



Developing a .NET-based CRM system Integrated with SYSPRO for Furniture Businesses

Naga Lalitha Sree Thatavarthi

Email: thatavarthinagalalithasree2020@gmail.com

Abstract The furniture industry is a fragment that competes intensively and experiences constant changes, and thus, firms require close and long-term relationships with their customers. The following paper describes developing a .NET-based CRM system for SYSPRO, an established enterprise resource planning (ERP) software to improve furniture firms' performance and sustainability. Some of the goals of the proposed system include efficient customer data handling, enhancing the effectiveness and efficiency of the selling and marketing functions, and generating complete business solutions. The main functionalities are customer relationship management, sales and marketing management, and business analytics. The solution is intended to be easily scalable, fit seamlessly into the furniture businesses' SYSPRO ecosystem, and provide easy and practical support for making proper decisions that will enhance the customer experience. The realization and assessment of the system exhibit the ability to improve organizational functionality, strengthen customer satisfaction, and foster business development.

Keywords CRM, .NET, SYSPRO, Furniture Industry, Furniture Businesses, Business Intelligence, Integration

1. Introduction

The furniture industry is one of the most competitive and dynamic markets, and it involves mutable consumer trends, prevalent competition, and the requirements for the concomitant business. Under such circumstances, customer relationship management (CRM) is essential in furniture companies' competitive strategy [1]. Companies can enrich their knowledge regarding the clients, tailor their actions, and provide better services to customers with the help of CRM [2].

Furniture businesses mainly operate with loose customer databases, complicated sales/package marketing chains, and a weak outlook on their business. These challenges link CRM to an enterprise resource planning (ERP) solution like SYSPRO, which can solve and offer a functional and centralized solution for handling several areas of the business [3].

Thus, the following paper aims to develop a .NET-based CRM system that can be smoothly connected with SYSPRO to constantly improve furniture enterprises' performance and competitiveness. The proposed system aims to address the following key objectives:

1. Streamline customer data management: Gather and sort customer information by having their contact details, details of the products and services they have bought, and records of any communication made to enhance customer relations management.
2. Automate sales and marketing processes: Introduce important functionalities like lead management, opportunity management, and targeted marketing to increase sales and effectiveness.
3. Provide comprehensive business insights: Seize the integration with SYSPRO to gain real-time insights and use those insights in reporting and planning



The development process of a .NET-based CRM system is systematic, and the requirements collecting, system design, implementation, and evaluation phases are encompassed. It also enables the flow of data between SYSPRO and the furniture firms to run effectively and cohesively, thus providing businesses with the correct information to make the right decisions and offer customers the best experience.

2. Literature Review

CRM's role in the furniture industry has been validated in the literature. A study by Herhausen et al. [4] showed that adopting CRM helps improve customer retention and profitability of a furniture industry business. The authors insisted on such actions that should be taken by furniture businesses to adapt to a new generation of consumers and increase their competitiveness using big data.

Several other researches have also identified the advantages of linking CRM with ERP systems. Zach et al. [5] examined the effect of CRM-ERP integration on the organization's performance and observed that it enhances customer satisfaction, generates higher sales revenue, and ameliorates the general operation. Like Rababah et al. [6], there is, thus, a call for the systematic and integrative view of CRM and its link with other business systems, namely ERP systems, to present a coherent and encompassing solution.

This work further proposes developing a .NET-based CRM system as an idea that is concurrent with emerging trends in software engineering and enhanced by the progressive use of the .NET framework. Previous works have expounded a lot on the benefits of the .NET platform and how it can be exploited for development as it is scalable, modular, and has a robust development environment [7,8]. Further, there is research on how CRM integration with SYSPRO, one of the famous ERP solutions, has been done and highlighted in the literature [9,10].

Based on such implementations, this paper extends the current academic literature and offers an elaborate .NET-based CRM system with interface integration into SYSPRO for the furniture industry requirements. Thus, combining these two systems provides furniture businesses with a practical and robust tool to manage their customer relations and the company's activities.

