ITEJ December-2025, Volume 10 Nomor 2 Page 287- 297

ITEJ
Information Technology Engineering Journals
eISSN : 2548-2157

Url : https://syekhnurjati.ac.id/journal/index.php/itej
Email : itej@syekhnurjati.ac.id

Implementation Of SCM In The Mattress Manufacturing Industry

Sri Wulan Rhamadhani
Information System, Royal Asahan University, North Sumatra, 21222, Indonesia
wulanrhamadhani258@gmail.com

Nuriadi Manurung
Software Engineering, Royal Asahan University, North Sumatra, 21222, Indonesia
nuriadi0211@gmail.com

Iin Almeina Lubis
Information System, Royal Asahan University, North Sumatra, 21222, Indonesia
lubisiinalmeina@gmail.com

Abstract—The manufacturing industry is experiencing rapid growth, compelling companies to adopt integrated and technology-driven approaches in managing production and supply chain operations. In the springbed manufacturing sector, where demand is consistently high from household, hospitality, and institutional markets, maintaining efficient supply chain management is essential for sustaining competitiveness and meeting fluctuating market needs. However, many enterprises in this sector still rely on manual processes for inventory tracking, stock reporting, and procurement, which often lead to inefficient resource utilization, increased susceptibility to human error, delays in raw material replenishment, and a decline in customer satisfaction due to unfulfilled orders. This study addresses these challenges by implementing and evaluating a web-based Supply Chain Management (SCM) system as a strategic solution to enhance efficiency, accuracy, and real-time operational control in inventory and distribution processes. Using a qualitative research approach, data were collected through direct observation, structured interviews with key stakeholders, and comprehensive documentation reviews over the course of one year. The system was developed using PHP for backend functionality and MySQL for database management, with the design structured through Unified Modeling Language (UML) to align with specific business workflows and operational requirements. The resulting SCM system integrates supplier order tracking, raw material inventory monitoring, production scheduling, and customer order management into a centralized platform. By automating tasks that were previously manual, the system reduces discrepancies in stock reporting, enhances the traceability of raw materials and finished products, and supports timely decision-making. Additionally, it enables remote access to real-time data, providing improved operational visibility and managerial control. System testing, conducted through iterative validation and performance assessments, demonstrated measurable improvements in data accuracy, inventory turnover speed, and customer order fulfillment rates. The findings suggest that the adoption of a tailored, web-based SCM system can significantly improve operational efficiency for small-scale manufacturing enterprises. Moreover, the study emphasizes the role of digital transformation in strengthening business resilience and adaptability, particularly in mitigating the impact of supply chain disruptions. This research not only offers practical solutions for optimizing supply chain workflows but also serves as a reference framework for similar industries aiming to modernize their inventory and supply chain systems through integrated information technology solutions.

Keywords—Supply Chain Management (SCM), Web-Based Information System, Inventory Optimization, Manufacturing Efficiency, Small Business Digitalization

I. INTRODUCTION

The transformation of the manufacturing industry has accelerated significantly due to globalization, digitization, and increasing consumer expectations. One of the sectors experiencing both growth and complexity is the furniture industry, particularly in the production of springbeds, which are essential commodities supporting human health and

comfort. As demand for high-quality sleep products increases across household, hospitality, and institutional segments, manufacturers are expected to meet not only volume targets but also precision in inventory, speed in delivery, and efficiency in operational management [1]. These expectations necessitate a shift toward integrated information systems and strategic frameworks such as Supply Chain Management (SCM).

SCM plays a crucial role in synchronizing the flow of goods, data, and finances across a network of suppliers, manufacturers, distributors, and end customers. It encompasses planning, procurement, production, inventory control, logistics, and customer service functions all geared toward achieving organizational efficiency and customer satisfaction [2]. Businesses that effectively apply SCM principles often experience improved responsiveness, reduced costs, higher inventory turnover, and enhanced coordination among internal and external stakeholders [3]. However, despite the strategic value SCM offers, many small and medium-sized enterprises (SMEs) in Indonesia continue to face barriers in its implementation, particularly due to limited access to technology, human capital, and structured operational systems [4].

