**CHAPTER II**

**RELATED LITERATURES**

CONCEPTUAL LITERATURE

Cooperative Loan System is an online web-based inquiry and monitoring system that will help the Nasugbu Municipal Employees Multipurpose Cooperative Office in reducing inquiries and workload, provide an automatic salary deduction tool for payments, and providing the cooperative organization with an efficient means of managing loan applications and monitoring loan activities. Because of the large number of documents and files involved, this procedure is difficult and time-consuming, but technology can assist in resolving this issue.

A member of a cooperative may, notwithstanding the provisions of existing laws to the contrary, implement an instrument in favor of the cooperative authorizing his employer to deduct from the salary or wages payable to him by the employer, and pay to the cooperative such amount as may be specified in satisfaction of any debt or other demand due from the member to the cooperative (Fajardo and Abella). Salary-deducted loans are personal loans that are repaid through automatic deductions from the borrower's salary. These loans are becoming increasingly popular as a convenient way for employees to access credit. The loan amount and interest rate are usually based on the borrower's income and credit history. Integrating salary-deducted loans into loan management systems is a practical way for lenders to offer this loan product and manage their loan portfolios effectively. By modifying the LMS, setting up automatic deductions, and monitoring loan repayments, lenders can improve efficiency, reduce the risk of default, and better serve their borrowers (Lee).

The idea of system development makes use of a ledger or record to keep track of all loan-related transactions and information. It provides a record of each financial transaction that takes place during the life of an operating company and holds account information that is needed to prepare the company’s financial statements. The ledger serves as a central repository of loan data, which can be accessed and updated by both the lender and the borrower throughout the life of the loan (Kenton).

A ledger can help mitigate many of the common problems associated with loan management systems, including errors, fraud, mismanagement, streamlining loan management procedures, and enhancing overall efficiency and security by offering accurate, transparent, and responsible record-keeping. As loan management systems continue to evolve, ledgers are likely to play an increasingly important role in ensuring the accuracy, transparency, and accountability of loan-related transactions (Faber et al.). Ledgers can be used in conjunction with a dashboard to provide a visual display of data and information on management records. It is an interactive tool that provides a real-time display of KPIs such as the number of loans disbursed, loan delinquency rates, and the average amount of loans. These KPIs can be broken down by various parameters, such as loan type, borrower demographics, and geographic region, providing a comprehensive view of loan management performance. By integrating a ledger with a dashboard, cooperatives can gain insights into loan management performance and identify areas for improvement. For example, a dashboard can display KPIs such as the number of loans disbursed, loan delinquency rates, and average loan amounts. These KPIs can be broken down by various parameters, such as loan type, borrower demographics, and geographic region, providing a comprehensive view of loan management performance (Jones et al.). Users may also use the dashboard to display data analytics for studying raw data and producing conclusions. Many data analytics techniques and processes have been automated into mechanical processes and algorithms that operate on raw data for human consumption (Frankenfield et al.).

Cooperative members may manage all of the data from the borrower's payments by monitoring them with tools widely used in loan administration like ledgers. Loan Origination System is an example of a monitoring system (LOS), which involves multiple steps, starting from pre-qualification to funding approval and disbursal, and requires the presence of key documents that support the interests of both parties involved (Ramamurthy). Monitoring procedures specify how data is gathered, saved, transferred, analyzed, and used for management as well as the monitoring duties of each member in the cooperative management. Effective loan monitoring can help reduce credit risk and ensure the profitability of the lending institution (Ali and Khan).

To address this problem, this study developed a web-based application that will allow Nasugbu Municipal Employees Multipurpose Cooperative to apply for and manage loans online, upload supporting documents, and track their loan status in real time. Coop administrators can use the application to review loan applications, verify member information, approve or reject loans based on preset criteria as well as generate reports, and monitor loan portfolio performance using the application's dashboard that displays their loan balance, loan repayment schedule, and other relevant information.

