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**SynDICA: Document Tracking and Logistics System for   
Bureau of Jail Management and Penology Regional Office III**

In Partial Fulfillment of the Requirements for IT 303 – System Analysis and Design

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in Bulacan State University, Malolos

March 13, 2023

# Chapter I INTRODUCTION

In this chapter, the foundational elements of the project are delineated. The project context encompasses the historical background, past inquiries, and conceptualization of the study. The purpose and description section articulates the underlying rationale and motivation driving the study forward. The general and specific objectives of the project serve as a structured statement of the identified problem, guiding the research's focus. Finally, the chapter outlines the scope and limitations, establishing the boundaries and constraints of the study.

## Project Context

Amid the statutory evolutions of the 21st Century, penological offices persist to serve as a fundamental entity for correctional facilities and legal investigations. Integral to the criminal justice system, they play a pivotal role in the management of personalities, equipment, operations, and artifacts related to socio-civic activities, ensuring the effective implementation of laws and regulations governing incarceration. These offices serve as the linchpin in coordinating various aspects of correctional affairs, housing persons deprived of liberty (PDL), facility security, and compliance with progressing legal standards (St. John, 2020). Penologists work to evaluate prison operations, policies, and rehabilitation programs to help PDL develop skills, overcome challenges, and improve their behavior (Rubin, 2021). Recognizing the dynamic nature of the correctional environment, a comprehensive understanding of penological offices and their multifaceted responsibilities is tantamount to addressing contemporary challenges enhancing the efficiency of legal and civic processes.

Within the realm of correctional administration, the management and documentation of penological processes are brought to significance by penological documents. These documents, collected by Bureau of Justice offices, constitute a comprehensive record of PDL activities, facility operations, proceedings, and incarceration and institutional records (Bureau of Justice Statistics, 2021), forming the backbone of information crucial for decision-making within penological offices. In particular, certain jargonized documents and operations are necessary to ascertain the organized flow of data and records bound to the correctional setting, as defined by Bureau of Jail Management and Penology (2021): disbursements refer to the settlement of government obligations and/or accounts; liquidation reports are documents prepared by an accountable officer for discharging cash advances; prisoners subsistence allowance (PSA) pertain to the amount provided by the government to cover the daily expenses of PDL. These specialized documents provide the structured framework for administering government obligations to correctional entities.

Among penological documents, vouchers are used as the basis for monetary flow around the institution, serving as documented proof of financial transactions and providing a transparent record of disbursements, allowances, and other financial activities within the institution. Disbursing officers receive and disburse funds on behalf of personnel who are eligible for allowances or reimbursements (National Headquarters Philippine National Police, 2020), facilitating a structured and accountable flow of money throughout the correctional facilities. In particular, disbursement vouchers (DVs) are the forms used to request and authorize a payment or cash equivalents (Sheth, 2023), specifically by government agencies for financial transactions. Written as a record that contains fund cluster, supervisor certification, accounting entry validation, and receipt validation, it is a critical document to warrant financial transparency and accountability in correctional institutions through formal requests and authorizations.

Digitization of correctional records have been a pioneering initiative internationally toward centralization, efficient access, and security of data related to penological affairs. Mail scanning has been implemented across the different prison systems of America as an easier method of communication (Wang, 2022). Japan plans to modernize its legal system by introducing electronic arrest warrants and interrogation records, transitioning to electronic systems (Kyodo, 2023). Auspicious projects are also set by first world countries, such as Finland (Järveläinen & Rantanen, 2021) and Sweden (Kaun & Stiernstedt, 2020), trailblazing the roadmap for smart prisons to produce assistance in achieving a more efficient re-entry process, improving efficiency and reliability. Third world countries, including Uzbekistan, also have initiatives for streamlining administrative processes and vocational training to expedite paperwork (Ostanaboyeva, 2023). Across the countries of Asia, there is a trending demand for jail systems that incorporate tracking documents and providing analytics (Kent, 2023), suggesting a support for pioneering penological logistics system.

In the Philippines, setting prison records and correctional data into electronic environment has been a recent legislative project by government House members and executive bodies (Flores, 2023). However, despite technological improvements across penological offices, substantiated by global initiatives, efforts are saturated on the management of PDL data and records more than the correctional documents, which poses a greater challenge on penological personnel and officers (Damicog, 2022). The efficiency of correctional processes is notably impeded by the inherent complexities of document transfer across various offices, exacerbated by the past pandemic season. Thus, a document tracking and logistics system help achieve the advancement needed for efficient correctional processes in monitoring documents seamlessly to achieve security, accessibility, and productivity (IOT Philippines, 2020) and promote transparency and customs clearance process (Santiago, 2021).

The Bureau of Jail Management and Penology (BJMP) stands as a crucial pillar within the Criminal Justice System of the country, dedicated to addressing and managing the evolving challenges within the realm of jail administration and penology. Termed as the Jail Bureau, this institution came into existence in accordance with the provisions stipulated in Section 60 to 65 of Chapter V, RA No. 6975. Its initial composition comprised officers and members of the Jail Management and Penology service, as established under Presidential Decree No. 765. As the BJMP endeavors to fulfill its core mission of conducting activities for the development of PDL and promoting the general welfare and development of its personnel aligned to establishing linkages through responsive planning and implementation (GOVPH, 2020), the need for dynamic approaches in jail management becomes increasingly apparent.

Within the administrative framework of the BJMP Regional Office III, DV Issuers, known as DV Makers, initiate the creation of the vouchers, ensuring that all required attachments and supporting documents are attached to the DV request, adhering to the checklist of requirements. On the other hand, DV Authorizers review DV requests submitted by DV Issuers to ensure completeness, accuracy, and compliance with established standards. Collectively, they are the DV Personnel that oversees the entire process of DV within the institution. However, procedural intricacies of document flow pose a substantial hindrance. The transfer of papers, pivotal for transactions ranging from subsistence allowances to fixed expenditures, encounters a continuous bottleneck characterized by fragmented and unmonitored tracking via manual systems (Patag, 2022), particularly in DV progression. With roles intact, the inefficiencies not only disrupt correctional system operations but also impact time and resource allocation caused by fragmented tracking in in verifying the completeness and accuracy of document attachments.

The project, “SynDICA”, encapsulates its essence as an acronym, denoting the “Synchronization of Documents and Information for Correctional Affairs”. By rectifying existing document management lapses, SynDICA aims to expedite transfers, reduce delays, and enhance penological accountability. Consequently, this study not only addresses immediate challenges at BJMP Regional Office III but aligns with the broader BJMP mission of promoting welfare and development in the correctional domain. In the realm of information technology, SynDICA showcases the practical application of technological solutions for optimal operational efficiency in correctional management. Corroborated by previous investigations emphasizing the necessity for prison institutions to establish efficient logistical operations to perform elementary functions, enhance officer retention and accountability, and fulfill statutory responsibilities effectively (Dalley, 2022; Janusz & Kościelecki, 2023), the project underscores the urgency of addressing these operational challenges within the BJMP Regional Office III.

