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**DIGITISATION OF PROMOTIONAL MEDIA FOR SME
AGRICULTURAL PRODUCTS THROUGH A WEB-BASED GALLERY
USING A USER-CENTRED DESIGN APPROACH IN THE VILLAGES
OF LAM UE AND COT GUT**

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This study aims to design and implement a digital promotional medium for agricultural products of micro, small and medium-sized enterprises (MSMEs) through a web-based gallery using the User-Centred Design (UCD) approach. The research is motivated by the continued dominance of conventional promotional methods amongst agricultural MSMEs in the villages of Lam Ue and Cot Gut, Ingin Jaya sub-district, Aceh Besar regency, which limits market reach and results in suboptimal delivery of product information to consumers. The research combines a qualitative Research and Development (R&D) approach with the UCD stages (understanding the context of use, specifying user requirements, producing design solutions, and evaluation), integrated with an iterative Agile framework for implementation. The system was developed using the WordPress platform. The results show that the developed gallery website provides an agricultural product catalogue, MSME owner profiles, an 'About Us' page, WhatsApp-based contact details and Google Maps location integration, and is responsive across devices. A usability evaluation using the System Usability Scale (SUS) with five respondents—comprising two MSME owners and three consumers—yielded an average score of 82.5, categorised as 'excellent usability'. These findings demonstrate that combining UCD with Agile in the development of a WordPress-based web gallery can produce a digital promotional medium that meets user needs, is easy to use, and effectively supports the promotion of rural agricultural MSMEs.

Keywords: *MSMEs, Agricultural Products, Digitalisation of Promotion, Web Gallery, User-Centred Design, Usability.*

INTRODUCTION

The agriculture, forestry and fisheries sector is one of the strategic sectors in Indonesia's economic development, as it serves as a provider of food, a source of raw materials for industry, and a major employer. According to data from the Central Statistics Agency (2024), this sector remains one of the main contributors to national employment, particularly in rural areas where the majority of the population relies on agricultural activities for their livelihoods. As well as contributing to national food security, the agricultural sector also underpins local economic growth through the presence of Micro, Small and Medium Enterprises (MSMEs) engaged in the production, processing and marketing of agricultural produce. However, the scale of this economic potential has not yet been fully matched by the ability of MSME operators to utilise developments in digital technology as a means of business development. Limited access to information technology, low digital literacy, and a lack of ability to utilise internet-based marketing channels remain challenges faced by the majority of agricultural MSMEs in Indonesia

Advances in information and communication technology have transformed the way producers and consumers interact. Marketing activities that previously relied on face-to-face meetings have now shifted towards digital marketing, which is capable of reaching consumers across regions and even across national borders. Various digital platforms ranging from social media and online marketplaces to websites—have become the primary channels for introducing products, building a business's image and expanding marketing networks. However, the majority of agricultural SMEs still rely on conventional promotional methods, such as direct sales at traditional markets, word-of-mouth promotion, and the use of simple print media. Whilst these marketing methods are relatively straightforward to implement, they have limitations when it comes to reaching a wider market. Consequently, SME operators often face difficulties in acquiring new customers, and have the actual products (Gobel & Adam, 2021; Digima, 2023). This issue has also been identified amongst agricultural MSMEs in the villages of Lam-Ue and Cot Gut, Ingin Jaya Sub-district, Aceh Besar Regency. Both villages possess considerable agricultural potential, with a diverse range of horticultural products, plantation crops and processed agricultural products of economic value. However, the majority of produce is still marketed locally through traditional marketing networks. SME operators do not yet have digital promotional platforms capable of presenting product information in an attractive and professional manner to potential consumers. Information regarding product types, prices, quality and availability is generally known only to the local community, thus severely limiting opportunities to expand the market. Yet, with the increasing use of the internet in Indonesia, digital promotion has become an effective strategy to enhance the competitiveness of SMEs and broaden market access.

According to Kotler and Keller (2016), digital marketing offers various advantages over conventional marketing as it enables businesses to reach customers more widely, more quickly, in a more personalised manner, and at a relatively lower promotional cost. Through digital media, consumers can access comprehensive product information whenever and wherever they wish without having to visit a physical point of sale. Furthermore, businesses can build brand identity, enhance their credibility, and engage in more interactive communication with customers. One form of digital marketing particularly suited to agricultural SMEs is the development of a web-based product gallery. This digital gallery serves as an online shop window that systematically displays a product catalogue, including product names, photographs, prices, descriptions, categories, and the business owner's contact details. The presence of a web-based gallery also enables local products to be promoted without geographical restrictions, thereby making them known to a wider audience.

