Integration of Hirka Packaging as a Physical Output of The System E-Commerce in Improving Customer Experience

Ismail Hudan Fadillah[1], Eddy Soeryanto Soegoto[2], Rahma Wahdiniwaty[3], Irfan Dwiguna Sumitra[4], Adam Mukharil Bachtiar[5]

[1]Master of Design Study Program, Faculty of Postgraduate Studies, Universitas Komputer Indonesia, Bandung, Indonesia

[2]Doctoral Program in Management Science, Faculty of Postgraduate Studies, Universitas Komputer Indonesia, Bandung, Indonesia

[3]Master of Management Study Program, Faculty of Postgraduate Studies, Universitas Komputer Indonesia, Bandung, Indonesia

[4]Master of Information Systems Study Program, Faculty of Postgraduate Studies, Universitas Komputer Indonesia, Bandung, Indonesia

[5]Informatics Engineering Study Program, Postgraduate Faculty, Universitas Komputer Indonesia, Bandung, Indonesia

Email: [1]*ismail.75324003@mahasiswa.unikom.ac.id*, [2]*eddysoeryantos@email.unikom.ac.id*, [3]*rahma@email.unikom.ac.id* , [4]*irfan.dwiguna@email.unikom.ac.id*, [5]*adam@email.unikom.ac.id*

Abstract. The development of e-commerce as an applied information system has changed the interaction pattern between brands and consumers, where user experiences are increasingly mediated by non-physical digital processes. This condition creates limitations in conveying material value, product quality, and brand character, especially for products that emphasize material aspects and an artisan approach. This study aims to analyze the role of packaging as a physical output in the e-commerce system architecture and its contribution to enhancing the customer experience value of the local leather shoe brand HIRKA. The study uses a qualitative approach with a case study method. Data collection was carried out through observations of the marketplace system and HIRKA packaging design, in-depth interviews with brand owners, and literature studies related to e-commerce information systems and technology-based customer experience. The results show that packaging functions as an extension of the information system that translates data, visual representations, and digital narratives into a physical post-purchase experience. The integration between the e-commerce system and packaging design creates continuity between the digital process and the physical output, narrowing the gap in user experience, and increasing customer perceptions of value, trust, and satisfaction. These findings emphasize that evaluation of e-commerce system performance needs to consider the quality of integration between the digital system and the physical output as part of the overall customer experience.

Keywords: E-Commerce, Packaging Design, Information System, Customer Experience, local Brands.

1. Introduction

Along with the increasingly rapid development of information technology, the realm of E-commerce is no longer just a product catalog but also a product sales and distribution system. The development of new media in the last decade has advanced throughout the world [1]. With the rapid use of new media, E-commerce practices are also increasing. This change has accelerated the transformation of people's consumption behavior, which is now increasingly dependent on digital technology in the process of searching for product information, comparing prices, and making purchasing decisions [2]. OPeople who trade directly must start learning and adapting to the use of technology used to market products for sale [3].E-commerce has evolved from a simple online transaction platform into an integrated information system capable of managing product data, transaction processes, and distribution in real time. Therefore, this system has become part of the technological infrastructure that supports operational efficiency, data accuracy, and market expansion, especially for local brands that use e-commerce as a marketplace platform and primary sales channel.

In the pre-purchase phase, e-commerce places the interaction entirely between the user and the marketplace platform, where consumers interact with data representations in the form of photos, videos, descriptions, and product information presented by the system without any direct physical interaction with the product. This condition creates limitations in the user experience regarding the product to be purchased, both in terms of material quality, aesthetic value, and character. These limitations indicate a gap between the performance of digital systems in managing information and the actual user experience with physical products. However, most of this research still focuses on user experience in the pre-purchase phase and the digital transaction process, such as interface navigation, system speed, and payment reliability. Research examining the relationship between e-commerce systems and user experience in the post-purchase phase, particularly in the context of integrating the system's physical output, is still relatively limited. This condition indicates a research gap regarding how digital systems affect the user experience after the transaction is completed.