This study then attempts to address the research gap by introducing SynDICA through the implementation of this technological solution to provide a systematic approach to document management, enhancing the efficiency of correctional processes and mitigating the challenges associated with fragmented and unmonitored tracking of critical documents. By aligning with contemporary standards and advanced technology, SynDICA aspires to contribute to the overarching mission of the BJMP, promoting transparency, accountability, and the seamless execution of correctional affairs within the dynamic landscape of BJMP Regional Office III.

## Purpose and Description

Addressing a pronounced gap in the existing administrative framework of the BJMP Regional Office III in document transfers, the project holds paramount significance within the domain of correctional management. By providing a web-based logistics system that reorganizes the flow of transactions on physical papers, SynDICA presents a client-driven solution through digitization, accessing relevant records to enhance the effectiveness, accountability, and transparency of the penological workflow (Lalu, 2023). Accordingly, it contributes to the ongoing shift digitization within the correctional field, exhibiting the practical integration of Information Technology for enhanced operational efficiency.

Moreover, the relevance of the study extends across various stakeholders within the correctional landscape, each envisioned for tangible advantages.

**BJMP Regional Office III.** The study will directly address the operational challenges faced by BJMP Regional Office III, leading to efficient document processes, reduced delays, and an overall more efficient workflow. With SynDICA's implementation, the regional office will benefit from efficient correctional operations, enhanced transparency, and improved resource allocation.

**Correctional Personnel.** The implementation of SynDICA will optimize their daily workflows, reducing the burden of manual tracking, and enabling them to focus on core responsibilities. The heightened level of accountability introduced ensures a transparent and traceable document trail, reducing errors and fostering a culture of responsibility among personnel aligned with their mandates.

**Persons Deprived of Liberty.** The study will benefit PDL through improved efficiency in correctional processes, leading to faster processing of allowances, smoother communication within the correctional facility, and a reduction in delays related to essential services. This enhancement will contribute to a more organized and responsive correctional environment that can positively affect the welfare of PDL.

**Government Regulatory Agencies.** The study will aid regulatory bodies overseeing correctional facilities by ensuring compliance with legal and procedural requirements. The system will offer a tangible model for modernization in correctional practices and insights on the practical integration of Information Technology in governmental agencies, particularly within correctional settings.

**Future Researchers.** The study will contribute to the academic understanding of correctional administration and technology integration, providing a practical case study for researchers and enriching the existing body of knowledge in the field.

In essence, SynDICA addresses correctional inefficiencies by providing a client-centric solution that streamlines physical document transfers and implements digital workflows toward the immediate impact on correctional affairs and its broader contributions to academic research and policy considerations.

## General Objectives

The core general objective of this study is to design and develop SynDICA, a specialized Document Tracking and Logistics System, tailored to address operational challenges within the BJMP Regional Office III to contribute to a more efficient, transparent, and accountable correctional system within the penological office.

By developing a solution for the identified gaps and client-targeted problems, the study primarily provides the client with a new method to reorganize its correctional processes. SynDICA is envisioned as a transformative tool that re-organizes document flow, mitigates delays, and fosters an environment of enhanced efficiency and transparency within the correctional framework of BJMP Regional Office III.

## Specific Objectives

Specifically, the study aims to achieve the following objectives:

1. To identify bottlenecks, inefficiencies, and areas for improvement upon analysis of the existing document management processes within BJMP Regional   
   Office III;
2. To develop a Document Tracking and Logistics System that will integrate the following significant functionalities and features:
   1. Landing Page section for Registered and Non-registered Users;
   2. Sign-Up and Log-In section for Registered and Non-registered Users;
   3. Dashboard section for Administrators
   4. User Account Management section for Administrator;
   5. Voucher Configuration section for Administrator;
   6. Ticket Management section for Administrator;
   7. Log History section for Administrator;
   8. Tracking Page section for DV Issuers and DV Authorizers;
   9. DV Request Creation section for DV Issuers;
   10. DV Review and Approval section for DV Authorizers;
   11. Reports Generation section for DV Issuers and DV Authorizers;
3. To implement specific roles, views, and permissions within the SynDICA system tailored to the relevant positions within the office; and
4. To determine the acceptability of the system using the ISO/IEC 25010:2011 software quality evaluation criteria as perceived by the respondents on the following:
   1. Functional Sustainability;
   2. Performance Efficiency;
   3. Compatibility;
   4. Usability;
   5. Security;
   6. Reliability;
   7. Maintainability; and
   8. Portability

## Scope and Limitations

Delineating the parameters of the research, the project foremost caters to the exigencies and requirements of the Bureau of Jail Management and Penology (BJMP) Regional Office III. The study emphasizes the development of SynDICA, a document tracking web-based system, aimed to provide a solution for the client’s existing challenges in document tracking and workflow optimization within the confines of their institutions only.

The Administrator section of the system contains the most crucial functionalities demanded by the clients. Significantly, they possess the capability to poses approval or rejection of new accounts and the seamless assignment of roles delivered through role-based access control (RBAC), catered for the DV personnel (i.e., DV issuers and DV authorizers). Moreover, they can configure the logistical process flow involved for each DV for flexibility and changing workflow structure of the institution. For technicalities, they are also given a section for addressing DV-related challenges from DV personnel coming in the form of tickets. All the actions executed by the administrator across all timeframes are recorded in the log history of the administrative view.

Furthermore, the software to be developed highlights the features of logistics programs for the DV personnel, incorporating a suite of functionalities that include ensures data-driven efficiency and strategic insights for a seamless document management experience. Upon successful login, the DV Issuers have capacity for the overview of the dispatched DVs with breakdowns by type, issuance or creation of DVs, and dispatch of DVs to designated divisions or recipients. Conversely, the DV Authorizers have an overview of DVs related to the status of authorization and requirements checklist section for assisting review and approval process, allowing dispatch to the next division, returning to the previous division, or placing DVs on hold. DV Authorizers likewise can generates report that allows summarization and filtering of DVs and associated actions for organizational purposes.

In their capacity as correctional personnel within the institution, BJMP personnel, particularly DV issuers, possess the capability to readily access the landing page of SynDICA, even without logging in, to track DVs using their unique identifiers associated within the system, facilitating transactional procedures. Along with these functions, subsequently, SynDICA adheres to ISO standards in the penological field to guarantee the secure handling of critical documents.

