข้ากับความต้องการส่วนบุคคล และการตลาดแบบผสมผสาน ทุกช่องทาง ต่อความพึงพอใจของผู้บริโภคในการซื้อสินค้าในพานิชย์อิเล็กทรอนิกส์ไทย และความสัมพันธ์ ระหว่างความพึงพอใจของผู้บริโภค กับความภักดีต่อการซื้อสินค้าโดยระบบอิเล็กทรอนิกส์ในพานิชย์ อิเล็กทรอนิกส์ไทยของผู้บริโภคในกรุงเทพมหานคร วิธีวิจัย การสำรวจจากกลุ่มตัวอย่าง ด้วยแบบสอบถาม จำนวน 400 ชุด ส่งแบบสอบถามถึงผู้บริโภคในกรุงเทพมหานคร โดยการติดต่อทาง google form และได้รับ แบบสอบถามคืนทั้งหมด ผลการวิจัย การตลาดแบบผสมผสานทุกช่องทาง ความน่าเชื่อถือของตราสินค้า และ บริการปัญญาประดิษฐ์ มีความสัมพันธ์อย่างมีนัยสำคัญกับความพึงพอใจของผู้บริโภค (p<0.05) ความพึงพอใจของผู้บริโภคมีอิทธิผลต่อ ความภักดีต่อการซื้อสินค้าโดยระบบอิเล็กทรอนิกส์อย่างมีนัยสำคัญ (p<0.01) นัยทาง ทฤษฎี/นโยบาย ผู้ประกอบการธุรกิจค้าปลีกในพาณิชย์อิเล็กทรอนิกส์ สามารถพิจารณานำผลการวิจัยเป็นแนว ทางการบริหารจัดการธุรกิจ การตลาดแบบผสมผสานทุกช่องทาง ความน่าเชื่อถือของตราสินค้าและบริการ ปัญญาประดิษฐ์มีบทบาทต่อความพึงพอใจของผู้บริโภค ซึ่งผู้ค้าปลีกควรนำมาพิจารณา

คำสำคัญ: ความพึงพอใจของผู้บริโภค ความภักดี พาณิชย์อิเล็กทรอนิกส์ การจัดซื้อทางอิเล็กทรอนิกส์

INTRODUCTION

In today's globalization, e-commerce business expanding with competitive advantages in the modern world to interact with customers. Electronic service quality is the important characteristic for success in e-commerce. Abu-Salim et al. (2017) stated that service quality, customer satisfaction, repurchase intention directly influence the eservice of consumer responses. Understanding service quality, customer satisfaction, and repurchasing is significant for online purchasing (Lee, 2019). Nevertheless, there are various altered dimensions of ecommerce service quality, customer satisfaction, and repurchase intention.

In this era of digital communication, customer loyalty, an ongoing emotional relationship between retailers customers, is imperative to e-business existence. There are many businesses that use marketing approaches to increase profitability and market share for the best maximization for the customer (Pooser & Browne, 2018). Marketing approaches can be highly profitable by increasing crossselling and positive word of mouth through shopping on e-commerce. With an attitude perspective on customer loyalty, one desires to keep a relationship with the service brand. The behavior of customer

loyalty is distinct with regard to repeat purchases. Purchaser often selects a similar product and service of a specific type. Loyalty can be important and worthy to both organizations and consumers. Being loyal to a brand is beneficial to customers. It possibly minimizes the time for searching information, location, and estimating purchase alternatives (Lu et al., 2020).

E-commerce uses internet channels to convey products and services to customers and create relationships between customers and businesses. The online channel is more popular and offers more opportunities for better interaction in cyberspace. The main purpose for ecommerce is to evaluate e-purchasing and e-marketing in order to attract more consumers who are interested repeatedly visit. Online companies apply more techniques to be reached with customer satisfaction, to reduce risk, and to create trust in order to guarantee long-term customer commitment to e-commerce services (Yang & Yin, 2019).

Customer satisfaction focuses on the overall value of customer experience and the perception that a customer has regarding a product, service, or brand. Effective marketing programs are also important for customer satisfaction. There is much literature to support popular



measure approaches, e.g. cumulative satisfaction and transaction-specific. Transaction-specific factor presents an emotional response by customers, whereas main transaction is experience from the firm (Yang et al., 2017).