RESEARCH LITERATURE

The concept of automation has been variously applied in most computing fields. This involves the utilization of computing or electronic devices to undertake the tasks that are being handled by people. It is a pertinent factor in a profitable and soundly run financial institution. Financial transactions through manual systems of operation are prone to errors and unimagined complexities, making it a difficult task to maintain all entries of users' accounts, search records of activities, handle loan deduction errors, and generate reports. Computers running automated systems are targeted towards eradicating the menace – hence making the underlying activities efficient and providing the fast response needed (Kingsley et al.).

According to Dhar et al., they describe a browser-based automated loan system that includes a loan engine offered individually to financial institutions to set up, operate and manage loan product offerings, a consumer website interface having a loan application form with data fields relevant to the loan product offerings, a designer component that establishes tasks in the form of a loan process checklist associated with each loan product offering, and a workflow engine for automatically evaluating the loan application form using the applicable loan process checklist in conjunction with rules, logical-mathematical computational components, and risk-based offer configurations for generating an instant loan offer when a borrower qualifies.

In addition, Green et al. also said that an automated system and method for reviewing and assessing compliance with legal compliance requirements for loan applications. Loan application data is extracted from client loan origination systems and transmitted as a loan information file over a secure communication network to an automated compliance assessment system server where the loan information file is audited for compliance with Federal, state, and local legal compliance requirements. The loan information file is reviewed for legal compliance requirements imposed by Federal State, and local jurisdictions, as well as licensing requirements that the client loan company and related personnel must satisfy.

A loan is a sum of money that individuals or organizations borrow from financial institutions, that will be repaid in the future (Kagan). One of the key challenges that most of these societies face in their day-to-day administration is the use of manual techniques for the management of cooperative records (Rilwan et al.). According to the study of Carranto, the Technological University of the Philippines-Manila Multi-purpose Cooperative (TUPMMPC) cannot handle all loan applications efficiently. The current manual processing is prone to human error, so data integrity is questionable. Moreover, since the processing is centralized to the credit committee, problem with transparency and data tampering is possible. Furthermore, there is a problem with scalability. If a lot of members apply for a loan, manual processing cannot possibly handle all of them simultaneously efficiently. Each of the processes requires approval, and documentation. Gnatyuk stated that consumer lending traditionally involves several manual processes that greatly increase the time needed to complete a loan transaction. Even though most consumer loans only require 30 minutes of actual work, moving information between physical locations such as a branch or a main office can add hours or even days to the process.

To ease the work processes of loan applications and monitor loan status, a system that essentially manages both short-term and long-term loans, and keeps track of the cash inflow and outflow of a cooperative society among others is being developed (Onyeama et al.). According to Oyediran et al., a web-based loan management system is needed because traditional loan management processes are often paper-based and time-consuming. The study concludes that a web-based loan management system is a necessity for effective loan management in the Nigerian financial sector. The system provides a centralized platform for loan data management, improves the efficiency and accuracy of loan processing, and enables lenders to make timely decisions. The study recommends that Nigerian financial institutions should adopt web-based loan management systems to remain competitive and meet the growing demand for loans.

To improve the efficiency and effectiveness of loan management processes, Asante et al., the solution was to create a loan management dashboard for a microfinance institution in Ghana to monitor their loan portfolio performance in real-time and make informed decisions. According to the study, the microfinance institution's loan management procedures have been enhanced by the loan management dashboard. The dashboard has made it possible for lenders to track the performance of their loan portfolios in real-time, spot troublesome loans, and take well-informed choices. The report also cites certain obstacles to the dashboard's deployment, such as poor data quality and the requirement for user support and training.

A data dashboard is an interactive analysis tool used by businesses to track and monitor the performance of their strategies with quality KPIs. Armed with real-time data, these tools enable companies to extract actionable insights and ensure continuous growth. Dashboards offer users a comprehensive overview of their company’s various internal departments, goals, initiatives, processes, or projects. These are measured through key performance indicators (KPIs), which provide insights that will enable you to foster growth and improvement (Calzon).

