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Case Study of Successful Utilization of Digital Technology Innovations Determinants of Cooperative Institutions in Bali: The Impact of the Covid-19 Pandemic

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ABSTRACT

The Covid-19 pandemic has caused serious problems for all sectors and financial institutions, including cooperatives. One solution for cooperative institutions is to innovate digital technology to overcome social distancing. Cooperatives that can maintain their performance during the Covid-19 pandemic are those that can innovate technology. In this study, a qualitative descriptive method was used to determine the factors influencing the successful use of digital technology innovations by cooperatives in Bali due to the Covid-19 pandemic. The key informants in this study were the chairmen of the board and cooperative management who applied digital technology innovation during the Covid-19 pandemic, and triangulation was used for data analysis purposes. We found that top management commitment and support, perceived costs, security concerns, compatible technology facilities, perceived benefits, performance expectations and business prospects were critical to the successful use of digital technology innovations by cooperatives in Bali during the Covid-19 pandemic.

Keywords: Cost Perception, Covid-19 Pandemic, Digital Technology Innovation, Security Issues, Technology Facilities, Top Management Commitment and Support.

INTRODUCTION

The Covid-19 pandemic has become an extraordinary challenge for the whole world and a major problem with serious impacts on all aspects (Zaazou & Abdou, 2020). The increasingly widespread outbreak of Covid-19 throughout the world shook not only health problems but also the economic, business, financial, social, and psycho-social sectors (Fernandez, 2020) and even caused an economic crisis (Larsson & Gustavsson, 2020). Zetterli (2020) also showed that the Covid-19 pandemic caused economic turbulence, affecting the sustainability of cooperatives as a form of microfinance institution both in terms of savings, loans, and operational activities. It was also shown that microfinance institutions experienced a decrease in loan portfolios, decreased liquidity, branch closures and layoffs. As a result, several microfinance institutions implemented digital channels and even expanded or increased digital channels to customers.

Beraha and Đuričin (2020) conducted a survey finding that the pandemic has affected the businesses of medium-sized companies in several ways and intensity to the point of moving employees to work from home, decreasing liquidity and utilization of business capacity, and disrupting the supply chain in companies. The Covid-19 pandemic also threatens lives and sources of income, creating new challenges for financial institutions to continue to serve the community (Malik, Ogden, Meki, Morduch, & Quinn, 2020). Emotionally, the pandemic has also challenged employees and SMEs (Robinson & Kengatharan, 2020). It has also forced many organizations to transform the face of a prolonged pandemic (Dwivedi et al., 2020).

Zheng and Zhang (2021) showed that the pandemic reduced financial efficiency in microfinance institutions. Goodell (2020) revealed that many microfinance institutions and banks that provide loans to the poor are under pressure, thereby changing the operations of financial institutions. This has also changed public manager attitude towards information and communication technology (ICT) due to the Covid-19 pandemic, leading to digital technology acceleration (Barrutia & Echebarria, 2021). It was also claimed that technology and digitalization are crucial to help organizations live in a competitive market (Hussain, 2021).

There is also a desire to meet customer demands through e-commerce and online transactions, which are also a part of digitalization (Khalid & Naumova, 2021). Therefore, innovation is vital for the continuity and success of organizations in a volatile market environment (Lee & Trimi, 2021). This accords with Anu (2021), who stated that the Covid-19 pandemic is a momentum for the transformation of cooperatives into a digital economy to achieve efficiency and effectiveness. Only 906 cooperatives, or 73 percent of the 123,000 active cooperatives, are included in the digital ecosystem in Indonesia (Depkop, 2020).

Based on the recapitulation of cooperative data by the SMEs Cooperatives Office of Bali Province, the number of cooperatives in Bali in 2021 was 5,258, with 3,625 active cooperatives (SMEs Cooperative Office of Bali Province, 2021). The office Head stated that there is a lack of cooperatives in Bali that utilizes digital technology innovations. Therefore, it was further claimed that changes of life order during the pandemic should be adapted by utilizing digital technology (Supartika, 2020). Hence, this study determines the successful use of digital technology innovations by cooperatives in Bali Province after the Covid-19 pandemic.

LITERATURE REVIEW

Technology is a strategic necessity required for any company to stay in business (Fuentelsaz, Gómez, & Palomas, 2012). In the industrial era of 4.0, ICT is inseparable from people's lives because ICT has a positive impact in all fields, especially with demands for time and cost efficiency (Alamanda, Wibowo, Munawar, & Nisa 2021). Singh, Sharma, and Dhir (2021) confirmed that company managers feel confident that the utilization and use of digital technology is a strategic way to increase the company's competitiveness. Meanwhile, the company's decision to adopt the technology itself is largely determined by the company's leadership (Carreiro & Oliveira, 2019).