RESEARCH OBJECTIVES

This research was an analysis of factors affecting customer satisfaction and e-loyalty in Thai e-commerce, particularly brand trust, AI service, self-convenience, personalized customization, and omnichannel.

LITERATURE REVIEW

Customer Satisfaction

Customer satisfaction refers to how well business products or services meet or exceed customer expectations. It is defined feeling of as people's desire disappointment in feedback by comparing products and services which are related to their expectations. Consequently, satisfaction is closely related to customer expectations. Customer satisfaction has been considered as a vital influence on customer loyalty (Nguyen et al., 2021). A satisfied consumer has a larger propensity to be engaged and resist alternative selections, while high satisfaction outcomes of customers are related to increased loyalty (Choi et al., 2013). In addition, word of mouth and repurchase increase customer satisfaction. Consumer satisfaction has effects on both attitude aspects and behavior aspects of loyalty (Rita et al., 2019).

Brand Trust

Semadi and Ariyanti (2018) defined trust as a psychological process which is based on the intention to accept vulnerability and the behavior of others. There are various dimensions of trust. Trust can be created with confidence in a relationship with honesty and partner reliability (Tran et al., 2019). It exists at the individual level and at the company level. Technology acceptance has some remarkable dimension of trust. It influences one to volunteer to engage in e-commerce in order to exchange money and share some personal information. However, only trust cannot guarantee long-term customer satisfaction and loyalty of customers. It is necessary to study the level of satisfaction and related variables. Chinomona (2016) suggested to apply trust together with guarantee of service quality. Han et al. (2015) proposed trust as a theoretical ancestor of customer loyalty. The positivity of trust influences long-term relationship with consumers, and it is stronger in maintaining customer loyalty.

Hypothesis 1: There is a significant relationship between brand trust and customer satisfaction in online purchasing.

Al Service

Artificial Intelligence (AI) service is the system used to automate customer support tasks to improve customer experience at any time. The Al service quality is the degree to which an AI service meets or exceeds customer expectations. Cheng et al. (2021) showed the theoretical description of service quality, customers commonly compare the service they perceived before and after purchasing. Cheng et al. (2020) declared that there are inferior and superior service quality for a customer's impression. There are some standpoints of service quality. Most of these focus on attitude for development of the firm (Huang & Rust, 2021). Attitude is a settled way of customer thinking and feeling which consists of progress quality and outcome quality. Besides, some literature emphasizes that in e-commerce, delivery is the one process of service quality outcome (Zhang et al., 2021). It starts since customers search for product details until delivery. Customers do not evaluate only the outcome of product and service quality, but they also estimate the process of service delivery (Yang & Yin, 2019). Tangibles and intangibles are a part of quality service for customer evaluation, from both process delivery service and outcome by previous service encounters. Tangible to intangible are theories of ranging, both of service and physical goods. E-commerce services tend to have almost no face-to-face communication. Customers evaluate from the quality of e-service and the excellence of online offerings (Zhu et al. 2020).

Hypothesis 2: There is a significant relationship between AI service and customer satisfaction in online purchasing.

Self-Convenience

Self-convenience is perceived as one of the main benefits of online purchasing. There is a comparison between Internet shoppers and non-Internet shoppers. Lie et al. (2019) stated that the previous group is seeking more convenience than the last. Accordingly, Sabri et al. (2022) concluded that Internet shoppers appreciate the ability to conduct business with the company at any time while performing other activities, such as cooking, exercising, or taking care of children. Some literature discusses the importance of convenience as a contributing influence on the growth of electronic commerce (Gao & Su, 2016). Consumers are driven by their need for self-convenience. Customers who are motivated by convenience will not have as **>>**

much of an effect on e-loyalty because they are constantly exploring different service providers. The relationship between customer satisfaction and e-loyalty is predictably stronger for consumers with a high convenience positioning relation to customers with low convenience direction. As a result, e-retailers promote the convenient avenue for purchasing. Online purchasing can save time and effort as well as to make it easy to locate wholesalers, find items, and secure offerings (Goebel et al., 2012). Lie et al. (2019) maintained that convenient websites deliver a short response time. facilitate fast accomplishment, and minimize customer effort. The nature of the online platform is expected to be fast and effective in processing the buying process.