According to Akinboro et al., in their study, “Design and Implementation of a Dashboard for a Cooperative Loan Application System”, describe the design and implementation of a dashboard for a cooperative loan application system. The study focuses on using a dashboard to improve the efficiency and effectiveness of loan processing in a cooperative society. The dashboard provides real-time updates on the status of loan applications, the number of loans approved, and the amount of money disbursed. This enables the cooperative society to monitor loan processing and make timely decisions. It uses data visualization techniques such as charts and graphs to provide insights into loan processing. This enables users to identify trends and patterns and make data-driven decisions. The study concludes that the dashboard has improved the efficiency and effectiveness of loan processing in the cooperative society. The real-time updates and customizable views have enabled users to monitor loan processing and make timely decisions, while the alerts and notifications have improved communication among users. The data visualization techniques have provided insights into loan processing and helped identify areas for improvement.

Another study aims to solve the problems encountered in cooperatives in the Philippines by developing a system with a dashboard. It followed a Waterfall Model under the Software Development Life Cycle (SDLC) in the development and evaluation of the design. The system caters to all significant transactions done by a credit cooperative from record management, creating members and applications for loans, generating amortization schedules, and loan payments, generating reports, and tracking members’ transactions. On a dashboard, data is presented in a form of graphical charts. Using the graphical presentation user can directly identify the financial allotment of the cooperative from the collections, disbursement, and statement of account. A survey questionnaire was used to determine the effectiveness of the application as rated by the respondents. Upon completing the study, it was found that the respondents wanted the system to be implemented for better and well-managed transactions in their cooperative (Cofino).

The function of loan monitoring is part of quality credit to ensure credit facilities are provided. There is a lot of research on loan monitoring activities but there are differences of opinion among researchers about which actions constitute loan monitoring. Loan monitoring is managerial work. The essence of each loan monitoring is to ensure compliance with loan agreements such as ensuring that the loan is used for purposes that meet the requirements, the quality of the loan will be maintained in the future, and the source of payment. There are various tools used by cooperatives in monitoring loans, such as; monitoring transaction accounts, management, requirements, and loan agreements. Dermine argues that direct loan monitoring is influenced by regulation (Aremu et al.).

As stated by Harelimana et al., the credit committee has the responsibility not only for approving loans, but also for monitoring their progress and, should borrowers have repayment problems, getting involved in delinquency management. Establishing a committee of persons to make decisions regarding loans is an essential control in reducing credit and fraud risk. If an individual has the power to decide who will receive loans, which loans will be written off or rescheduled, and the conditions of the loans, this power can easily be abused and covered up. While loan officers can serve on the credit committee, at least one other individual with greater authority should also be involved.

Wanjiru explored the factors affecting the loan disbursement performance of SACCOs in Kiambu County and found that loans were granted from mobilized funds and failure to repay could bring down the financial institutions as they only depended on these funds as the only source of funds hence loan agreement, was very crucial to reduce risks associated. Best practices required that loans were considered to be delinquent if a single payment was not honored at the time stipulated in the loan agreement. The outstanding loan balance was considered past due after one failed to meet one repayment obligation. To control delinquency, immediate action should be taken first to assist the first truck and the loan that was reported past due. Loan provisions were on the first line to defend and protect members’ savings against identified risks of losses to the SACCO. The Sacco must look for other measures to enforce repayment of the outstanding loan before writing off these loans from the books.

The benefit of a browser-based cooperative records management system integrated with a loan assessment system (CRMLAS) is to make a sufficiently transparent and comprehensive business intelligence solution. (CRMSLAS) is a web-based transaction system that enables cooperative members to do business in a secure and robust environment. The system also enables the stakeholders to conduct cooperative transactions more quickly, effectively, efficiently, and reliably. CRMSLAS’s objective is to create an application system that enables mobile access to information across a variety of computer devices (De Los Santos). According to the study of Olorunlomerue et al., a web-based cooperative information management system for handling records of cooperative societies in Nigeria was proposed. The authors used Java as the programming language and MySQL for building the database. The approach used in the study was to develop a solution that can be used for cooperative society registration. Thus, this solution can assist the government in the collation of data on cooperative societies for planning.

