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Digital Transformation in Cooperative Management: The Case of Multipurpose Cooperatives

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Abstract. This qualitative case study research focuses on the identification of the functions of information technology and its challenges among multipurpose cooperatives to serve as the basis for information technology system design. Six duly registered multipurpose cooperatives in the province of Bukidnon, involving nine participants from the management division, personnel, and staff participated in the interview conducted by the researcher. The results of the interview were transcribed, encoded, and categorized according to their codes and themes. Based on the results of the interview, findings revealed that the functions in integrating information technology in multipurpose cooperatives are Microsoft Application, communication, general accounting, data management, and process improvement. From the identified challenges, three themes surfaced out, namely: accessibility, system integration, and information security. The identified functions and challenges of IT integration to multi-purpose cooperatives became the basis to design Cooperative Upgrade Management Information System, an information technology system which features a friendly user interface is that is cost-effective and efficient, accessible even with limited internet connection and provides system security.

Keywords: Cooperative Management, Diffusion of Innovations, Management Information System, Multipurpose Cooperatives, Technology Acceptance Model.

1. INTRODUCTION

Information technology has become an indispensable part of the contemporary world. It became the backbone of the networked economy. The Internet and technology have given the drastic and dramatic change in the way things are managed. This is being enforced by the liberalization and globalization of markets. The magnitude and breadth of information technology drive innovation and impact the steam on the 4th industrial revolution. Hence, information technology is the enabling force of the 21st century.

Information technology continues to transform various disciplines. It is driven by the demands of the competitive business environment landscape as it fosters modernization through more intelligent apps, enhanced data storage, faster processing, and broader information distribution. Information technology increases efficiency, values, enhances the quality, and boosts productivity. Thus, in digitization, business organizations are increasingly leveraging the benefit of digital tools to improve their prospects. (Aribe, Turtosa, Yamba, & Jamisola, 2019) stated that technology has played a massive role in changing how business done and makes running a business in the modern world possible.

According to the Digital Report (Banco de Oro Digital, 2018), 81% of the organizations globally agree that information technology is a strategic enabler of business organizations registering 45% in 2016. The significance of information technology increases every day in different aspects of business operations to fulfill the demands of customers and comply with regulatory requirements. The efforts of technology are geared toward augmenting the needs of society and raising the level of welfare (Addison, 2018).

In the Philippines, the information technology industry is not just an emerging industry but, more importantly as a strategic industry. As the country embraces digital transformation, the E-Government Master plan as part of the Philippine Digital Transformation Strategy (Dept. of Information and Communication Technology, 2020) emphasizes the initiatives to facilitate faster access to services and at the same time develop better ways of doing business among traditional sectors, fostering growth, and development towards a digital economy. Also, the International Data Corporation (Commission of Information & Communication Strategy, 2019) predicts that at least 30% of organizations across the country will achieve digital determination, market transformation, and reimagining the future through innovative business models and digitally enabled products and services. Thus, these initiatives provide a significant view of how small, decentralized organizations are able to respond rapidly to the ever-shifting demands of a highly dynamic and multifaceted market.

One of the emerging businesses today are cooperative organizations. The United Nations acknowledge the organization as it can effectively improve the lives of society while contributing to the economic, social, cultural, and political advancement of the nation. Likewise, the Department of Economic and Social Affairs of the United Nations emphasized that the transformation of cooperatives is the biggest hope to create significant contribution. Information technology is a vital channel for collaboration and expanding cooperative operations. Thus, these made information technology noteworthy in the efficiency and growth of the cooperative.

The integration of information technology in cooperative organizations contributes to achieving

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organizational objectives. The improvement can be seen as process efficiency, service quality, cost savings, organization and process flexibility, and customer satisfaction. This is in consonance with the Cooperative Development Plan 2018-2022 of the Cooperative Development Authority that includes strategic goals on the application; of appropriate technology and innovation to establish an efficient system of data and information gathering, storage, retrieval, processing, and dissemination geared towards a globally competitive cooperative. Thus, effective integration of technological innovation is vital to the success of businesses and can catapult growth and profitability (Samuel, 2017).

Accordingly, (Rouse & Juhasz, 2012), Senior Officer of the Cooperatives and Rural Organizations, accentuated that the introduction of modern information and communications technologies in cooperatives can significantly improve results: they can facilitate the collection, analysis, storage, and reporting of information much faster and more accurately than could be accomplished using manual systems. Aside from the incredible benefits of information technology, there are significant questions on safety, privacy, sustainability, and trust.

The integration of information technology, as emphasized during the celebration of the international year of cooperatives, is vital to its development. However, the integration can be highly challenging. Issues such as cost, infrastructure, management, and accessibility can be further investigated to bridge the digital divide (United Nations – DESA, 2012).