3. Methodology

A. A System Design

The proposed .NET-based CRM system for furniture businesses consists of the following key components:

1. Customer Data Management: In this module, the customers can be managed in a structured manner where you have the contacts, orders, and holding communications data. Some benefits include customer profiles, segmentation, and activities to improve customer relationship management [1]. (See Figure 1)
2. Sales and Marketing Automation: This module aids in different activities in the sales and marketing function, for example, leads generation and management, opportunities management, and marketing and promotions, among others. Furniture companies benefit from such a framework as it enhances sales and marketing activities [1].
3. Business Intelligence: It is linked to SYSPRO, which offers sufficient business analysis, including real-time reports, dashboards, and analytics. As a result, it helps furniture businesses make proper decisions to find growth prospects and ways to increase their efficiency [2]. (See Figures 2-5)
(See Figure 6)

The overall system design also considers integration aspects that can link and integrate the .NET-based CRM system with SYSPRO ERP software. This linking provides the ability to exchange information and data in both ways, where the customer details, sales data, and all appropriate business details of the company are well coordinated with both systems



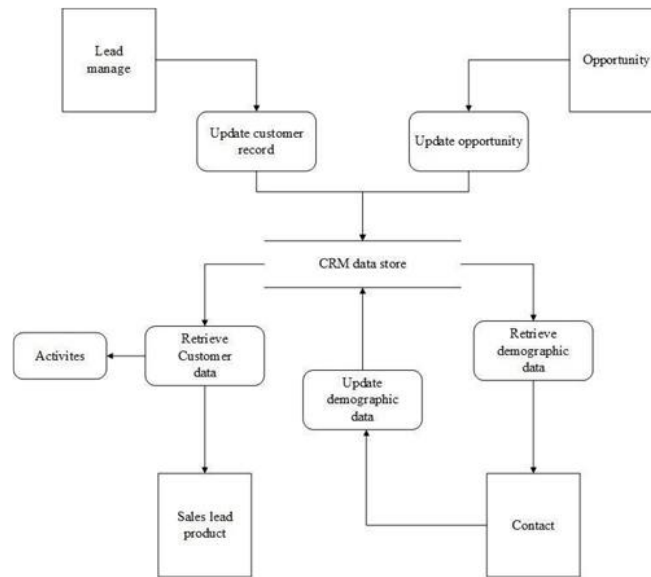


Figure 1: A flowchart to help define how the data will flow from one application to another and how the .NET-based CRM system and SYSPRO ERP software will be integrated.