Mbam et al. developed a cooperative management system that can aid a cooperative society in loan management. The authors argued that the system essentially manages both short-term and long-term loans, and keeps track of the cash inflow and outflow of a cooperative society among others. The authors used SQL Server database architecture at the back end and Visual Basic Net framework at the front end. They argued that such an approach makes the proposed solution to be highly interactive. However, it was observed the work failed to identify a case study in which the proposed system can be found operational.

Another study investigated how loans made by cooperative societies in rural areas meet the financial needs of their members and, by extension, the role of cooperative lending in rural finance. The study made use of primary data from nine focus group discussions comprising seventy-two members selected randomly from twelve co-operatives in six local government areas. Data were analyzed using tables of numbers and percentages, content analysis, and quotations from participants. The study did not promote the development and deployment of ICT-based solutions for cooperative loan management (Oluyombo).

The SACCO sector globally continues to struggle with huge loan performance inefficiencies, with Portfolios at Risk levels beyond the maximum boundaries endorsed by both the World Council of Credit Unions and the SACCO Societies Regulatory Authority. This study aimed to determine the effect of client appraisal, lending policy, collections policy, and loan diversification on the loan portfolio performance of 25 Savings and Credit Cooperative Societies in Nyandarwa County, Kenya. Data analysis was done using descriptive statistics, correlation analysis, and multiple linear regression. This study examined the effect of client appraisal, lending policy, collections policy, and loan diversification on the loan portfolio performance of SACCOs in Nyandarwa County, Kenya. A target population of 25 Savings and Credit Cooperative Societies was studied using a census approach. Validity was assessed through expert opinion and pre-testing. Data analysis was done by use of descriptive statistics, correlation analysis, and multiple linear regression. The study recommends that SACCOs invest in technology-based initiatives such as computerized loan tracking systems and co-guarantee lending methods to improve loan quality and diversify risk among group borrowers. All ethical considerations were observed (Gichuhi and Omagwa).

According to Wang et al. in their study, “New Financial Loan Management System based on Smart Contracts”, current financial loan management systems are usually deployed in a single service mode, also the transactions are not transparent and traceable to most of the roles participating in the process. Their data privacy protection mechanisms are not robust enough facing various cyber-attacks. To overcome these challenges, we propose loan on the blockchain (LoC), a novel financial loan management system based on smart contracts over permissioned blockchain Hyperledger Fabric. We use the Chinese poverty alleviation loan as the case study. We design a digital account model for the transfer of assets between centralized and decentralized ledgers; and propose locking and unlocking algorithms for smart contracts. We introduce digital signature and oracle to protect the data privacy. Performance evaluations on chain code and unlocking codes show that our system is applicable in the real financial loan setting.

According to a study by Harelimana, analyzed the contribution of loan management to the financial performance of Umurenge Savings and Credit Cooperatives in Rwanda. The study adopted the use of descriptive surveys using both qualitative and quantitative methods for a total sample size of 78 clients who have received more than two times the loan. Purposive and simple random sampling was used for this purpose. Primary and secondary data were collected and then analyzed. The study found that loan management determinants used such as membership enrolment, client appraisal, credit risk control, and collection policy impact financial performance respectively at 23,9%; 24,1%; 39,2 %; 28,4%. Loan management practices had a high influence on the SACCO’s financial performance during the five years. The correlation results imply that suitable loan management in a savings and credit institution has a positive impact on financial sustainability and profitability and on financial efficiency and productivity as they move in the same direction (R=0.980).