It is worthy to note that information improves and supports how work is done. Investing in report is both expensive and resource demanding. Therefore, it becomes relevant to study not only how data can be integrated to support employment, but also the challenges it brings to cooperative organizations. This stands true to the multi-purpose cooperatives in the province of Bukidnon specifically in Malaybalay city, in which these multipurpose cooperatives have embraced information technology in their system. Along with these innovations for the past years, these cooperatives have made valuable contributions to their members and the community. However, in the integration of information technology, these cooperatives encountered challenges, such as cost, infrastructure, and accessibility. It is but equally important that a person must have the ability to keep abreast with the recent trends of technology in order to be notified of the important events that need to be addressed or responded immediately (Aribe, et al., 2019).

As the world is changing, the development and modernization are unavoidable. In our modern generation, where most data stored electronically in a centralized storage machine, it gives us the ability to track and retrieve the documents in minimal time (Caseres, Cruz, Gonzales, Tapayan, & Aribe, 2020). Thus, the integration of information technology among multipurpose cooperatives in Malaybalay City strengthened their organizational capacity indicators in savings mobilization, sufficient budget, innovativeness and entrepreneurial skill development, members' participation, and continuous education and training. Such initiative kept their operations viable and sustainable and thus strengthened the cooperative sector in the province.

In the light of the cooperative sector's potential as a partner for growth, especially in rural areas, it is on this premise that this study is geared towards assessing the functions of information technology and uncovering the challenges that these cooperatives have encountered along the way. The study could design and recommend a system interface custom fit for the cooperative's needs to maximize its benefit towards socio-economic development.

1.1. Framework of the Study

The central concept of this study is anchored on the following technology adoption model and theory: Theory of Diffusion of Innovations (Rogers, 1995) and Technology Acceptance Model (Davis, 1989). These philosophies are vital thoughts for organizations especially cooperatives as it integrates information technology in its operations.

The theory of diffusion is introduced by (Rogers, 1995) who proposed that the idea of 'diffusion of innovation' establish the foundation for conducting researching on innovation acceptance and adoption. Rogers synthesized research from over 508 diffusion studies and came out with the 'diffusion of innovation' theory for the adoption of innovations among individuals and organizations. Technology readiness refers to people's propensity to embrace and use new technologies for accomplishing goals in home life and at work (Parasuraman & Colby, 2001). Based an individual's technology readiness score and the technology readiness, it was further classified technology consumers into five technology readiness segments, namely: explorers, pioneers, skeptics, paranoids, and laggards. This is similar to Roger's S-shaped adoption curve of innovators, such as: early adopters, early majority, late majority, and laggards.

Another notion relevant to the study is the Technology Acceptance Model by (Davis, 1989). The Technology Acceptance Model is tailored explicitly for modeling users' acceptance of information systems or technologies (Aribe, Turtosa, Yamba, & Jamisola, 2019). The Technology Acceptance model proposed to explain the general determinants of computer acceptance that lead to explaining users' behavior across a broad range of end-user computing technologies and user populations. The aim of formulating this theory is to provide a deeper understanding of individual and organizational acceptance of IT and mobile services and applications to managers (Aribe, Vedra, Ladion, & Tablazon, 2019). Thus, this study utilizes ICT infrastructure and digital transformation towards digital economy agenda and global connectivity (Saniel, Aribe, & Lapates, 2021).

Figure 1 shows the reference frame of the study. The frame of reference builds an appropriate framework to develop the study on the functions and challenges in the integration of Information Technology in Multi-purpose Cooperatives relevant to design a system to augment business processes. The figure presents the relationship of the variables in the study. When information technology is integrated into Multi-purpose Cooperative, it has specific functions that may hasten the business process. The integration of information technology supports business processes that allow consideration of the process-enabling role.