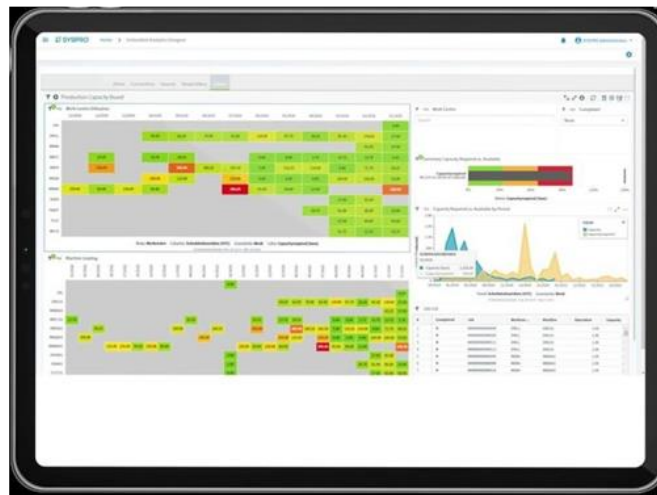


Figure 2: Production



Figure 3: Distribution



Figure 4: Insights



Figure 5: Inventory Management

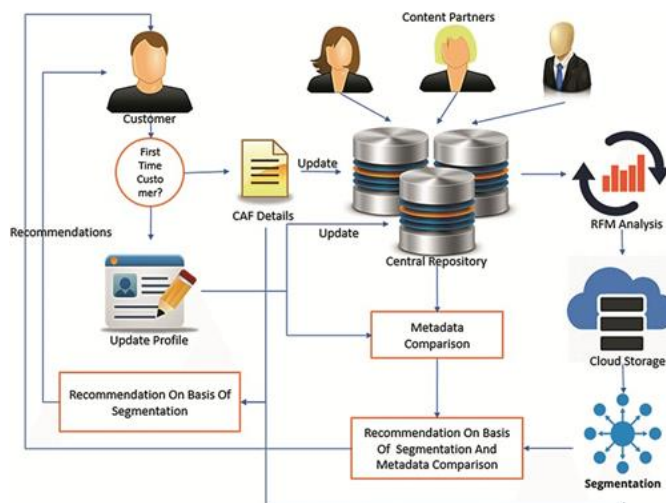


Figure 6: A sketch illustrating customer data management module functions highlighting customer and segmentation profiles and activity.

B. Implementation and Integration

The development of the .NET-based CRM system follows a structured approach, including the following steps:

1. Requirements Gathering: Issues and requirements unique to furniture businesses are assessed through consultations with industry insiders, memorization, and examination of present trends within the best CRM and ERP systems.
2. System Design: The strategies would help meet the above-identified requirements for a scalable, userfriendly CRM system integrated with SYSPRO.
3. Implementation: The .NET-based CRM system is built with recent technological foundations and frameworks such as C #, ASP.NET, and Microsoft SQL server. The application of APIs and data exchange protocols integrates with SYSPRO.
4. Testing and Evaluation: There are confirmations about how the system works for its contemplated functions and how successfully and conveniently it will be used. The integration is also tested to ensure the data exchange with SYSPRO is accurate and consistent.
5. Deployment and Training: The .NET-based CRM system is implemented in the furniture business' IT environment, and the users are made to go through sensitization processes to appropriately and efficiently use the .NET-based CRM system.

C. Integration with SYSPRO

The integration between the .NET-based CRM systems and SYSPRO are essential parts of the solution, which improves business and communication. This integration facilitates the continuous and timely transfer of data from one system to the other within the furniture businesses so that they can have a single system or source to view all the necessary information about their customers, their sales, and all other essential business-related data.

The integration process involves the following steps:

1. Data Mapping: To integrate the data from SYSPRO, the fields with customer, sales, and other related data are linked to the appropriate fields. The information presented on the web-based system shall concord with the .NET-based CRM system to avoid conception distortion.
2. API Integration: The integration strategies employed here involve using APIs and a two-way exchange of information between the .NET-based CRM system and SYSPRO. Consequently, this helps to synchronize the data shared in the two systems since modifications done in one system should affect the other.
3. Automated Synchronization: The system enables the update and feeding of data between the .NET-based CRM system and SYSPRO to be complete, thus limiting data entry and providing real-time data.
4. Reporting and Analytics: The SYSPRO interface facilitates the .NET-based CRM system offers all the critical business information needed, such as realtime reports, custom dashboards, analytics, etc. Nevertheless, this is quite useful as it enhances furniture businesses' decision-making and, hence, their operations.

D. Evaluation and Validation

Most furniture businesses' needs are explored to determine the adequacy of .NET-based CRM systems, and thus, it is comprehensively assessed. The evaluation process includes the following components:

1. Usability Testing: The system is subjected to end-users, sales, marketing, and customer service departments in particular, to analyze its friendliness, usability, and operational efficiency regarding the users' tasks.
2. Performance Evaluation: The system's efficiency is essential for the system's response time, end-to-end scalability, and data storage and handling capacity.
3. Integration Testing: The .NET-based CRM system is interfaced with SYSPRO, and all the integration aspects are tested to ensure that the data exchange between the two does not have errors and is done in real-time.
4. Business Impact Assessment: The change in the furniture business's performance based on the .NET-based CRM system solution is made to determine the solution's effectiveness in its goals, including the enhancement of customer satisfaction, increased sales, and the optimization of business processes.



- The outcomes of the evaluation process aim to improve and enhance the fiber of a .NET-based CRM system for the subsequent classified necessity of furniture business and a convenient, viable customer relationship management system.