Cooperative societies are growing in Nigerian Educational institutions, with ASUP SICHST Makarfi cooperative society limited being a good example. The society is registered by the government of Kaduna State and is operating at Shehu Idris College of Health Sciences and Technology, Makarfi. One of the key challenges that most of these societies face is the use of manual techniques for the management of cooperative records. Despite having some proposals for deploying ICT solutions to manage cooperative activities, it was observed that there is a paucity of works that specifically identify the need to provide solutions to loan application management problems in a custom scenario. According to Rilwan et al. in their study, Web-Based Cooperative Loan Application Management System, proposed a web-based loan application management system that addresses the identified problems in the current manual system. The solution was developed with a focus on features that cater to loan application management functions in the cooperative society, in a custom manner. MySQL, PHP, HTML, CSS, and JQuery were the tools used for the implementation. The new system is found to be custom-developed and can promote the creation and management of members' loan applications in the cooperative society. It is believed that this approach is better when it comes to deploying solutions for the management of customs operations of cooperative society activities.

Another study is focused on designing Web Based Loan Management System (LMS), which would assist the microfinance institution (Pride Microfinance Limited) to keep records of its clients which can be accessed wherever and whenever needed. The LMS developed during the study, stores records in a web database and also allows online updates of the web application. An investigation was carried out to establish how the existing system functions regarding the problems at hand in addition to the way forward. To help in the investigation, the interview and observation were used in fact-finding. The system design used the three-tier client-server architecture to implement the inference mechanism. In contrast, the database component was implemented using NIP programming language and MySQL, a Relational Database Management System. The user interface was implemented using HTML and PEP. The LMS helps users or loan officers store, read, update, modify, and delete loan data. The development used the Waterfall Model under the System Development Life Cycle (Mujuzi and Mugerwa).

According to Domingo and Battung in their journal, “Financial Analytics System for a Credit Cooperative”, the use of financial analytics in a cooperative can provide support to the management for the improvement in making economic decisions. The use of financial analytics in credit cooperatives gives a deeper analysis of the status and performance of the members and the cooperatives. It provides an analysis of the financial risk of the borrowers and cooperatives and gives indicators of good and bad performances. In this way, financial analytics for credit cooperatives can help even neophyte managers to make good economic decisions. Data analytics can be used to optimize loan application systems. Findings from analytics in loan systems can provide valuable insights into the performance of loan portfolios and the lending process. By analyzing loan application data, lenders can identify which types of loans are most commonly used, which loan products have the highest approval rates, and which loan types have the lowest default rates. It can also provide insights into the characteristics of borrowers who are most likely to apply for different types of loans.

TECHNICAL BACKGROUND

The Researchers acquired suitable data from the Nasugbu Municipal Employees Multipurpose Cooperative Office regarding the forgoing concerns. The researchers started a collaboration of ideas to discuss the technologies that will be used in the Cooperative Credit application and Monitoring system; as a result, the researchers identified the software, hardware, and technologies that can be used in an application and monitoring system.

The research project will be an IT-related study. These are some of the tools and technical terms used by the researchers in this project: HTML, CSS, JavaScript, XAMPP, Visual Studio Code, Lucidchart, Php, MySQL, Database, Web-based, and PhpMyAdmin. Some of the terms mentioned above are also the technologies that the researchers used in making the project.

HTML stands for HyperText Markup Language It is a standard markup language for creating web pages. Using HTML elements like tags and attributes, which are the building blocks of a web page, makes it possible to create sections, paragraphs, and links and structure them (hostinger.com).

HTML is the language for describing the structure of Web pages. HTML gives authors the means to publish text-based documents with headings, tables, lists, images, and more online. Authors can also Create forms that can be used to conduct transactions with remote services, such as searching for information, making reservations, ordering products, and so on, by clicking on hypertext links that can be accessed online. And Lastly, Authors can also Include applications like spreadsheets, videos, and audio files directly in their documents (w3.org).

