Research Article GU J Sci 38(1): 200-217 (2025) DOI: 10.35378/gujs.1442588

Gazi University

Journal of Science

http://dergipark.gov.tr/gujs

Industrial Kitchen Manufacturer Service Management

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Highlights

- Technical service process of industrial kitchen products has been examined.
- Service management has been developed with SAP technologies.
- Accuracy, speed and reliability of the service have been analyzed.

Article Info

Received: 24 Feb 2024
Accepted: 22 Nov 2024

Keywords

Customer satisfaction
Google maps
Kitchen production
SAP
Spare part

Abstract

As in all production sectors, it is important to meet customer demands in a timely and accurate manner in the kitchen industry. This study is one of the rare studies that encourage the use of ERP system-based kitchen products, especially SAP, according to customer demands. In our study, a system that re-evaluates the customer communication approach for a company engaged in industrial production, covering the process from the sale of the product to the end user and the technical service process after the product sale, was discussed. Thanks to this system, the company will be able to deliver and sell the spare parts it owns or produces to service managers. At the same time, they will be able to report all commercial transactions in the system, create financial records and store them digitally in their own records. Our system works integrated with Google maps in order to reach the customer in a timely and cost-effective manner during spare parts supply processes. The system we will design; It includes call center application, spare parts order application, malfunction work order application, invoice cockpit application, stock inquiry application. The system generally consists of two parts: Front End and Back End. In our study, accuracy criteria were used to evaluate the performance of the system. Thanks to this system, product delivery times are shortened and customer satisfaction increases. Making some changes to the system we recommend will help many organizations in other sectors to improve their ERP systems and effectively prevent the problems encountered.

1. INTRODUCTION

Today, depending on economic and social developments, satisfying customer demands and needs in the best way has gained great importance. However, in line with this importance, the efforts of businesses to plan and develop the goods in accordance with the demands and needs of the customers, pricing, promoting and making them ready for use through effective distribution channels are not sufficient. Because today's customers appear as people who collect information consciously at the purchasing decision stage, organize this information and produce choices about the course of action, and prefer the appropriate one. In order to ensure customer satisfaction, it is very important to provide the right service in the production of the quality product and in the after-sales processes. Marketing efforts should continue after sales to ensure the continuity of the sales. Accordingly, the main subject of this study is after-sales customer service [1].

After-sales services are efforts to identify and solve any problems that may arise during product use. Although these efforts vary on a sectoral basis, they mainly appear in the form of installation and start-up services, spare parts supply and repair services and warranty services. In fact, it can be said that businesses fulfill these efforts regarding the combination of goods and services and offer them to their customers [2].

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Proper after-sales service strategies and quality will result in customers gaining an overall sense of satisfaction with the product and gaining positive experience and knowledge. The accumulation of this experience and knowledge will reveal customer loyalty and it will be possible to ensure the continuity of sales for businesses [3]. While the rapid economic and technological developments in the world make the markets of the country into the world markets, they put the businesses into an increasingly competitive environment. Success in this race can be achieved by being market and customer oriented. Customer focus can be achieved by defining customer expectations and developing good customer relationships. Today, the customer has turned into a person who uses his choice in the products of which he is sure of the quality in the face of a wide range of products in the expanding market, with more consciousness, more demands. Customer satisfaction is considered together with product reliability and quality of after-sales services. As customers research their products, it has been revealed that after-sales services are increasingly emphasized and an important factor in the perception and selection of products. In addition, it is important for the enterprises to follow the after-sales support activities and to easily monitor the productivity of the employees who provide this service [4].

Aim of our study scientific contribution is to create a system that will include the process from the sale of the product to the end user to a company that produces industrial kitchen products and the technical service process after the product is sold. Thanks to the system, the company can sell the spare parts it holds or produces to the service managers. At the same time, it can report all commercial transactions in the system, create financial records and keep it digitally in its own records. With this system, spare parts are ordered quickly from the factory as a result of instant communication between the field employees of the company and the customer.

In the second part of this study, the related studies, the method in the third part, the proposed model in the fourth part, the experimental study in the fifth part, the discussion in the sixth part and the results in the last part are given.