Using a website as a promotional medium offers advantages as it provides flexibility in managing information and is accessible 24 hours a day. Unlike social media, which is heavily reliant on platform algorithms, a website gives business owners the freedom to customise the layout, information structure and visual identity in line with their business's characteristics. Furthermore, a website can serve as an information hub integrated with other digital media, thereby enhancing the overall effectiveness of marketing strategies. To ensure that such websites can be managed independently by SME owners without the

need for complex programming skills, using the WordPress platform is a suitable option. WordPress provides an intuitive interface, a wide range of themes and plugins, and ease of content updating, making it suitable for users with varying levels of IT proficiency.

Nevertheless, the success of a website is determined not only by these aspects, but also by the extent to which the system meets users' needs. Many information systems fail to be utilised to their full potential because they are designed without an understanding of the characteristics, capabilities, or needs of end-users. Therefore, this study applies the User-Centred Design (UCD) approach as the primary method in the system development process. Based on the ISO 9241-210 standard (International Organisation for Standardisation, 2010), UCD is a system development approach that places the user at the centre of the entire design process. This approach emphasises the importance of understanding user needs through the identification of user characteristics, analysis of the usage context, formulation of system requirements, prototyping, and iterative evaluation based on user feedback. Consequently, the resulting system is expected to demonstrate higher levels of effectiveness, efficiency and user satisfaction compared to systems developed without actively involving users.

The urgency of implementing the UCD approach is also reinforced by various previous studies. Arsana et al. (2024) demonstrated that the development of a web- and Android-based product gallery system can increase the promotional reach of MSMEs whilst giving business owners the flexibility to manage product information independently. Gobel and Adam (2021) demonstrated that the application of UCD methods to agricultural e-commerce systems can increase user engagement and accelerate technology adoption by farmers. Research by Rusnedy et al. (2024) also revealed that improving information technology capacity through digital training plays a vital role in supporting the marketing transformation of farmers' groups. Meanwhile, Siregar (2023) emphasised that the application of information technology in the agricultural sector not only improves production efficiency but also strengthens business competitiveness through the utilisation of digital systems.

Although various studies have addressed the development of digital systems for the agricultural sector, there remains an area for development that has not been extensively explored, particularly regarding the development of a WordPress-based product gallery designed comprehensively using a user-centred design approach. Most previous research has focused on the development of e-commerce applications or marketplaces, which are highly complex and therefore require specific technical skills to manage. This study offers a simpler yet effective approach through the development of a web-based digital product gallery using WordPress as the content management system. This platform enables MSME operators to manage their product catalogues independently without the need for programming skills. Furthermore, this research integrates the UCD approach into all stages of development, from user needs analysis and user interface (UI) design, through to system implementation and usability evaluation. The entire process is combined with the Agile framework, ensuring that development is carried out iteratively and is able to accommodate changes in requirements based on user feedback throughout the process.

This research focuses on two main research questions: how to design promotional media for MSME agricultural products in the form of a web-based gallery using a user-centred design approach; and how to apply the user-centred design method in the development process of the web gallery to ensure it meets the needs of both MSME operators and their consumers. In line with these research questions, this study aims to produce a digital promotional platform in the form of a web-based agricultural product gallery that is user-friendly, easy to manage, and capable of expanding the marketing reach of MSMEs. Furthermore, this study also aims to evaluate the system's usability using the System Usability Scale (SUS) method, thereby determining the extent to which the developed system fulfils the aspects of effectiveness, efficiency, and user satisfaction. It is hoped that the results of this study will not only make a practical contribution to the development of digital marketing for agricultural SMEs in Aceh Besar Regency, but also serve as a scientific reference for the development of user-centred information systems in the agricultural sector in Indonesia.