HTML is completely text-based, an HTML file can be edited simply by opening it up in a program such as Notepad++, Vi, or Emacs. Any text editor can be used to create or edit an HTML file and, so long as it is named with a .html file extension, any web browser -- such as Chrome or Firefox -- will be capable of displaying the file as a webpage (theserverside.com).

CSS stands for “Cascading Style Sheets”. It is a stylesheet language that is used to describe how HTML or XML documents are presented and formatted. CSS allows developers to control a web page's layout, colors, fonts, and other visual elements by separating the content from the presentation (developer.mozilla.org).

CSS has become an essential part of web development, as it allows you to create visually appealing and responsive designs that adapt to different screen sizes and devices. With CSS, you can control the position and layout of elements, create animations and transitions, and define the typography and colors of a web page (code4projects.net).

Web page designers have made a significant advancement in their ability to enhance the appearance of their pages thanks to style sheets. People are more concerned with the content of their documents than with how they look in the scientific environments that inspired the development of the Web. The limitations of HTML became a constant source of frustration as more people from all walks of life discovered the Web, and authors were forced to sidestep HTML's stylistic limitations. The methods used to improve the presentation of Web pages have had undesirable side effects, despite the good intentions. Some people benefit from these methods occasionally, but not everyone does so consistently (w3.org).

Another programming language that the researchers used in web development and creating interactive and dynamic websites were JavaScript. JavaScript is a high-level, interpreted language, which means that this programming was made to be easy to read and write, and it can be used without being compiled. Meanwhile, HTML's primary function is the creation of static web pages. The CRUD paradigm, which stands for create, read, update, and delete, was used by the researchers to connect to the web server using PHP, which was focused on server-side scripting. It creates entries for loan applicants' data and allows the Municipal Multipurpose Cooperative Division to read data from the Cooperative Loan database, display the results, update data that has changed, and delete or remove values from the database.

XAMPP is an open-source software package that is used for web development and contains several components that are necessary for running a web server. By using XAMPP the researchers are now allowed to test their system even without internet access. To create a relational database system, the researchers used the well-known database MySQL and the PhpMyAdmin management tool. And for programming tasks, the researchers used the powerful and flexible code editor that is suitable for a wide range of programming tasks which is Visual Studio Code. While constructing charts and diagrams for forming work breakdown structures (WBS) the researchers used a Lucid chart.

THEORETICAL FRAMEWORK

Loan management is of vital importance as it helps individuals and businesses meet their financial goals, improve credit scores, avoid default, and reduce financial stress. This involves various activities and processes that help individuals and businesses manage their loans effectively. It puts more emphasis on budgeting, planning, communication, monitoring, and risk management to ensure that loans are repaid on time and in full while minimizing the risk of default. Loans being assets affect the lender in various ways, including income generation, credit risk, liquidity, and reputation.

A loan management system is a digital platform that helps automate every stage of the loan lifecycle, from application to closing. The traditional loan management process is meticulous, and time-consuming, and requires collecting and verifying information about applicants, their trustworthiness, and their credibility.

CONCEPTUAL FRAMEWORK

The conceptual framework presented below describes the methodology used in this study to acquire its desired output using IPO (input, process, and output).

Requirements

Gathering and Analysis

Design

Development

Testing

Deployment

Feedback

User Requirements

Related Literature and Studies

Programming Languages and Procedure

Software and Hardware Needed in the Development

Municipality Officials Credit Application Data

Nasugbu Cooperative Loan Application and Monitoring System

Dashboard

Reports

**Input**

**Process**

**Output**

Figure (\_\_) Research Paradigm on the Nasugbu Cooperative Loan

Application and Monitoring System

Figure (\_\_) describes the conceptual framework of the Nasugbu Cooperative Loan Application and Monitoring System for the Municipality of Nasugbu, Batangas. It shows how the information was processed in order to obtain the intended result of the developed system. The developed study was designed to enhance the manual monitoring of Credit Applications in the municipality of Nasugbu, Batangas.