2. RELATED WORKS

To support businesses in addressing challenges associated with managing business transactions, an integrated information system is essential. The System Application and Product (SAP) serves as a robust tool that offers effective solutions to these issues [5]. Recognized for its widespread adoption, SAP is a leading Enterprise Resource Planning (ERP) software that establishes a unified system across an organization. This system enables various departments to access and share essential data seamlessly, fostering a more collaborative and efficient workplace for all employees. SAP ERP solutions empower organizations by offering the capability to streamline and manage their comprehensive processes—from financial and logistics operations to production, quality management, and project management—in a cohesive and simplified approach [6].

SAP ERP software is an integrated information system that includes/covers all functions of all units/departments in companies such as production, finance, human resources, sales, accounting. SAP ERP, which enables these departments, which are housed in a single structure, to be associated and managed with each other, ensures that the efficiency of the company is maximized [7]. Companies using the company's SAP ERP software and other similar software realize that their operational costs have decreased, the number of technical personnel required for analysis and reporting has decreased, the company works in harmony and is managed by taking quick decisions [8]. As a result, the company, which stands out in the competition in the market and increases its profitability, becomes a business whose market value is constantly increasing [9].

Li et.al, was designed a data model that e-commerce system based on column storage and SAP TREX technology. In this study, is built on the basis of full combination with the working principles of SAP TREX high-performance unstructured index engine. Also this study, effectively addresses the customer’s specific business needs [10]. The system consists of two basic subsystems that include the application instruction and its implementation. However, in this study, the current system will surely be needed to get optimized and its functions to get adjusted.

Bortolome et.al, presented three SAP-ERP Modules namely Financial Accounting (FA), Material Management (MM), and Human Resources (HR) common to HEI. In their studies, they recommend the implementation of SAP-ERP systems to maintain competitive advantages in the long term [11]. It will satisfy the requirements of departments and offices for them to serve their clients faster, easier and better. However, their study information normally yields other issues related to manipulating or locating information when needed.

Faccia et al. have examined whether blockchain can be successfully integrated with Accounting Information Systems (AIS) and ERPs. They found that blockchain can facilitate integration at multiple levels and better serve a variety of purposes, such as compliance auditing. The findings suggest that DLT, decentralized finance (DeFI), and financial technology (FinTech) applications can facilitate integrating AISs and ERP systems and yield significant benefits for efficiency, productivity and security [12]. In other study, developed correlation and evaluation analysis using the information system success model In Implementation of ERP supply chain management for oil and gas industry [13]. There are 6 variables in research models: information quality, system quality, service quality, usage intention, user satisfaction and net profit. Bakar et.al, presented a theoretical understanding of the causes of company success and failure in implementing System Application and Processing Customer Relationship Management (SAP-CRM). In the SAP-CRM application, it offers practical implications for businessmen, especially in the banking sector. In their studies, it is explained that customer relationship management can be improved in the banking sector [14].

Asif et al. have designed a system that can generalize various ERP systems to solve usability problems in ERP [15]. In addition, Polancos et al. have proposed a study reporting the usability evaluation of SAP [16]. However, these studies are not flexible in their application to different systems.

Scholtz and Kapeso developed a new model for ERP systems using mobile learning (m-learning) and electronic learning (e-learning) factors. This model has been made more useful by integrating openSAP e-learning and SAP m-learning application. Their study has made it easier for students to learn with their productivity in ERP learning systems for two important factors, e-learning and m-learning. The results showed that both of these factors may be appropriate and helpful for those using ERP systems [17].

Stojković et al. proposed an application called SAP APO (Advanced Planner and Optimizer), which evaluates all processes of automotive production [18]. SAP APO application is very important for planning and management in the automotive industry. This model is real-time and works in harmony with all modules in SAP ERP. Heuristics, macros, optimization models are used for the task of ensuring the functioning of the planning department in SAP APO. He has contributed to the automotive industry by using optimization technologies for decision support and better planning in production management. The aim of study is to create the planning, tracking and detailed scheduling of customer orders on a real production process example by presenting the SAP APO application in production.

Lin et al., in their research, revealed a comprehensive study for production optimization by eliminating unnecessary operations of the product production stage of automobile enterprises. Thus, they increased their order fulfillment and delivery rates by 50%. In their study, the design and applications of SAP-based manufacturing companies for the automobile supply chain management system were made. Information resources such as financial system, logistics system, cost control system, production control system are kept in the SAP system. Information such as parts of automobiles and vehicle manufacturers are recorded in the information system via SAP [19].