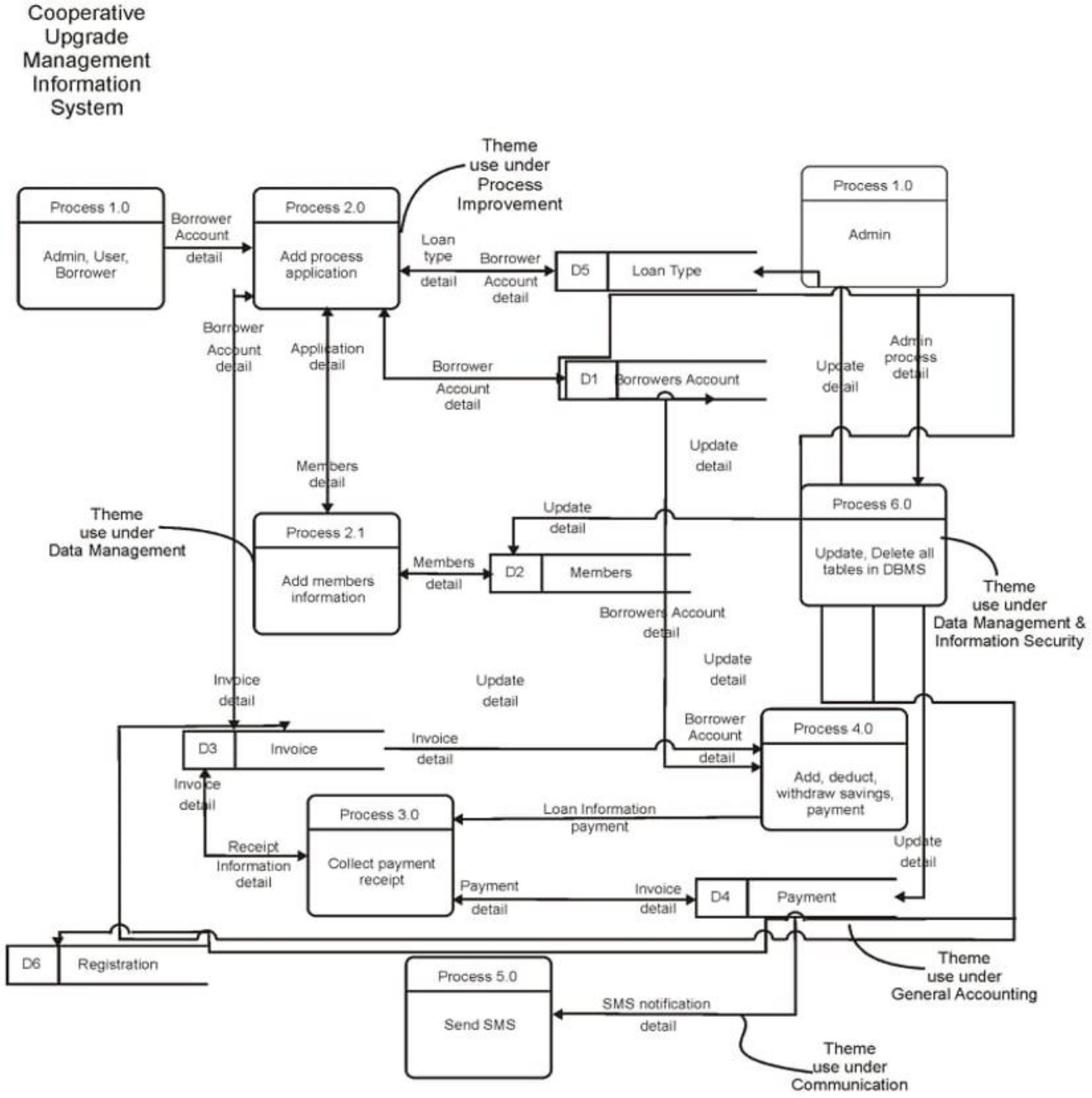

Figure 1: Diagram Guiding the Framework of the Study.

2. METHODS

The study utilized a qualitative case study research design. (Williams, 2007) described the case study method as an empirical inquiry that investigates a contemporary phenomenon within its real-life context. Typically interview techniques are utilized a part of the case study method to address the 'how' and 'why' type research questions (Atkinson, 2002). The Qualitative research design also describes an unfolding model that occurs in a natural setting that enables the researcher to develop a level of detail from high involvement in the actual experiences (Williams, 2007).

The study investigated the functions and the challenges of integrating information technology in multi-purpose cooperatives, which would then be the basis for a system's design to maximize the benefits, thereby enhancing organizational performance.

Participants of the study were the management division, personnel, and staff of the six (6) multipurpose

cooperatives in Bukidnon particularly in Malaybalay City, Impasug-ong, and Sumilao. These cooperatives are duly registered in the Cooperative Development Authority as were categorized as large, medium, and small-scale cooperatives respectively. These cooperatives are imbued with the primary objective to provide goods and services to improve the economic well-being of the members. To ensure significance and alignment to the objectives of the study, the interview guide questions was subjected to a content validity test. Further, data was gathered through an in-depth interview using the interview guide questions. Prior to data gathering, consent letter specifying voluntary participation in the study, benefits, risk, compensation and anonymity was provided to the participants of the study.

Prior to data collection, researchers adhered to Phenomenological research method (Moustakas, 1994) guidance to set aside personal biases and preconceived notions about the topic. This approach helped maintain objectivity, especially given that researchers may have prior involvement with the cooperatives under investigation. By bracketing their responses and thoughts, researchers minimized bias, ensuring interview responses were analyzed independently of preconceived influences (Creswell, 2007).

The primary data collection method was in-depth interviews. An interview guide, developed based on the research objectives, underwent a content validity test by three expert validators to ensure alignment with the study goals. This validated guide facilitated comprehensive discussions, allowing participants to elaborate on their perspectives beyond simple yes-no responses. Consent was obtained to record the interviews, and confidentiality of data was strictly maintained throughout the process.

Ethical protocols, were followed to ensure the study's quality and reliability. The researchers emphasized the importance of originality and proper citation of scholarly works referenced in the study. Data analysis employed thematic analysis based on the qualitative data analysis method (Miles & Huberman, 1994). Codes and coding techniques enabled quick identification of data segments related to research questions and potential themes. The process involved creating and applying codes to analyze case study data. Data were recorded, transcribed, verified, coded, themed, and synthesized into a narrative format, facilitating interpretation of participants' responses. Evaluative criteria for quality, including credibility, transferability, dependability, and confirmability (Lincoln & Guba, 1985), were meticulously followed.

