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Vendors And Multiple Virtual Stores On Cooperative E-Commerce

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Abstract:
The Vendors and Multiple Virtual Stores on Cooperative E-Commerce is integrated with the Cooperative Loan Servicing System, Stakeholders Management System, and Events Venue and Hostel Management System. The lack of provisions to offer other services on the side of the customers or buyers can result in less income, resulting in poor scalability of business growth for the grocery store. The researcher gathered data through a series of interviews and by providing questionnaires to the employees and members. Results showed a positive response from employees and members, with strongly Agreed-upon results regarding the system's System Usefulness, Information Quality, and Interface Quality. Using the Vendors and Multiple Virtual Stores on Cooperative E-Commerce brought extra income to the Cooperative, which resulted in higher profit. At the same time, it provides convenience to customers by offering other services besides the existing old service, which can result in more customers and lead to higher profits and incomes.
Background*: A cooperative is an organization run by its members who share the benefits and profits, with productivity enhanced by integrating systems like E-commerce Multi-Store, Hostel Management, Stakeholders Management, and Loan Servicing, along with a Forecasting Model for sales trends. The Internet's evolution has transformed shopping styles, making online shopping increasingly popular and allowing consumers to shop without visiting physical stores. The Vendors and Multiple Virtual Stores on Cooperative E-Commerce aims to address operational issues, expand service reach, and generate additional income for the cooperative and its members by integrating the system into operations.*
Materials and Methods*: The study presents an operational framework encompassing input, process, output, and outcome and emphasizes the use of the Software Development Life Cycle (SDLC) with a focus on prototyping for user feedback and refinement. Data from cooperative members and employees were gathered through interviews and questionnaires, leading to developing, testing, and validating modules for a Cooperative E-Commerce system.*
Results*: The study involved 50 respondents, including 20 cooperative employees and 30 members. The evaluation of system usability through the Post-Study System Usability Questionnaire (PSSUQ) revealed that respondents strongly agreed on the system's usefulness (mean score: 1.29), information quality (mean score: 1.34), and interface quality (mean score: 1.28). High scores indicate that the system is easy to use, provides clear and helpful information, and has a user-friendly interface, contributing to efficient decision-making and competitive advantage for the organization.*
Conclusion: *The integration of Vendors and Multiple Virtual Stores on the Cooperative E-Commerce platform significantly enhances cooperatives' operational efficiency, market reach, and overall business strategy, with respondents rating the system highly for usefulness, information quality, and interface quality.*
Key Word*: Multiple Virtual Stores, E-Commerce, Cooperative, Prototyping*

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I. Introduction

A cooperative is a business or organization managed by an individual who works on it or is owned by its users, and they collectively share the benefits and profits. The existence of different cooperative management systems helps the cooperative to be more productive. E-commerce, or electronic commerce, involves the buying and selling of goods and services via electronic media and the Internet. [2]. Integrating the various systems, such as the E-commerce Multi-Store, Hostel Management System, Stakeholders Management System, and Loan Servicing System, into one creates a unique system that provides the needs of the Cooperative at a different level.

The Internet has become a crucial platform for businesses to trade products between organizations and consumers. Nowadays, principal business activities are carried out online, allowing people to buy and sell products directly with transactions completed through online platforms. For instance, a company initially sold its products in a physical store to local customers. Still, later, they utilized the Internet to sell their products globally through various social media platforms [2]. This shift significantly boosted the company's efficiency and productivity

compared to in-store sales. The swift progress in communication technologies has resulted in major changes in human life, including shifts in shopping habits. Along with the improvements to the Internet, online shopping has become more popular among users. Consumers can shop from online stores that allow them to shop without physically going into shops [3]

The proposed system will be one of the services offered by the grocery store. It offers grocery items that allow its members to sell their products within the store, and both parties will generate additional income.

With this, the researcher formulated an idea to expand the existing service beyond the location and offer a more flexible service. The researcher recognized the need to incorporate Information Technology into the Cooperative's operations, prompting this study. Some issues were identified, which led the researcher to propose vendors and multiple virtual stores for cooperative e-commerce. Issues identified are: (1) The existing grocery store can sometimes inconvenience the consumers or buyers. (2) Poor or lack of reach to other consumers, especially those far from the store. (3) Does not promote other means of income except for grocery items. (4) Poor marketing strategy on the side of product selling. (5) Not scalable in terms of business growth. (6) Does not provide product datasheets.