Technology Organization Environment (TOE) was formulated by Tornatzky, Fleischer, and Chakrabarti in 1990 to explain the factors that influence the adoption of technology in an enterprise-level context (Oliveira, Thomas, & Espadanal, 2014; Ooi, Lee, Tan, Hew, & Hew, 2018). Although the TOE framework is valid, the most dominant and specific for the adoption of the corporate context, it has not provided a clear explanatory constructor (Gangwar, Date, & Ramaswamy, 2015). One reason is that individuals decide to adopt the technology within the organization (Chan, Chong, & Zhou, 2012). This is in accordance with Awa, Ojiabo, and Orokor (2017), stating that the TOE framework should integrate other adoption theories. Bose & Luo (2011) also argued that the TOE framework has no concrete model to depict factors affecting the adoption of technological innovations. Therefore, it was suggested that an integrative approach combining more than one theory should be used (Martins, Oliveira, & Thomas, 2016). This is because the decisions of companies/organizations in using technology can vary and change over time, so there will be differences in technology adoption decisions. Our work uses the framework of Human Organization Technology and Technology Organization Environment as used in previous studies (Ahmadi, Nilashi, & Ibrahim, 2015; Ahmadi, Nilashi, Shahmoradi, & Ibrahim, 2017; Ahmadi et al., 2018) to explore data through descriptive analysis regarding the successful use of digital the technology innovations carried out by cooperative institutions in Bali Province. Based on this explanation, the majority of previous studies were in the context of companies, banking financial institutions, organizations, bank customers, and consumers. This distinguishes this study, in which non-bank financial institutions in the form of cooperatives were studied to look into the successful use of digital technology innovations.

The first aspect of technology adoption is the strong commitment and support of top management. It is about the level of importance of technological innovation by senior management in the organizational context using the TOE framework. It will result in the number of resources allocated for technological innovation (Oliveira & Martins, 2010). Therefore, it should be considered an important factor as it affects the decision to use technological innovations and is related to the availability of adequate resources for decisions to implement technological innovations (Senyo, Effah, & Addae, 2016).

In addition, it is also beneficial to create a competitive environment and provide appropriate resources as it helps to solve internal barriers and resistance to change (Gutierrez, Boukrami, & Lumsden, 2015). The awareness of technology adoption benefits is critical to managing potential organizational change, sending a positive signal of trust to all company employees (Low, Chen, & Wu, 2011). Additionally, senior managers, as the top management, occupy important roles because technology implementation involves the integration of resources and other operational activities (Gutierrez et al., 2015). Thus, it is more potential to adopt new technology quicker with a strong top management commitment and support than one that does not receive such support (Awa et al., 2017).

Top management support has an effect upon cloud computing adoption in Malaysian SMEs (Asiaei & Nor, 2019). Moreover, it also affects IIoT adoption in auto-component SME manufacturing companies (Sivathanu, 2019). Similarly, it affects the intention to adopt big data in the B2B context in organizations (Sun, Hall, & Cegielski, 2020). Subsequently, it is expressed as a causal element of e-business adoption in companies in Peninsula (Ilin, Ivetić, J., & Simić, 2017). It also affects mobile marketing adoption in SMEs in South Africa (Maduku, Mpinganjira, & Duh, 2016). However, other findings underlined a negative effect on cloud computing adoption in the Saudi Arabian private sector (Alkhater, Walters, & Wills, 2018).

This contrasting finding is also corroborated by a previous work claiming that top management support does not affect the adoption of blockchain in supply chain operations and management in a number of Malaysian SMEs (Wong, Leong, Hew, Tan, & Ooi, 2020). Top management support was also revealed to have no effect on blockchain supply chain adoption by organizations in India (Kamble, Gunasekaran, Kumar, Belhadi, & Foropon, 2021). Similarly, it was stated as not a determinat factor of the adoption of cloud computing technology (Ali, Shrestha, Osmanaj, & Muhammed, 2021). Furthermore, top management support does not influence software-as-a-Service (SaaS) adoption from an organizational user perspective Cloud computing in the manufacturing sector in Malaysia was also revealed to be not influenced by top management support (Ooi, Lee, Tan, Hew, & Hew, 2018).

It was later found that costs affect innovation adoption decisions (Ramayah, Ling, Taghizadeh, & Rahman, 2016). The costs of technological innovation adoption are the other determinant factor of behavioral intentions to use technological innovations. Cost includes all the money and time that a company, organization, or SME has to invest in technological innovation activities. They are one significant factor in behavioral intention to innovation adoption (Maduku et al., 2016).