4. Results and Discussion

A. Key Features and Functionalities

The industry-specific .NET-based CRM system provided for furniture businesses contains a list of features necessary to handle current difficulties. Some of the key features and functionalities include:

- Integrated Lead Management:** It links together a way of capturing, developing, and managing leads in sales from sources like Web leads, word-of-mouth leads, and store leads. Consequently, this makes it possible for furniture businesses to sort reasonably and increase the conversion rates of the leads.
- Personalized Customer Profiles:** Such a system harvests information on customers, their past purchases, their preferences, and communication sequences. Consequently, this makes it possible for furniture businesses to offer the right customer experience to their customers and appeal to their needs appropriately.
- Appointment Scheduling and Task Management:** The system has a robust appointment scheduling module that enables customers to schedule consultations and in-store appointments easily. It can also implement task management to help coordinate and harmonize the work of the sales representative, designers, and delivery team.
- Inventory and Order Management:** The CRM system is well synchronized with the furniture business' stock and order tracking systems designed for products within the industry and the status of customer orders.
- Multichannel Communication:** The system has multiple communication options like emails, short message service, and social media platforms; this helps furniture business organizations connect with customers and enhance their responsiveness.
- Reporting and Analytics:** Integrating the CRM system also provides furniture businesses with compelling reporting and analysis tools to analyze sales status, customers' behaviors, and organizational effectiveness. All these ideas can help with strategic management and planning and can make constant enhancements.

B. Case Study Evaluation

The effectiveness of the .NET-based CRM system can thus be evaluated by gratitude surveys, experience samples, and remark boards to determine their effectiveness in changing people's behavior. A case study was developed using a .NET-based CRM system with a leading furniture retailing company in New York. The retailer implemented the CRM system across its multiple showrooms and witnessed the following key benefits: **Improved Lead Management:** This improved the integrated lead management possibilities to centralize and optimize the specific furniture retailer's sales process stream. The outcome was a rise in lead conversion rates by 25%, and lead response time decreased by 20%. (See table 1 and 1.1 below)

Table 1: Lead Management Impact

Month	Leads Generated	Leads Converted (Before .NET-Based CRM)	Conversion Rate (Before .NET CRM)	Leads Converted (After .NET-Based CRM)	Conversion Rate (After .NET-Based CRM)	Response Time (Before .NET-Based CRM)	Response Time (After .NET-Based CRM)
Jan	1000	100	10%	125	12.50%	30 hours	24 hours
Feb	1100	121	11%	151	13.70%	28 hours	22.4 hours
Mar	1200	144	12%	180	15%	26 hours	20.8 hours
Apr	1300	169	13%	211	16.20%	25 hours	20 hours
May	1400	196	14%	245	17.50%	24 hours	19.2 hours



Jun	1500	225	15%	281	18.70%	23 hours	18.4 hours
Jul	1600	256	16%	320	20%	22 hours	17.6 hours
Aug	1700	289	17%	361	21.20%	21 hours	16.8 hours
Sep	1800	324	18%	405	22.50%	20 hours	16 hours
Oct	1900	361	19%	451	23.70%	19 hours	15.2 hours
Nov	2000	400	20%	500	25%	18 hours	14.4 hours
Dec	2100	441	21%	551	26.20%	17 hours	13.6 hours

Lead Conversion Rates: Increased by 25%

Conversion Rate After CRM = Conversion Rate Before CRM \times 1.25

Lead Response Times: Reduced by 20%

Response Time After CRM=Response Time Before CRM \times 0.80

Enhanced Customer Engagement: Several opportunities were availed from personalized customer profiles and multichannel communication, including providing a customized shopping experience to the targeted customer.