Citra Springbed, a furniture business located in Kisaran, North Sumatra, provides a representative case of these challenges. The company operates with traditional methods for managing inventory and sales transactions relying heavily on manual documentation, handwritten notes, and communication via WhatsApp groups. These practices introduce a high risk of data loss, human error, and inefficiencies in monitoring raw materials and fulfilling customer orders [5], [6]. For instance, inaccurate stock records often lead to delays in production or rejected customer orders, ultimately affecting customer trust and revenue [7], [8].

The company lacks visibility into real-time inventory status, supplier availability, and order histories. This low level of supply chain transparency inhibits proactive decision-making and hinders efforts to scale operations effectively [9]. In the absence of integrated SCM tools, routine tasks such as stock checks, supplier reordering, and reporting are time-consuming and inconsistent. The inability to predict demand and plan procurement activities systematically has also contributed to frequent overstocking or stockouts, both of which carry financial and operational repercussions [10].

To resolve these issues, this study proposes the development and implementation of a web-based SCM system tailored to the operational needs of Citra Springbed. The integration of such a system is expected to provide a centralized platform that facilitates real-time inventory monitoring, supplier coordination, production scheduling, and transactional data recording [11]. Utilizing technologies such as PHP, MySQL, and Visual Studio Code, this system seeks to digitize key business processes and eliminate the inefficiencies of manual procedures [12].

System analysis and design are conducted using structured methodologies such as Unified Modeling Language (UML), Entity Relationship Diagrams (ERD), and Data Flow Diagrams (DFD), which help visualize system workflows and database interactions [13], [14]. These modeling tools not only support the technical development of the application but also serve as communication instruments between developers and users. In line with best practices in system design, the study adopts a user-centered approach to ensure the resulting system meets the practical needs of daily operations at Citra Springbed [15]

The relevance of this research extends beyond a single case study. It contributes to the broader discourse on digital transformation among SMEs, particularly in Indonesia, where traditional business models are being challenged by the need for speed, transparency, and data-driven management [16]. As more small businesses seek ways to digitize their operations, the insights from this study offer a valuable reference on how to implement SCM in a cost-effective and scalable manner.

This study is grounded in contemporary literature that emphasizes the need for digital tools to address specific SCM challenges such as forecasting demand, managing supplier relationships, and ensuring timely delivery [2]. In the context of post-pandemic economic recovery, small manufacturers are especially vulnerable to supply disruptions and operational instability. By automating and integrating supply chain processes, SMEs can better withstand these disruptions and maintain continuity in their operations [3].

The objectives of this study are threefold: (1) to analyze the existing problems and bottlenecks in the manual supply chain operations at Citra Springbed, (2) to design and develop a web-based SCM application that addresses these problems, and (3) to evaluate the effectiveness of the system in improving inventory control, supplier communication, and transaction recording. Through a qualitative research approach, data will be collected via direct observations, interviews, and document reviews to build a holistic understanding of the business processes and develop a system that responds to real operational needs [4], [11].

This study is not only practical offering Citra Springbed a robust and user-friendly SCM system but also academic, by providing an applied model for similar businesses facing digital transformation challenges. The success of such a system lies not only in its technical features but in its ability to adapt to business workflows, empower users, and support data-informed decision-making [14], [17].

II. METHODS

This study employs a qualitative research approach with a descriptive case study design, enabling an in-depth examination of real-world operational issues faced by Citra Springbed. A qualitative methodology is particularly suited for system development in SME contexts, where problems are often complex, human-centered, and contextual [9]. The descriptive nature of the study ensures that the investigation focuses on providing a detailed understanding of business processes, system needs, and potential points of intervention.

Unlike quantitative approaches that aim to measure and generalize findings statistically, qualitative methods allow researchers to capture experiences, interpret behaviors, and observe the socio-technical dynamics of system use and manual business practices [6]. This approach provides the flexibility to explore operational workflows, communication gaps, and data inaccuracies in the supply chain process. The case study method is also relevant due to its capacity to analyze the implementation of an information system within its natural business setting, making it a reliable methodological choice for practical system development [2].