Lin (2014) stated that financial costs comprise maintenance, implementation, andf operational costs, which are essential barriers to business adoption. They are the barriers to the adoption of e-business in companies in developing countries (Ghobakhloo, Arias-Aranda, & Benitez-Amado, 2011). Complications and a lack of financial resources hinder the adoption process. In addition, the cost of the technology implementations, including hardware, software, and training employees, impedes some companies from e-business initiative adoption (Ilin et al., 2017).

Ali et al. (2021) underlined that costs shape the adoption of cloud computing technology. The adoption of open government data in a number of government offices is also revealed to be influenced by costs (Wang & Lo, 2016). Costs also determine electronic supply chain management system adoption (Lin, 2014) and affect the acceptance of corporate websites (Osakwe, Chovancová, M., & Agu, 2015). However, it was claimed that costs do not affect the adoption of cloud computing technology (Lian, Yen, & Wang, 2014). This is also supported by a previous study stating that costs do not affect the adoption of e-business in companies (Ilin et al., 2017), the adoption of e-commerce applications in SMEs (Ghobakhloo et al., 2011), and negatively affect digital technology adoption in SME manufacturing companies (Ghobakhloo & Ching, 2019). For the contrasting research findings, we used costs to determine factors affecting the successful use of digital technology innovations by cooperatives in Bali Province.

Furthermore, security and privacy issues significantly force companies to consider adopting the technology (Khayer, Jahan, Hossain, & Hossain, 2021). Security is an important technology issue, especially in e-business (Alharbi, Zyngier, & Hodkinson, 2013). It deals with the level of service procedures to secure organizational or system

data from any threats or attacks (Lian et al., 2014) and is connected with the security of user data (Kumar, Samalia, & Verma, 2017). Interestingly, security and privacy issues significantly discourage companies from adopting technology (Khayer et al., 2021). This is a major problem and a significant barrier to technological innovation (Ilin et al., 2017). Security concerns are also a substantial predictor of cloud computing technology adoption in SMEs (Gupta, Seetharaman, & Raj, 2013; Khayer et al., 2021). Adoption of other cloud computing technologies also showed that security concerns are a critical factor in local government (Ali et al., 2021). SaaS adoption is also influenced by security concerns (Safari, Safari, & Hasanzadeh, 2015).

It was also claimed that cloud computing adoption in Malaysian SMEs negatively affects security concerns (Asiaei & Nor, 2019). This agrees with the previous claim stating that cloud computing adoption in private sector organizations has a negative effect on security concerns (Alkhater et al., 2018). Contrastingly, it was stated that cloud computing adoption in Indian SMEs has no effect on security concerns (Kumar et al., 2017). Similarly, security concerns have no effect on the social commerce adoption of SMEs in Saudi Arabia (Abed, 2020). Security concerns also do not determine cloud computing adoption from the manufacturing and service sectors (Oliveira et al., 2014). Turning to technology compatible facilities, technology infrastructure is technology-compatible facilities. It is important for organizations to choose new applications since it allows for the required hardware platforms, software support, computer networks, and physical facilities (Oliveira & Martins, 2010).

Compatible technology facilities reflect the ability to carry out and control information systems and are of importance in organizational competitiveness (Gutierrez et al., 2015). Compatible technology facilities make it easier for an organization to adopt technology (Yang et al., 2015). Thus, they refer to the availability of technological facilities and systems to draw more stakeholder participation (Le, Kunasekaran, Rasoolimanesh, AriRagavan, & Thomas, 2021).

Companies with sophisticated technological facilities have adequate capabilities to assimilate technology into their operations and business processes (Wei, Lowry, & Seedorf, 2015). Therefore, compatible technological facilities are very important and affect the use of existing resources, which can increase competitiveness (Yeh & Chen, 2018).

Technology infrastructure as a compatible technology facility influences the adoption of IIoT in auto components of SMEs manufacturing companies in India (Sivathanu, 2019), the diffusion of Radio Frequency Identification technology by Chinese companies (Wei et al., 2015) and the adoption of enterprise applications by SMEs (Ramdani, Chevers, & Williams, 2013). On the contrary, Le et al. (2021) stated that IT infrastructure as a compatible technology facility does not affect the implementation of destination management systems for a number of stakeholders in Vietnam. Yang et al. (2015) also stated that the adoption of SaaS from the perspective of organizational users is not influenced by IT infrastructure.