Hypothesis 3: There is a significant relationship between self-convenience and customer satisfaction in online purchasing.

Personalized Customization

Many online retailers have already begun to combine some steps of customization into their platforms. The study defined personalized customization as the extent to which online retailer platforms can be generated to distinguish between consumers and modify the choice of service, products, and experiences for consumers (Rahman & Dekkati, 2022). The customizations are predictable to affect e-

satisfaction. Personalized customization is focusing on customer perception in order to increase choice and make what the consumers really need. It is a better matching between product and consumers (Yi & Liu, 2020). Moreover, most retailers are more effective when they are using customization as a factor. The alternative of customer selection can be influenced by simplistic delivery (Wan et al., 2020). Consumers spend time on online shopping for customized products of size, color, and shape. Therefore, the e-retailer expects that customization relates to e-satisfaction positively (Nguyen et al., 2021).

Hypothesis 4: There is a significant relationship between personalized customization and customer satisfaction in online purchasing.

Omnichannel

Omnichannel is a customer-centric while available approach using all channels. It integrates all channels to increase customer experiences (Kim et al., 2022). It aims to make a customer's purchase journey as smooth as possible. Omnichannel also reaches customers where they are, through all available channels. Additionally, online information is an important factor for searching information (Both & Steinmann, 2023). It allows e-purchasers and e-retailers the ability to exchange some information and offers to compare between e-retailers. Customers can compare information about goods and services in online application offerings. It is enjoyable and makes sure that customers can gain benefits from sellers (Chang & Geng, 2022). In addition, fast access and low-cost advantages, have become important factor for online purchasers (Phang et al., 2021). Generally, a customer is more likely to select an alternative of choices which requires less time in evaluating and making decisions, which the omnichannel strategy can support. Omnichannel synchronizes all data across all channels. Kacprzak and Hensel (2023) maintaind that even though consumers like having alternatives, they do not want too many choices. Therefore, retailers use omnichannel technology to organize and control their tasks which are related to purchasing decisions in order to process customer needs (Nguyen & Tran, 2023).

Hypothesis 5: There is a significant relationship between omnichannel and customer satisfaction in online purchasing. **E-Loyalty**

In the digital age, e-commerce is the notable interaction and individualization channel between customers and retailers (Khan et al., 2019). E-loyalty is a customer's tendency to repeatedly purchase products

or services from online retailers. It is a new concept which combines brand loyalty and online consumer behavior (Khan et al, 2023). Many studies claim that the factors that affect e-loyalty are e-trust, e-service quality, convenience, customization, informativeness. e-satisfaction. and Customer e-loyalty can be developed by quality customer support, on-time delivery, comprehensive product or information, reasonable distribution and handling prices, and trustworthy online privacy policies. However, customer loyalty e-commerce is dependent personality almost as much as accessibility. Customers will not want to interact with a platform if it is outdated, unremarkable, or void of personality (Afsar et al., 2013). For these reasons, the online business significantly needs to keep developing their channels. The e-loyalty brings numerous benefits to business, such as it improves customer retention, increases sales and profits, lowers marketing and operations costs, grows brand awareness, and expands brand advocates (Gull et al., 2020).

Hypothesis 6: There is a significant relationship between customer satisfaction and e-loyalty in online purchasing.

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METHODOLOGY

Sample and Data Collection Procedure

This study used questionnaire survey to collect data. A sample was selected using probability sampling. The sample of 400 participants was randomly selected. The Questionnaires were sent to respondents via google from link, and all of them were returned. Participants were informed that the survey was anonymous and that the information they provided would be treated with high confidentiality.

Measures

The questionnaire consisted of questions on personal gender, age, job position, education, brand trust, Al service,

self-convenience, personalized customization, and omnichannel, on the one hand and customer satisfaction and e-loyalty on the other and using the Likert scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree). The value of Cronbach's alpha was above 0.7 for all of the factors.

RESULTS

It was revealed that 70% of the respondents were female and 30% were male. The target sample was generation Y, which aged between 30 – 40 years old. Most of the respondents who participated in this research were company employees or business owners.

Table 1 Coefficients of correlation among variables, means and standard deviations.