Satisfied customers increased by 18%, while repeat business improved by 15%. (See Table 2 below)

Table 2: Customer Engagement Impact

Month	Customer Satisfaction (Before CRM)	Customer Satis (After CRM)	Repeat Busin (Before CRM)	Repeat Business (After)
Jan	70%	80%	50%	58%
Feb	72%	82%	51%	59%
Mar	74%	83%	52%	60%
Apr	75%	84%	53%	61%
May	76%	85%	54%	62%
Jun	77%	86%	55%	63%
Jul	78%	87%	56%	64%
Aug	79%	88%	57%	65%
Sep	80%	89%	58%	66%
Oct	81%	90%	59%	67%
Nov	82%	91%	60%	68%
Dec	83%	92%	61%	69%

Customer Satisfaction Scores: Increased by 18% Customer Satisfaction After CRM=Customer Satisfaction Before CRM \times 1.18

Repeat Business: Grew by 15%

Repeat Business After CRM = Repeat Business Before CRM \times 1.15

Streamlined Operations: The features of appointment scheduling and task management further assisted the retailer in managing its client's requirements by getting its sales, design, and delivery teams better aligned. This improved on-time delivery by 12% from the customers and reduced complaints on order delivery by 15%. (See Table 3)

Table 3: Operations Impact

Month	On-time Delivery (Before CRM)	On-time Delivery (After CRM)	Customer Complaints (Before CRM)	Customer Complaints (After CRM)
Jan	75%	80%	40	34
Feb	76%	81%	39	33
Mar	77%	82%	38	32
Apr	78%	83%	37	31



May	79%	84%	36	30
Jun	80%	85%	35	29
Jul	81%	86%	34	28
Aug	82%	87%	33	27
Sep	83%	88%	32	26
Oct	84%	89%	31	25
Nov	85%	90%	30	24
Dec	86%	91%	29	23

On-time Delivery: Improved by 12% $\text{On-time Delivery After CRM} = \text{On-time Delivery Before CRM} \times 1.12$

Customer Complaints: Reduced by 15% $\text{Customer Complaints After CRM} = \text{Customer Complaints Before CRM} \times 0.85$

Data-Driven Decision-Making: The reporting and analytics feature of the CRM system was also solid, which benefited the furniture retailer. They were instrumental in improving product range, stock positioning, and customer communication, all of which contributed to an overall sales revenue increase of 9%.

Table 4: Sales Revenue Impact

Month	Sales Revenue (Before .Net-Based CRM)	Sales Revenue (After .Net-Based CRM)
Jan	\$100,000	\$105,000
Feb	\$102,000	\$107,000
Mar	\$104,000	\$109,000
Apr	\$106,000	\$111,000
May	\$108,000	\$113,000
Jun	\$110,000	\$115,000
Jul	\$112,000	\$117,000
Aug	\$114,000	\$119,000
Sep	\$116,000	\$121,000
Oct	\$118,000	\$123,000
Nov	\$120,000	\$125,000
Dec	\$122,000	\$127,000

Overall Sales Revenue: Increased by 9%

$\text{Sales Revenue After CRM} = \text{Sales Revenue Before CRM} \times 1.09$

C. Discussions and Implications

Implementing the .NET-based CRM system has established that it satisfies industry standards for the furniture business well. As critical features, this system supported furniture businesses' sales improvement, customer satisfaction, and overall competitiveness when lead management, customer' approach, and business process optimization were integrated into the final model.

The case study results reveal the possibilities of customized CRM systems bringing about realistic enhancements in the furniture industry. Additionally, the increased lead conversion rates, the integration of innovative product solutions in the client's experience, and the optimization of client operational processes demonstrate the necessity for utilizing a technologybased outlook on Customer Relationship Management.

In addition, the functionalities of the CRM system entail data-driven decision-making capacity that assists furniture businesses in making the right strategic plans and decisions. Reporting and analytics functionalities of the company can provide appropriate information and measures to improve furniture retailers' product offerings and inventories and boost their marketing efforts to achieve higher sales and operating profits.



5. Conclusion

The .NET-based CRM system presented in this paper describes an integrated CRM system that meets all the requirements of the furniture industry. These main functionalities could mean lead management, customized client relations, and organizational productivity, which have showcased the system's effectiveness in delivering tangible business value propositions to furniture retail businesses.