E-commerce systems are positioned as applied information systems that operate through an input-process-output mechanism. Product information, transaction data, and payment validation serve as system inputs and processes, while the product received by the consumer and its packaging represents the physical output of the entire technological flow. Therefore, evaluating the performance of an E-commerce system cannot be separated from the quality of the resulting physical output, because it is at this stage that users make a final assessment of the consistency between the digital data representation and the reality of the product. Therefore, products purchased from E-commerce require additional packaging materials to protect the goods purchased from E-commerce during the distribution process, which causes excessive packaging [4]. The most important thing for consumers is that the purchased goods are received in good quality, however, strange E-commerce packaging conditions when shipping goods are often found [5]. This framework emphasizes that packaging is not merely a visual element or a distribution complement, but rather an integral part of the architecture of an e-commerce-based sales technology system.

HIRKA is a local leather shoe brand that utilizes chicken feet leather as its main product differentiation and relies on a marketplace platform as its technology-based sales system. The product's character, which emphasizes material value and an artisanal approach, demands an e-commerce system that is not only technically efficient but also capable of delivering a consistent user experience between digital representation and physical reality. In this context,

integrating packaging into the e-commerce system is a strategic aspect to bridge the limitations of digital interaction and ensure the continuity of the user experience.

From this phenomenon, the focus here is on the E-commerce system used by the local leather shoe brand HIRKA, which relies on a marketplace as a technology-based sales system and emphasizes material quality as the main value of the product. This study aims to analyze the role of packaging as a physical output in the E-commerce system, identify its contribution in reducing the user experience gap due to the limitations of the digital system, and evaluate how this integration supports the performance of the technology-based sales system. This study uses a qualitative approach with a case study method to understand the integration of digital and physical systems in a real context.

2. Method

This research uses a qualitative approach with a case study method. Creswell (2015) defines qualitative methods as a procedure of steps in which information is recorded and analyzed to improve understanding of a topic or problem. This approach was chosen to understand the phenomenon of integration between digital e-commerce systems (marketplaces, transaction flows, information management, and payment validation) with packaging as a physical representation of the results of the technological process, which affects the post-purchase user experience.

The object of the research is HIRKA E-commerce which includes product information management, digital transaction flow, payment validation, and its integration with the packaging process as the physical output of the system in the context of technology-based sales. The research subjects are brand owners who are directly involved in the management of the E-commerce system, making strategic decisions about technology-based sales, and designing and implementing packaging as part of the physical output of the system. Data collection was carried out through observations of the HIRKA marketplace system and the visual appearance of product packaging, in-depth interviews with research subjects, and literature studies relevant to E-commerce information systems, digital-physical integration, and customer experience. Data analysis was carried out descriptively-analytically by linking the findings of observations and interview results to the theoretical framework of technology-based information systems and customer experience.

3. Results and Discussion
3.1. E-Commerce System as HIRKA Sales Technology Infrastructure

E-commerce has been popular in Indonesia since 2015, but in 2020 online buying and selling sites were more popular with consumers in Indonesia [6]. According to Turban et al (2008) E-commerce itself is the buying and selling or exchange of products, services and information via information networks including the internet [7]. With E-commerce, ordering goods can be done from various regions, where consumers do not need to bother purchasing on E-commerce [8]. The development of e-commerce systems has transformed product distribution and sales patterns, including those of the local shoe brand HIRKA. E-commerce functions not only as a sales channel but also as a technological infrastructure that supports the entire initial interaction process between brands and consumers. Through digital platforms, consumers first become acquainted with HIRKA products, access visual information, read product descriptions, and complete purchase transactions. This system enables automation of the sales process, from order recording and stock updates to synchronization with logistics services,