A. Research Framework

The research follows a structured, step-by-step framework adapted from the software engineering and system implementation lifecycle. The framework comprises problem identification, requirements analysis, system modeling, software development, testing, evaluation, and implementation.

The flow of this framework ensures a logical progression from conceptual analysis to actual deployment, with each step building upon the data and insights from the previous one. In the problem identification stage, existing documentation, processes, and communication flows were examined. This stage helped to uncover gaps between the desired and actual performance of the inventory and supply chain activities [3]. During the requirement analysis, the system's functional and non-functional needs were articulated through interaction with end-users and analysis of current business bottlenecks [7].

System modeling involved creating diagrams to describe the behavior and architecture of the system, enabling clearer communication between the researcher and stakeholders.

The system development phase consisted of programming, interface design, and database construction. After development, the system underwent a testing and evaluation phase, where user feedback was collected to assess performance and usability. Finally, in the implementation phase, the system was introduced into the daily operations of the company.

Figure 1 presents a comprehensive visualization of the research framework used in this study, offering a clear depiction of the sequential process beginning with the identification of core problems and culminating in the implementation and evaluation of the proposed system. This framework adopts a descriptive-analytical orientation and is structured based on the principles of the System Development Life Cycle (SDLC), allowing for systematic planning, analysis, design, testing, and deployment of the solution. Each stage within the framework is carefully aligned with the study's objectives and plays a critical role in addressing the research questions. The flow of activities ensures that the development process remains focused, methodologically sound, and responsive to the operational needs observed in the case context. title and abstract should be in one column while the main text should be in one columns.

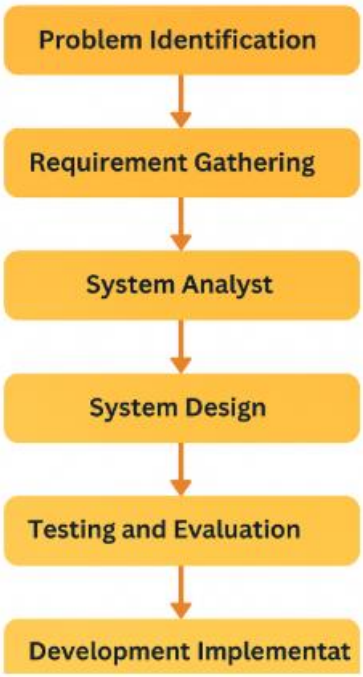

Figure 1. Research Framework

It involves identifying user needs, designing system models, implementing the system, and evaluating its effectiveness in real operational contexts. The descriptive aspect focuses on the existing conditions at Adele Grosir Kisaran particularly its sales processes, customer interaction methods, and marketing strategies. Meanwhile, the developmental aspect encompasses the design and construction of a functional E-CRM system tailored to the company's needs.

In this context, Unified Modeling Language (UML) is used extensively to model system functionality. Diagrams such as use case diagrams, sequence diagrams, and class diagrams are employed to illustrate system operations and user interactions [18], [19]. These models serve as the backbone of system architecture and are essential in ensuring user-centered design. The adoption of UML is justified by its effectiveness in reducing ambiguity and facilitating communication between the developer and stakeholders [20], [21].

B. Data Collection Techniques

To ensure that the system design is based on accurate and relevant information, multiple data collection techniques were employed. The four primary techniques used in this study were observation, interviews, documentation analysis, and literature review.

Observation involved direct field visits to the Citra Springbed location to monitor inventory practices, order processing, and daily operational routines. This helped the researcher identify bottlenecks and inconsistencies in real-time activities, such as manual stock-taking and customer order handling [5]. Observations also allowed the researcher to see how data was recorded, processed, and communicated within the organization.

Interviews were conducted with key stakeholders, including the business owner and several staff members involved in sales and production. These interviews were semi-structured to allow flexibility in exploring new themes that emerged during conversations. Through interviews, the researcher was able to gain a deeper understanding of the problems faced, such as delayed ordering and miscommunication due to the lack of a centralized system [4].

Documentation analysis was used to review order forms, stock records, invoices, and other business-related paperwork. This provided insight into the current information flow and helped identify gaps in the data chain, especially regarding transaction traceability and stock availability [6].

