



Optimization of MSME Digitalization in Badung Regency

I G. A. Ngurah Lita Rumiati¹, Ni Made Satya Utami², Aniceta Ardyahayu Anggarari³, Satya Tripayana⁴, I Gd. Sudi Pertama Yasa⁵

¹Badan Riset dan Inovasi Daerah Kabupaten Badung, Indonesia,

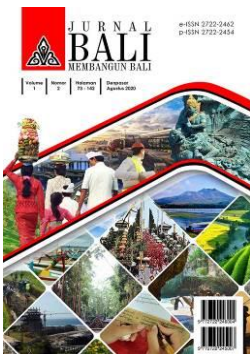
²Universitas Mahasaraswati Denpasar, Indonesia,

³BMKG Stasiun Meteorologi I Gusti Ngurah Rai, Indonesia,

⁴PT QIS Certi Indonesia, Indonesia,

⁵PT. Sinar Niaga Sejahtera, Indonesia

email: 1litarumiati73@gmail.com, 1satyakesawa@unmas.ac.id, 3sitagustut@gmail.com,
4agus.sathya96@gmail.com, 5soedy.sgr@gmail.com



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Abstract

Purpose: Micro, Small and Medium Enterprises (MSMEs) are an important pillar of the Indonesian economy, including in Badung Regency, contributing 61% to GDP and 97% of employment. However, the adoption of digital technology by MSME is still low due to limited digital literacy, infrastructure, and human resources. This study aims to analyze the implementation of MSME digitalization in Badung Regency and formulate effective digital marketing strategies to increase sales.

Research Methods: The study used a quantitative descriptive method with secondary data from a survey of MSME digitalization in 6 sub-districts in Badung Regency. The sample consisted of 180 MSMEs selected randomly, with a focus on micro-enterprises.

Findings: As many as 70% of MSMEs have implemented digitalization, especially in the fields of financial administration (77%) and marketing (75%). Instagram (48%) and websites (36%) are the most popular marketing platforms. The positive impacts of digitalization include increased turnover (70%) and market expansion (62%), but challenges such as low digital literacy (66%) and poor internet quality (37%) still hinder.

Implications: Digitalization has the potential to improve MSME performance, but requires holistic support. Priority programs include providing non-HR intensive application platforms, improving internet quality, and digital literacy training and MSME management.

Keywords: MSME, digitalization, digital marketing, digital literacy, Badung Regency

Abstrak

Tujuan: Usaha Mikro Kecil dan Menengah (UMKM) merupakan pilar penting perekonomian Indonesia, termasuk di Kabupaten Badung, dengan kontribusi 61% terhadap PDB dan 97% lapangan pekerjaan. Namun, adopsi teknologi digital oleh UMKM masih rendah akibat keterbatasan literasi digital, infrastruktur, dan SDM. Penelitian ini bertujuan untuk menganalisis penerapan digitalisasi UMKM di Kabupaten Badung serta merumuskan strategi pemasaran digital yang efektif untuk meningkatkan penjualan.

Metode penelitian: Penelitian menggunakan metode deskriptif kuantitatif dengan data sekunder dari survei digitalisasi UMKM di 6 kecamatan di Kabupaten Badung. Sampel terdiri dari 180 UMKM yang dipilih secara acak, dengan fokus pada usaha mikro.

Hasil: Sebanyak 70% UMKM telah menerapkan digitalisasi, terutama di bidang administrasi keuangan (77%) dan pemasaran (75%). Instagram (48%) dan website (36%) menjadi platform pemasaran paling populer. Dampak positif digitalisasi meliputi peningkatan omzet (70%) dan perluasan pasar (62%), tetapi tantangan seperti literasi digital yang rendah (66%) dan kualitas internet yang buruk (37%) masih menghambat.

Implikasi: Digitalisasi berpotensi meningkatkan kinerja UMKM, namun memerlukan dukungan holistik. Program prioritas meliputi penyediaan platform aplikasi non-SDM intensif, peningkatan kualitas internet, serta pelatihan literasi digital dan pengelolaan

UMKM.