For input, it consists of the Municipality Officials' credit application data, programming languages, related studies and projects. All of the information supplied in the input is specified here.

For the processes, it consists of the different stages that will be used in creating and developing the system. Requirements, Design, Development, Testing, Deployment, and Feedback are included. It contains everything from information or data to the produced system's final results and recommendations.

For output, this includes the action done after analyzing the results of the study. The researchers developed recommendations to assist the Municipality of Nasugbu, Batangas in improving their manual process and how the developed system would help the officer in correctly recording information about the loan. Nasugbu Cooperative Credit Application and Monitoring System will make the whole loan processing more efficient, fast, accurate, and convenient.

SYNTHESIS

The reviewed concepts of much-connected research from international and local sources stated above are significant to the current project because they serve as the foundation for constructing the Nasugbu cooperative and loan application and monitoring system project. Related studies show that foreign and local studies focus on helping people fulfill what will they need to improve their living, making the loan system administration more efficient, and keeping track of the business progress. It also shows which features are accessible in the system and which are not available in other systems, both foreign and local.

Enhancing Cooperative Loan Scheme Through Automated Loan Management System discussed the beginning of automation in computing fields that make transactions faster, more efficient, and more convenient since the manual system of transactions is a time-consuming way of recording transactions, and it is prone to errors and inconsistencies in data. Automation can make it easier for borrowers to apply for loans, track their application status, and make payments. This can improve the customer experience and make it more convenient for borrowers to manage their loans. Similar to the study of Dhar et al., which describes a browser-based automated loan system that includes a loan engine for generating an instant loan offer when a borrower qualifies.

The study of Carranto et al. on the TUPMMPC Loan Monitoring and Management System in Manila, Philippines has similarity to the researcher's project because this study also aims to enhance the currently existing process by developing a web-based system that can handle a high volume of loan applications so that the Nasugbu municipal employees can apply for a loan online more easily and quickly. Additionally, both studies have analytics that can track the number of loan applications that are received, approved, and rejected. Analysis of loan-related data, including loan disbursements, repayments, delinquencies, default rates, and more, is required. On the other hand, it differs from Carranto's study in that the built project system does not have a kanban board outlining the various phases of loan application or an email notification outlining the status of the loan application.

The developed system of Akinboro et al. for the loan managers which is the implementation of a dashboard for a cooperative loan application is similar to the currently developed system in terms of identifying the key metrics that need to be tracked and displayed on the dashboard. These metrics may include the number of loan applications received, the number of loans approved, the number of loans disbursed, and the amount of money disbursed. This feature of the study was similar to the developed system although it did not track delinquency rates and default rates. Furthermore, the dashboard of the developed system includes the tracking of loan applications by the department as well as the record or performance of each individual in their loan application, which is not included in the aforementioned system.

De Los Santos' study, the Development of a Browser-Based Cooperative Records Management with a Loan Assessment System, and the researchers' project are similar in that both focus on developing transparent, comprehensive business intelligence solutions. The goals of the study are in line with the researcher's project, which is to create a system that enables users to access information via mobile devices in addition to other computer devices and to perform cooperative transactions more quickly, effectively, efficiently, and reliably.

The concept of loan application approval and monitoring by Harelimana, JB has few similarities to the researcher's project because the study states that they can monitor the cooperative member's performance, and their credit committee has a responsibility in approving or disapproving the loan application, which the researcher’s project also has. But some parts of the study do not follow the same path as the researcher’s project, for example, delinquency management and credit risk control. In the study, they can monitor if the member of the cooperative is having repayment problems. In this case, the cooperative has the decision to make about whether to let the member’s loan be written off or rescheduled. On the other hand, the researcher’s project does not have this kind of feature because, first, the cooperative member will not have repayment trouble. After all, the Nasugbu Municipal Employees Multipurpose Cooperative Office only allows salary-deducted payments.