Hufgard and Schulz compared purchasing processes in the automotive sector and other sectors in their studies [20]. The data they used in their studies were obtained from RBE Plus and SAP systems. In the study, they provided a comparison standard to the businesses by using the activities of around 270,000 users. In their study, the differences in the use of ERP are mentioned. In addition, various data analyzes on the effects of the industry were carried out in various organizations. RBE Plus was recommended for ease of use in ERP systems.

In Koksalmis and Damar studies, data were collected from 584 users who have experience in the SAP ERP system in Turkey, and various dynamics analyzes were made. Thus, by combining the theory and practice of the SAP ERP system, it played an important role in its adoption by other users [21]. In their study, the features of the SAP ERP system were tried to be determined using the TAM model. In addition, the study offered advantages in explaining and predicting user behaviors such as user guidance, personal innovation, mastery goal orientation, learner-learner interaction, learner-teacher interaction, satisfaction, behavioral intention by adapting the SAP ERP system.

Beskese et al. proposed an ERP system for the automobile industry in their study [22]. In their studies, weights of criteria were evaluated with fuzzy AHP and ERP systems were evaluated with fuzzy TOPSIS. In order to create this tool, a model was created that includes the factors used in the literature. Three specialists with expertise in the automobile industry and ERP systems were then asked to make dual assessments. In addition, with Fuzzy AHP calculations, factors such as cost, functionality and reliability, recoverability, resource usage, software cost and compatibility are tried to be provided. This model can be used in any large-scale car industry.

Lorenc and Szkoda proposed a system that provides the supply of automotive parts with SAP-based JIT (Just in Time) and JIS (Just in Sequence) [23]. Market competition is very important in the automotive industry in the international supply chain. For companies in the Automotive company, using ERP systems is very important in terms of customer logistics and timely delivery of supplies. In their study, orders from customers in the automotive industry are shown with JIT and JIS processes by using the B2B interface with ERP SAP.

Buxmann et al., in their research in the automobile industry in 25 countries; analyzed processes for production, parts supply and logistics [24]. In their studies, they mentioned that by using Supply Chain Management Software, companies can reduce their costs and optimize their supply processes. Their work offers Supply Chain Management Software in the automotive industry.

In the Weli study, it was evaluated that the students at a university in Indonesia received education with the ERP SAP system and the student satisfaction of this education was evaluated [25]. TAM and the proposed ECT models have been very successful in encouraging students to school and providing satisfaction with the situation in the classroom.

Sliusar et al. used triggers for the control of business processes in ERP systems. Thus, they provided a solution to the insufficient triggering problem in existing ERP systems and ensured that the management of business processes was efficient [26]. The model proposed in their study has been solved by using triggers in the database to solve the problems of ERP systems in managing business processes. This model has been implemented as a module of Greensight's ERP systems. Triggers have been created in the database for all events and jobs performed in the system. In addition, by combining procedures and triggers, efficient solutions have been produced in both software and business areas for different jobs and events in ERP systems.

Nasiri et al. have proposed a system for supply planning and customer coordination using SAP-ERP in their study. In their studies, unnecessary stocks were determined by optimizing the number of goods to be sold by using a mathematical model between the customer and the seller [27]. Their study proposes a multi-level integration and coordination framework to improve the Fast-moving Consumer Goods (FMCG) industry Supply Chain (SC) planning. SAP-ERP solutions were implemented with this method for all transactions such as purchasing, production and sales.

Sampson and Chase argues that the potential operating efficiency of a service is inversely proportional to the extent of customer contact with the provider's operations, and that various service design issues are determined by the presence or absence of customer contact [28].

It is important to reduce operational costs and increase competitiveness by responding to market needs with ERP software, which is one of the most important developments in information technologies [29].

However, in addition to all these positive aspects, challenging business processes and technical implementation difficulties also bring problems in corporate data flows.

As seen in the literature studies above, there are problems with the system, precautions cannot be taken quickly and users cannot continue to use the system without any problems.

The service-oriented customer communication approach has been at the center of service theory since the 1970s. The purpose of this article is to re-evaluate the customer communication approach in the light of advanced digital technologies. The difference of our work proposed model was designed a call center application, spare parts order application, malfunction work order application, invoice cockpit application, and stock query application for all systems and applied to all systems.