Kata kunci: UMKM, digitalisasi, pemasaran digital, literasi digital, Kabupaten Badung.

INTRODUCTION

Micro, Small and Medium Enterprises (MSMEs) are one of the important pillars of the Balinese economy and Indonesia in general. MSMEs are micro, small and medium enterprises which are business activities carried out by individuals, households, or business entities (Zahra, 2022). The categorization of MSMEs can be carried out by looking at the annual business turnover, the size of assets, or the number of employees employed. MSMEs are found in every region with various types of business sectors, including in Badung Regency. Based on data from the Ministry of Cooperatives and MSMEs, the number of Indonesian MSMEs has reached 64 million businesses or 99% of all business activities in Indonesia (Yolanda, 2024). Furthermore, based on data from the Badung Regency Cooperative and MSME Service, the number of MSMEs in Badung Regency is 25,174 MSMEs. Until now, it has not been clearly identified which MSMEs have utilized digital technology or have implemented going digital.

Micro, Small and Medium Enterprises contribute no less than 61% to the National Gross Domestic Product (GDP) and are able to provide 97% of jobs from all available jobs (Ismail *et al.*, 2023). A survey by Bank Indonesia in March 2021 revealed that 87.5% of MSMEs were negatively impacted by the pandemic. However, as many as 12.5% of respondents stated that they were not economically affected by the pandemic. Even 27.6% of them said they experienced an increase in sales (Tarigan *et al.*, 2022). One of the strategies implemented to deal with the pandemic is to implement an online sales mechanism and create variations in terms of product types. This is possible because during the pandemic there has been a shift in people's behavior patterns towards digitalization (Winduro *et al.*, 2023).

According to Ifadhila *et al.*, (2024), digitalization is a concept that represents how new technology helps in generating new added value for customers and companies. Meanwhile, business digitalization is the integration of technology that changes the way businesses operate in various sectors, services, and marketing channels with customers and other stakeholders (Faizal, 2024). It can be concluded that MSME digitalization means integrating technology into all business activities within the scope of MSMEs. The business activities in question include administrative, financial, personnel, to marketing and sales (Handayani, 2023).

MSME digitalization is a change from conventional to digital systems as an effort to increase the effectiveness and efficiency of MSME business and operational processes. MSME digitalization is not just about using technology for product sales activities (Sulistiyowati *et al.*, 2024). More than that, MSME digitalization allows MSMEs to manage finances, monitor business cash flow, and obtain raw materials online. Thus, it can be said that digitalization plays an important role in the running of the MSME business process as a whole (Yusuf *et al.*, 2023). On the other hand, the very rapid development of digital technology is a challenge for MSME actors. On the one hand, the adoption of digital technology will further open up marketing access and reduce transaction costs, when compared to conventional work patterns (Sulistiyowati *et al.*, 2024). The transformation process towards Indonesian MSMEs going digital is not easy. This is due to limitations from various sides, such as MSME actors' knowledge of digital technology, capital related to technological devices, differences in infrastructure conditions between regions, and other factors related to the digital divide. Bahasoan *et al.*, (2025) stated that the adoption of digital technology by MSMEs is still

at a low level and far behind when compared to MSMEs in developed countries. Moreover, for MSMEs in the regions, access to supporting equipment, applications, and networks and telecommunications is a major challenge in utilizing digital technology.