A literature review was conducted to support system development and align the proposed solution with current technological and theoretical frameworks. The review included previous studies on SCM implementation, small business digitalization, and system design methodologies [3], [7], [14].

C. System Development Method

The system was developed using the waterfall model, which is a sequential software development process consisting of distinct phases: requirement analysis, system design, coding, testing, deployment, and maintenance. Although this model is considered traditional, it is well-suited for projects with clearly defined requirements and limited scope for change during development [11].

During the system design phase, various modeling tools were used to illustrate system functions and interactions. Unified Modeling Language (UML) diagrams, including use case, activity, sequence, and class diagrams, were created to visualize system behavior and support software architecture design [13]. The ERD (Entity Relationship Diagram) was also used to design the database structure, ensuring that data flow from suppliers, stock inventory, and sales orders were logically connected [22].

Unified Modeling Language (UML) diagrams were utilized to visualize system behavior and guide the design of the software architecture. The use case diagram outlined interactions between actors such as the administrator, business owner, staff, and suppliers with key system functions, ensuring user roles were well defined. Activity diagrams captured the workflow of core processes like inventory updates and sales transactions, highlighting decision points and improving process logic. Sequence diagrams illustrated the chronological flow of messages between system components during operations such as order placement and reporting, while the class diagram detailed the structural design of entities including users, products, suppliers, and transactions, along with their attributes and relationships. Collectively, these diagrams provided a comprehensive blueprint that reduced ambiguity, aligned technical design with business needs, and ensured a smooth transition from system modeling to implementation

The development tools used include PHP as the backend programming language and MySQL as the database management system. Visual Studio Code was used as the primary code editor, providing an open-source and efficient environment for writing and debugging code [12]. The system was designed to be web-based to allow remote access

and real-time updates, which is essential for operational scalability and managerial oversight [15].

The web-based SCM system was developed using PHP for backend development and MySQL for database management. PHP was chosen due to its flexibility, open-source nature, and widespread use in web application development. MySQL provides a reliable relational database solution capable of storing inventory, order, and supplier data in an organized and secure format [12].

Development was carried out using Visual Studio Code, an efficient and lightweight integrated development environment (IDE) supporting code syntax highlighting, version control, and plug-ins for PHP and MySQL development. The interface was designed to be simple and accessible for non-technical users, incorporating forms, dropdowns, and tables that mirror existing business documentation layouts to ease adoption.

III. RESULTS AND DISCUSSION

The operational conditions at Citra Springbed presented a familiar pattern of inefficiencies often seen in small and medium-sized enterprises (SMEs). The company relied heavily on handwritten notes, informal communication methods, and paper-based documentation to manage critical business functions such as inventory tracking, supplier coordination, and customer order processing. This fragmented system not only hindered workflow efficiency but also led to frequent human errors, such as double-ordering, understocking, or misreporting sales volumes.

For example, raw material stock counts were conducted manually once per week, resulting in data lag and frequent discrepancies between recorded and actual quantities. Similarly, supplier orders were placed without an integrated record of historical transactions, which complicated reordering and negotiation. Staff often relied on WhatsApp messages to report stock updates, leading to data silos and communication breakdowns. These operational realities underscore the critical need for a centralized and real-time information system [5].

The interviews with staff further revealed the psychological burden of maintaining accuracy in manual logs. Many employees expressed concern over the risk of misplacing documents or misunderstanding customer requests due to illegible handwriting or missing files. This reflects a broader need not only for technological tools but for structured data governance that ensures accountability and traceability in day-to-day operations.

A. Identifying System Requirements

The subsequent stage in the system development process involved gathering detailed requirements directly from key stakeholders. This was achieved through structured interviews and participatory discussions, allowing for the identification of both functional and non-functional system needs. The engagement process highlighted the importance of developing features that were not only operationally effective but also intuitive for users with varying levels of digital literacy.