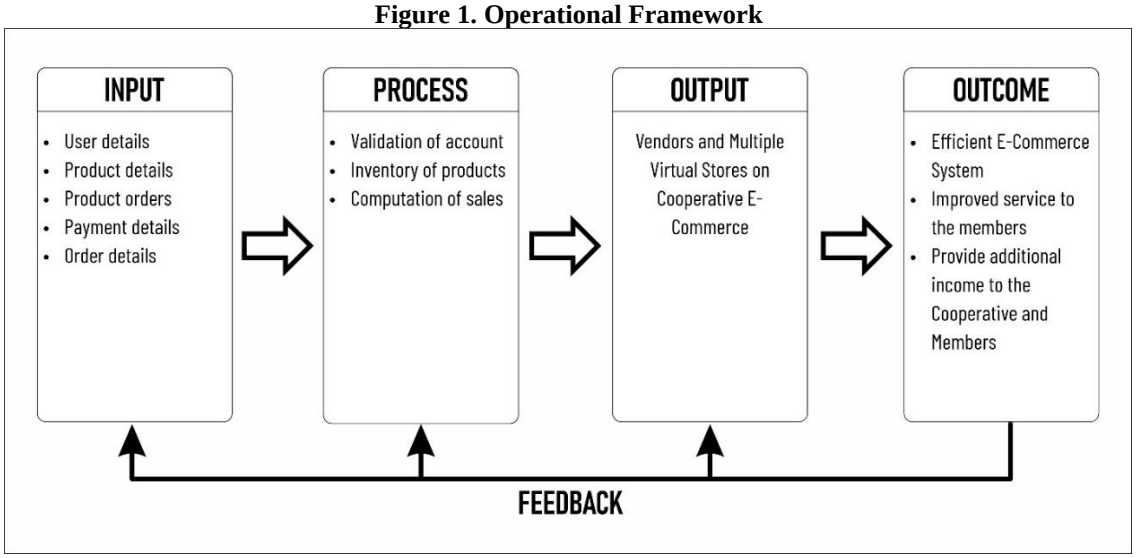
E-commerce is a global market continuously evolving recently, with a significant increase in adoption. It has been demonstrated to be an ideal platform for companies to establish a strong presence and successfully launch new businesses [4]. E-commerce allows local industries and firms to join global value chains and directly reach the international market [5]. The world is now seen as a global village rather than an isolated region. New internet-based business methods are being created to improve efficiency, and all countries are expected to adopt these innovations, moving forward together [6].

This study emphasizes the development of Vendors and Multiple Virtual Stores on Cooperative E-Commerce to generate additional income for the Cooperative and the members.

II. Material And Methods

Figure 1 shows the study's operational framework, composed of the input, process, output, and outcome. The input involves the data or resources provided; process refers to the operations or transformations applied to the input; output is the resulting product or information generated; and outcome is the broader impact or effect achieved as a result of the output.

Figure 1. Operational Framework



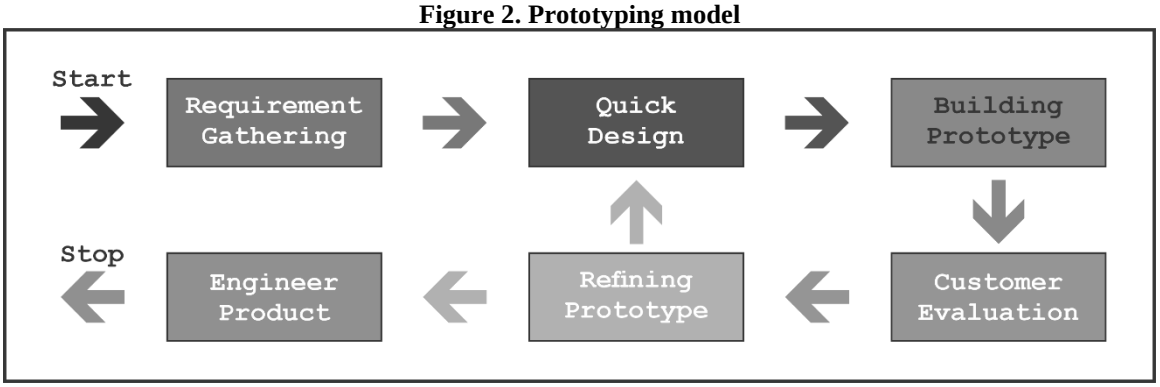
Various methodologies have consistently guided the development of computer software and information systems. These software development methodologies provide a structured approach to planning, managing, and overseeing the creation of information systems. This framework is formally known as the Software Development Life Cycle, or SDLC [7]