The Indonesian Ministry of Finance stated that the potential of the digital economy of MSMEs reached 124 billion US dollars in 2025. The government has made efforts to provide support so that MSMEs can immediately enter the digital platform, through the development of digital infrastructure from Sabang to Merauke (Firdausy, 2021). Likewise, the Indonesian Ministry of Cooperatives and MSMEs also targets the realization of 30 million digital MSMEs by 2024 (Lusa *et al.*, 2024). Another policy that is no less important than the efforts of MSMEs to go digital, namely the efforts of MSMEs towards going legal which is carried out by eliminating various regulatory barriers in the ecosystem through the preparation of the Job Creation Law and its derivative regulations such as Government Regulation Number 7 of 2021 concerning Ease, Protection, and Empowerment of Cooperatives and MSMEs (Firdausy, 2021). Referring to this, it is felt necessary to maximize the role of MSME business actors in accessing the facilities that have been provided by the Government (Redi *et al.*, 2022). This is expected to encourage economic growth, especially in Badung Regency. The development of MSME digitalization certainly has many challenges, both in terms of business capital and human resource capacity in terms of digital technology (Prayuda *et al.*, 2024). Therefore, the active role of the Badung Regency Government is very important to be able to identify the potential of MSMEs in the region and pave the way for these MSMEs through technical assistance, facilitating access to digital marketing service providers, and providing other supporting infrastructure.

To maximize the use of digital technology for MSMEs, it is necessary to carry out research and development of cooperatives, small and medium enterprises through the compilation of MSME Digitalization research activities in Badung Regency. This is done in an effort to update and identify data for MSMEs that have utilized digital technology or have implemented go digital and formulate strategic steps and policies that need to be taken by the Badung Regency Government in developing MSME digitalization in Badung Regency.

RESEARCH METHOD

The design of this study is a quantitative descriptive method that uses secondary data from the Profile of the Cooperative, MSME and Trade Service of Badung Regency, and Badung Data in Figures from BPS Badung Regency. The purpose of this study is to determine the benefits of adopting digital technology for MSMEs in Badung Regency.

The location of the study is in Badung Regency, Bali Province, with a coverage of 6 sub-districts, namely South Kuta, Kuta, North Kuta, Mengwi, Abiansema, and Petang Districts. Each sub-district was taken as many as 30 samples, with a total sample of 180 MSMEs.

Of the total samples, there are 30 MSME samples that have not registered their businesses through the Online Single Submission (OSS) system. Sampling was carried out randomly from the MSME data list owned by the Badung Regency Cooperative and MSME Service. The research subjects were Micro category business actors in each region.

RESULT AND DISCUSSION

Characteristics of MSMEs in Badung Regency

Based on the results of data collection carried out by the Cooperatives and MSMEs Office of Badung Regency, the number of registered MSMEs is 21,699 businesses. These MSMEs include individual businesses as much as 47%, Limited Liability Companies (PT) as much as 23.45%, Limited Partnerships as much as 12.32%, and Regional Public Companies (Perumda) as much as 0.02%. The sub-district with the largest number of MSMEs is in North Kuta, followed by South Kuta, Kuta, Mengwi, Abiansema, and finally Petang. Looking at the composition in each sub-district, it can be seen that individual MSMEs and Limited Liability Companies (PT) are the most dominant. Companies with the type of Limited Partnership (CV) are also quite numerous and spread across all sub-districts, except for Petang sub-district. MSMEs with other types of businesses do not have that many.

The largest number of workers is covered by companies with the type of Foundation business absorbing 31,466 workers from 101 Foundation MSMEs in Badung Regency. Furthermore, the second position is occupied by CV with a total of 29,680 workers for 2674 businesses. Interestingly, the data on the number of workers shows an anomaly, where individual MSMEs totaling 12,471 businesses only have 84 workers. Likewise, MSMEs with the type of PT business totaling 5,088 businesses only employ 1715 workers. This phenomenon shows that business owners are not included as workers. Therefore, it is necessary to re-explore the reasons that cause this condition to occur.