The business owner prioritized the availability of a centralized dashboard that could present real-time stock levels, provide concise sales summaries, and generate automated alerts when inventory reached critical thresholds. Meanwhile, staff members emphasized the necessity for simplified data entry forms designed to closely resemble existing paper-based templates. This approach aimed to minimize the learning curve and facilitate a smoother transition from manual processes to digital operations. The consolidated findings from these discussions are presented in Table 1, which outlines each stakeholder group’s specific requests and the intended benefits of these features.

Table 1. Summary of Stakeholder Requirements

Stakeholder	Requested Feature	Purpose/Benefit
Business Owner	Dashboard with stock levels, sales summaries, low inventory alerts	Faster decisions and improved oversight
Sales Staff	Simplified forms based on paper templates	Easier system adoption
Inventory Staff	Real-time stock updates linked to procurement	Accurate reporting and stock control
Administration	Automated sales and inventory reports	Time-saving and improved accuracy

The analysis phase synthesized these inputs into system modules, which included inventory management, supplier database, order processing, sales tracking, and reporting. Furthermore, non-functional requirements such as system responsiveness, low memory usage, and secure login authentication were also taken into account. These requirements ensured that the system was built with realistic constraints in mind, considering the available infrastructure and IT literacy level at Citra Springbed.

B. Implementation of the Web-Based SCM System

The SCM system was deployed in a controlled environment and tested extensively before being introduced into the company's daily operations. Figure 2 show the interface that optimized for desktop use and included dashboards, data entry forms, and dynamic tables that allowed users to search, filter, and sort records quickly.

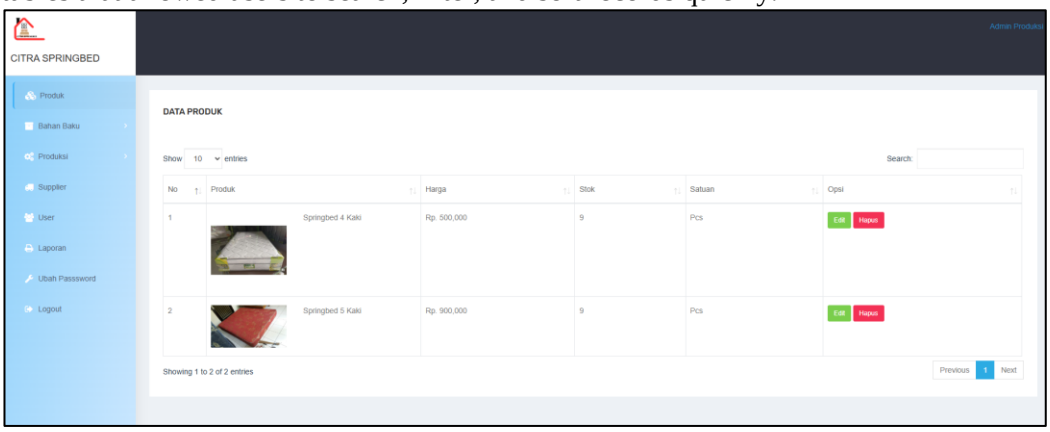

Figure 2. SCM System in Citra Springbed

The inventory module enabled staff to add, update, and monitor stock levels in real-time. Color-coded alerts indicated low stock thresholds, providing proactive prompts for reordering.

The supplier module stored detailed supplier profiles, transaction history, and contact information. This streamlined the procurement process by enabling staff to track which suppliers delivered materials on time, at what cost, and with what frequency. Meanwhile, the sales module allowed for digital receipts, customer profiles, and a chronological list of orders that could be exported for reporting purposes. Each module was interlinked through the centralized database, ensuring seamless data integration across functions.

System testing was carried out in two distinct phases: internal testing by the developer and user acceptance testing (UAT) by company staff. The internal testing phase employed the black-box testing method to verify that each feature's output corresponded with the expected results. This approach ensured functional accuracy without requiring access to the underlying source code. Issues identified during this stage such as data validation errors, session handling inconsistencies, and navigation flow disruptions were resolved through iterative debugging and retesting. The outcomes of the internal testing process are summarized in Table 2, which presents each tested feature, its expected output, the initial results, the issues encountered, and the corrective measures applied.