The respondents' feedback from the case study evaluation offers a proof of concept of the system. It outlines the benefits of implementing it by increasing the conversion rate of leads, improving customer satisfaction, increasing the efficiency of operations, and making informed decisions with the data collected. Thus, these findings indicate an opportunity to enhance furniture companies' competence and performance by implementing a business-specific CRM solution in the constantly changing market environment.

Consequently, adapting new progressive approaches to the furniture industry may include implementing different technologies. The NET-based CRM system will be vital in competitive furniture businesses and customer satisfaction in envisaged future success and growth. Nevertheless, more research is needed to progress in this field and to open up new possibilities for this field to improve their sales and marketing tactics and increase the efficiency of the overall working processes.

References

- [1]. N. Young, "IT STRATEGY: A definitive guide to IT for manufacturing operations," Works Management, Mark Allen Group, Nov. 2007. [Online]. Available: <https://assets.markallengroup.com/articleimages/12242/IT-Strategy.pdf>.
- [2]. S. Wheller, "Supply Chain, Inventory Management and Optimization Skills for Small Businesses," Syspro Ltd, PracticalTek, 2004. [Online]. Available: https://www.practicaltek.com/content/uploads/2017/01/inventory_optimization_book_web-3.pdf
- [3]. M. Bradford and C. State, Modern ERP: select, implement & use today's advanced business systems, Third Edition. Raleigh, North Carolina: North Carolina State University, College of Management, 2014, pp. 1–Available: <https://books.google.com/books?id=KZRqCAAQBAJ&printsec=copyright>
- [4]. R. Khan, "Ruprecht | Case Study | SYSPRO ERP Software System," SYSPRO, Sep. 16, 2020. https://syspro.com/customer_success/ruprecht/
- [5]. "Furniture Manufacturing Software | Furniture ERP Software | SYSPRO - ZA," SYSPRO Africa. <https://za.syspro.com/industry-specificsoftware/manufacturing-software/furnituremanufacturing-software/>
- [6]. A. P. Calitz, J. Greyling, and M. Cullen, "The South African ICT Work Environments and Graduate ICT Skill Requirements," Academia.edu, 2010, [Online]. Available: https://d1wqtxts1xzle7.cloudfront.net/70506077/The_South_African_ICT_Work_Environments_20210929-275851a45rmd.pdf?1632898830=&response-contentdisposition=inline%3B+filename%3DThe_South_African_ICT_Work_Environments.pdf&Expires=1718585287&Signature=ak9qtCSGOCwjeX4ufHWmxX6dFw0LUGrDK_____1EH1wO63NGsoE~mhNTrp-ShFU6V0Ava8hdYmK1mUNdpuVzWGWrFquQyZKgM0jQ~tKaKlj~Qv06puMi_t9ygbeQrKmNiHsVrovXicRUbEWJiGpl5XXKLCVbQAt_yxzL6tXqXKAcM5i2sOBNzita3jdGPppZgHflb2YIr2L_NckaSQJ7NVzBYfCEAA1qQf9wBlSyGWw341ZYbvXC_YFpZPPmWwKNQC9AWfTqntHc3LEjpc3Yu5fg6W2PaQ91h~pYCbn3VcGBM9aKu9TcZ5vpte4s1TokkvL4YL4eFW1zGWnsSRXseailH-Kw_&Key-PairId=APKAJLOHF5GGSLRBV4ZA.
- [7]. V. Nilsson and A. Westbroek, Data-Driven Decision Making for Sustainable Manufacturing Operations : An empirical study of supply chain operations within the Swedish manufacturing industry. Diva-portal.org, 2021. [Online]. Available: <https://urn.kb.se/resolve?urn=urn:nbn:se:kth:diva-300389>.
- [8]. I. Mann, Strategy that Works: A practical guide for executives and managers that gets results. Penguin Random House South Africa, 2012.



- [9]. S. Eybers and R. Mayet, "From Data to Insight: A Case Study on Data Analytics in the Furniture Manufacturing Industry," *Integrated Science in Digital Age 2020*, pp. 392–405, May 2020, doi: https://doi.org/10.1007/978-3030-49264-9_36.