A software development method is essential as a foundational framework to ensure that the created software meets the required needs. The prototyping method is a system development technique that uses a prototype to provide users with a preview of the planned system development. This approach enables users to comprehend the different stages of the system, ensuring it operates correctly according to their requirements [8]

Figure 2 shows the prototyping model used for the system's development. It comprises Requirement Gathering, which involves collecting and documenting the needs and expectations. The Quick Design consists of creating the initial, preliminary model or layout to visualize the solution and guide further development. Building

the Prototype involves the development of the preliminary version of the system to test its functionality and gather different feedback. Customer Evaluation involves end-users assessing the prototype or product to provide feedback and identify necessary improvements. Refining the prototype entails making repeated adjustments and enhancements based on user feedback to improve the system's performance and usability. Engineering the Product involves finalizing the system's design to produce a fully functional version.

Figure 2. Prototyping model



The research design that will be used is Developmental Research because it can uncover context-specific insights and assess their applicability to different educational environments. It helps identify new design, development, and evaluation principles, broadening both empirical methods and the scope of instructional technology research [9]

The study's respondents will be taken from the roster of cooperative members, including the employees.

The data-gathering procedure was done through a series of interviews and a questionnaire.

The researcher integrates the vendors and multiple virtual stores on Cooperative E-Commerce into the loan servicing management system by developing each module per the Cooperative's requirements. Before incorporating the modules into other modules, they undergo tests and validation to assess their integrity regarding functions and processes.

Figure 3 shows customer registration, where individuals can create an account by providing necessary personal and contact information to gain access to the system's services.

Figure 3. Customer Registration

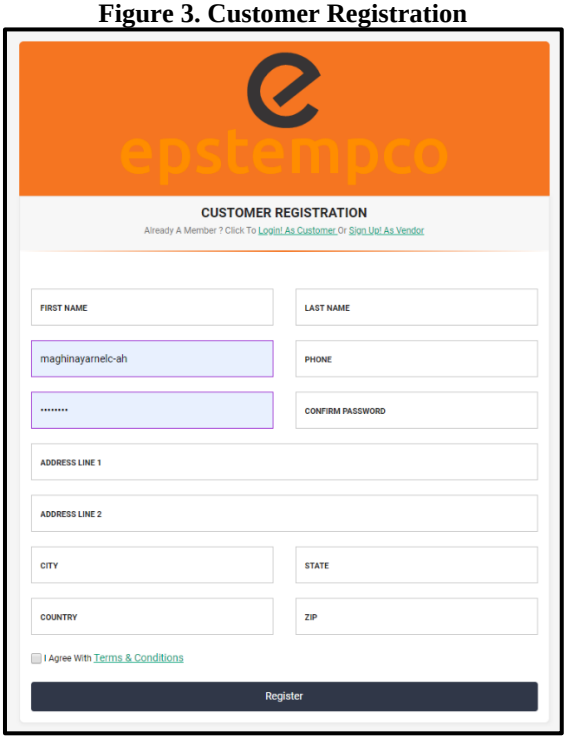


Figure 4 shows vendor registration, where individuals provide their details and credentials to be authorized as vendors, enabling them to sell products to the customers.