thereby reducing reliance on manual processes and minimizing the potential for operational errors.
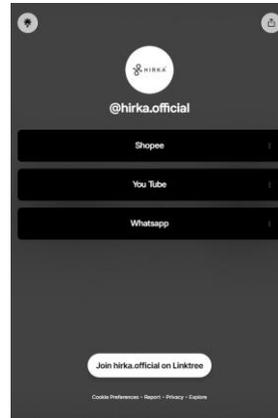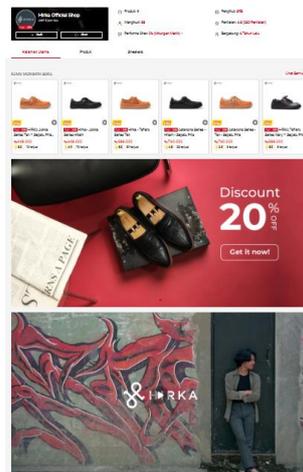

Figure 1. Linktree Page.

Figure 2. HIRKA Marketplace-Based E-commerce Page Display.

As a brand operating in a digital ecosystem, HIRKA utilizes an e-commerce system to reach a wider consumer base without a physical store presence. This system enables efficient distribution and transactions, but at the same time limits the forms of interaction that can occur. The relationship between the brand and the consumer at this stage is indirect and mediated by digital screens. Product representations are presented in the form of visual and textual data that serve as a substitute for physical interaction. Therefore, e-commerce in this context can be understood as a technology-based interaction space that not only facilitates transactions but also builds consumer expectations, perceptions, and purchasing decisions through systematic information management.

3.2. Limitations of Digital Systems in User Experience

While e-commerce offers ease of access and transactions, digital systems have limitations in delivering a complete product experience. HIRKA experienced this firsthand, particularly due to the unique material-based nature of its products and their artisanal value. In online sales systems, consumer interaction with products is limited to two-dimensional visuals and

textual information, lacking the sensory experience typically achieved through in-person interaction.

Figure 3. Digital Visual Display of HIRKA Products on the E-commerce Platform.

These limitations prevent the material value, tactile quality, and complexity of the product narrative from being fully conveyed to consumers. Consumers cannot feel the texture of the chicken feet, understand the details of the workmanship, or experience the brand atmosphere as they would in a physical retail space. This creates a limitation that creates an experience gap between the digital data presented by the system and the physical reality of the product received by consumers. This experience gap has the potential to impact user satisfaction, trust, and evaluation of the overall performance of the e-commerce system, particularly in the post-purchase phase.

3.3. Packaging as a Physical Output of an E-Commerce System

In the HIRKA e-commerce system architecture, packaging serves as the physical output of a series of digital processes executed by the system. After order data is processed, verified, and forwarded to the logistics system, packaging becomes the first medium that connects the digital system's work with the real-world user. Thus, packaging represents the final result of the input-process-output flow in an e-commerce system.

Figure 4. Digital Visual Display of HIRKA Products and Packaging on the E-commerce Platform.

Packaging not only acts as a product protector during the distribution process, but also as a continuing medium for information systems that translates digital data and narratives into physical form. There are two main functions of packaging design, namely, first to improve the functionality or experience of the product so that it can fulfill its main initial purpose more effectively and second to improve the consumer experience through involvement and entertainment, both in the retail environment and the user environment [9]. Elements such as packaging structure, material selection, product information cards, and the use of QR codes serve as communication extensions of the e-commerce system. These elements enable information continuity between the digital platform and the user's real-world experience. Customer experience, such as quality product information and effective customer service, is key to maintaining customer satisfaction and loyalty in E-commerce.[10]. In response to the limitations of digital systems, HIRKA positions packaging as the physical output of the E-commerce system. Packaging is not seen merely as a product wrapper, but as a communication medium that replaces the service experience and interaction lost in online transactions. In this context, packaging becomes the first physical meeting point between consumers and products.