RESEARCH METHODOLOGY

This study employs a qualitative method using a Research and Development (R&D) approach based on the principles of User-Centred Design (UCD). The qualitative method was chosen because the focus of the study is to understand the needs of users (MSME operators and consumers) and to design a solution in the form of a web-based agricultural product gallery system that meets those needs. The research also incorporates a quantitative evaluation using the System Usability Scale (SUS) questionnaire to measure the system's usability; consequently, this study incorporates elements of a light mixed-methods approach, with quantitative data serving to reinforce the findings of the qualitative evaluation.

The research was carried out at two partner MSMEs in the agricultural sector, located in Lam-Ue and Cot Gut villages, Ingin Jaya Sub-district, Aceh Besar Regency, namely Kebun Sawah (managed by Miksalmina, producing water spinach, lettuce, white bird's eye chillies and fresh pak choi) and Kebun Tengku (managed by Tengku Ibrahim, specialising in chillies and water spinach). Prior to digitalisation, both MSMEs marketed their products manually through direct sales at the farms and via family WhatsApp groups, without a documented digital catalogue, meaning that their promotional reach was limited to their local social circles.

The research sample was selected using purposive sampling based on the following criteria: business owners operating in the agricultural sector, willing to actively participate in interviews and system testing, and who do not yet have a web-based digital promotion system. Based on these criteria, the sample comprised two MSME operators as the system's primary users and ten local consumers as trial respondents, five of whom (two MSME operators and three consumers) completed the SUS questionnaire during the final evaluation stage. Primary data was collected through observation, semi-

structured interviews and questionnaires, whilst secondary data was obtained from product documentation and technical references from previous research.

The data were analysed descriptively through the stages of data reduction, presentation of data in narrative or tabular form, and drawing of conclusions. The system's usability score was calculated using the following SUS formula:

$$SUS\ score = [\Sigma(X_1 - 1) + \Sigma(5 - X_2)] \times 2.5$$

where X_1 is the score for odd-numbered items (1, 3, 5, 7, 9) and X_2 is the score for even-numbered items (2, 4, 6, 8, 10). The SUS score ranges from 0 to 100, with a score of ≥ 68 indicating a good level of usability (Brooke, 1996).

System development integrates the UCD stages in accordance with ISO 9241-210 with an iterative Agile framework, as follows:

- Understanding the context of use — observations and interviews with MSME stakeholders to understand current promotional practices and the challenges faced.
- Defining user requirements — the findings from observations and interviews were translated into functional requirements (product catalogue, business profiles, contact details) and non-functional requirements (simplicity of the interface, consistency of navigation, responsive design).
- Producing design solutions (Specify & Design) — creating a wireframe with four main menus (Home, Products, About Us, Contact) which was discussed with partner SMEs before implementation.
- Phased development (Development Sprints) — implementation was carried out through four Agile sprints: basic navigation structure, multimedia product catalogue, WhatsApp and Google Maps integration, and responsive design optimisation.
- Evaluation (Evaluate) — usability testing of the implemented website using the SUS method, with the results used as the basis for iterative improvements.

The system was developed using the WordPress platform, supported by gallery, security and SEO plugins, and is accessible via the address sayursegar38.wordpress.com. The research equipment comprised a laptop, a web browser, and Google Forms/Microsoft Excel for processing the questionnaire data.

RESULTS AND DISCUSSION

Mapping User Needs

The results of the needs assessment identified five key issues faced by partner MSMEs, along with the design solutions implemented on the website, as presented in Table 1.

Table 1. Needs Mapping and UCD Implementation

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No	Issue/User Feedback	User Needs	Design Solution	Implementation on the Website
1	Promotions are still manual and have limited reach	Digital promotional media	Creation of a web gallery	WordPress-based gallery website
2	Consumers find it difficult to view the latest product information	Informative product catalogue	Multimedia catalogue display	Product pages containing videos, descriptions and prices
3	Consumers want quick contact	Live chat feature	Instant contact button	WhatsApp integration
4	Business location unclear	Digital location information	Interactive map	Google Maps integration
5	MSME profile is incomplete	Business identity page	Dedicated profile page	'About Us' page featuring MSME profiles

All key user requirements have been accommodated within the system, demonstrating that the application of UCD is effective, as every feature developed stems from real user problems. Integration with Agile enables rapid improvements to be made based on feedback during each sprint, ensuring that the resulting website is highly aligned with the needs of SME owners and consumers.