The next aspect related to technology adoption is perceived usefulness: the extent to which technology adoption innovations are perceived to provide benefits to the organization (Lin, 2014). It was further claimed that the biggest motivation for technology adoption is the benefits expected by the company from its use (Ghobakhloo et al., 2011). Micro-companies adopting non-transactional websites depend on decision-maker's perception that having a corporate website will increase the institution's name in the market (Osakwe et al., 2015).

In technology adoption, the perception suggested perceived benefits and perceived barriers. Perceived benefit refers to the anticipated benefits of innovation for an organization, thus becoming the motivation for technology adoption. Some of the perceived benefits include increasing the value of data, minimizing errors while working, operational benefits, technical benefits and benefits from various perspectives, such as external and internal stakeholders (Wang & Lo, 2016).

Perceived usefulness deals with how innovation adopting technology is perceived as providing benefits to the organization. It was stated that the perceived benefits are positively related to the level of adoption, including facilitating various information within the company and among trading partners (Lin, 2014). Perceived benefits also affect the adoption of cloud computing technology by SMEs (Kumar et al., 2017). Similarly, Lin (2014) suggested perceived benefits as a determinant of electronic supply chain management systems adoption and the adoption of open government data in a number of government offices (Wang & Lo, 2016). On the other hand, perceived benefits do not affect the adoption of cloud computing in hospitals in Taiwan (Lian et al., 2014).

The next aspect of performance expectations translates into using technology to carry out daily activities that benefit the organization more efficiently (Khayer et al., 2021; Venkatesh, Morris, Davis, & Davis, 2012). Further, performance expectations are the most powerful driving force for using technological innovation (Cao & Niu, 2019; Venkatesh & X, 2012). Previous findings show that performance expectations are one of the most significant causal factors of organizational behavioral intention of technology adoption (Ayaz & Yanartaş, 2020; Ferri, Spanò, Ginesti, & Theodosopoulos, 2020; Khayer et al., 2021; Kuciapski, 2017; Ooi et al., 2018; Sabani, 2020; Zuiderwijk, Janssen, & Dwivedi, 2015). However, Le et al. (2021) found that performance expectations have no effect on destination Management System adoption among tourism stakeholders. Furthermore, Addy, Adinyira, and Ayarkwa, (2018) stated that performance expectations negatively affect the adoption of building information modeling in Ghana.

Performance expectations determine the extent to which new technologies are perceived as superior by incumbents in building competitive advantage (Awa, Ukoha, & Igwe, 2017). The availability of software, tools and IT infrastructure will increase the expectations of individuals and organizations to work better (Zuiderwijk et al., 2015). Alalwan, Dwivedi, Rana, & Algharabat (2018) and Merhi, Hone, and Tarhini (2019) suggested that performance expectations have a level of benefit in certain activities due to the use of technology. They also improve overall performance that combines perceived benefits, outcome expectations, external motivation, job suitability, and comparative advantage (Farah, Hasni, & Abbas, 2018). Performance expectations reflect the perceived utility associated with using mobile internet (Alwahaishi & Snášel, 2013; Zhou, 2011), internet banking (Abushanab, Pearson, & Setterstrom, 2010), and online banking (Riffai, Grant, K., & Edgar, 2012). Performance expectations increase performance, and user work efficiency influences continuity intentions (Alwahaishi & Snášel, 2013).

Another essential aspect is business prospects related to the level of ease of use of technology (Zuiderwijk et al., 2015). It specifically measures the complexity or ease of use of technology and examines how users find it easy to use the technology (Venkatesh et al., 2012). Business prospects are also defined as the degree of convenience when using an information system or information technology that affects performance expectations (Ferri et al., 2020; Soong, Ahmed, & Tan, 2020). By using technology that is easy to use, it is hoped that business prospects will grow faster (Venkatesh et al., 2003; Venkatesh, & X, 2012).

Martins et al., (2014) stated that the intention to adopt new technology tends to enhance when users perceive that technology integration will not demand extravagant effort. The convenience of internet banking, based on Zhou et al. (2010), deals with its easiness and simplicity where users have high business prospects to obtain the expected performance. Business prospects precisely anticipate the intention to adopt new technology and play significant roles in customer intention to use technology (Miltgen, Popovič, & Oliveira, 2013). The impact of business prospects has been validated on customer intentions to use mobile banking (Bhatiasevi, 2016) and internet banking (Alalwan et al., 2018). There is a belief that if institutions feel that using technology services will improve business prospects, they are more inclined to adopt technology (Oliveira et al., 2014). Based on the findings, business prospects are used as the main determinant of adopter's intention to use technology (Soong et al., 2020).