We presented the results we obtained with our application in the last section. Thus, the delivery times of the products were well planned, shortened and customer satisfaction increased. The results of this developed software are given in a practical way. In our work, customers can interact with service providers, or service providers interact with customers to improve service quality. With the proposed system, a unique approach is presented for handling usability problems in SAP ERP. The outcome of our paper is help organizations efficiently prevent frequent issues during the development and maintenance of ERP systems and the provision of recommendations to avoid the usability problems of ERP systems. With the method we recommend, efficiency has been achieved by reducing the ERP operating costs. The SAP ERP system we propose can be used in other sectors by making some changes. Alternatively, any company in the industry can easily customize the model using their own.

3. MATERIAL METHOD

Many companies around the world need SAP ERP systems to respond to changing conditions faster in a competitive environment. Therefore, most of the institutions use the integrated information platform SAP system. With these systems, corporate information management is carried out. The need for such applications, which are popular with the developing technology, is becoming more evident day by day. These practices lead to increasing the quality of services for the community. In our study, SAP, SAP CRM and SAP Fiori were used as information platforms integrating information resources. Detailed information about this is given below:

3.1. SAP (Systems Applications and Products)

Enterprise Resource Planning (ERP) is a software tool that enables the management of all data such as materials, labor or machinery that will enable the production of enterprises and makes them use efficiently [30]. Enterprise research planning (ERP) systems are important systems that enable all kinds of processes to be carried out effectively in product production in any business. ERP software has been developed in order to solve the problems experienced in all stages such as customer order management, accounting, transportation, logistics, inventory management and supply chain. It enables the unification of transactions performed with ERP standard application programs. Thus, it allows businesses to grow by enabling businesses to gain greater profits at affordable costs [31].

The use of ERP systems in the world is increasing day by day. Today, there are many ERP software systems such as SAP (Systems Applications and Products), Oracle, Sage and Infor. SAP maintains its leadership in ERP systems with a market share of approximately 25% [32]. SAP is the common database used by all businesses such as finance, investment, supply chain management, marketing and constitutes most of the world market for ERP systems. SAP is a software and, depending on the TAM model, it reduces the unnecessary costs of businesses related to business processes and accelerates data communication depending on various dynamics. SAP can also bring together many business processes under one roof for fast data sharing and data entry [33]. In processing with SAP, data can be organized and viewed from a single place. The data flow within the companies is accelerated and the desired data is easily accessed [34]. In addition, companies can make reports on the information they want. Apart from SAP ERP, it includes

many elements such as human resources, production, marketing and logistics. In this way, all activities carried out within the enterprises are carried out more efficiently and effectively.

3.2. SAP CRM

CRM stands for Customer Relationship Management. Essentially, it encompasses all the strategies employed to manage interactions with customers across sales, marketing, customer service, and e-commerce [35]. With CRM software, these customer-centric activities can be automated and integrated. The premier systems provide additional features for customer analytics, personalization, social media, collaboration, and more. A CRM system offers numerous ways to maximize the benefits from customer interactions. Even minor improvements can boost customer loyalty and significantly increase profits [36].

SAP CRM helps you ensure customer value, customer loyalty and profitability. It is a system developed to differentiate your company, maximize your profit, offer superior customer value and exclusive customer experiences across all contact points. It can be examined under 8 headings as seen in Figure 1:

- Marketing - It covers campaign management, lead management, commercial promotion management and marketing analytics.
- Sales - Sales planning and forecasting includes customer, contact person, activity and opportunity management, offer, order, product configuration and pricing, invoicing and contract processes.
- Service - Offers service order, contract, complaint management and returns, warranty tracking, resource planning and service analytics.
- Web Channel - Provides a fully integrated Web channel implementation that includes E-marketing, e-commerce, e-service and Web channel analytics over the Internet.
- Analysis: It is the processing of all data belonging to customers, such as the interaction between customers and institutions, purchases, service requests.
- Support: It provides service to customers from marketing to sales and service.
- Strategy: It makes the management healthier by defining the future goals of the company rather than just addressing the short-term goals.
- Integration: It shows all kinds of interactions and communications that companies have with their customers.