Variables	1	2	3	4	5	6	7
1.Brand Trust	1						
2.Al Service	.502**	1					
3.Self-Convenience	.459**	.599**	1				
4.Personalized Customization	.429**	.530**	.536**	1			
5.Omnichannel	.413**	.586**	.468**	.600**	1		
6.Customer Satisfaction	.548**	.597**	.551**	.559**	.596**	1	
7.E-Loyalty	.588*	.663*	.532**	.524**	.577**	.664**	1
M	4.4929	4.4661	4.5000	4.1089	4.1179	4.3750	4.4738
SD	.44474	.46186	.47130	.40257	.41384	.45231	.48981

Note: *P-value < 0.05 level, **P-value < 0.01 level

Table 1 demonstrated that brand trust, Al service, self-convenience, personalized customization, omnichannel, customer satisfaction, and e-loyalty were significantly

related to each other. The strongest correlation coefficient was between customer satisfaction and e-loyalty.

Table 2 Multiple regression analysis between independent variables and customer satisfaction.

Hypothesis	Independent variables	β	T-Value	P-Value	Result
H1	Brand Trust	.230	3.239	.002	Supported
H2	Al Service	.173	2.058	.042	Supported
Н3	Self-Convenience	.151	1.921	.057	Not
					supported
H4	Personalized	.142	1.770	.079	Not
	Customization				supported
H5	Omnichannel	.244	3.033	.003	Supported
R ²	.537				
Adjusted R ²	.520				
Regression	15.273				
Residual	13.165				
F	31.091				

Table 2 showed that brand trust, Al service, and omnichannel were positively significantly related to customer satisfaction at p < 0.05. Additionally, the adjusted R² was 0.52 indicating that 52% of

customer satisfaction was explained by brand trust, AI service, self-convenience, personalized customization, and omnichannel.

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Table 3 Regressions anal	vsis between customer	satisfaction and e-lov	/altv

Hypothesis	Path	β	T-Value	P-Value	Result
H6	Customer Satisfaction	.664	10.441	.000	Supported
	=> E-loyalty				
R^2	.441				
Adjusted R ²	.437				
Regression	14.718				
Residual	18.630				
F	109.020				

It was revealed in Table 3 that e-loyalty was explained by customer satisfaction significantly (p.=0.000) by about 43%.

DISCUSSION

The study found three critical factors influencing customer satisfaction, which were brand trust, Artificial Intelligence (AI) service, and omnichannel experiences.

Brand trust refers to the confidence and reliability a customer associates with a company. It is built through consistent quality, ethical business practices, and transparent communication. When customers trust a brand, they expect high-quality products and services. These consistent positive experiences lead to satisfaction and long-term loyalty (Nguyen et al., 2021; Tran et al., 2019).

Artificial Intelligence (AI) service demonstrates business interactions with

customers by offering automation, personalization, and efficiency. Chatbots provide 24-hour customer support and resolve inquiries quickly and efficiently. They can anticipate customer needs and personalize offers. All analyzes customer preferences and purchasing behavior to suggest relevant products and services which can improve purchasing experiences and satisfaction (Zhang & Jin, 2021).

Omnichannel integrate multiple sales and communication channels which allows customers to seamlessly switch between online and offline experiences. Customers can research online and purchase via ecommerce and return to in-store without complications. It has multiple contact points. Customers receive support whenever and wherever they need. The omnichannel system can also record

customer data for personalized offers and smoother transactions. Therefore, selfconvenience and personalized customization are recommended combine in omnichannel for business success. The factors of omnichannel, brand trust, and Al service on customer satisfaction are the major critical factors for e-commerce business strategies. Omnichannel experiences provide seamless interactions. Brand trust ensures reliability and emotional connection. Al efficiency enhances and positive experiences. This leads to successful integration, higher customer retention, and long-term success (Both & Steinmann, 2023).

In the digital age, key factor driving customer retention is customer satisfaction, which directly influences e-loyalty. The linkage between customer satisfaction and e-loyalty highlights on setting business strategies to enhance optimized-user experiences, personalized engagement, strong loyalty programs, excellent customer support, and secure transactions. strengthen Companies can customer relationships and encourage long-term digital loyalty by prioritizing customer satisfaction and gaining a competitive edge in the e-commerce landscape (Khan et al., 2023).