When users feel the easiness of technology services, they are more willing to adopt technology (Gupta et al., 2019). Similarly, if institutions feel that using technology services will improve business prospects, they are more willing to adopt technology (Oliveira et al., 2014). Business prospects have been stated to exhibit a positive effect on cloud computing adoption in SMEs in developing countries (Khayer et al., 2021). Business prospects are also revealed to be essential factors that influence e-government adoption (Sabani, 2020). They also facilitated the adoption of building information modeling among surveyors in Ghana (Addy et al., 2018). On the contrary, Zuiderwijk et al. (2015) claimed that business prospects negatively affect the acceptance and use of open data technology. Also, the acceptance of the mobile technology model was revealed to have no effect on business prospects (Kuciapski, 2017). In addition, auditors' intention to use blockchain technology was not affected by business prospects (Ferri et al., 2020). Similarly, business prospects were found to have no effect on electronic data management system acceptance (Ayaz & Yanartaş, 2020). Based of the research gaps in previous studies, this study used top management commitment and support, perceived costs, security issues, compatible technology facilities, perceived benefits, performance expectations and business prospects to determine factors shaping the successful use of digital technology innovations by cooperatives in the province of Bali.

RESEARCH METHOD

This work used the qualitative method to understand the phenomenon of Covid-19 pandemic impact on the successfulness of cooperatives in Bali in carrying out technological innovations (Ma, Du, Cen, & Wu, 2016; van Looy, 2021). The subjects of this study were key informants consisting of the Chairman of the board or cooperative management who use digital technology innovations as decision-makers and implementers. The research method was descriptive exploratory qualitative research (Szutowski, Szulczewska-Remi, & Ratajczak, 2019). The descriptive analysis was conducted based on the use of digital technology in cooperatives using triangulation (de Albuquerque, Diniz, & Cernev, 2014), by observing cooperatives that use digital technology services due to the Covid-19 pandemic.

Data collection was conducted online from 4,090 active cooperatives. Only 423 cooperatives filled out the questionnaire. From the data collection, 44 cooperatives have implemented digital technology innovations, and only four cooperative managers are willing to be interviewed, They are the Chairman of the Kuta Mimba cooperative management, the Chairman of the Guna Prima Dana cooperative, the Chairman of the Tri Eka Bina Artha Mulia Savings and Loans cooperative management, and the Chairman of Mandara Sedana Kuta cooperative management as key informants based on the criteria for top management in the cooperative.

RESULTS

Commitment and Support of Top Management

According to the Chairman of the Kuta Mimba Cooperative Management, the decision to implement digital technology innovation during the Covid-19 pandemic is a commitment and support from top management. Thus, all components in the cooperative prepare themselves to increase their capabilities and expertise in using digital technology innovations. The organization's readiness, with the support of top management, is of importance, resulting in the creation of IT expertise in this cooperative's work environment. The obstacles within the institution and resistance to changes in the implemented services can also be solved. This is in accordance with Haneem, Kama, Taskin, Pauleen, & Abu Bakar (2019), who stated that top management support is the basis for technological competence. Gangwar et al. (2015) also claimed that training and education, organizational readiness, and top management commitment are significant in influencing an organization to implement technology using cloud technology.

The Guna Prima Dana Savings and Loans Cooperative manager conveyed that top management commitment and support are absolute and very decisive for a cooperative institution to carry out the technological transformation, especially using digital technology both before the Covid-19 pandemic and after the Covid-19 pandemic. The cooperative carried out digital transformation as a form of commitment owned by all components in the organization to organize and prepare all technological infrastructure facilities and the necessary costs. It will not be the only cooperative in Bali and one out of two cooperatives in Indonesia that provides online People's Business Credit (KUR) services if top management support is not given. The statement by the manager is in accordance with Low et al. (2011), stating that top management's awareness of the potential benefits of using technology is fundamental to managing potential organizations by implementing new technology for all company employees. Beside organizational readiness, top management support and external support of SME manufacturing companies in Iran greatly influence the adoption of big data analytics (Maroufkhani, Tseng, & Iranmanesh, 2020).

The Chairman of the Tri Bina Eka Artha Mulia Savings and Loans Cooperative Board further gave a similar opinion as the previous key informant. The commitment and support are important and the main basis for deciding a policy. It requires the readiness of all human resources in the cooperative to prepare themselves for changes in digital technology-based services. Priyadarshinee, Raut, Jha, & Gardas (2017) concluded that top management support affects companies when adopting cloud technology. Furthermore, the organization's inability to get support from top management is an obstacle to innovating and adopting digital technology (Ullah, Sepasgozar, Thaheem, & Al-Turjman, 2021).