Digitalization Facilities that can be Provided

MSME digitalization has a central role in supporting the development of MSMEs. Various stages of business can be supported by digitalization including Human Resources (HR) management, inventory management, financial administration management, marketing management, production management and service provision, and customer relationship management. Various digitalization facilities can be provided for each stage such as:

1. Human Resource Management: employee recruitment, HR data collection, HR training and development, allocation of work to HR, HR performance evaluation, payroll and allowances, and management of employee personal welfare.
2. Inventory Management: e-inventory including inventory input, inventory expenditure, and stock information, integration with point of sales. Facilities can also include supplier and distributor management.
3. Financial Administration Management: financial applications, e-banking, e-wallet, payment gateway, provision of financial capital, and electronic investment.
4. Marketing Management: search engines, web advertisers, social media advertisers, web analytics, and social media analytics. In detail, some things that can be utilized from the implementation of online marketing include product search facilities, special offer facilities, product information or articles that support and provide product guidance for consumers, consumer service

assistance facilities, online communication facilities with entrepreneurs, online opinion support facilities, supporting images such as product photos or illustrations, video display facilities that can visualize products or supporting presentations, and visitor record facilities.

5. Production Management and Service Provision: activity calendar, monitoring of production and service provision processes, integration with inventory management, integration with HR management, integration with financial management, evaluation of production and service provision. Specifically for service provision, facilities that can be provided include a customer help desk system.
6. Customer Relationship Management: CRM operational facilities in the form of a website that connects customers with MSMEs, CRM analytics in the form of applications for market analysis such as trend analysis, market segmentation, etc., and collaborative CRM such as the use of e-mail, personalized publishing, and e-communities.

Some of these facilities are provided for a fee, some are provided free of charge. Some facilities also require a fairly high HR capacity in their use.

Analysis of MSME Digitalization Survey Results Data

1. Implementation of Digitalization

Of the 210 businesses recorded, 70% stated that they had implemented digitalization, while 30% had not yet implemented digitalization. The digitalization covered included digitalization of marketing, financial administration, inventory management, HR management, production management/service provision, and customer relationship management (CRM).

When viewed per sub-district, Kuta Sub-district has 91% of businesses that implement the highest digitalization, followed by North Kuta Sub-district (86%) and South Kuta (83%). The sub-district that is still lacking in implementing digitalization is Petang Sub-district (49%). Abiansema and Mengwi Sub-districts have a level of implementation that is not so high even though it has exceeded 50%.

The field of highest digitalization implementation is financial administration at 77%, followed by marketing at 75%, inventory management at 11%, and production management or service provision at 11%. The implementation of digitalization in the field of HR management and CRM is still below 10% of the total respondents who have implemented digitalization. The same trend is also shown by each sub-district in Badung Regency, with slight differences in Mengwi and Petang sub-districts, where the implementation of digitalization in the CRM sector is quite extensive and reaches 19% and 12%.