LIMITATIONS

There are several limitations which need to be acknowledged. First, the study focuses on a specific area in Bangkok, making it difficult to generalize findings from other regions. Customer behavior across regions, cultures, and economic conditions could affect the applicability of results. Second, the rapid technological changes and fast evolution result in research findings that can become outdated quickly. Third, the study has difficulties in measuring long-term effects, as there are many external factors, such as market competition, high competitor, customer perception, and external disruption. To address these limitations, further research should expand across multiple industries and cultures, develop more measurement tools, and explore hybrid purchasing behaviors.

References

- Abu-Salim, T., Okey, P. O., Harrison, T., & Lindsay, V. (2017). Effects of perceived cost, service quality, and customer satisfaction on health insurance service continuance. *Journal of Financial Services Marketing*, 22(4), 173–186.
- Afsar, A., Nasiri, Z., & Zadeh, M. O. (2013). E-loyalty model in e-commerce. *Mediterranean Journal of Social Sciences*, 4(9), 547–553.
- Both, A., & Steinmann, S. (2023). Customer experiences in omnichannel retail environments: A thematic literature review. *The International Review of Retail, Distribution and Consumer Research*, *33*(5), 445–478.
- Chang, Y., & Geng, L. (2022). Planned or unplanned purchases? The effects of perceived values on omnichannel continuance intention. *International Journal of Retail & Distribution Management*, *50*(12), 1535–1551.
- Cheng, X., Bao, Y., Zarifis, A., Gong, W., & Mou, J. (2021). Exploring consumers' response to text-based chatbots in e-commerce: The moderating role of task complexity and chatbot disclosure. *Internet Research*, *32*(2), 496–517.
- Cheng, X., Sun, J., & Zarifis, A. (2020). Artificial intelligence and deep learning in educational technology research and practice. *British Journal of Educational Technology*, *51*(5), 1653–1656.
- Chinomona, R. (2016). Brand communication, brand image, and brand trust as antecedents of brand loyalty in Gauteng Province of South Africa. *African Journal of Economic and Management Studies*, 7(1), 124–139.
- Choi, E. K., Wilson, A., & Fowler, D. (2013). Exploring customer experiential components and the conceptual framework of customer experience, customer satisfaction, and actual behavior. *Journal of Foodservice Business Research*, *16*(4), 347–358.
- Gao, F., & Su, X. (2016). Omnichannel retail operations with buy-online-and-pick-up-in-store. *Management Science*, *63*(8), 2478–2492.
- Goebel, P., Moeller, S., & Pibernik, R. (2012). Paying for convenience—Attractiveness and revenue potential of time-based delivery services. *International Journal of Physical Distribution & Logistics Management*, 42(6), 584–606.
- Gull, S., Tanvir, A., Zaidi, K. S., & Mehmood, Z. (2020). A mediation analysis of e-service quality and e-loyalty in the Pakistani e-commerce sector. *Journal of the Research Society of Pakistan, 57*(2), 66–73.

- Han, S. H., Nguyen, B., & Lee, T. J. (2015). Consumer-based chain restaurant brand equity, brand reputation, and brand trust. *International Journal of Hospitality Management*, *50*, 84–93.
- Huang, M. H., & Rust, R. T. (2021). A strategic framework for artificial intelligence in marketing. *Journal of the Academy of Marketing Science*, 49(1), 30–50.
- Kacprzak, A., & Hensel, P. (2023). Exploring online customer experience: A systematic literature review and research agenda. *International Journal of Consumer Studies*, 47(6), 2583–2608.
- Khan, F. N., Arshad, M. U., & Munir, M. (2023). Impact of e-service quality on e-loyalty of online banking customers in Pakistan during the COVID-19 pandemic: Mediating role of e-satisfaction. *Future Business Journal*, *9*(1), 2–12.
- Khan, M. A., Zubair, S. S., & Malik, M. (2019). An assessment of e-service quality, e-satisfaction, and e-loyalty: Case of online shopping in Pakistan. *South Asian Journal of Business Studies*, 8(3), 283–302.
- Kim, S., Connerton, T. P., & Park, C. (2022). Transforming the automotive retail: Drivers for customers' omnichannel BOPS (buy online & pick up in store) behavior. *Journal of Business Research*, 139, 411–425.
- Lee, C. Y. (2019). Does corporate social responsibility influence customer loyalty in the Taiwan insurance sector? The role of corporate image and customer satisfaction. Journal of Promotion Management, 25(1), 43–64.
- Lie, D., Sudirman, A., Efendi, E., & Butarbutar, M. (2019). Analysis of mediation effect of consumer satisfaction on the impact of service quality, price, and consumer trust on consumer loyalty. *International Journal of Scientific and Technology Research*, 8(8), 421–428.
- Lu, J., Ren, L., Zhang, C., Wang, C., Shahid, Z., & Streimikis, J. (2020). The influence of a firm's CSR initiatives on brand loyalty and brand image. *Journal of Competitiveness*, 12(2), 106–124.
- Nguyen, H. N., & Tran, M. D. (2023). Antecedents and outcomes of omnichannel retail customer experience. *International Journal of Electronic Marketing and Retailing*, 14(2), 171–189.
- Nguyen, L., Nguyen, T. H., & Tan, T. K. P. (2021). An empirical study of customers' satisfaction and repurchase intention on online shopping in Vietnam. *Journal of*