Figure 4. Vendor Registration

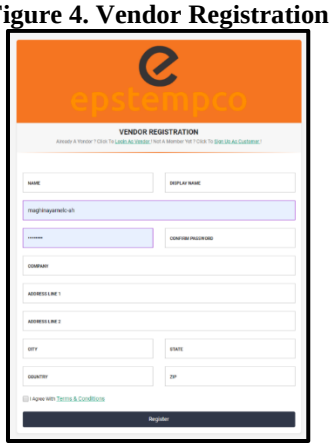


Figure 5 shows the different vendor packages available in the system that are offered to vendors, designed to facilitate and enhance their online selling experience, often including varying levels of support, promotional tools, and platform access.

Figure 5. Vendor Packages

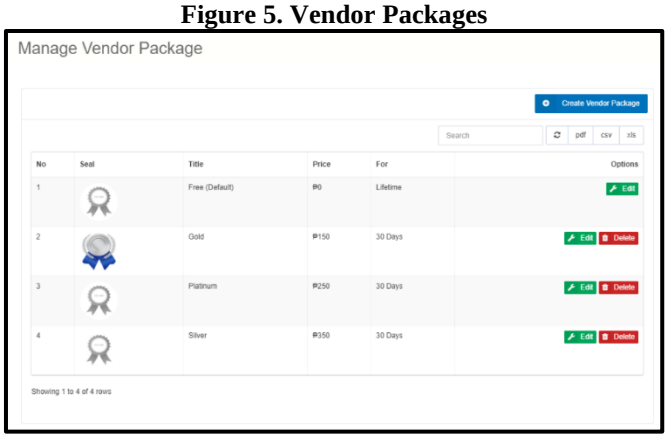


Figure 6 shows the categories organized into different product groups within the system, designed to simplify navigation and help customers easily find and browse different items based on type, use, or other criteria.

Figure 6. Categories

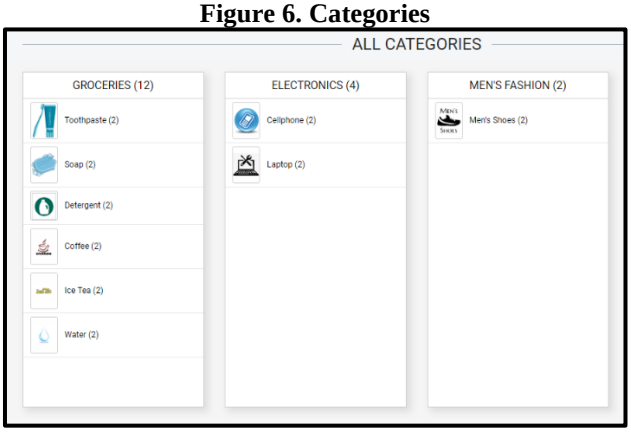


Figure 7 shows the system's payment options, which include cash on delivery, where customers pay in cash when receiving their order; cash on pickup, where customers pay in cash when collecting their order from a designated location; and from my wallet, where customers use preloaded funds in their digital wallet for transactions.

Figure 7. Payment Options

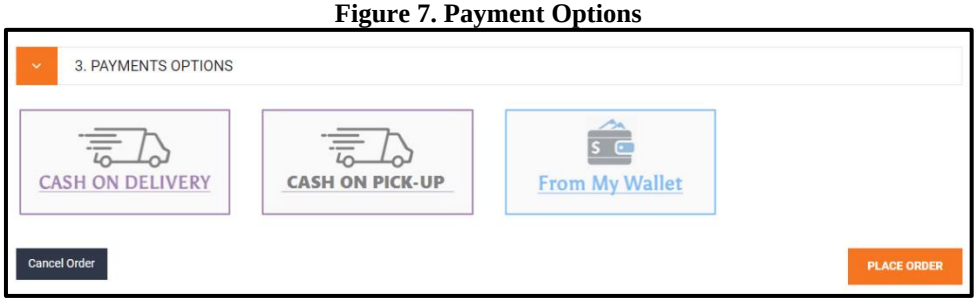


Figure 8 shows the system's main page, which serves as the central hub of the online store. It features vital elements such as navigation menus, product categories, and search functionality to provide a seamless shopping experience for users.