Integration with existing BJMP systems and regulations marks another delimitation for the project. Recognizing the essence of data security, the research extends measures to safeguard the confidentiality and integrity of sensitive information, conforming to the Data Privacy Act of 2012, along with deemed permissible data from the office of the client. These considerations are tailored to the unique needs of BJMP Regional Office III, aiming to provide a comprehensive solution adhering the standards of usability and adaptability.

# Chapter II REVIEW OF RELATED LITERATURE/SYSTEMS

This chapter focuses on the related literature and related systems of developing a document tracking and logistics system for correctional and penological institutions. It comprises several articles and studies regarding logistics frameworks, document transfers, and contextualization of correctional processes. Examining and discussing these past investigations provides valuable insights and groundworks for the development of an effective system tailored to the unique needs of such institutions.

## Related Literature

The review and analysis of pertinent pieces of local and foreign literature enacted a pivotal role in informing and enhancing the present study. This comprehensive examination not only contributed to the enrichment of the research endeavor but likewise served as a fundamental framework for organizing, interpreting, and contextualizing the diverse array of concepts encountered throughout the course of this investigation.

### Foreign Related Literature

#### Modernization of Correctional Systems

In contemporary discourse surrounding criminal justice reform, the modernization of correctional systems and the optimization of penological workflows stand as imperative initiatives. Issues such as declining police staffing levels, increasing violence within prisons and jails, growing court backlogs, lack of essential crime data collection, and insufficient criminology research underscore the urgent need for advancements (Lehman, 2023). These deficiencies not only contribute to the recent surge in violence but likewise exacerbate America's long-standing crime problems, resulting in significant human and financial costs. Neglecting these critical aspects of the criminal justice system has led to a situation where the system is struggling to effectively control crime, leaving many major cities with record homicide rates and disproportionately affecting the most disadvantaged populations. In Brazil, modernization through rationalization of the capacity to displace documentation provides the foundation for the development of enhanced efficiency, security, accessibility, and more totalizing state control (Santos, 2022). Modernized jail systems can help penological offices adhere to regulatory requirements and standards by maintaining accurate and up-to-date records where officers can demonstrate accountability in their operations.

Globally, the modernization of penological processes shifts transition into a more innovative and humane approach to managing the welfare of detainees in correctional institutions. India focuses on modernized jail systems through a series of reforms and initiatives aimed at humanizing prison conditions and focusing on the rehabilitation and reintegration of prisoners into society (Jain, 2020). Other countries, such as Ecuador, present prison systems highlighting security measures, intelligence capabilities, crisis management, and training programs for prison staff to create a more efficient and sustainable system that can effectively combat criminal activities both within prisons and in society at large (Sciuva, 2023). Nonetheless, major countries implement the use of information and recordkeeping systems to track and report incidents in institutions and community service sites (Luthuli et al., 2020; Ellis, 2023). This new system aims to improve the consistency, accuracy, timeliness, and efficiency of incident reporting, enabling tracking of critical statistics and trends to be shared with justice system partners.

By integrating advanced technology, penological offices can better segregate inmate documentation, enhance surveillance capabilities, organize legal proceedings through online court hearings, and facilitate access to essential services and resources (Wright, 2023). Advantages aligned to this endeavor include efficient correctional system that fosters rehabilitation and reduces recidivism rates.

In the field of criminal justice reform, the imperative drive towards modernizing correctional and penological workflows emerges as a crucial response to a variety of challenges in jail management. By leveraging modernized technology, especially in consolidating the processes for documentations, penological offices can optimize access to essential services, inmate management, and surveillance, ultimately driving a more sustainable correctional system.

#### Digital Transformation Practices in Correctional Facilities

Proceeding to the evolving state of criminal justice, the digital transformation of correctional institutions addresses longstanding inefficiencies and enhances operational effectiveness. Bonk (2019) emphasizes the role of data as the foundation of strategizing in digital systems, boosting the essence of being familiar with collecting, managing, and analyzing data to drive informed decision-making. Digital transformation can fasten processes, automate tasks, and enhance operational efficiency within correctional facilities. By leveraging data insights and analytics, correctional institutions can make more informed decisions regarding public safety and offender management, improving decision-making, transparency, and engagement with various stakeholders involved in the correctional system. Steene et al. (2023) further declare that digital transformation enables correctional institutions to adapt to evolving trends, such as the changing demographics of the officer population and responsibilities.

In the United Kingdom, as scrutinized by Palmer et al. (2020), the integration of digital technologies in correctional facilities elicited heightened perceptions of agency and autonomy among both staff and inmates, fostering a substantial sense of personal responsibility. Correctional personnel noted a reduction in instances of conflict and interpersonal tension within prisons following the adoption of digital technologies, although the implementation did yield varying impacts on staff workload contingent upon the specific technology deployed and tasks assigned. Recommendations propose the future deployment of digitized systems, facilitated by cell-dedicated laptops, which hold promise for expediting prison operations and task completion. Another pertinent suggestion stemming from the evaluation underscores the potential efficacy of implementing electronic document management programs to digitize and oversee all prison-related documentation to achieve structured utilization of data and information (Tutty et al., 2019), thereby optimizing document tracking, storage, retrieval, and sharing processes within correctional facilities.

The incorporation of digital technologies including cloud computing, real-time data analytics, and correctional monitoring applications indicates a positive direction in the operational methodologies within correctional establishments. Driven by principles of interoperability and intraoperability, these advancements seek to tackle pressing issues such as staff shortages, overcrowding, and infrastructural deficiencies, all while fostering enhanced safety measures and facilitating successful rehabilitation endeavors (Vanapalli, 2023). Furthermore, digitization in jail management can streamline records, scheduling, communication, and other administrative tasks, reducing the burden on staff and improving overall operational effectiveness (Thaler et al., 2022). The infusion of technology into correctional frameworks precipitates a reconfiguration of conventional practices, enabling staff to focus more on critical aspects of their work while ensuring that data is handled securely and efficiently through automated systems.

As claimed by Russo (2021), adopting a data-informed approach holds the potential to yield multifaceted benefits across various functional domains within correctional institutions, encompassing the formulation of key performance indicators, objective assessment of policy modifications, trend identification, and facilitation of information dissemination among justice agencies and affiliated organizations. Achieving a state of data-informed correctional practices imposes steadfast leadership commitment, cultivating an organizational attitude that prioritizes data utilization and allocation of resources toward officer training. The findings underscore the critical importance of harnessing data resources to enhance operational efficiencies and enhance the welfare of incarcerated individuals.

In essence, previous studies emphasize the significance of data and information control as the cornerstone of digital transformation across penological institutions, advocating for strategies to collect, monitor, and analyze data to drive informed decision-making processes. Digitization allows simplification of processes, rendering physical, manual labor into automated tasks that enhance overall efficiency within correctional facilities, ultimately improving transparency and stakeholder. Adopting a data-informed approach and leveraging digitization are essential steps toward achieving efficient and effective correctional practices in the modern era.