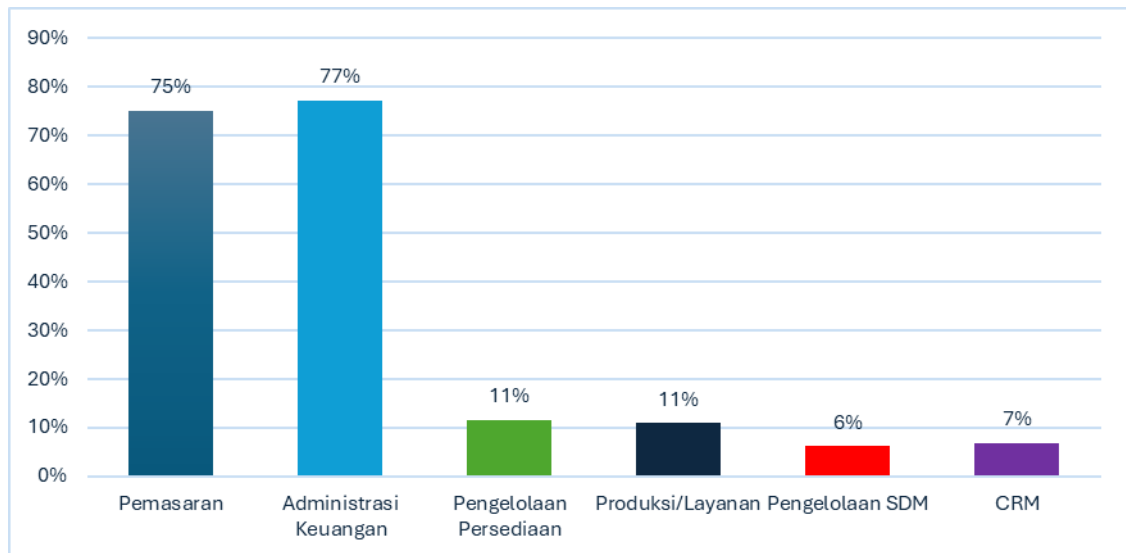


Figure 1. Percentage of Fields of Application of MSME Digitalization Badung Regency in 2024

2. Applications Used for Marketing Activities

The application used for marketing activities with the highest percentage is Instagram, which is 48%. 36% of MSMEs also stated that they use websites in marketing. 13% of respondents stated that they use Facebook, while 6% of respondents stated that they use other applications for marketing including WhatsApp, Ojek online, TikTok, Tokopedia, and Shopee.

The same trend also occurs at the sub-district level with Instagram and websites being the media used to carry out marketing promotions. Specifically for Petang sub-district, from those implementing digitalization, Facebook has the same percentage as Instagram, while for Kuta sub-district, websites are the main option in marketing. Specifically for the use of financial technology (fintech) applications, it was found that 53.8% of MSME respondents stated that they use fintech applications in carrying out their financial transactions. QRIS is the most widely used application.

3. Use of Social Media and E-Commerce Applications

As reviewed in the literature review, according to Hermawansyah (2022), it states that the potential for internet service users in Indonesia, especially for applications, is mostly based on social media and chat media. From the results of the MSME Digitalization survey that has been carried out, a fairly high gap was obtained between the use of marketing applications and the existing market potential through electronic access and transactions carried out by internet service users. MSME in Badung Regency use Instagram a lot as a marketing medium, 48%, but Instagram application users every week are 82%. Other applications are not widely used by MSME in Badung Regency, but the available market potential is very high, such as Facebook, TikTok, Youtube, Twitter, Whatsapp, Line, and Telegram. E-commerce web applications are also widely accessed by the public today according to existing reports. However, MSME still uses this application very minimally.

4. Digitalization Applications for Application in Fields Other Than Marketing

Applications used to support the implementation of digitalization other than marketing are still very limited. For financial administration and inventory management, apart from fintech, Microsoft Excel appears as the most widely used application. For fintech, the most widely used application is QRIS, followed by OVO, and various other fintech applications with a small portion. For production management/service provision, the applications used are more diverse including online gojek applications, email, online delivery, websites and other information systems (Aripradono & Venessa, 2023). For HR management, the applications used are almost unfocused and diverse including the use of Microsoft Excel. For CRM activities, email applications are applications that are widely used to maintain connections with consumers.

5. Implementation of Digitalization in Retail Trade MSMEs, Not Motorcycles and Cars

The number of MSMEs in the retail trade business category, not motorbikes and cars, is 93 businesses. The implementation of digitalization in Retail Trade MSMEs, Not Motorbikes and Cars (67%), is less than the implementation of digitalization in general (70%). The implementation of digitalization is generally carried out for marketing activities (61%) and financial administration (76%). The applications used for marketing have the same trend as general conditions, with Instagram used as the main media (41%). The positive impacts that were responded to also had the same trend with increased turnover (74%) and market expansion (56%) as the most felt positive impacts. The negative impacts experienced also experienced the same trend. 89% of Retail Traders, Not Motorbikes and Cars, stated that they wanted to start/continue the implementation of digitalization, which increased by 18% from the current implementation of digitalization. The areas of application that they want to do are marketing (76%), financial administration (61%), inventory management (43%), while the others are still below 30%. The expected digitalization assistance is almost the same as the general trend, with an increase in MSME digital literacy (71%), and an increase in MSME management literacy (57%) being the highest responses. The reasons for not wanting to start/continue implementing digitalization are almost the same as the general trend. Meanwhile, for the general assistance needed by MSMEs, it shows a trend that is almost the same with KUR/Loans being the highest assistance needed (76%).