The Chairman of the Management of the Mandara Sedana Savings and Loans Cooperative Kuta then confirmed that the commitment and support of top management are the main requirements for an institution to implement digital technology innovations that will help organizations overcome internal obstacles. The cooperative will also be able to manage the potential of existing human resources and provide positive signals to cooperative members to maintain loyalty to the cooperative. This is also affirmed by the argument of Low et al. (2011), suggesting that top management's awareness is critical to managing potential organizational change.

Cost Perception

According to the Chairman of the Kuta Mimba Cooperative Management, all costs that cooperatives must invest in implementing digital technology service innovations are not

a problem or an obstacle because this is under the vision and mission of the cooperative and according to the decisions of the management meetings. Further, the institution had prepared all the necessary costs starting from providing high-speed internet connection, adequate computer equipment, training for employees to use technology, cooperation with digital technology innovation development institutions, renting cloud server data storage, and other costs. This is done to implement digital technology innovation with the belief that applying digital technology innovation will provide convenience in the operations of institutions where the application of technological innovation is carried out before the Covid-19 pandemic, and digital technology innovation is enhanced after the Covid-19 pandemic. The Chairman said that the costs invested could be met by increasing the number of users of digital technology innovation services and other positive benefits for institutions and cooperative members as users.

The Manager of the Guna Prima Dana Savings and Loans Cooperative stated that the costs incurred in the early stages of implementing digital technology innovation were quite large because the cooperative must have the availability of a high-speed internet connection to reach all operational areas. In addition, cooperatives incur several costs to ensure the availability of adequate computers in implementing digital technology innovations, holding training for employees to, and other costs that support the readiness to implement digital technology innovations. However, the cooperative has members who are technology experts and have a technology development business. Thus, the cost of technological innovation is cheaper. All costs invested in using digital technology service innovations are not worth the many benefits that have earned it the award as the only cooperative in Bali Province that distributes KUR with digital technology innovations and received financial assistance from the Ministry of Cooperatives and SMEs of the Republic of Indonesia twice and it is still able to distribute KUR to cooperative members.

The Chairman of the Tri Bina Eka Artha Mulia Savings and Loans Cooperative Executive Board and the Chairman of the Mandara Sedana Kuta Savings and Loan Cooperative said that the costs incurred in the early stages of implementing digital technology innovation were not significant because cooperatives did not directly implement digital technology innovations. In the process of leading the implementation of digital technology innovation, the cooperative provides many costs to invest in providing high-speed internet connection for computer upgrades, training, and other costs that support the readiness to implement digital technology innovations. The statement of all key informants accords with the findings of previous studies underlining that costs do not affect the adoption of cloud computing technology (Lian et al., 2014), e-business (Ilin et al., 2017), and e-commerce applications in SMEs (Ghobakhloo et al., 2011).

Security Concerns

The chairmen of the Kuta Mimba Cooperative Management and the Mandara Sedana Kuta Savings and Loans Cooperative Board stated that security aspects in implementing technological innovations were considered Security relates to the security of the cooperative's internal data and the data security of the cooperative's members in which any threats or attacks should be avoided. Security in using digital technology innovations provided by the Kuta Mimba Cooperative and the Mandara Sedana Kuta Savings and Loan Cooperative by collaborating with the same vendor called as confirmation of On Time Password via short message before the transaction is carried out. The confirmation is then carried out via the telegram application. This is to provide a sense of security, and comfort and to increase the trust of cooperative members. Another security concern carried out by the Kuta Mimba Cooperative is renting a data storage area with a cloud

system abroad in collaboration with vendor institutions that develop digital technology innovations.

The online GPD digital technology innovation of the Guna Prima Dana Savings and Loan Cooperative and the SAKTI.LINK mobile application provided by the Tri Bina Eka Artha Mulia Savings and Loan Cooperative also considers the security factor of cooperative and member data. The security of cooperative members in using digital technology innovations must be maintained to provide a sense of security due to the exchange of confidential data when conducting online transactions. Thus, cooperative members positively impact digital technology innovation services. Transaction security is provided by typing the password before the transaction is executed and confirming the transaction via short message. All key informants also said that if cooperative members complain of inconvenience, the cooperative quickly resolves them to continue to provide a sense of security and comfort.

Information from key informants regarding security concerns agrees with previous research underlining that security concerns are a significant predictor of cloud computing technology adoption in SME companies (Gupta et al., 2013; Khayer et al., 2021). Security concerns are also a key factor cloud computing technology in local government (Ali et al., 2021). The adoption of SaaS is also influenced by security concerns (Safari et al., 2015). On the other hand, it was found that cloud computing adoption has a negative effect on security concerns (Asiaei & Nor, 2019). Cloud computing adoption in private sector organizations is also shown to have a negative effect on security concerns (Alkhater et al., 2018). Furthermore, the adoption of cloud computing in Indian SMEs has no effect on security concerns (Kumar et al., 2017). Similarly, it was expressed that security concerns have no effect on social commerce adoption in Saudi Arabian SMEs (Abed, 2020). Security was also stated as not a determinant of cloud computing adoption from the manufacturing and service sectors (Oliveira et al., 2014).