#### Document Tracking Solutions in Penological Offices

Document and records tracking stands as a fundamental aspect of organizational operations across a spectrum of sectors encompassing law enforcement, security, dispatch, corrections, emergency medical services, and fire and rescue departments (MdE Inc., 2018). Foremost, it presents a significant chance to optimize daily operations by speeding up the filing process and furnishing essential penological data. Moreover, its multifaced role comes in ensuring adherence to regulatory requirements, optimizing operational efficiency, providing audit trails, mitigating potential risks, and safeguarding critical information assets (Shyam Future Tech Ltd., 2023). By implementing robust records management practices, organizations can yield tangible benefits such as time-saving measures and penalty avoidance but also bolsters organizational preparedness by fortifying data integrity and continuity strategies in the face of unforeseen crises.

According to Mbatha & Luthuli (2021), effective records tracking guarantees comprehensive documentation of information concerning the identification of the documents within the overall administration within the facility. Moreover, the implementation of robust records management practices within correctional facilities holds significant potential for restructuring operations and accelerating the execution of essential duties, thereby enhancing the efficacy of correctional institution management. Maintaining accurate and accessible records in correctional facilities is essential for efficiency, cost reduction, and improved service delivery.

As highlighted by the Association for the Prevention of Torture (2019), the persistence of these challenges impedes effective management within correctional institutions. Transitioning to digital tracking and recordkeeping offers significant advantages, enabling officers to swiftly access pertinent documents, a crucial capability in scenarios involving legal proceedings, medical emergencies, correctional documents, or inmate transfers. By digitizing records, correctional officers and warden can allocate more time to their duties, thereby fostering safer facilities through heightened vigilance and thoroughness in their responsibilities (Dalley, 2022).

Essentially, effective document and records management are across various sectors ensure compliance, efficiency, risk mitigation, and data protection. Specifically within correctional facilities, comprehensive management of documents containing critical records facilitates proper administration and enhances operational effectiveness. Transitioning to digital document tracking could offer a solution, enabling swift access to vital information and promoting more efficient facilities through increased productivity and in turn, diligence. Thus, investing in modern records management systems is a crucial step for improving overall operational workflow within correctional settings.

#### Demand for Document Workflow Efficiency in Correctional Facilities

Evident from technological evolutions, incorporating digital upgrades to correctional document workflows serves as an assistance to expedite correctional processes that may be deprecated by manual solutions. Consequently, a poor document management workflow within jails and probation departments can lead to lost or misplaced information, lack of seamless communication, decreased productivity, compliance issues, and hindered collaboration (Corrections One News, 2024). Document duplication, data discrepancies, inability to track current versions of documents, and human errors all slow down workflows. The right workflows help identify problematic areas, bottlenecks and processes that contribute to inefficiencies.

According to United Nations Office on Drugs and Crime (2024), current challenges in prison management in Southeast Asia revolve around insufficient resources leading to a lack of communicative programs, emphasizing the need for an effective electronic document workflow tracker to issue records on demand, recover deleted contents, or prove that records and content were disposed of or accomplished in accordance with laws and corporate policies. Erroneous decisions from unorganized record tracking in correctional facilities could even lead to jeopardizing public safety (Sansone, 2020), thus implying the need for appropriate workflow management that can be achieved through document-tracking programs.

Employing software that facilitates document tracking and workflow arrangement enables the setup of status alerts, which identify bottlenecks and maintain operational timeliness (Fluix, 2021). This action minimizes instances where documents may be isolated and impede workflow progression, such as during document approvals.

Fundamentally, integrating digital upgrades into correctional document workflows can significantly enhance correctional processes by overcoming the limitations of manual solutions. Implementing an organized transaction system for the document workflow within a digital infrastructure can help identify and address problematic areas, bottlenecks, and inefficient processes, ultimately improving operational efficiency within correctional institutions.

#### Standards for Document Management in Correctional Facilities

Cohesive document workflows accelerate processes by ensuring consistent handling procedures are followed consistently. Standardized procedures applied to all aspects of document processing promote operational efficiency and reduce the need for corrections or issue resolution. Additionally, cohesive practices facilitated by digital infrastructure facilitate interdepartmental collaboration, employing role-based authorization to recognize document alterations based on position (Pacina, 2023).

Document management in correctional facilities involves various roles and responsibilities to ensure effective organization, security, and accessibility of information. As delineated by Ross et al. (2023), oftentimes, records managers are the ones responsible for overseeing the creation, maintenance, and disposal of records in accordance with established policies and regulations. Each security personnel ensures the physical and digital security of documents by implementing monitoring document handling procedures and enforcing security protocols to prevent unauthorized access or tampering. Compliance officers ascertain that document management practices comply with relevant laws, regulations, and industry standards; they monitor document handling processes, conduct audits, and implement corrective actions to address any non-compliance issues. These roles are structured to provide individuals with the necessary access and permissions to perform their specific responsibilities effectively while safeguarding the confidentiality, integrity, and availability of sensitive information within correctional facilities.

Thus, standardized implementation of the workflow, considering roles and responsibilities, within the penological hierarchy conforms to effective document management practices that uphold organization transparency, security, and compliance regulations. Understanding and optimizing these roles can significantly enhance document management practices within correctional facilities, ultimately contributing to improved operational effectiveness and compliance with regulatory standards.

### Local Related Literature

#### Digitization of Correctional Facilities in the Philippines

In the Philippines, the government is actively digitalizing the management of the country's prison system to address challenges and alleviate jail congestion. This initiative aims to implement technology for more efficient inmate management strategies, optimize resource allocation, and enhance the overall operational capacity of correctional facilities. The Bureau of Jail Management and Penology (BJMP) is leading this effort, in collaboration with the Department of Justice (DOJ) and the Department of Information and Communications Technology (DICT), to enable comprehensive case monitoring and information tracking across various agencies (Presidential Communications Office, 2023).

Key initiatives include the National Inmate Monitoring System (NIMS) and the National Jail Inmate Monitoring System (NJIS), which aim to modernize inmate management, case monitoring, and legal processes through digital tools such as advanced case monitoring systems and inmate management databases (Ocampo, 2023). The integration of these digital solutions enables more efficient inmate management strategies, optimizes resource allocation, and enhances operational capacity within correctional facilities.

Therefore, the digitalization of the Philippines' prison system presents a transformative opportunity to modernize correctional practices, enhance operational efficiency and resource allocation, and ultimately contribute to a more effective criminal justice system. By embracing innovation and collaboration, the government can continue to drive positive change and create safer, more secure, and rehabilitative correctional environments for all stakeholders involved.