6. Implementation of Digitalization in MSMEs Providing Food and Beverages

The number of MSMEs in the food and beverage trade business category is 41 businesses. The application of digitalization in MSMEs providing food and beverages is equivalent to the application of digitalization in general (65%). The application field also has the same trend as the general application, namely in the marketing field at 70% and financial administration at 81%. The same trend is also shown from the type of application used for marketing with the most widely used application being Instagram at 52%. The positive impact felt by business actors is almost the same as the general response with increased turnover and market expansion being the highest responses at 81% and 59%. For negative impacts, businesses in this category see that misuse of technology (online fraud) is a significant impact to be addressed (33%).

The response to the possibility of business actors in this category in starting/continuing the implementation of digitalization, is less than the general desire, but has increased by 7% from the realization of the current implementation. The field of digitalization implementation has experienced a trend that is almost the same as marketing and financial administration, getting the highest response at 76% and 42%. The same trend was also found for the expected digitalization assistance with the two highest responses being in the items of increasing MSME management literacy (45%) and increasing MSME digital literacy (36%). For the reasons for not wanting to start/continue the implementation of MSMEs, it was found that HR digital literacy and MSME management literacy received quite high numbers at 71% and 57%. This response is almost the same as the general MSME response. For general assistance needed, the trend is also almost the same as that obtained with KUR/Loans as the highest response (60%) and Direct Cash Assistance (53%).

7. Impact of Utilization of Digitalization

For the positive impacts obtained after digitalization, the impacts with the highest percentages are increased turnover and market expansion (70% and 62% respectively). In addition, detailed product information to buyers is another positive impact obtained after implementing digitalization. In addition to marketing, other fairly high impacts obtained from digitalization are better performance (25%), and business process efficiency (18%). While other impacts such as branding, sharing ideas, consumer relations, and others are insignificant impacts with figures of 15% and below.

For conditions per sub-district, Abiansemal, Kuta, North Kuta, and South Kuta consider increased turnover and market expansion to be quite significant impacts. Meanwhile, for Mengwi and Petang, increased turnover is the most significant impact, while market expansion has almost the same impact as improved performance. And specifically for Petang sub-district, digitalization is believed to be able to optimize resources and relationships with consumers.

For those who do not implement digitalization, the reasons stated include the lack of digital literacy of human resources (66%), lack of literacy in managing MSMEs (44%), frequent changes of human resources (34%), and poor internet quality (37%). Other reasons that also emerged were the lack of a good understanding of digitalization, not knowing about digitalization, too varied application choices, and high application costs, but with a response percentage of less than 15%.

Meanwhile, for the figures per sub-district, it was found that the lack of digital literacy of human resources was the main cause, with variations in the causes of literacy in managing MSMEs found in Abiansemal, Kuta, North Kuta, Mengwi, and Petang. Other causes such as poor internet quality were experienced in Abiansemal, North Kuta, and Petang. Meanwhile, the cause due to frequently changing human resources was found in Kuta, North Kuta, Mengwi, and Petang.

Priority Scale of Digitalization Programs Based on Needs

From the recommendations of the proposed work program, an analysis of the priority scale can be given based on factors of needs, convenience, self-efficacy, and ease of financing as in the following table.

Table 1. Determination of Priority Scale of Digitalization Programs Based on Needs, Convenience, Self-Efficacy, and Ease of Financing

No.	Work program	Needs	Ease	Self-Efficacy	Ease Financing	of Priority
1	Increasing digitalization capacity according to application field	High	Intermediate	Low	Intermediate	3
2	Provision of application platforms that are not HR intensive	High	Intermediate	High	Intermediate	1
3	Increasing application usage capacity	High	Intermediate	Low	Low	4
4	Increasing MSME management capacity	High	Low	Low	Low	5
5	Improving internet connection quality	High	High	Low	Intermediate	2

All work programs are selected based on existing needs after the results of the MSME Digitalization Survey are obtained. When assessed from the needs factor, all work programs are categorized as work programs that are very much needed (high category needs). This need also answers the side that these nominated programs solve various problems experienced by MSMEs. This also has an impact on efforts to increase product value and added value from MSMEs, both direct and indirect increases.