Moreover, data was analyzed using the thematic analysis. It is also based on the outlined methods of (White, 2020). Through this process, the researcher was able to link the data to the respective variables in the study. They stressed that the Codes and coding technique allows for the quick identification of the segments relating to the research questions and any potential themes. The process involves creating codes to be used for the analysis of the case study data and then coding the data.

3. RESULTS AND DISCUSSIONS

3.1. Functions of Information Technology in Multipurpose Cooperatives

Information technology, when well-integrated with multipurpose cooperative organizations, has made life itself worth living. Information technology provides impetus to modernization. In business organizations, such as multi-purpose cooperatives, innovation brought by information technology results in efficiency and improved productivity. In this study, the functions of information technology refer to the activity adopting information technology in multipurpose cooperatives. Table 1 shows the codes and themes generated from the transcript of the interview. These codes were carefully analyzed and clustered according to themes.

Table 1: Codes and Themes generated in the Functions of Information Technology in Multipurpose Cooperatives.

Codes (Extracts of data from the interview)	Themes
• Encoding	Microsoft Application
• Words and Excel	
• Secretary's minutes	
• Encoding Resolutions	
• Preparing Minutes of the meeting	
• Letters	
• Government reporting	Communication
• Reports	
• E-mail	
• General Accounting	General Accounting
• Pricing	
• Cashiering	
• Disbursement and Collection Report	
• Payment system	
• Checks and Vouchers	
• Disclosure Statements	
• Financial Statement	
• Daily Cash report	
• Cash reporting	
• Saving files	Data Management
• Members Data Management	
• Loan processing	Process Improvement
• Program for savings	
• Faster customer service	

The themes generated from the interview include: Microsoft Application, Communication, and General Accounting, Data Management, and Process improvement.

Microsoft Application comes as one of the themes from the result of the interview. This was widely used among cooperatives, especially on the aspects of encoding using Word and Excel. These applications are helpful in preparing and coming up with Secretary's minutes during board meetings, encoding of Board Resolutions, other forms of documentary requirements, and written communications. Microsoft application include collaboration and communication application software that will enhance the small and medium-sized businesses (Taylor, 2011). Moreover, organizations adopt technological development to produce excellent results in a competitive environment (Isada & Isada, 2018).

The integration of information technology in the cooperative system slowly became a realization of the goal stipulated in 'The Philippine Cooperative Development Plan (PCDP) 2018-2022 Strategic Goal 4 that is geared towards globally competitive cooperative products and services of which its desired outcome is the application of appropriate technology and innovation in Cooperative Enterprises by increasing the use of technology and innovation to have a systemic approach among cooperatives (Cooperative Development Authority, 2020).

Likewise, the (United Nations – DESA, 2012), affirmed that through the integration of information technology, cooperatives were able to have better electronic databases, enhance their enterprise systems, and monitor activities and outputs in the supply chain. It has also improved its organizational performance in terms of: productivity, profitability, market value. The business process will also be enhanced to address employees' and customers need. Integrating technology, especially Microsoft application, in cooperative organizations promotes efficiency and at the same time leaves an open place for innovation, flexibility, and enhanced communication process (Cezar & Beatrice, 2013).

Communication is another theme that surfaced out from the interview. This function provides ease in terms of government reporting, generating reports, and the use of electronic mail systems. The use of open-source platforms as a means of communication can enhance data sharing. According to (Mandlik, 2013), information technology can help transform the management of co-ops by improving management practices, financial information and reporting, records management as well as creating an online presence. These improvements help increase efficiency and lower the operating costs of cooperatives.

The literature establishes that communication is one crucial element of the organization (Peng, Hendrikse, & Deng, 2016). Organizations cannot exist without communication; it is the channel used for interaction among organizational members. The wholeness of an organization shows a consistent and coherent image of what the organization is. Communication is essential to keep the cooperative working in the members' interests. Members who lack understanding of its practices are likely to have a negative attitude towards their cooperative, and this may cause poor performance. Not only the communication among the members themselves but also the communication between the members and the cooperative management is essential (Peng, Hendrikse, & Deng, 2016).

Further, the adaption of information technology in cooperatives can boost connections, facilitate fast and

cost-effective communications among members and across organizations as it enables members to maintain more consistent contact with each other and to cultivate new relationships with similar organizations, cooperative federations and international bodies. These expanded support networks allow members to better avail of information and innovations (United Nations – DESA, 2012).

(Rotztocki, Soja, & Weistroffer, 2019) concluded that information technology had changed the way in how everyone communicates with each other, how one finds needed information, works, conducts business, interacts with government agencies, and how one manages its social life. Similarly, cooperative can easily create its public Web site to provide members, non-members, and potential buyers and sellers' information on the cooperative's performance and services. Hence, communication technologies have become the significant drivers of innovation, growth, and social change in cooperative organizations.