There are many companies such as Salesforce, Dynamics 365 Sales (Microsoft), Oracle Siebel in the SAP CRM market in the world. Salesforce, one of these companies, offers an important system for task management in companies in recent years. It also enables customers to follow their processes [37, 38]. Compared to companies such as Oracle, it has achieved a significant dominance in market share [39]. Dynamics 365 Sales (Microsoft) offers a variety of CRM applications (field service, sales, project service automation and customer service) [40-42]. Oracle Siebel [43-45] has expanded into the CRM market for the design and development of its applications.

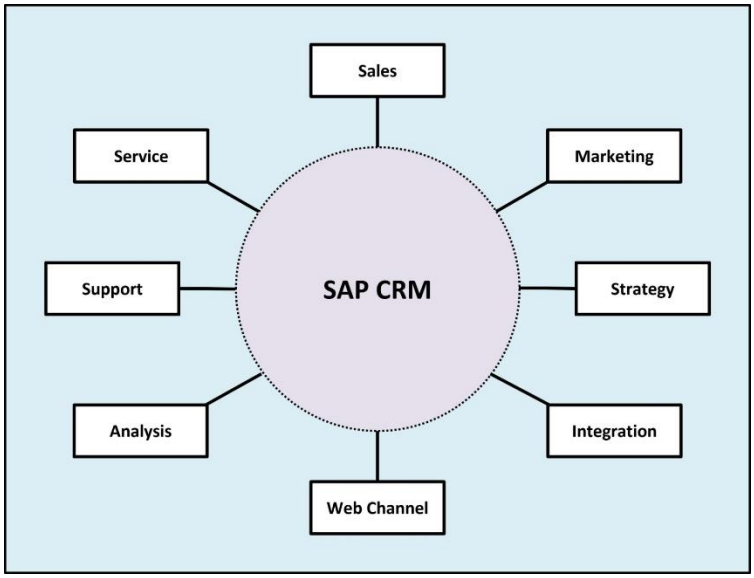

Figure 1. *SAP CRM*

3.3. SAP Fiori

SAP Fiori is built on JavaScript and HTML5 technology, which is the cornerstone of improving the user experience of SAP software. SAP Fiori is a web-based, role-based and customizable application that provides a single point of access to SAP applications across multiple platforms [46,47]. Customers and partners have developed the SAP Fiori application in accordance with the user and design methodology. This application SAP contains many ready-made libraries so that users can create many new and different applications. Figure 2 shows the SAP Fiori structure. SAP Fiori embodies the concepts of role-based, responsive, simple, compatible and delightful. With its role-based feature, the user can take different roles such as administrators and personnel in each developed application. Responsive feature, apps run smoothly on all platforms. Screen sizes can be adjusted for developed applications. In addition, applications can be developed in all screen sizes. With its simple feature, users can quickly and easily develop different applications and run these applications as they wish. With its compatible feature, it provides multiple simultaneous applications to be in the same view. In addition, since it contains the same design language, a user who develops an application in Fiori can develop other applications very easily. Its delightful feature is that the cost and time to learn Fiori applications are very low, since the interfaces that users use for the applications, they develop are simple.