Compatible Technological Facilities

All key informants stated that digital technology innovation could be done by making several adjustments, namely the provision of a high-speed internet network (broadband) in the cooperative's operational area, expert human resources, adequate computer equipment, server ownership, collaboration with vendors, and data security guarantee. These responses are in accordance with Chong (2013), who has stated that the availability of a telecommunications company network influences the intention to adopt the technology. It was also claimed that high-speed internet connectivity (broadband) has an effect on social benefits, and other activities (Ford, 2018). Furthermore, increasing connectivity is vital for various activities (Reddick, Enriquez, Harris, & Sharma, 2020).

Benefit Perception

All key informants claimed that technological innovation was implemented in cooperative institutions before the Covid-19 pandemic. However, based on top management decisions, it is imperative to increase technological innovation after the Covid-19 pandemic to continue to serve cooperative members with social distancing rules and maintain the financial liquidity of cooperative institutions. The increase in technological innovation carried out by cooperative institutions in the Province of Bali amid the Covid-19 pandemic was welcomed by cooperative members. Therefore, the increase in the implemented digital technology service innovations positively impacted cooperative institutions. Moreover, the liquidity of cooperative institutions was maintained, resulting in the continuity of cooperative institutions and increased public trust. The cooperatives can meet the needs of the community and increase new cooperative members.

Interestingly, cooperative members transferred their savings to a financial institution in large amounts to be stored in the cooperative amid the Covid-19 pandemic. As a consequence, cooperative institutions can provide loans to other cooperative members leading to the increase of cooperative members registered in merchant applications and increased transactions.

The findings corroborate Kumar et al. (2017), explaining that the expected benefits influence the adoption of cloud computing technology by SMEs, and Lin (2014), showing that the expected benefits are a determinant of the adoption of electronic supply chain management systems. The expected benefits are also revealed to affect the adoption of open government data in some government offices(Wang & Lo, 2016). On the contrary, it was stated that the expected benefits do not affect the adoption of cloud computing in Taiwanese hospitals (Lian et al., 2014).

Performance Expectations

All key informants said that by innovating digital technology, they get convenience in managing institutions, including ease of service operations especially in the Covid-19 pandemic era. This will increase employee expectations for the institution's sustainability amid many collapsed cooperatives due to the pandemic. There is also a positive motivation for employees and members of cooperatives for better performance of cooperative institutions than cooperatives that have not implemented digital technology innovations. Thus, the institution will have profitable results, improved service, convenient transactions, and improved performance.

The key informant's statement is in accordance with the previous studies finding a positive relationship between the intention to use technology in the work performance of a company/organization (Ferri et al., 2020). In addition, the availability of software, tools, and IT infrastructure increases the expectations of individuals or organizations to work better (Zuiderwijk et al., 2015). Performance expectations also have a level of benefit in certain activities of technology (Alalwan et al., 2018; Merhi et al., 2019). They also improve overall performance that combines perceived benefits, outcome expectations, external motivation, job suitability, and comparative advantage (Farah et al., 2018). Applying technology will also help gain an advantage in job performance (Baabdullah, Alalwan, Rana, Kizgin, & Patil, 2019). Technology leads to increased service performance, efficiency, and/or accessibility (Farah et al., 2018).

Business Prospects

The Chairman of the Kuta Mimba Cooperative Management said that business prospects influence the technological innovation used by a cooperative. This is because Kuta Mimba Cooperative has a vision of “together we are big and prosperous". Thus, the investment made in using digital technology is not impossible. In addition, business prospects play a critical role regarding digital technology innovation that will be facilitated for cooperative members. The business prospects realized by the Kuta Mimba Cooperative are in accordance with the vision of the institution, thus affecting the types of services provided.

Guna Prima Dana Savings and Loans Cooperative manager has business prospects by providing online KUR services (which is the only cooperative in Bali) through online GPD. The services provided include applying for loans online, paying loans online, purchasing electricity credit, purchasing mobile phone credit, and other online financial transaction services. It does this in accordance with the institution's vision, namely "Let's Be Better" and its very noble mission, namely "Improving the welfare of members in particular and society in general, as well as an inseparable part of a democratic and just national economic order under the aims of the cooperative".