Multipurpose cooperatives have a large number of functions to discharge. It usually removes the following positions; making credit arrangements, encouraging the improved method of marketing, and business, helping members to increase their standard of living and presenting accurate accounting reports on the financial performance of the organization to the members.

An equally important function of information technology in cooperatives is on general accounting. This surfaced out as the third theme from the results of the interview. This is the backbone of the cooperative's operations, as transpired in the output of the interview, these includes pricing, cashiering, disbursement, and collection report, payment system, checks and vouchers, disclosure statements, financial statement, daily cash report and cash reporting. Most of the respondents agreed that in this very crucial and tedious work, the integration of information technology became very beneficial and advantageous.

The significant impact information technology has made on general accounting is the ability of organizations to develop and use computerized systems to track and record financial transactions. General accounting has seen tremendous advancements alongside the growth of information technology. With an automated accounting system, it can increase functionality, improve accuracy, faster processing, a better external reporting system, which then results in effective decision making (Ghasemi, 2011).

The study adds to the existing literature by undertaking a relatively holistic view of the IT that influences an effective use of accounting system, which may form a starting point for effective decision-making process. In addition, the accounting system has increased to ensure reliability and relevance of documents, reports, data, and to understand better the flow of transactions. Hence, general accounting provides a source of information for use in measuring financial performance (Adeyemi, Obah, & Etete Udofiaa, 2015).

Data Management emerged as another theme from the interview result. Keeping up-to date and accurate records is central in any business venture. These records contain data that are deemed essential in the day-to-day operations of any business operations. Efficient record keeping allows cooperatives to serve their members better, and the transparency offered by computerization and other technologies enhances trust. Cooperatives invested in modern data management and member information systems can improve their image to attract high-quality staff and gain members' trust and confidence.

Consequently, proper data management is in all aspects of the organization. Data management increases productivity, reduces security risk, minimizes data loss, and improves data quality (Soffer, 2019). According to (Stedman & Vaughan, 2017), data management is the process of ingesting, storing, organizing, and maintaining the data created and collected by an organization. Effective and efficient data management is a critical element of integrating information technology systems that run business applications and provide analytical information that aids operational decision-making and strategic planning by executives, directors, business managers, and other end users.

In the study of (Olorunlomerue, 2018) on Web-based Cooperative Information Management System, it was concluded that having a data management system will significantly assist the cooperative as well as other agencies in the collation of data for planning and analysis data that can facilitate further development in the area of commerce and industry. In addition, data management should serve to standardize data in a way that makes it practical for business purposes. Utilizing cloud-enabled tools can assist in the rapid development of a data management platform. Establishing a better framework to access the vast swaths of data that every organization generates, can improve the o ability to deliver valuable products, services to their customers, and overall, the processes of the organizations (Uzialko, 2020).

Process Improvement serves as the last theme that comes out from the interview. The integration of information technology in the cooperative organizations can likewise lead to process improvement. According to (White, 2020), process improvement comprises of identifying, analyzing, and improving existing business processes to optimize performance, meet best practice standards or simply improve quality and the user experience for customers and end-users. This process improvement gradually eliminates manual toil and may reduce human error. Automation plays a significant role in process improvement as it assists organizations, especially cooperatives, to understand the key areas they need to improve, thereby boosting productivity and streamlining efficiency.

Information technology has a unique role in the organization. As a support function, it has significant input to process improvement that covers the processes of its internal management system. Today, almost all

organizations, including cooperatives, regard information technology infrastructure and management as the backbone of all critical operations (Tripp, 2021).

The preceding discussions affirm the importance of information technology in the organization. The integration of information technology enhances the effectiveness of an organization, incredibly cooperative organizations. Information technologies and their applications have become the significant drivers of innovation, growth, and social change (Ugwuanyi, 2017).

3.2. Challenges encountered in integrating of Information Technology in Multipurpose Cooperatives

While multipurpose cooperatives have already started tasting the great opportunities that the information technology industry has to offer, these organizations, however, encountered challenges harmonizing information technology into the system of the organization. Challenges refer to the difficulties and problems encountered or experienced by multipurpose cooperatives in integrating information technology. Table 2 shows the codes derived from the transcript of the interviews from the participants. These codes were carefully analyzed and clustered according to themes.

Table 2: Codes and Themes generated in the Challenges Encountered on the Integration of Information Technology in Multipurpose Cooperatives.

Codes	Themes
Internet Connection	Accessibility
Manual System	System Integration
Syntax vs. semantics	
Corrupt files	Information Security
System security	

The themes that surfaced out include: Accessibility, system integration, and information security.

The first theme is on accessibility. Business owners regard internet accessibility as of prime importance. It would be impossible for organizations to keep operating without internet connectivity, especially in this competitive business environment landscape (Weedmark, 2019). Employing internet accessibility is one of the fastest and most rewarding ways to augment small businesses (Koble, 2019).