The Design and Implementation of a Custom, Web-Based Cooperative Loan Application Management System discussed the development of a loan application management system for a cooperative. The said system is designed to automate the loan application process and improve the efficiency of loan management activities which was similar to the developed system. It is an effective tool for managing cooperative loans and improving the efficiency of loan management activities. It can help municipality officials in Nasugbu to reduce paperwork, improve loan processing time, and to enhanced loan monitoring. Overall, it provides insights into the design and implementation of a web-based loan application management system for cooperatives.

In the developed system of Credit Management and Loan Portfolio Performance of Savings and Credit Cooperative Societies by Anne Wambui Gichuhi and Dr. Job Omagwa, determines the effect of a client of client appraisal, lending policy, collections policy, and loan diversification on loan portfolio performance of SACCOs in Nyandarwa County, Kenya. This system is quite similar to the researcher's developed system in terms of their focus on managing lending risk, improving loan portfolio performance, member management, efficiency, and reporting. Both systems require reporting to monitor loan portfolio performance. The said system needs to report on loan disbursements, repayments, and delinquencies to manage loan portfolios effectively. Just like the developed system, it also provides financial institutions with reporting tools to track loan performance, identify trends, and make informed decisions with the exception of loan repayment, as the created system only enables salary-deducted payments. The system's focus is on SACCOs in Nyandurua County, Kenya. On the other side, the developed system is limited to Nasugbu, Batangas only.

The concept of Rilwan et al. was a loan application management system that also facilitate the loan application process. It focuses on streamlining and automating loan application and approval processes for cooperative organizations. The primary focus of this system is to make it easier for co-op organizations to manage the loan application process, from application submission to loan disbursement and repayment. The developed system has similarities to their system because it also has the ability to allow employees of Nasugbu Municipal Employees to apply for loans online and track the status of their applications. The difference was that the developed project system does not generate repayment reminders and statements since it only allows salary-deducted payments.

The Implementation of a Financial Loan Management System based on Smart Contracts with blockchain technology constructs a system, like a researcher's developed system that involves the process of loan origination. Like this study, both systems involve loan servicing activities, including tracking loan payments. Both systems, like this study, require loan servicing tasks such as loan payment tracking. The distinction is that these activities in the developed system are normally controlled by co-op administrators, however, in the said system, the same activities are automated by the smart contract code. Borrowers apply for loans through a decentralized application in a smart contract-based loan management system, and the smart contract automatically accepts or rejects the application based on predefined criteria. The loan terms are then specified in the smart contract code and are automatically enforced by the blockchain network. The developed system is different since loans are negotiated between the borrower and the lender and the system was more advanced in technology in the field of financial loan management.

The concept of Onyeama in his study “Web-based loan management system” focuses on creating an effective and accurate loan transaction processing tool that is similar to the researcher's developed project for the reason that the researchers want to monitor the loan status of the cooperative, aid the work processes of loan applications like traditional loan application processes which are paper-based and time-consuming and create a system that essentially manages both short-term and long-term loans and keeps track of the money coming in and going out of a cooperative organization.

A Loan Management Dashboard for a microfinance institution in Ghana by Asante et al. developed software that allows institutions to manage their loans portfolio efficiently since managing these loans manually can be time-consuming, error-prone, and difficult to scale as the institution grows. The system that manages their data uses various statistics such as loan portfolio statistics, risk assessment, customer and geographic analysis, and financial performance statistics. The developed system had similar features wherein both systems provide a real-time view of loan portfolio performance, including borrower information, loan balances, and delinquent accounts except for the repayment schedules.

The “Financial Analytics System for a Credit Cooperative” of Domingo and Battung is a financial data analytics platform that offers management assistance to the cooperative to help it improve its financial and economic performance. Both systems collect data and use it in analyzing loan application data, identifying which types of loans are most commonly used, and which loan types have the highest approval rate. It also provides valuable insights into the performance of loan portfolios and the lending process that can help the cooperative in making good economic decisions.