Table 2. Internal Testing Results

Tested Feature	Expected Output	Actual Output (Initial)	Issue Identified	Resolution Applied
Data Validation	Rejects incomplete or invalid inputs	Accepted some invalid entries	Data validation bug	Added stricter input validation
Session Management	Maintains user session until logout or timeout	Session expired prematurely in some cases	Session handling error	Adjusted session timeout settings
Navigation Flow	Smooth navigation between modules	Some broken links and misdirected pages	Incorrect link mapping	Corrected routing configuration
Report Generation	Generates accurate and complete reports	Missing data in certain fields	Query structure issue	Revised database query logic

In the user testing phase, five staff members from different departments were asked to use the system over a two-week period. Feedback was collected through observation and structured interviews. Users reported significant improvements in data accuracy, time spent on recordkeeping, and ability to retrieve historical records. For example, inventory checks that previously took over an hour were reduced to 10 minutes due to the use of real-time digital reports. Sales tracking was also simplified, with automatic updates in the database and no need for paper receipts.

Despite these advantages, users also highlighted areas for future development, such as mobile accessibility and more advanced analytics features. Nonetheless, all staff agreed that the system marked a major improvement over manual processes and expressed high satisfaction with its ease of use and reliability.

The SCM system has strategic implications for Citra Springbed. By integrating supplier, inventory, and sales operations, the company has achieved better coordination across departments. This integration minimizes data fragmentation and fosters a culture of accountability, where each entry is timestamped and traceable. It also provides the business owner with a centralized view of operations, supporting faster and more informed decision-making.

The system provides a scalable foundation for future innovations. For instance, the company may later integrate customer relationship management (CRM) modules or transition to a cloud-based infrastructure to enable remote access. As the company grows, the existing system architecture can be extended without the need for a complete overhaul, illustrating the importance of planning for scalability during initial.

The adoption of this system positions Citra Springbed as a forward-thinking SME that embraces digital transformation. In an increasingly competitive market, operational efficiency and responsiveness are critical. This study thus reinforces findings from prior research that web-based systems offer tangible benefits not only in operational output but also in business resilience and competitiveness.

IV. CONCLUSION

The implementation of the developed web-based Supply Chain Management (SCM) system resulted in a significant transformation of critical business processes at Citra Springbed. By centralizing essential operational functions such as inventory monitoring, supplier coordination, sales processing, and reporting the system streamlined data flow across departments and enhanced organizational control. Through its integrated platform, the system enabled real-time tracking of stock levels, allowing users to make timely and accurate inventory decisions. The automation of routine tasks, such as data entry and record-keeping, not only improved efficiency but also substantially minimized the risk of human error, which had been a frequent issue in the company’s prior manual system.

Feedback obtained from end users indicated strong satisfaction with the system's performance, particularly in terms of improved coordination among operational roles and the accessibility of consolidated data. Additionally, system testing confirmed that the application met both functional and non-functional requirements, including responsiveness, usability, and accuracy, thereby validating its reliability as a digital solution for small enterprises. This research adds to the expanding discourse on the digital transformation of small and medium-sized enterprises (SMEs), highlighting that technological innovation is not exclusively the domain of large corporations. Even businesses with minimal digital infrastructure and limited technical capacity can leverage tailored systems to enhance their operational performance. The modular design and flexible architecture of the SCM system ensure that it can be easily adapted to accommodate business growth, whether through the addition of new features, the integration of mobile interfaces, or the migration to cloud-based environments. This adaptability represents a crucial asset for SMEs, allowing them to scale their operations and respond to shifting market demands without the need for costly redevelopment. It also reflects a sustainable approach to digital system implementation, one that prioritizes long-term usability and growth potential. The success of the SCM system at Citra Springbed goes beyond solving immediate logistical challenges; it establishes a strategic technological foundation for continued improvement and innovation. The system has empowered the business with better operational visibility, more accurate decision-making tools, and improved internal communication all of which contribute to enhanced competitiveness in a data-driven economic landscape. As such, this system can serve as a practical reference model for other small manufacturers or distributors that aim to modernize their supply chains using efficient, affordable, and user-friendly technology. Looking ahead, future studies could build on this work by evaluating the system's effectiveness across multiple branches, integrating predictive analytics to optimize procurement and inventory forecasting, or conducting cross-sector comparative research to assess how SCM digitalization affects performance metrics across various industries. Through such expanded inquiry, the broader value and scalability of SCM systems in the SME sector can be further understood and leveraged