#### Demand for Digitization on Local Correctional Facilities

The demand for digitization in correctional facilities of the country reflects a crucial need for modernization and efficiency in managing prisoner records. The manual record-keeping system may cause delays in accessing accurate prisoner data, which can hinder the timely allocation of resources for various purposes such as food, medical care, and facility maintenance. Pursuant to these causes, the country’s Department of Justice (DOJ), along with other agencies, signed an agreement to digitize the criminal data system. Bollado (2022) stated that the importance of these efforts lies in faster record processing, avoiding past controversies, and complying with recommendations to reduce inadequacies. However, the large-scale shift from manual to digital processing poses a significant challenge to the digital transitioning of the country. Despite these challenges, shifting to digitization of jail records is deemed important by Philippine officials, indicated in the report from Lalu (2023):

The digitalization of the records of PDLs will greatly help towards a swifter administration of justice, as the courts, the legal counsels of PDLs and other relevant parties can efficiently and readily access relevant records pertaining to PDLs and thereby promoting efficiency in the management of pending cases as well as transparency in detention and correctional facilities.

From these statements, it can be synthesized that ongoing digital transformation of the Philippines' prison system signifies a progressive approach towards addressing challenges and improving efficiency in the management of correctional facilities. Continuous efforts through new studies are welcomed to aim on overcoming challenges and refining digital solutions for enhanced correctional record-keeping process in the country.

#### Current Bottlenecks in the Local Correctional Facilities

Despite the advancement of the digital shift in the country, bottlenecks and inefficiencies exist within its local correctional facilities. The primary forerunner of the problems faced by penological officers arises from the significant overcrowding due to the increased number of arrests related to diverging offenses. According to a report from De Leon (2023), a massive influx of individuals arrested for drug-related cases, led to congestion in jails, with 421% of Philippine penal institutions occupied, with a total population of 51,561 individuals compared to a capacity of 12,251. The high occupancy rates are presented to strain the correctional system's capacity to process its current and upcoming data (e.g., allocating funds, and issuing disbursement vouchers), impacting the overall functioning of the institutions, and posing delays and increased risks within the correctional facilities.

Furthermore, health concerns in line with the overcrowded jails and prisons in the Philippines due to the ebb and flow rise of COVID-19 have significant implications for the release of vulnerable individuals, including vouchers, from these facilities (Patag, 2023). Releasing vouchers and other vulnerable detainees on humanitarian grounds is essential to ensure their safety and well-being. The risk of COVID-19 transmission in congested jails necessitates urgent action to prevent a potential health crisis among the incarcerated population.

Institutional inadequacies represent another root cause of bottlenecks within correctional facilities. According to the investigation by Lopez (2021), numerous Philippine jails suffer from insufficient infrastructure, contributing to inhumane conditions and delayed accommodations within these institutions. In the context of resource allocation, reliance on manual, paper-based document processing systems can result in inefficiencies, errors, and delays in document issuance. Manual handling of paperwork may lead to hitches, document misplacement, and difficulties in information tracking and management. Moreover, outdated or inadequate technology infrastructure in correctional facilities can hinder the efficient processing of documents. The absence of digital document management systems, electronic databases, or communication tools may impede the timely issuance of documents to detainees.

Addressing the underlying causes of bottlenecks, especially in allocating resources in Philippine jails requires a comprehensive approach that includes simplifying processes, investing in technology, improving communication and coordination, enhancing staff training, and allocating adequate resources to support efficient document processing within correctional facilities. The implementation of local applicable systems can serve as a strategic solution to address local bottlenecks, enhancing visibility into document status and location, improving workflow efficiency, enhancing communication, and maintain compliance with legal requirements.

#### Innovations as Assistance for Penological Officers

Penological officers in the Philippines can be assisted in their daily routines primarily through the digitization of workflows. Utilizing technology to digitize prison records and implement systems that enhance case monitoring, information tracking, and coordination among different agencies, such as the BJMP and DOJ (Aniceto, 2021). Assisting penological officers by implementing programs that focus on skills training, of these technological innovations asserts the positive outcome of this initiative. Supporting officers by discussing standard and innovative routines and techniques for dealing with operational efficiency enables them to navigate operational challenges effectively within Philippine city jails (Lopez, 2021).

The use of technologies as assistance for penological officers, particularly in correctional facilities, is a topic that involves the implementation of various tools to enhance security, monitoring, and operational efficiency. Throughout the years, technologies, automating processes, and communications, have been instrumental in ensuring access to documents and transparency, especially during times when physical distancing measures are strictly enforced (Pulta, 2020). These innovations can help in enhancing security within correctional facilities and manage the prison population more effectively.

While previous investigations focused on facilitating the penological lives of PDLs, novel studies are motivated to focus on assisting penological officers on their daily workflow. By addressing the needs of penological officers and equipping them with the necessary tools and training, recognizing their pivotal role in maintaining order, safety, and rehabilitation within correctional institutions, the overall efficiency and effectiveness of the Philippine correctional system can be significantly enhanced.

#### Concept of BJMP Roles and Disbursement Vouchers

The Philippines’ forefront of penological workflows, BJMP, is mandated to direct and supervise the administration and operation of all district, city, and municipal jails nationwide with pronged tasks of safekeeping and development of PDLs, overseeing the welfare and security of detainees, ensuring their safekeeping, and managing the facilities where they are held (GOVPH, 2024). They are often in collaboration with other agencies, providing opportunities for PDLs to enhance their skills and personal development (Department of Trade and Industry, 2021).

In relation to issuing funds and disbursements, the BJMP has specific offices responsible for financial management, as asserted by the Philippine Go Research Group (2024) and stipulated by GOVPH (2020). The Finance Service Office (FSO) within the BJMP is tasked with processing claims for payment of salaries, allowances, travel expenses, purchase orders, and other financial obligations to ensure compliance with accounting and auditing requirements. Additionally, the Accounting Service Office (ASO) maintains basic accounting records of the Bureau's funds, showing receipts, disbursements, and the status of appropriations and obligations. These offices manage the financial disbursements within the BJMP to ensure transparency and accountability in financial transactions.

In the Philippines, specifically within the BJMP, disbursement vouchers (DVs) refer to a document used for the disbursement of funds within the institution’s financial management system. It serves as a formal request or authorization for the release of funds to cover various expenses related to the operation and administration of correctional facilities (Bureau of Jail Management and Penology, 2021). The Disbursement Voucher outlines details such as the purpose of the disbursement, the amount to be disbursed, recipient information, and any supporting documentation required for the transaction. This document plays a crucial role in ensuring transparency, accountability, and proper financial control within the BJMP's budget utilization processes.