Figure 8. Main Page

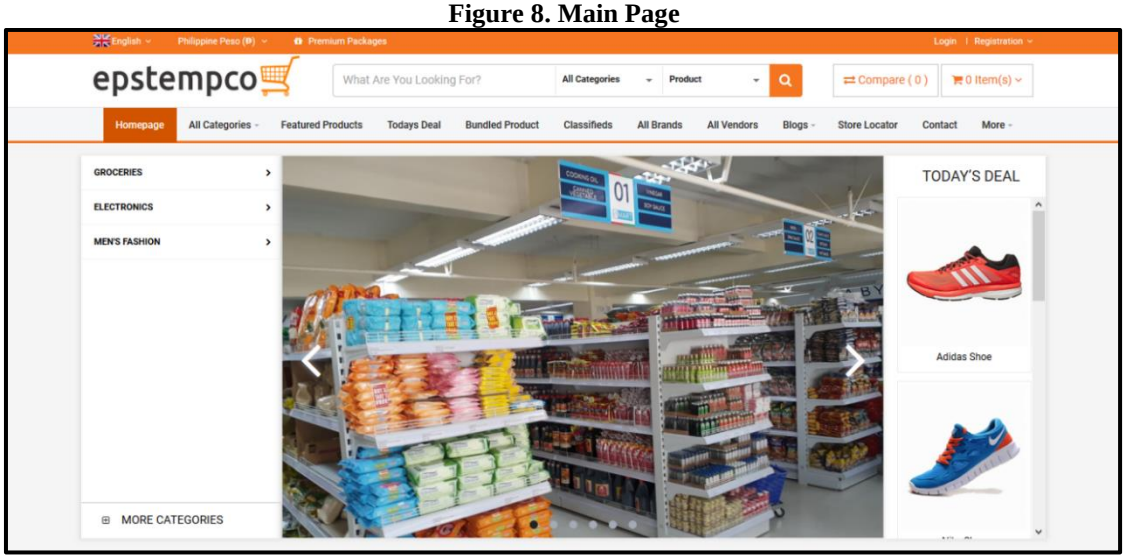


Figure 9 shows the system's product information, including detailed descriptions, specifications, pricing, images, and reviews of items, providing customers with essential data to make informed purchasing decisions.

Figure 9. Product Information

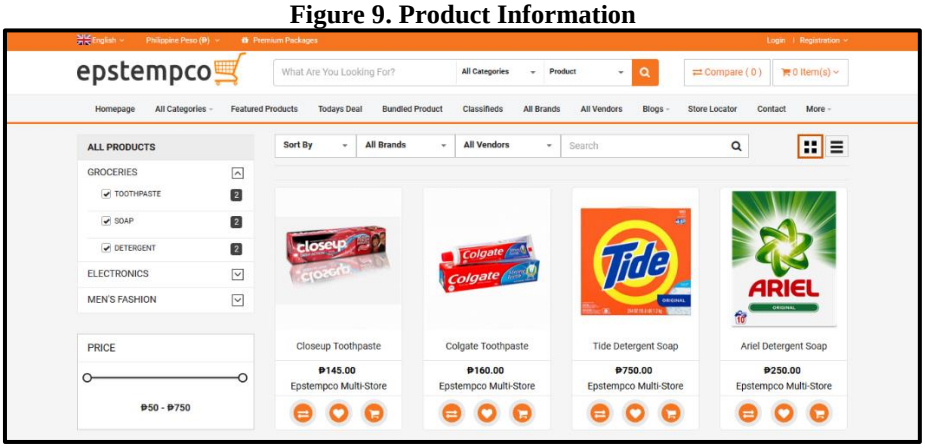


Figure 10 shows the system's product details with comprehensive information about the item.