REFERENCES

[1] H. Maret Wijaya, G. Deswantoro, and R. Hidayat, "Analisis Perencanaan Supply Chain Management (Scm) Pada Pt. Kylo Kopi Indonesia," *Jurnal Ekonomi Manajemen Sistem Informasi*, vol. 2, no. 6, pp. 795–806, Aug. 2021, doi: https://doi.org/10.31933/jemsi.v2i6.653.

[2] A. Yusuf and D. Soediantono, "Supply Chain Management and Recommendations for Implementation in the Defense Industry: A Literature Review," *International Journal of Social and Management Studies*, vol. 3, no. 3, pp. 63–77, Feb. 2022, doi: https://doi.org/10.5555/ijosmas.v3i3.142.

[3] T. S. Syamfithriani, "Implementasi Supply Chain Management (SCM)Toko Alat dan Bahan Bangunan Berbasis Web (Studi Kasus: TB. Bojong Indah)," *Infotech Journal*, vol. 6, no. 2, 2020.

[4] R. Sangga Rasefta and S. Esabella, "Sistem Informasi Akademik Smk Negeri 3 Sumbawa Besar Berbasis Web," *Jurnal Informatika, Teknologi dan Sains*, vol. 2, no. 1, pp. 50–58, Feb. 2020, doi: https://doi.org/10.51401/jinteks.v2i1.558.

[5] A. Midi, "Perancangan Sistem Informasi Keuangan Boutique," *Jurnal Teknologi Dan Sistem Informasi Bisnis*, vol. 2, no. 1, pp. 33–45, Jan. 2020, doi: https://doi.org/10.47233/jteksis.v2i1.86.

[6] H. Wijoyo, A. Ariyanto, A. Sudarsono, and K. D. Wijayanti, *Sistem Informasi Manajemen*. 2021.

[7] Zainab Tuasamu *et al*., "Analisis Sistem Informasi Akuntansi Siklus Pendapatan Menggunakan DFD dan Flowchart Pada Bisnis Porobico," *Jurnal Bisnis dan Manajemen (Jurbisman)*, vol. 1, no. 2, pp. 495–510, May 2023, doi: https://doi.org/10.61930/jurbisman.v1i2.181.

[8] F. Farid and Y. Yusuf, "Strategi Promosi Dalam Meningkatkan Volume Penjualan Pada Usaha Ayam Petelur," *Business Management*, vol. 1, no. 2, Apr. 2023, doi: https://doi.org/10.58258/bisnis.v1i2.5056.

[9] E. Effendy, E. A. Siregar, P. C. Fitri, and I. A. S. Damanik, "Mengenal Sistem Informasi Manajemen Dakwah (Pengertian Sistem, Karakteristik Sistem)," *Jurnal Pendidikan dan Konseling*, vol. 5, no. 2, 2023.

[10] G. Widiyanto, H. Satrianto, and Fx. P. P. Wibowo, "Pengaruh Inovasi Produk, Harga, dan Promosi Terhadap Penambahan Pendapatan Ekonomi Masyarakat di Kota Tangerang (Studi Kasus Peran UKM Pembuatan Makanan Ringan dan Snack)," *eCo-Buss*, vol. 3, no. 3, pp. 120–130, Apr. 2021, doi: https://doi.org/10.32877/eb.v3i3.208.

[11] N. Wilyanto, J. Firnando, B. Franko, S. P. Tanzil, H. C. Tan, and E. Hartati, "Pembuatan Website Menggunakan Visual Studio Code di SMA Xaverius 3 Palembang," *Fordicate*, vol. 3, no. 1, pp. 1–8, Nov. 2023, doi: https://doi.org/10.35957/fordicate.v3i1.5057.