Website Implementation

The homepage clearly presents the business's identity via a main banner featuring the slogan "Fresh Vegetables Straight from the Garden" to reinforce the image of fresh and natural agricultural produce (Kotler & Keller, 2016), with simple homepage navigation comprising four main menus that support the usability principles of consistency and readability (Budi & Nielsen, 2016).



Figure 1. Screenshot of the SME Website Home Page

The product page showcases the MSMEs' main produce — water spinach, lettuce, white bird's eye chillies and fresh pak choi — in the form of a digital catalogue featuring embedded videos, brief descriptions and pricing information. The use of video provides a more realistic picture of the condition of the crops and the harvest than static images, and has proven effective in expanding the reach of promotional efforts and enhancing the credibility of the business (Arsana et al., 2024).



Figure 2. Product Page Display on the SME Website

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The ‘About Us’ page presents the SME’s identity in a personalised manner, covering the business profile, the background to the business’s establishment, its vision, and its commitment to providing fresh agricultural produce. Presenting a business’s identity in digital promotional media serves to build consumer trust (Belch & Belch, 2012), and easily accessible background information also supports the website’s credibility (Krug, 2014).



Figure 3. Screenshot of the ‘About Us’ page on the SME website

The Contact page serves as the primary link between consumers and SME operators via a WhatsApp icon for quick communication, an email address, and Google Maps integration showing the business location. WhatsApp integration makes it easier for consumers to contact sellers without technical barriers, whilst Google Maps provides location verification, which enhances a sense of security during transactions (Hajriyanti & Akbar, 2021).



Figure 4. Screenshot of the Contact Page on the MSME Website

3.3 Usability Evaluation (System Usability Scale)

A usability evaluation was carried out on five respondents (two SME operators and three consumers) who directly tested the website at sayursegar38.wordpress.com and , and then completed the SUS questionnaire, which consisted of 10 statements on a 1–5 Likert scale. The calculated SUS scores for each respondent are presented in Table 2.

Table 2. SUS Score Results

Respondent	Total Raw Score	SUS Score
Respondent 1	32	80.0
Respondent 2	34	85.0
Respondent 3	31	77.5
Respondent 4	35	87.5
Respondent 5	33	82.5

The average SUS score was 82.5 — $(80.0 + 85.0 + 77.5 + 87.5 + 82.5) \div 5$ — which is well above the threshold of 68 set as the usability acceptability standard by Brooke (1996), and falls within the ‘excellent usability’ category. These results indicate that the system developed is not only easy to use but also provides a high level of satisfaction for its users.

Discussion

The research findings indicate that the integration of Agile and User-Centred Design (UCD) methods makes a significant contribution to the development of digital promotional media for micro, small and medium-sized enterprises (MSMEs) in the agricultural sector. The application of these two approaches is able to address various challenges long faced by MSME operators, particularly resource constraints, low digital literacy, and the need for systems that are user-friendly and tailored to users’ characteristics. In the context of an ever-evolving digital transformation, the development of promotional media is not only required to produce technically

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functional products, but must also be capable of delivering an effective, efficient and satisfying user experience.

Agile methods play a vital role in supporting an iterative and adaptive system development process. This approach enables development teams to break down the system development process into several smaller development cycles, allowing for rapid adaptation to changes in user requirements. The flexible nature of Agile offers benefits to agricultural SMEs, which often face changing requirements as their businesses grow and market dynamics shift. Through evaluation at the end of each iteration, developers can continuously improve the system's shortcomings without having to wait for the entire development process to be completed.

On the other hand, the User-Centred Design (UCD) method places the user at the centre of the entire system design and development process. Through this approach, users are involved from the needs identification stage, through interface design and prototype testing, right up to the final evaluation of the system. Active user involvement is a key factor in ensuring that the promotional media developed truly meets the needs, capabilities and expectations of MSME operators. Consequently, the resulting system not only possesses good technical quality but is also easy to use in day-to-day operations.

The combination of Agile and UCD creates powerful synergy in the development process for digital promotional media. Agile provides a framework that supports rapid and iterative development, whilst UCD ensures that every change and development is always based on user feedback. The integration of these two methods enables the creation of a system that is more responsive to user needs and capable of adapting to changes that occur during the development process. This demonstrates that the success of an information system is determined not only by the sophistication of the technology used, but also by the extent to which the system is able to genuinely meet user needs.