Figure 10. Product Details

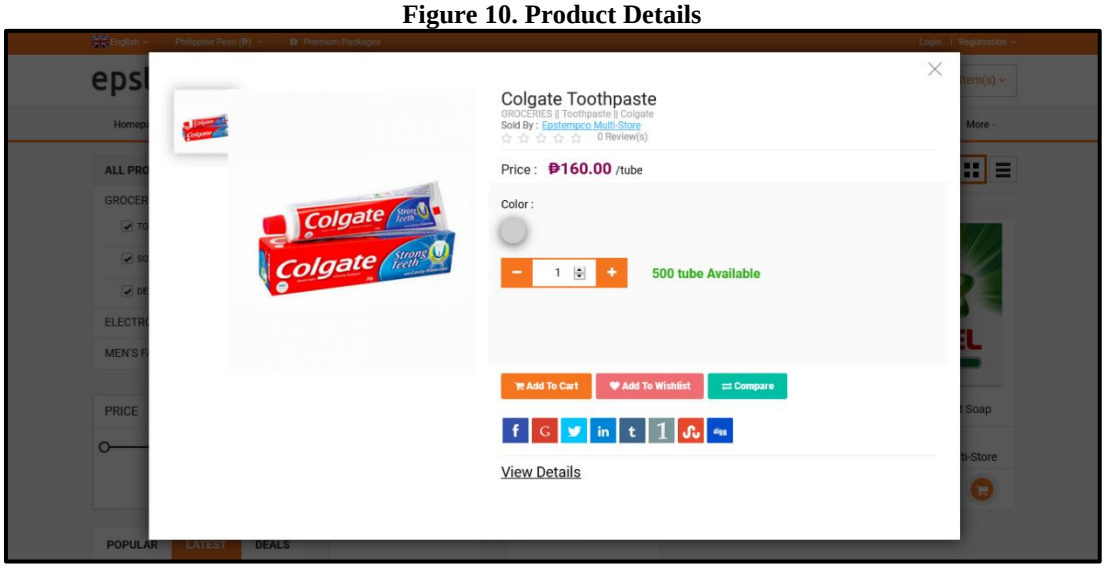
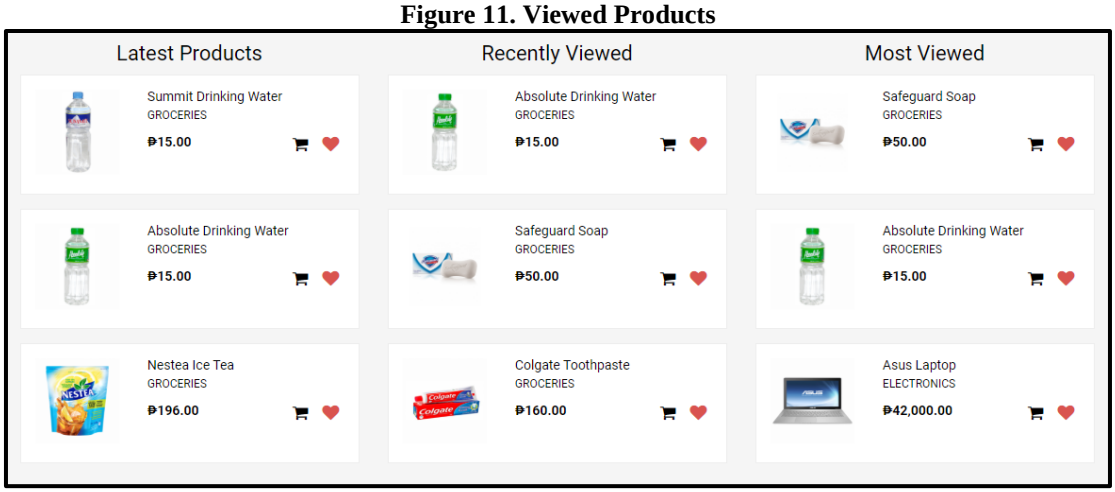


Figure 11 shows the system's viewed products and items customers have previously looked at or interacted with on the platform. It is often used to personalize recommendations and enhance the shopping experience.

Figure 11. Viewed Products



III. Result

Table 1: Respondents

Respondents	**N**
Employees of the Cooperative	20
Cooperative Members	30
Total	**50**

Table 2: Scale for evaluating Post-Study System Usability Questionnaire (PSSUQ)

Mean Score Range	**Interpretation**
1.00 – 1.85	Strongly agree
1.86 – 2.71	Agree
2.72 – 3.57	Somewhat agree
3.58 – 4.43	Neither agree or disagree
4.44 -5.29	Somewhat disagree
5.30 – 6.15	Disagree
6.16 – 7.00	Strongly disagree

Table 3: Mean Results of System Usefulness

System Usefulness (SYSUSE)	**Mean Score**	**Standard Deviation**	**Verbal Interpretation**
1. Overall, I am satisfied with how easy it is to use this system.	1.03	0.18	Strongly Agree