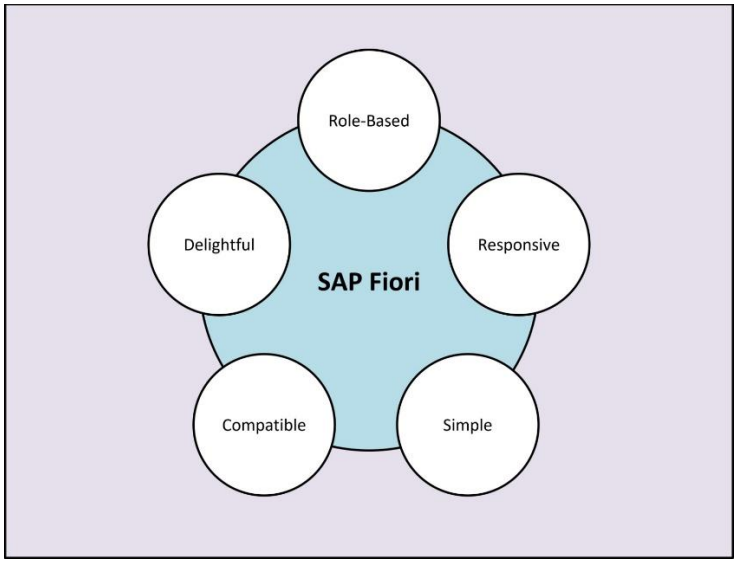

Figure 2. *SAP Fiori*

4. PROPOSED MODEL

SAP Fiori is a development methodology with principles. These principles are determined according to user experience and user interface development techniques. It includes the design principles discussed from the very beginning. Each screen has techniques that include simplicity, efficiency and speed for each device. On the basis of SAP Fiori applications, OPENUI5 or SAPUI5 can be used, it does not matter which library is developed in the background, because the technical structures running in the background basically contain HTML5, CSS3 and JQuery. The important point here is the way followed in Fiori, the use of Fiori principles. It also shows how useful and efficient it is for the user. While determining what the end user will see on a tiny mobile device, it is also determining how the same applications will behave on a 24-inch screen. This type of design is called "Responsive-Design". When we consider these approaches, it is observed that using SAP FIORI is more efficient [48].

In our study, companies in the kitchen industry will provide forecast-oriented spare parts production and stocking. In our work, steps such as the following were implemented to meet the needs of the company and its customers, as well as to simplify the complexity of the processes:

- Creation of production and supply proposals for the kitchen industry to be established
- Optimization and planning of resources to be used for the kitchen industry
- Planning of delivery
- Making plans for supply and production for the future.

The reason why we use SAP CRM and SAP Fiori in this study are that a product in Turkey is used more widely in the market and is more reasonable than its competitors. Sap, which has more resources in terms of customer service and technical support, was deemed more suitable for designing easy-to-use, user-friendly applications and business processes.

The general steps of our study are shown in Figures 3 and 4. As seen in Figure 3, the processes in which the technician assignment is created according to the calls from the customer from the Sap Crm Ic Agent are expressed with the flow chart. As the flow chart of the process technician is shown in Figure 4, the call center employee can use Sap Crm web screens from the Sap Fiori Application. Since these screens are standard screens, they may need to be specially customized according to needs. With the SPRO T-Code in Sap Gui, Sap Web display profiles can be customized. For this, the role entered on the web screen, the navigation bar in the role, the authorization of the role, the fields displayed in the role, the upper call buttons used and the assignment blocks used may need to be adapted. After the necessary adaptations are made according to the needs, the screens can be started to be used after the integration with a 3rd party call provider company with IVR integration.