Significantly, DVs serve as formal requests or authorizations for the release of funds to cover various expenses related to correctional facility operations and administration, standing as a crucial article in upholding transparency, accountability, and financial control within the BJMP's budget utilization processes. They underscore the importance of robust financial management practices highlighted by the modern times to ensure efficient resource utilization, accountability, and transparency in fulfilling its mandate of safeguarding PDLs and managing correctional facilities.

## Related Systems

This section delves into an exhaustive examination of systems akin to the subject matter, drawing from both local and foreign contexts. By scrutinizing these analogous systems, valuable insights is plausible to be derived into the functionalities that align with the objectives and scope of the current study.

### Foreign Related Systems

#### Document Tracking System Using Scrum Approach for Accreditation Institutions

The implementation of a Document Tracking System in accreditation institutions offers an efficient solution for monitoring document movement and timelines during the accreditation process. Salleh et al.’s (2020) study presents that by leveraging agile methodologies, this system enhances transparency, collaboration, and workflow efficiency, ultimately facilitating smoother accreditation procedures in educational settings, particularly in educational institutions undergoing accreditation processes. Furthermore, these types of systems offer benefits such as improved document control, unified workflows, real-time tracking productivity, and enhanced collaboration among stakeholders (Labis, 2021). Primary functionalities of such systems include functional and non-functional testing to ensure compliance with business requirements, interface optimization for user-friendly navigation, compatibility testing across various browsers, and load testing to assess system performance under different conditions.

Major features of document tracking systems using the Scrum approach play a crucial role in optimizing document management processes within educational institutions. Functional testing ensures that the system meets business requirements, while non-functional testing focuses on aspects like availability, compatibility, and load testing to enhance system reliability and performance. Interface optimization enhances user experience by providing intuitive navigation, and compatibility testing ensures seamless operation across different browsers. These features collectively contribute to the system's effectiveness in tracking document movement, improving workflow efficiency, and facilitating timely accreditation processes (Kimla & Czerwinski, 2023).

In synthesis, document tracking systems using the Scrum approach highlights the significance of leveraging agile methodologies in developing efficient document management solutions for educational institutions. By incorporating agile methodology, the system demonstrates the promotion of flexibility, adaptability, and collaboration throughout the software development process, allowing for iterative improvements, faster delivery of products, and enhanced responsiveness to changing requirements and customer feedback.

#### Web-based Document Management System for Institutions

Prebeza et al.’s (2021) developed system focuses on the development of a web-based Document Management System for institutions, academic, correctional, or governmental, aiming to simplify the application procedures for students seeking to enhance the impact of their work, particularly in the context of thesis applications. The system aims to modernize the traditional process of thesis application by providing an online platform for students to submit their proposals and receive recommendations from mentors and committees.

The advantage of using such a system lies in its ability to enhance efficiency and accessibility in the thesis application process. By utilizing technologies such as PHPMyAdmin and XAMPP, the system offers features of a suite of document management tools. The technologies incorporated are PHPMyAdmin for database management, XAMPP for local web server hosting, PHPWord for document processing, and the Laravel Framework for web application development. These features are crucial as they enable seamless integration of database functionalities, efficient document handling, and simplified web application development, ultimately enhancing the overall user experience and system performance (Schäferhoff, 2024). Additionally, the system categorizes documents based on predefined criteria, such as document type, department, or status, allowing users to easily search and filter documents according to specific parameters. Version control mechanisms implemented ensure that document revisions are tracked and recorded, enabling users to access previous versions and track changes made over time (Nanganong, 2023).

As consolidation, leveraging modern technologies and programming languages to develop a web-based document management system revolutionizes the traditional thesis application process. By incorporating easily accessible yet powerful front-end and back-end technologies, the system not only organizes administrative tasks but also improves user interaction and overall system functionality, marking a significant advancement in digitizing document tracking.

#### Web-based Document Management System for an Educational Institution

Document management systems play a crucial role in modern organizations by providing efficient and secure organization of documents and records. Developed by Alade (2023), these systems offer a centralized platform for storing, managing, and accessing documents electronically, enhancing productivity and information security within the organization. The core advantage of using a web-based electronic document management system lies in its ability to simplify document handling processes in a single application.

The major features of a web-based document management system, such as document categorization, metadata tagging, full-text search functionality, audit trails, user permissions management, and document versioning, are essential for efficient document organization and retrieval. These features enable users to quickly locate and access relevant documents, track document changes, ensure compliance with regulations, and enhance overall productivity within the organization. By streamlining document workflows and providing easy access to information, the software project contributed to enhanced productivity among users within the organization. The successful implementation of the system resulted in high user satisfaction rates, indicating that the system met the needs and expectations of users within the organization.

Grounded on the related system, implementing a web-based document management system is suggested to focus on efficient document accessibility and eased tracking. By deploying such a system, document handling processes, increase user satisfaction, and achieve a higher level of efficiency in managing electronic documents are perceived to be improved.

#### Android-based Document Tracking System for Organizations

In the context of varying organizations, Iyama et al.’s (2019) document tracking systems take on the crucial role of facilitating the monitoring and management of both electronic and paper documents as they move between different locations. The Smart Dispatcher system, designed as an Android hybrid application, addresses the need for secure document tracking and accessibility, providing real-time updates on document locations and statuses. The main features of Smart Dispatcher include a remote document manager for user interaction, a document tracker for history storage, a notification generator for alerts, and a database for information storage.

The system incorporates a notification generator that sends alerts to document owners and recipients in real time. Notifications are delivered in the system and in the mail, ensuring that stakeholders are promptly informed of any changes in document status or location. This functionality enables users to stay updated on the current condition of their documents and facilitates quick responses to document-related activities (Morley, 2023). Smart Dispatcher likewise provides real-time updates on document locations and statuses, enabling users to track document movements as they occur. This feature enhances transparency and visibility into document workflows, allowing users to monitor progress and address any issues promptly (Watts, 2023); real-time updates contribute to improved decision-making and operational efficiency in document management processes.

By providing a system that facilitates real-time updates and notifications to document status changes, a significant advancement in document tracking technology can be developed, as demonstrated by the study. It lays the groundwork for the future systems to offer a comprehensive solution for organizations seeking a dynamic and routine-focused document management processes.

#### Electronic Document Management Systems for a Transportation Construction Industry

Investigated by Guo et al. (2019), their developed Electronic Document Management Systems (EDM) act as crucial innovation in the transportation construction industry by facilitating efficient data organization and communication processes. These systems offer a centralized platform for storing, managing, and accessing project-related documents, leading to unhindered communications and continuous workflows. The core advantage of using EDM systems lies in their ability to improve data integrity, transparency, and communication efficiency within construction projects. By providing a structured repository for documents, EDM systems improve process efficiency and enhance accountability in document management.