[12] F. Sinlae, I. Maulana, F. Setiyansyah, and M. Ihsan, "Pengenalan Pemrograman Web: Pembuatan Aplikasi Web Sederhana Dengan PHP dan MYSQL," *Jurnal Siber Multi Disiplin*, vol. 2, no. 2, pp. 68–82, Jul. 2024, doi: https://doi.org/10.38035/jsmd.v2i2.156.

[13] K. 'Afiifah, Z. F. Azzahra, and A. D. Anggoro, "Analisis Teknik Entity-Relationship Diagram dalam Perancangan Database Sebuah Literature Review," *INTECH*, vol. 3, no. 2, pp. 70–74, Nov. 2022, doi: https://doi.org/10.54895/intech.v3i2.1682.

[14] A. Voutama, "Sistem Antrian Cucian Mobil Berbasis Website Menggunakan Konsep CRM dan Penerapan UML," *Komputika : Jurnal Sistem Komputer*, vol. 11, no. 1, pp. 102–111, Feb. 2022, doi: https://doi.org/10.34010/komputika.v11i1.4677.

[15] T. Abdulghani and M. M. H. Gozali, "Sistem Konsultasi dan Bimbingan Online Berbasis Web Menggunakan Webrtc (Studi Kasus : Fakultas Teknik Universitas Suryakancana)," *Media Jurnal Informatika*, vol. 11, no. 2, p. 42, Aug. 2020, doi: https://doi.org/10.35194/mji.v11i2.1037.

[16] A. E. Yanuar and M. A. Senubekti, "Perancangan Aplikasi Penjualan Online Berbasis Website (Studi Kasus : Bakso Emsa)," *Nuansa Informatika*, vol. 16, no. 1, pp. 19–32, Jan. 2022, doi: https://doi.org/10.25134/nuansa.v16i1.4661.

[17] G. Widiyanto, H. Satrianto, and Fx. P. P. Wibowo, "Pengaruh Inovasi Produk, Harga, dan Promosi Terhadap Penambahan Pendapatan Ekonomi Masyarakat di Kota Tangerang (Studi Kasus Peran UKM Pembuatan Makanan Ringan dan Snack)," *eCo-Buss*, vol. 3, no. 3, pp. 120–130, Apr. 2021, doi: https://doi.org/10.32877/eb.v3i3.208.

[18] Annisa Tri Hidayati, Aditya Eka Widyantoro, and Hertas Jelang Ramadhani, "Perancangan Sistem Informasi Wirausaha Mahasiswa (Siwirma) Berbasis Web dengan Unified Modelling Languange (UML)," *Jurnal Penelitian Rumpun Ilmu Teknik*, vol. 2, no. 4, pp. 86–107, Nov. 2023, doi: https://doi.org/10.55606/juprit.v2i4.2906.

[19] Suharni, E. Sussilowati, and F. Pakusadewa, "Perancangan Website Rumah Makan Ninik Sebagai Media Promosi Menggunakan Unified Modelling Language," vol. 12, no. 1, Apr. 2023.

[20] A. Noviantoro, A. B. Silviana, R. R. Fitriani, and H. P. Permatasari, "Rancangan Dan Implementasi Aplikasi Sewa Lapangan Badminton Wilayah Depok Berbasis

Web," *Jurnal Teknik dan Science*, vol. 1, no. 2, pp. 88–103, Jun. 2022, doi: https://doi.org/10.56127/jts.v1i2.108.

[21] F. Farhan and D. Leman, "Implementasi Metode Rivest Shamir Adleman (RSA) Untuk Kerahasiaan Database Perum Bulog Kanwil Sumut," *Journal of Machine Learning and Data Analytics*, vol. 2, no. 1, Feb. 2023, [Online]. Available: https://journal.fkpt.org/index.php/malda/article/view/483

[22] A. H. Nugroho and T. Rohimi, "Perancangan Aplikasi Sistem Pengolahan DataPenduduk Dikelurahan Desa Kaduronyok Kecamatan Cisata, Kabupaten Pandeglang Berbasis Web," *Jurnal Teknik Informatika Unis*, vol. 8, no. 1, pp. 1–15, Oct. 2020, doi: https://doi.org/10.33592/jutis.v8i1.698.