According to (Saniel, Aribe, & Lapates, 2021), the internet plays a vital role in every facet of a business organization in various industries for global connectivity. Technology is widely used in innovation; it provides powerful opportunities for growth and efficient operations. Hence, the invention and popularization of the internet have presented an immense wave of changes to business and in the way how business is being done. This made business organizations give wide accessibility to the global marketplace. Although internet accessibility provides a wide array of benefits to organizations, it has also created disadvantages for some business models (Lazarri, 2018).

In cooperative organizations, internet accessibility is also significant to boost its operation, thereby improving organizational performance. However, for most cooperatives situated in rural communities, internet accessibility is quite a challenge. As cooperatives are seen to be instrumental in realizing the United Nations Sustainable Development Goals, internet accessibility is of utmost importance. According to (Kienbaum, 2019), with increased support from the state and other stakeholders, cooperatives can continue to provide economic opportunities to their members and the nation as a whole.

The second theme that emerged is on system integration. Modern business relies on various technologies to stay competitive. Integrating technology through system integration is essential for communication and internal cooperation within an enterprise. According to (Lethonen, 2019), the main reason for organizations to use system integration is to improve the quality and productivity of operations. System integration, it enables the linkage of various information technology systems, to speed up information flows and reduce operational costs.

System integration combines component sub-systems into one functional system and warrants that all elements work harmoniously to preserve productivity and accurate data analysis. It also involves information exchanges which include customer information, orders, production line information, and customer inquiries, to name a few (Mckenna, 2020).

Additionally, with organizations adapting system integration, it would now be more convenient if there were new processes or operations that may become complex as the organization grows. System integration can be challenging. Failing integration may have far-reaching costs. The most common integration challenge revolves around two or more parties working together, which may result in data sharing and operations outsourcing, lack of clear communication, unclear responsibilities, discussions on where functionalities reside, and lack of accountability (Kampinga, 2021). The drawbacks of system integration could be a source for a possible information security threat.

Information security is the third theme that comes out from the interview. This is a must in a cooperative business system. The employees and organization's personnel must ensure that the organization's computer network is securely configured and actively managed against known threats. IT network professionals also should help the organizations maintain a secure virtual environment by reviewing all computer assets and

determining a plan for preventive maintenance.

According to (Fruhlinger, 2020), information security is a set of practices purposely designed to protect data from unlawful access or modifications, most especially when data is stored or transmitted from one physical location to another. Information security is part of cyber security, a broader practice of safeguarding information technology assets from attack.

Data has become one of the most critical assets in the 21st century, efforts to keep information secure have become of paramount concern. Organizations implement information security for a wide range of reasons as it covers many areas that involve application security, infrastructure security, cryptography, incident response, vulnerability management, and disaster recovery (Cassetto, 2013). Thus, information security in the organization is an information risk management measure to reduce the probability of unauthorized access, use, disclosure, disruption, deletion, corruption, modification, or recording. The emphasis of information security is protecting confidentiality, integrity, and availability of organizations' information (Tunggal, 2021).

The integration of information technology in organizations, especially cooperatives, can transform their day-to-day operations and benefit members. It is clear that information technology is dynamic to the development of cooperatives as perceived on the functions such as Microsoft application, communication, general accounting, data management, and process improvement. Still, there are some challenges to overcome, issues relating to accessibility, system integration, and information security.

3.3. Proposed Cooperative Upgraded Management Information System to Address the Gaps in the Integration of Information Technology in Multipurpose Cooperatives

System Development refers to the process where the daily activity or business operation of a multipurpose cooperative is facilitated by introducing a new information system or modifying or expanding an existing one. System development includes analysis, design, development, implementation, and evaluation.

The proposed Multi-Purpose Cooperative management information system is ongoing of creating and open for modification. It aims to provide a type of application software that records and processes multi-accounting member transactions within functional modules such as accounts payable, accounts receivable, profit Receive, Withdrawal, Accounts closing, trial balance, etc. modules. It functions as a Multi-Purpose Cooperative information system.

Information Communication Technology is a veritable tool in coordination and facilitation development within the cooperative movement. It will enhance connectivity to Cooperative members who have access to and use information technology. It is understandably that cooperative members connected via information technology can share technical know-how and general market information. When used appropriately, members are benefitted. They are informed about the cooperative's activities, and cooperatives function more efficiently. With information technology, cooperatives score higher in transparency, accountability, and cooperative administration.

From the discussions on the functions and challenges encountered by multipurpose cooperatives in the integration of information technology a Cooperative Upgraded Management Information System is developed and proposed. This is to enhance the operations of cooperative society where they can log on using a unique password and can be able to generate a detailed reports such as but not limited to once the system will be enhanced, financial statement, membership saving, loan issued, loan repayment, net surplus or dividend, interest rate, number of register member.