The software project’s systems offer workflow automation features that allow configuration of document review, approval, and distribution processes. Automated workflows help organizations enforce standardized document management procedures, reduce manual errors, and accelerate project timelines by routing documents to the appropriate stakeholders for review and approval (EdgeVerve, 2023). In addition, EDM systems maintain detailed audit trails that record all actions taken on documents, including views, edits, downloads, and approvals. Audit trails provide transparency into document activities, support compliance with regulatory requirements, and help organizations track document history for accountability and quality assurance purposes (Riyani, 2023).

Overall, by leveraging these features altogether, organizations can achieve greater control over document workflows, mitigate risks, and drive successful project outcomes in the dynamic construction environment. The consolidated primary advantage of workflow configuration and logged audit trails in electronic document tracking systems is the optimization of document management processes, increased operational efficiency, enhanced data security, improved decision-making, and better compliance with industry regulations, similar to the aim of the current study.

#### Records Management System for Prisons

In the software project of Ahishakiyea et al. (2018), their research focuses on the development of a secure web-based records management system for prisons, specifically targeting Kisoro Prison in Uganda. This system aims to address the inefficiencies and security risks associated with traditional pen-and-paper record-keeping methods in prisons, offering a more streamlined and secure approach to managing inmate information.

With mirrored similarities in the study, the developed records management system allows for easy retrieval of specific documents through searching functionalities, ensuring quick access to essential information. The system furthermore implements access control mechanisms to regulate user permissions and restrict unauthorized access to sensitive documents. Equipped with reports and analytics, it likewise enables real-time tracking and monitoring of document movements within the system. Users can track the status of documents, monitor document workflows, and receive notifications for pending actions, facilitating efficient document management processes. These functionalities encompass similarities to document tracking systems, leveraging technology to manage record-keeping processes, mitigate risks associated with manual errors, and increase productivity (Alam, 2022).

Thus, the document tracking functions of the Secure Web-Based Records Management System for Prisons partake in improving document management efficiency, ensuring data security, promoting transparency, and facilitating informed decision-making within the prison environment, similar to document logistics systems. Document tracking, through record management system, in prisons enhances compliance to regulatory requirements, legal standards, and data privacy mandates.

### Local Related Systems

#### Document Management System and Document Tracking System

The local document management system, developed by Belleza et al. (2020) for their university at Bestlink College of the Philippines, offers automated organization, tracking, approval, storage, and access of business files, facilitated by cloud-based software that ensures secure centralized document storage and retrieval. By leveraging cloud-based software, it establishes a secure and centralized repository where documents can be efficiently managed and retrieved. This system development approach follows the agile methodology, which encompasses various stages including Requirement Analysis, Design Document, Prototype, Iteration, Demo and Feedback, Identification and Resolution of Defects, and Production and Technical Support.

Agile methodology, aided by the stages, prioritizes iterative development, allowing for flexibility and responsiveness to changing requirements throughout the project lifecycle. Each iteration involves close collaboration between developers and stakeholders, ensuring that the evolving needs and preferences of end-users are effectively addressed. This iterative process enables the development team to deliver incremental improvements and enhancements, gradually refining the system to meet the desired specifications (Rodrigo et al., 2019).

Moreover, integration with other departments is a key aspect of the system development process. By establishing seamless connections with existing organizational systems and workflows, the document management system can synchronize cross-functional processes and facilitate efficient information exchange (Transportify, 2020). This integration enhances interoperability and ensures that the system aligns with the broader objectives and practices of the organization.

Generally, the development of the document management system is guided by a commitment to enhancing efficiency, productivity, and user experience. By employing agile methodology and prioritizing integration with existing systems, the project, similar to the present development, aims to deliver a robust and user-friendly solution that meets the diverse needs of stakeholders across the organization.

#### Bespoke Document Tracking System for Philippine Higher Educational Institutions

The development of a bespoke document tracking system for Philippine Higher Educational Institutions aims to enhance document management processes within academic settings. This system, developed by Lingaya (2019) accelerates the movement of documents between different units or offices within the university, ensuring efficient tracking and monitoring of document whereabouts during various stages of processing. The benefits of such systems include reduced manual errors, streamlined communication between departments, and enhanced security through controlled access to sensitive documents. The project successfully incorporated customizable reporting and feedback mechanisms toward data-centric analytics and interfacing enhancement.

Customizable reporting functionalities provide valuable insights into document flow patterns, processing timelines, and potential bottlenecks, enabling continuous process improvement and optimization where users can generate reports tailored to their specific requirements, enabling data-driven decision-making, process optimization, and performance evaluation (Shu, 2021). The system also proposes a feedback mechanism for users to provide input on document handling processes, system usability, and overall user experience. This feedback loop enables continuous improvement and refinement of the system based on user insights and suggestions.

Altogether, the development of a bespoke document tracking system tailored for Philippine Higher Educational Institutions represents a significant advancement in enhancing document management practices within academic environments. By incorporating primary features such as contextualized reports and feedback mechanism towards the system moderator, the bespoke document tracking system offers a comprehensive solution to enhance workflow efficiency and ensure document traceability, in document handling, aligned to the vision of the current study.

#### Web-based Electronic Document Tracking Management System for DSWD

The web-based electronic document tracking management system developed by Jaquilmo & Sarmiento (2023), aims to enhance document tracking processes at the Department of Social Welfare and Development Field Office V. This system leverages technology to streamline communication, improve efficiency, and provide a user-friendly interface for tracking and managing documents within the organization. The project successfully incorporated user authentication and authorization toward confidentiality and safeguarding sensitive information within the organization.

User authentication is coupled with role-based access control, where each user is assigned specific roles and permissions based on their job functions. This ensures that users only have access to the documents and functionalities relevant to their roles, limiting the risk of unauthorized data exposure (Delos Santos, 2024). The system includes a secure user login mechanism that requires users to provide valid credentials, such as a username and password, to access the system. This authentication process verifies the identity of users and prevents unauthorized individuals from gaining access to sensitive documents. Moreover, the system allows administrators to define access levels and permissions for different user roles, specifying what actions each user can perform within the system. Through granular control over user permissions, sensitive documents are protected from unauthorized modifications or deletions.

The consolidated advantage of having user authentication and authorization features in the bespoke document tracking system for Philippine Higher Educational Institutions lies in the system's ability to promote continuous improvement, enhance user satisfaction, and drive operational efficiency. This collaborative approach to system refinement underscores the system's commitment to meeting user needs, thus recommended for improving workflow efficiency, and upholding accountability on the documentation process standards within the governmental environment.