The Chairman of the Tri Bina Eka Artha Mulia Savings and Loans Cooperative also stated that this cooperative has excellent business prospects by building a community of intelligent and quality members. It becomes a social community for members that have financial, business, community and social services. The service applications can be found on the Google Play Store or downloaded from the App Store, known as the SAKTI.LINK mobile application. This makes it easier for cooperative members to transact and cooperate.

The Chairman of the Management and Manager of the Mandara Sedana Kuta Savings and Loans Cooperative claimed that they have business prospects by providing digital technology innovation services that will increase their market share. The services also increase the number of savings for cooperative members by using Madata Mobile as a digital wallet. In addition, liquidity also increased with transactions between cooperative members or other application service facilities.

The statement is in accordance with Khayer et al. (2021), contending that the business prospects of an organization affect organizational agility in using technology. Business prospects also affect microfinance institutions using mobile banking (Ammar & Ahmed, 2016). Additionally, Rahi and Ghani (2019) stated that business prospects also influence internet banking adoption of users. Business prospects can also be improved with the availability of technology infrastructure (Hasbi, 2020).

DISCUSSION

Hanem et al. (2019) claimed that the foundation of technological competence requires top management support. In addition, Low et al. (2011) stated that top management's awareness of the benefits of using technology is very. Moreover, the inability of organizations to get support from top management becomes an obstacle to innovating and adopting digital technology (Ullah et al., 2021). Company management is also directed to encourage company performance (Aryani, Sapta, & Sujana, 2021). Perceived organizational support positively affects work-life balance simultaneously (Putri et al., 2021). Thus, these results support the findings in this work.

The statements of all key informants in our work are in accordance with previous studies suggesting that costs do not affect the adoption of cloud computing technology (Lian et al., 2014), adoption of e-business in enterprises (Ilin et al., 2017), and e-commerce applications in SMEs (Ghobakhloo et al., 2011). Previous studies also showed that security concerns are a significant predictor of cloud computing technology adoption in SMEs (Gupta et al., 2013; Khayer et al., 2021) and local governments (Ali et al., 2021), which are also found in this work.

Subsequently, Chong (2013) found that the availability of a telecommunications company's network affects the intention to adopt technology. In addition, high-speed internet connectivity has an impact on social benefits, as well as a number of other activities (Ford, 2018). Moreover, broadband access has become necessary. Improving connectivity is also found to be essential for many activities. Yet, the lack of broadband availability is a barrier to technbology adoption (Reddick et al., 2020), and these findings are consistent with our results.

Besides, the statement of key informants is also in accordance with the previous study finding a positive relationship between the intention to use technology and the performance of a company/organization (Ferri et al., 2020). Software, tools, and IT infrastructure will increase the expectations of individuals or organizations to work better

(Zuiderwijk et al., 2015). Performance expectations were found significantly affect the use of online technology (Alamanda et al., 2021). Furthermore, performance expectations have a level of benefits in certain activities due to technology use (Alalwan et al., 2018; Merhi et al., 2019). Also, technology applications help a person gain an advantage in performance (Baabdullah et al., 2019), leading to an increase in service performance, efficiency, and/or increased accessibility (Farah et al., 2018).

The findings corroborate previous studies, highlighting the expected benefits of cloud computing technology adoption by SMEs (Kumar et al., 2017). It was also found that the expected benefits play a role as a determinant of the adoption of an electronic supply chain management system (Lin, 2014). The expected benefits are also revealed to influence the adoption of open government data in a number of government offices (Wang & Lo, 2016). The perceived benefits also directly affect the intention to use electronic money (Satoto & Putra, 2021).

Various studies also support our results in relation to business prospects. Khayer et al. (2021) found that an organization's business prospects affect organization agility in using technology. Business prospects affect microfinance institutions that use mobile banking (Ammar & Ahmed, 2016). It was later claimed that business prospects could be improved with the availability of technology infrastructure (Hasbi, 2020).

CONCLUSION

Cooperatives have increased the use of digital technology innovations due to the Covid-19 pandemic. This is established by increasing technology service facilities through cooperation with banking institutions, increasing layered security in online transactions, and adding services to mobile applications. This impacts the addition of new cooperative members trusted to distribute revolving fund loans of Revolving Fund Management Agency for Cooperative and SMEs (LPDB-KUMKM). We also found that the critical factors for successful digital technology innovations by cooperatives in Bali Province due to the Covid-19 pandemic were top management commitment and support, perceived costs, security concerns, compatible technological facilities, perceived benefits, performance, business expectations, and prospects.

LIMITATION

The number of key informants who were willing to be interviewed based on the established criteria is limited.

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DECLARATION OF CONFLICTING INTERESTS

The authors state that there is no potential conflict of interest.

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