The success of integrating Agile and UCD in this study was reinforced by the results of usability testing using the System Usability Scale (SUS) method. The developed system achieved a score of 82.5, indicating that its usability falls within the 'very good' category. This score indicates that users felt comfortable using the digital promotional platform that had been developed, in terms of ease of navigation, clarity of display and the effectiveness of the available features. These results also

demonstrate that consistently involving users throughout the development process is capable of enhancing the overall quality of the user experience.

The high SUS score also indicates that the system developed has great potential for widespread adoption by agricultural MSMEs. In practice, many MSME operators face barriers to utilising digital technology due to limited knowledge and skills. Therefore, the availability of user-friendly digital promotional tools is a key factor in supporting the digitalisation of the agricultural sector. With a simple interface and features tailored to users' needs, this system can help SME operators promote their products more effectively without requiring advanced technical skills. Compared to previous research, the contribution of this study lies in the comprehensive application of the UCD method within an Agile framework, utilising a WordPress Content Management System (CMS). Previous research, such as that

Conducted by Arsana et al. (2024) and Andriani et al. (2022), these studies tend to focus more on the technical aspects of website development, such as interface design, system performance, or the implementation of specific technologies. Although these studies make an important contribution to the development of digital media, attention to user involvement throughout the entire development process remains relatively limited.

Unlike previous research, this study positions users as an integral part of every stage of development. The iterative approach adopted enables users to provide direct feedback on the system's design and functionality, ensuring that the final product truly reflects real-world needs. This process not only improves the quality of the system but also fosters a sense of ownership and trust amongst users towards the technology being developed. In other words, the successful implementation of digital promotional media depends not only on the technology used but also on the level of user acceptance and participation in the development process.

In addition to methodological aspects, the use of the WordPress CMS is also one of the key contributions of this research. The choice of WordPress was based on considerations of ease of use, flexibility and relatively low implementation costs. As a widely used platform, WordPress offers a range of features and plugins that can be

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tailored to the needs of MSMEs without requiring complex programming skills. These advantages make WordPress a suitable solution for agricultural MSMEs, which generally have varying levels of digital literacy.

The implementation of WordPress in this study demonstrates that the digitalisation of SMEs does not always require complex and expensive technology. By utilising a simple yet functional platform, SME operators can build digital promotional channels independently and sustainably. The ease of content management allows users to update product information, upload photos and manage promotions without relying entirely on specialists. This provides greater opportunities for SMEs to enhance their competitiveness and expand their market reach.

Overall, this research has produced digital promotional tools capable of helping agricultural SMEs to expand their market access and enhance the effectiveness of their marketing strategies. Furthermore, this research also makes a theoretical contribution to the advancement of knowledge, particularly regarding the integration of Agile and UCD in the context of the digitalisation of agricultural SMEs in Indonesia. The findings of this study indicate that the combination of adaptive and user-centred approaches can serve as an effective system development model for application across various other business sectors.

Thus, this study not only offers practical solutions for agricultural MSMEs in tackling the challenges of digital transformation, but also enriches academic research on the development of user-centred information systems. The integration of Agile and UCD has proven capable of producing digital promotional media that not only meets technical requirements but also provides tangible benefits to users, thereby supporting efforts to enhance the competitiveness of MSMEs in the digital age.

CONCLUSION

A digital promotional platform in the form of a web-based agricultural product gallery for MSMEs in Lam Ue Village and Cot Gut Village has been successfully designed and implemented using the WordPress platform, featuring a homepage, video-based product pages, profile and 'About Us' pages, as well as a contact page integrated with WhatsApp and Google Maps. The development process, supported by the Agile methodology, enabled the system to be built iteratively and flexibly.

The application of a User-Centred Design approach has successfully produced a system that meets user needs, is simple, easily accessible via mobile devices, and presents product information clearly. The results of the usability evaluation, using the System Usability Scale, achieved an average score of 82.5 (classified as ‘excellent usability’), indicating that the system is easy to use and has been well received by both SME operators and consumers.

For further development, it is recommended that partner MSMEs consistently update product information on their websites; that future research incorporate online transaction features (shopping baskets and digital payments); that ongoing training be provided to MSME operators on digital literacy; and that further studies on the ‘ ’ of Agile and UCD integration be extended to the non-agricultural MSME sector or educational institutions.

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