The proposed system will greatly assist the government agencies in gathering, collating, and analyzing data that can facilitate further development in commerce and industry. Cooperative Upgrade Management Information System is about automating workflow and processes that might already be in place, and alerting different users to activities they are responsible for by providing them with timely and relevant information needed to carry out the designed training. To Implement Cooperative Management System with essential system model on Business Process Management, the Cooperative has to make available low acquisition cost of Information Communication Technologies. This is to produce high-quality products and deliver highly-valued services to ensure customer satisfaction and be competitive.

The objective of the proposed system is to have an end-to-end visibility and control over all parts of a long-lived, multi-step information request or transaction that spans multiple applications and people in an organization. The system is intended to assist the cooperative in the creation, monitoring, evaluation, and tracking of information within and even external entities affecting the organization for effective implementation of its services, especially on management transactions, control processes, and data manipulation, while upholding data and information security.

Figure 2 presents the flowchart on how the generated themes and codes were embedded into the system interface, and Figure 3 is the system interface.

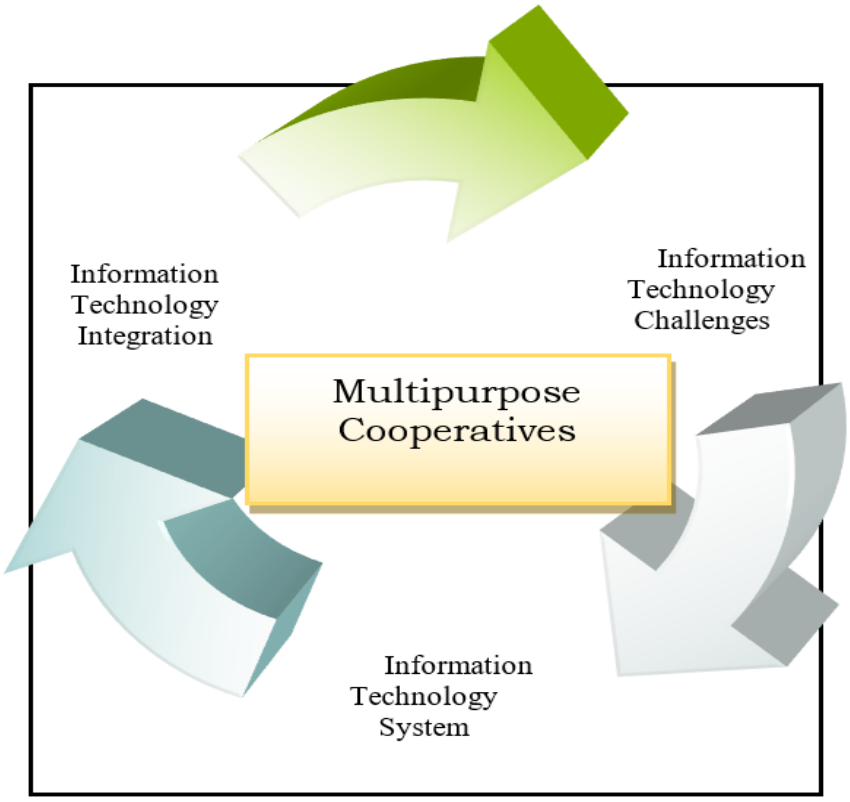

Figure 2: Flowchart of the Cooperative Upgrade Management Information System.