HIRKA's packaging is strategically designed to convey brand values, material characteristics, and product narrative through visual and structural elements. The use of a hard box with art box material, a specially designed opening system, and compartmental arrangement within the packaging aims to create a curated unboxing experience. The black color element, textured graphics of chicken feet material, Indonesian typography, and a neat layout serve as visual communication media that convey an exclusive and premium impression.

Thus, HIRKA packaging acts as a "silent salesman" representing the brand in the absence of direct interaction. Packaging becomes a physical artifact that embodies values previously only displayed visually in e-commerce systems. Packaging represents the ultimate validation of e-commerce system performance. Because for consumers, this discrepancy becomes particularly apparent when small products (and their packaging) are shipped in large shipping packages, often with a lot of excess air space [11].Therefore, the conformity between digitally presented product data and the physical condition of the product and packaging received by consumers is an indicator of the success of digital and physical system integration. Mismatches at this stage can be understood as the system's failure to translate digital processes into the user's expected output, even though the transaction and payment systems are technically running well.

3.4. Digital System Integration and Customer Experience

The integration between e-commerce and packaging systems reaches its most crucial stage at the unboxing moment, which serves as the user's final assessment of the entire system. Unboxing isn't positioned as a standalone event, but rather as a continuation of a series of digital interactions that have been ongoing since the pre-purchase stage. In this phase, users match the information, visual representations, and narratives constructed through the e-commerce platform with the physical experience embodied in the packaging and product received.

For the HIRKA brand, the interconnectedness between digital systems and packaging forms an integrated and continuous customer experience flow. The user experience process doesn't stop at completing a digital transaction, but continues through direct interaction with the packaging, which serves as a physical representation of the system. Within this structure,

the e-commerce system serves as the initial entry point, while the packaging serves as a continuing medium that deepens the meaning of the brand experience.

Figure 5. Visual Display of HIRKA Digital Packaging

The unboxing experience is designed as an integral part of the customer experience, comprehensively conveying HIRKA's values, story, and identity. Through the unboxing process, consumers are guided to understand the material characteristics, design philosophy, and product quality in greater depth. This integration of digital systems and physical elements allows for a stronger perceived value, even though the entire purchasing process takes place online.

This approach demonstrates that digital systems and physical components do not operate in isolation, but rather complement each other in building the user experience. Packaging serves as a bridge between the digital representation and the tangible experience, resulting in a more cohesive, emotional, and meaningful customer experience.

Customer experience is understood not only as the emotional impact of design but also as an indicator of the overall performance of an e-commerce system. Packaging plays a role in ensuring that the system's physical output aligns with the data, visualizations, and expectations established through the digital platform. This level of alignment contributes to increased user trust, perceived system quality, and the perceived value of the experience.

4. Conclusion

This study shows that in the context of E-commerce-based sales, packaging plays a strategic role as a physical output of a digital system that cannot be separated from the evaluation of the overall system performance. In the case of the local leather shoe brand HIRKA, the integration between the E-commerce system and packaging design has proven to be able to bridge the limitations of digital interactions that only rely on visual representation and textual information. Packaging not only functions as a product protector during the distribution process, but also as a further communication medium that translates material values, brand narratives, and expectations built in the pre-purchase stage into a physical post-purchase experience. Through the unboxing experience, consumers perform final validation of the consistency between digital data and product reality, so that packaging becomes an important indicator in building customer satisfaction, trust, and value perception. These findings confirm that an effective E-commerce system is not only determined by the technical reliability of transactions and distribution, but also by the quality of integration between digital systems

and physical elements, where packaging plays a key role in creating a cohesive and meaningful customer experience.

Acknowledgement

It can be concluded that the e-commerce system not only serves as a digital transaction medium but also as a technological infrastructure that shapes the overall user experience. The integration of packaging as a physical output of the e-commerce system has proven effective in bridging the limitations of digital interactions, particularly in conveying material value, product character, and brand identity. Strategically designed packaging can strengthen the continuity between digital representation and the physical post-purchase experience-purchase, thereby increasing customer perceptions of value, trust, and satisfaction with the brand.

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