#### Web-based Document Tracking System Using Barcode Technology

The developed document tracking system by Rellon et al. (2021), entitled Web-Based Document Tracking System Using Barcode Technology with SMS Notification, is a modern software application designed to monitor the movement and progress of documents efficiently. By integrating barcode technology document tracking history, this system enables users to easily track the location status of documents and facilitates seamless data location among stakeholders.

By incorporating barcode technology into the history tracking module of the system, organizations can benefit from the following advantages: enhanced accuracy by assigning unique identifiers to each document; efficient tracking by enabling quick and automated scanning of barcodes to update the document status; historical data analysis; and, improved accountability (Piloton et al., 2023). By leveraging this technology integration in document tracking history, organizations can restructure their document management workflow. Automated tracking and updates reduce manual intervention, minimize delays, and improve overall workflow efficiency.

These features collectively contribute to improving workflow efficiency, reducing manual errors, and enhancing overall productivity in document tracking and management processes. Through harnessing the advantages of document tracking history, organizations, relevant to the client of the present investigation, can enhance precision, efficiency, real-time visibility, and optimization in their document management processes.

#### Electronic Documents Location Tracking System for Record Offices

The research delves into the user acceptance of an Electronic Documents Location Tracking System, undertaken by Constantino et al. (2020), focusing on its functionality and usability within an organizational setting. This study aims to evaluate the effectiveness of the developed system in enhancing document monitoring and tracking processes, ultimately improving operational efficiency and user satisfaction, recognizing that the advantages reside in its ability to coalesce document management processes, accompanied by user-friendly interfaces.

The system was primarily praised for its intuitive design with a focus on intuitiveness, making it easy for users to navigate and interact with the system. Clear and logical layouts, well-organized menus, and easily identifiable functions contributed to a user-friendly experience. The interfaces provided straightforward navigation paths, allowing users to access different functions and features with minimal effort. Users could quickly locate the information they needed, reducing the time required to perform document tracking tasks. Moreover, the design of the interfaces prioritized visual clarity, using appropriate color schemes, fonts, and visual elements to enhance readability and comprehension. These clear visual cues helped users understand the system's interface and functions effectively (Breen, 2024).

The user acceptance evaluation of the Electronic Documents Location Tracking System, particularly in terms of user-friendly interfaces, yielded positive results. The study gathered feedback from 30 randomly selected employees in the University (faculty and clerks) and five technical experts specializing in web-based development to assess the level of user acceptance regarding the functionality and usability of the system. The evaluation results indicated a high level of user acceptance for the developed system based on its functionality and usability features. The system obtained a grand mean of 4.67 for usability, reflecting strong user approval of the user-friendly interfaces (Borres et al., 2020). This high acceptance level suggests that users found the system's interfaces intuitive and conducive to efficient document tracking processes.

The positive evaluation results regarding the user-friendly interfaces feature indicated that users found the interfaces intuitive, efficient, and conducive to effective document tracking. The emphasis on intuitive design, simplified navigation, visual clarity, consistency, user guidance, feedback mechanisms, and customization options collectively contributes to high user acceptance and satisfaction with the system's interfaces, especially when aligned within the field of document tracking.

#### Electronic Document Management System Using ISO/IEC 25010

In the landscape of modern education management, the efficient handling and exchange of documents stand as cornerstones for the seamless operation of academic institutions. Committed to administrative efficiency, Bachillar (2018) endeavored for the development of ab electronic document management and processing system, designed to facilitate the smooth flow of documents across various university offices. As institutions transition to digital document management systems, the need for robust software quality becomes paramount. In this context, the International Organization for Standardization (ISO) 25010 framework emerges as a guiding principle, providing a comprehensive set of standards for evaluating software quality attributes.

Employing a descriptive research method and sample comprising university officials and staff, were purposively sampled to evaluate and pretest the system. Data interpretation indicated that university officials rated the software quality of the system as “Excellent” across various dimensions, both groups perceived a “Highly Accepted” level of functionality and performance and described the university's readiness for system implementation as "Ready" in terms of the technical personnel. These suggest a promising outlook for their system, with ISO/IEC simplifying evaluation of software products (Canlas et al., 2021), featuring its potential to significantly enhance document management efficiency within a university's administrative framework.

To consolidate, the utilization of ISO/IEC 25010 as a guiding framework underscores a study's commitment to internationally recognized standards, ensuring a systematic approach to evaluating software quality attributes. This framework provides a structured methodology for assessing the performance, reliability, and usability of document tracking systems, ultimately enhancing its effectiveness in addressing the logistical needs of correctional facilities.

## Synthesis of Related Literature and Systems

In the present times, related literature and studies suggests a multifaceted approach on document management and tracking systems, particularly within the context of corrections and institutional management. As correctional facilities, both in the country and worldwide, evolve toward modernization, digitizing records and operational functions are notable steps in rendering the efficient benefits of technology in the penological workplace (Steene et al., 2023). Thus, document tracking systems are propounded to focus on restructuring bottlenecks commonly occurring in the correctional operations to administer faster allocation of resources (Shyam Future Tech Ltd., 2023), more accessible means of acquiring information (Mbatha & Luthuli, 2021), and increasing productivity (Fluix, 2021) and vigilance (Dalley, 2022) in the workforce. These advantages, when made cohesive by standardization, will facilitate a more fluid collaboration among the correctional personnel (Pacina, 2023), especially in the BJMP of the Philippines where occurring inefficiencies lead to a high demand of process modernization (Bollado, 2022), ultimately leading to a more proactive institution.

Accordingly, the features of the present system, in alignment with the related systems, are recommended to devise mechanisms that leverage the positive values of existing knowledge, proven to deliver optimum performance. Significant emphasis is placed on the functionalities of implementing the Agile principle for software development to respond effectively to changing priorities (Belleza et al., 2020; Salleh et al., 2020), and ISO/IEC 25010 to consistently address the quality attributes of the system (Bachillar, 2018) throughout the development process. In terms of technicalities, incorporating in-demand web development technologies (Prebeza et al., 2021), such as, React.JS and PHP, real-time updates (Iyama et al, 2019), workflow configuration (Guo et al. 2019), access to reports and feedback features (Lingaya, 2019), user authentication (Jaquilmo & Sarmiento, (2023), and document tracking history (Rellon et al., 2021) enhance functional usability. Altogether, when posited with an intuitive user interface (Constantino et al., 2020), the document tracking system is projected to effectively meet the diverse expectations from the client specifications.

This section that reviews the of related literature and systems underscores the innovative nature of SynDICA as a novel document tracking system tailored specifically for penological offices. Through an exploration of similar systems both locally and internationally, the project emerges as a unique solution envisioned to address the distinct challenges faced by correctional institutions, depicting positive prospects for enhanced efficiency, transparency, and accountability in document management processes.