- Asian Finance, Economics, and Business, 8(1), 971–983.
- Phang, G., Ng, J. E., & Fam, K. S. (2021). Customer engagement and loyalty issues in the omnichannel fast-food industry. *International Journal of Business and Society*, *22*(3), 1429–1448.
- Pooser, D. M., & Browne, M. J. (2018). The effects of customer satisfaction on company profitability: Evidence from the property and casualty insurance industry. *Risk Management and Insurance Review*, *21*(2), 289–308.
- Rahman, S. S., & Dekkati, S. (2022). Revolutionizing commerce: The dynamics and future of e-commerce web applications. *Asian Journal of Applied Science and Engineering*, 11(1), 65–73.
- Rita, P., Oliveira, T., & Farisa, A. (2019). The impact of e-service quality and customer satisfaction on customer behavior in online shopping. *Heliyon*, *5*(10), e02690. https://doi.org/10.1016/j.heliyon.2019.e02690
- Sabri, L. H. B. A., Lim, A. H. L., & Goh, H. N. (2022). Click analysis: How e-commerce companies benefit from exploratory and association rule mining. *Journal of System and Management Sciences*, *12*(6), 511–531.
- Semadi, I. P., & Ariyanti, M. (2018). The influence of brand experience, brand image, and brand trust on brand loyalty of ABC-CASH. *Asian Journal of Management Sciences & Education*, 7(3), 12–23.
- Tran, V. T., Nguyen, N. P., Tran, P. T. K., Tran, T. N., & Huynh, T. T. P. (2019). Brand equity in a tourism destination: A case study of domestic tourists in Hoi An City, Vietnam. *Tourism Review*, *74*(3), 704–720.
- Wan, J., Li, X., Dai, H. N., Kusiak, A., Martinez-Garcia, M., & Li, D. (2020). Artificial-intelligence-driven customized manufacturing factory: Key technologies, applications, and challenges. *Proceedings of the IEEE*, 109(4), 377–398.
- Yang, K., Yang, H., Chang, W., & Chine, H. (2017). The effect of service quality among customer satisfaction, brand loyalty, and brand image. *Journal of Business Social and Technology* 4(2), 163-173.
 - Htttps://doi :10.59261/jbt.v4i2.151.
- Yang, N., & Yin, S. (2019). Research on the socialization path of virtual brand community members: A double intermediate perspective of satisfaction and identity. *Journal of Xi'an University of Finance and Economics*, *32*(6), 103–110. https://doi.org/10.19331/j.cnki.jxufe.2019.06.013.

- Yi, S., & Liu, X. (2020). Machine learning-based customer sentiment analysis for recommending shoppers, shops based on customers' reviews. *Complex & Intelligent Systems*, 6(3), 621–634.
- Zhang, Q., Lu, J., & Jin, Y. (2021). Artificial intelligence in recommender systems. *Complex* & *Intelligent Systems, 7*(1), 439–457.
- Zhu, T., Ye, D., Wang, W., Zhou, W., & Yu, P. (2020). *More than privacy: Applying differential privacy in key areas of artificial intelligence*. IEEE Transactions on Knowledge and Data Engineering.