2. It was simple to use this system.	1.17	0.38	Strongly Agree
3. I could effectively complete the tasks and scenarios using this system.	1.37	0.49	Strongly Agree
4. I was able to complete the tasks and scenarios quickly using this system	1.43	0.50	Strongly Agree
5. I was able to efficiently complete the tasks and scenarios using this system.	1.47	0.51	Strongly Agree
6. I felt comfortable using this system.	1.30	0.47	Strongly Agree
7. It was easy to learn to use this system	1.23	0.43	Strongly Agree
Total Mean	1.29	0.12	**Strongly Agree**

Table 3 shows the mean result of System Usefulness as 1.29, interpreted as Strongly Agree. According to MacDonald & Atwood (2018), System usefulness refers to how well a system's functions enable users to carry out specific activities and reach particular goals within a given context.

On the other hand, [11] mentions in his study that ease of use refers to an individual using an information technology system that requires minimal effort and is not troublesome during use. It is defined as the level at which the user believes utilizing the technology will be straightforward and require little or less effort. Ease of use implies that the technology is simple to learn and operate.

Table 4: Mean Results of Information Quality

Information Quality (INFOQUAL)	Mean Score	Standard Deviation	Verbal Interpretation
1. The system gave error messages that clearly told me how to fix problems.	1.40	0.50	Strongly Agree
2. Whenever I made a mistake using the system, I could recover easily and quickly.	1.43	0.50	Strongly Agree
3. The information provided with this system (online help, documentation) was evident.	1.37	0.49	Strongly Agree
4. It was easy to find the information I needed	1.30	0.47	Strongly Agree
5. The information provided for the system was easy to understand	1.33	0.48	Strongly Agree
6. The information was effective in helping me complete the tasks and scenarios	1.20	0.41	Agree
Total Mean	1.34	0.13	**Strongly Agree**

Table 4 shows the mean result of Information Quality as 1.34, interpreted as Strongly Agree. According to *What Is Interface Quality | IGI Global* (2021), information quality refers to performance-related data's accuracy, completeness, timeliness, and usefulness as the foundation for management decision-making. It's also a desirable aspect of a system output that assesses the quality and effectiveness of the information to the user.

On the other hand, [13] discusses information quality as a critical aspect of information management, as it dictates the quality of information produced and developed within an organization. High-quality information can improve decision-making processes and provide a competitive edge for the organization.

Table 5: Mean Results of Interface Quality

Interface Quality (INTERQUAL)	Mean Score	Standard Deviation	Verbal Interpretation
1. This system has all the functions and capabilities I expect it to have.	1.17	0.38	Strongly Agree
2. The interface of this system was pleasant	1.40	0.50	Strongly Agree
3. I liked using the interface of this system	1.27	0.45	Strongly Agree
Total Mean	1.28	0.29	**Strongly Agree**

Table 5 shows the mean result of Interface Quality as 1.28, interpreted as Strongly Agree. User-friendliness gives a complete variety of capabilities for identifying problems and processing, evaluating, and presenting conclusions Ören & Çetin (2021). On the interface, there should be no unnecessary or distracting information. It is preferable if the displays are as uniform as possible. Users should not be pushed to recollect information from one interface section to another. The users should not memorize the directions. The instructions for the system should be visible.

Conversely, Guntupalli (2008) indicates in his study that User Interface (UI) Design and Software Quality encompasses Interaction, Information, and Interface, all of which contribute to Interface Quality. The user's ability to adapt to the system hinges on the information provided. Users should find it easy to navigate and obtain help when searching for information. If assistance is available, it should facilitate interaction and learning without causing stress or strain on the user.

IV. Conclusion

Integrating the Vendors and Multiple Virtual Stores on the Cooperative E-Commerce platform significantly enhances cooperatives' operational efficiency and reach. The study showed that the new system is very user-friendly, with respondents strongly agreeing on its usefulness, information quality, and interface quality, each receiving scores above 1.28 on the PSSUQ scale. By leveraging information technology, the cooperative can overcome the limitations of physical stores, expand its market reach, provide additional income streams, and improve its overall business strategy, aligning with the global shift towards online commerce and digital solutions.