For the level of ease of implementation, the socialization of business registration is categorized as a work program with a medium ease category, because the object of the work program is an external party whose outcome requires special procedures to monitor it. The same assessment was also given to the work program for providing an application platform that is not HR intensive and improving the quality of internet connections. A medium level of ease was given, because this work program still requires several processes that must be completed to obtain results such as analysis, design, and system development, as well as identification of areas with poor internet quality. Ease with a high value was given to the work program for providing KUR/loan assistance and implementing an MSME product exhibition. This assessment was given because the government only needs to coordinate or prepare regulations for implementing activities. Meanwhile, other work programs were given a Low ease value because in order to achieve results, the work program for increasing capacity and providing direct cash assistance requires long stages and there are several parts of the stages whose activities still require the formulation of activities that tend to be complex such as collecting data on aid recipients, implementing and evaluating capacity building activities, and others.

For self-efficacy assessment, high scores were given only to the work program for providing an application platform that is not HR intensive. This work program provides solutions not only related to digital applications that can be used by MSMEs but also provides solutions in terms of HR limitations that occur in MSMEs, and digitalization solutions needed by MSMEs in various fields. This is possible due to the development of existing technologies such as information systems, data warehousing systems, artificial intelligence, and the Internet of Things (IoT). Other work programs

were given low scores, because the work program only provides solutions to one dimension of the objectives of each work program. For the ease of financing factor, high scores were given to the work program for providing KUR/loan assistance, because the government only needs to coordinate and prepare regulations while the provision of funds is carried out by the KUR/loan product service provider. The work program for socializing business registration, providing an application platform that is not HR intensive, and implementing an MSME product exhibition were given medium scores, because in implementing the work program, financial support is needed such as implementing socialization, preparing applications, and costs for implementing the exhibition. For work programs to increase capacity, improve the quality of internet connections, and provide direct cash assistance, the funds that must be provided by the government are very high, not to mention data on MSMEs receiving direct cash assistance and data on MSMEs as objects of capacity improvement that are not yet available (Munizu *et al.*, 2023).

From the analysis of the priority scale carried out above, the priority of implementing work programs to increase the adoption or utilization of digital technology can be sorted as follows:

1. Provision of an application platform that is not HR intensive
2. Improving the quality of internet connections
3. Increasing digitalization capacity according to the field of application
4. Increasing the capacity of application use
5. Increasing the capacity of MSME management

In relation to data collection activities that are a priority to be implemented, one solution that can be applied in a combination of the implementation of digitalization and data collection is the provision of an application platform that supports business processes related to data collection activities and is not HR intensive (Wenardi *et al.*, 2025). This solution provides answers to data collection problems and problems of implementing MSME digitalization with one integrated answer that does not require too much HR support.

CONCLUSION

Micro, Small and Medium Enterprises in Badung Regency are an important pillar of the economy, with significant contributions to GDP and employment. However, the adoption of digital technology is still low, especially in areas such as Petang. The main challenges include limited digital literacy, quality of human resources, internet infrastructure, and capital. Based on the data, as many as 70% of MSMEs have implemented digitalization, especially in the fields of financial administration (77%) and marketing (75%). Instagram (48%) and websites (36%) are the most popular marketing platforms. However, implementation in other areas such as HR management and CRM is still below 10%. MSMEs that have implemented digitalization have experienced increased turnover (70%) and market expansion (62%). However, negative impacts such as online fraud and limited human resources are also obstacles. Based on the need analysis, priority programs to support MSME digitalization include: provision of non-HR intensive application platforms, improving the quality of internet connections, increasing digitalization capacity according to the field and training in the use of applications and management of MSMEs.

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