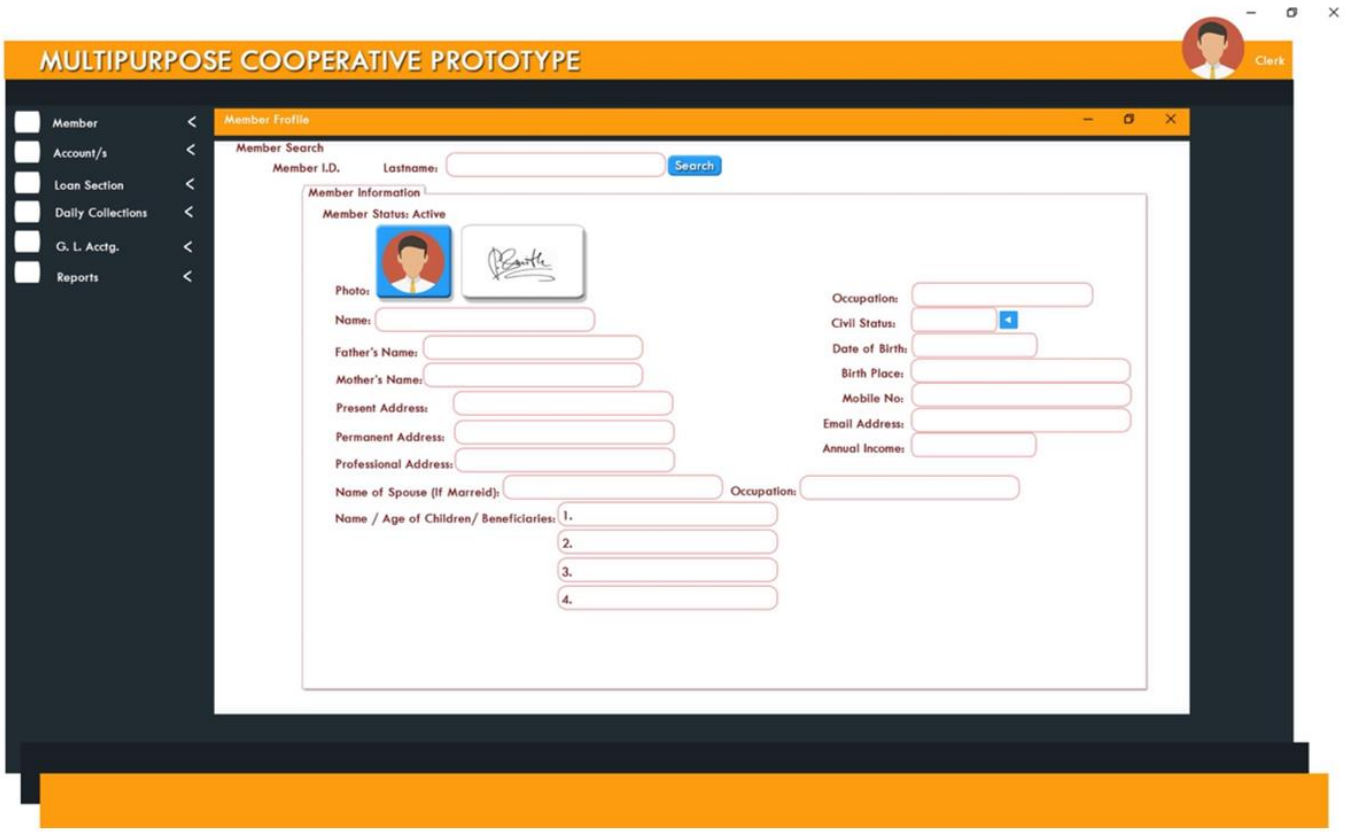

Figure 3: Proposed Cooperative Management System User Interface.

4. CONCLUSIONS

Based from the findings of the study the following conclusions are drawn:

1. The functions of integrating information technology like Microsoft application, communication, general accounting, data management and process improvement, are essential for the dynamic development of the cooperatives, therefore, enhancing the performance of the management, personnel and staff of the cooperative.

2. The challenges encountered with the integration of information technology in the multipurpose cooperatives are eye-openers for the management to improve their operations, therefore their knowledge of such challenges could open avenues for them to upgrade and update themselves with the new technology.
3. The researcher proposed the Cooperative Upgraded Management Information System to address the functions and challenges in the integration of Information Technology in multipurpose cooperatives, hence this could help the cooperatives facilitate their operations smoothly.
4. The Theory of Diffusion and Technology Acceptance Model holds true in the study. Multipurpose cooperative organizations find its vital to adapt innovations like information technology integration in the business process to

5. RECOMMENDATIONS

These recommendations are addressed to the following beneficiaries of this study:

1. Multipurpose Cooperatives. It is recommended that systems may be introduced to multi-purpose cooperatives, especially for those who have not fully integrated a system interface that can address the challenges they are experiencing in terms of accessibility, system integration, and information security. The system design can cultivate new markets by reaching out to different customer bases on the web. They can keep up-to-date developments and innovations and receive training remotely. Thru system integration, they can help transform their management by improving management practices, financial information, and reporting, and records management, as well as create an online presence. These improvements help increase efficiency and lower operating costs.
2. Cooperative Management. The Cooperative Management may consider not just using the Microsoft application but also a system design to address the challenges expressed by the staff. They are leading to enhance the current information technology system they have adopted for the smooth and fast delivery of the services they offered and achieve customer's satisfaction.
3. External Auditors. The external auditors may utilize the result of the study to further encourage the cooperative to integrate a system interface to expedite, more auditing functions and proper handling of members' valuable investments.
4. Cooperative Members. It is recommended that members have to adopt innovations in terms of information technology integration, particularly on embedding system interface, to experience ease, and comfort and more enhancements will quickly be adopted and carried out by the approving body of the Cooperative because the members agreed to the innovation.
5. Government through the Cooperative Development Authority. It is recommended that the government through the Cooperative Development Authority will be directly involved in the monitoring of cooperatives to empower the Information and Communication Technology Councils in the Local Government unit, especially those from the far-flung areas that need accessibility. The councils may intervene by giving information and assessment in terms of the advantage in the economic progress if a certain cooperative can deliver the best services in the area. The Cooperative Development Authority may encourage local programmers to come up with a system design that is cost-effective and can enhance the services rendered by the cooperative in the locality. Providing financial and technical assistance to the Cooperatives can significantly benefit the community and the nation.
6. Future Researchers. To conduct further research on information technology integration among cooperatives especially in the rural areas where there are more challenges that could hinder the operation of the cooperatives.

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