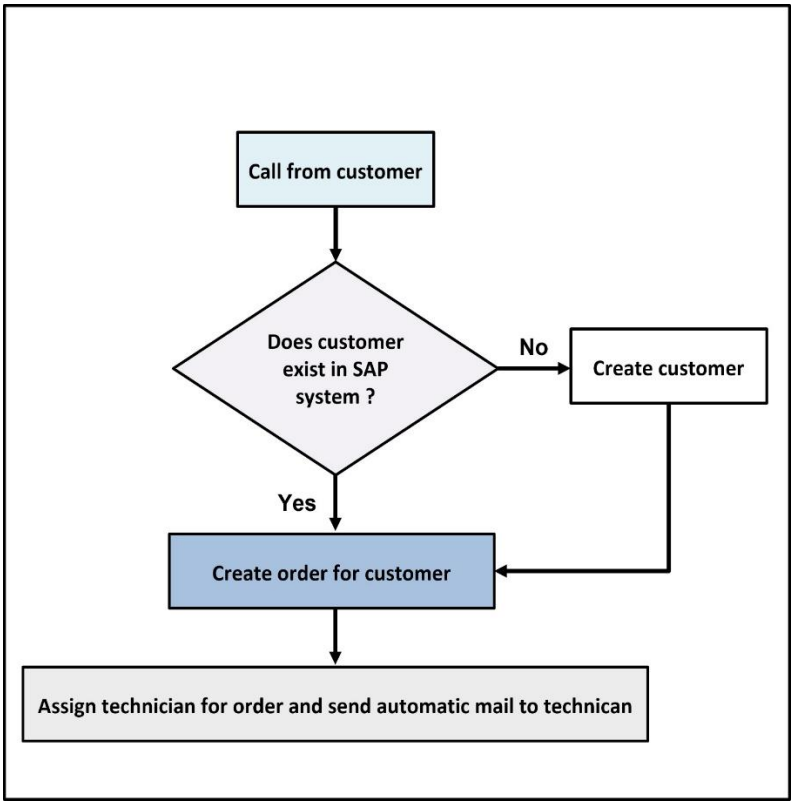

Figure 3. *Ic Agent*

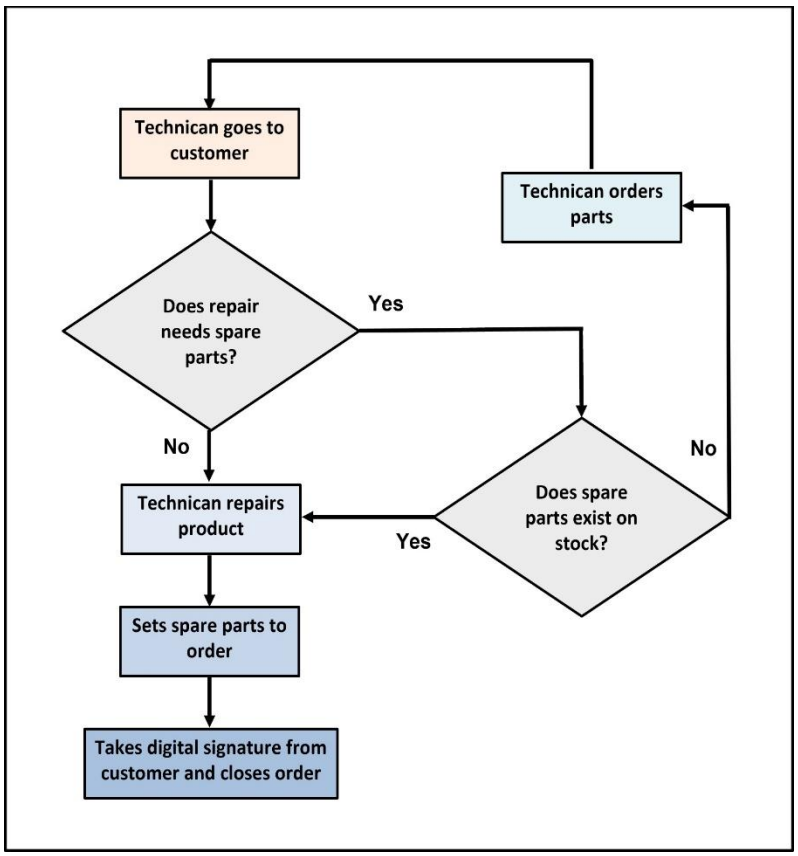

Figure 4. *Technician features*

Customer notifies the call center whenever the customer encounters any malfunction related to the product. The call center also creates the work order document through the application in our system. This document

falls on the factory's ASS unit (After Sales Services). ASS transmits this document to the service closest to the customer through the application authorized by itself. After the service receives this document, it assigns the task to one of its technicians automatically via the system. According to the degree of the defect, the service system requests a spare part from the factory. After supplying the spare part, it sends the technician to the customer site. Travel cost from the service to the customer is calculated and assigned to the document as an expense item. The system works in integration with Google Maps here. After the technician fixes the customer defect, he assigns the spare parts he used and the work he has done to the document as expense. Then, it draws the status of the document to completion by taking the customer's digital signature that the transaction is completed. It combines the service completed documents with an application in the system and creates the invoice and sends it to the accounting unit. The proposed system is the first special model developed in the kitchen industry. It can also be adapted to other industries with some modifications. With the ERP software we have developed for the kitchen industry, the usability, reliability, portability, functionality and efficiency of the products are ensured. In addition, time and cost aspects were also evaluated for the distribution of spare parts to customers. The inventory management module creates the following elements:

- Preparation of inventory plan
- Product entry to the inventory list
- Inventory query
- Final product delivery
- Storage of products
- Order entry
- Inventory status query
- Stock inquiry
- Statistical stock query.

5. EXPERIMENTAL STUDY

Experiments were carried out using these computers with 8 GB RAM, i7 processor, 4 GB GPU memory and 64 bit operating system. SAP software modules enable the tracking of all data in any sector, from production to sales, from personnel status to financial structure, through digital platforms. Our application includes three basic components: SAP user interface layer, SAP database layer, SAP application layer. SAP ABAP and SAP FIORI were used to develop our application. In these applications, HTML methods are used to create web pages, JavaScript is used to interact with the user, and XML methods are used to gather complex data together. SAP on-premise system will be used for the database as shown in Table 1. SAP on-premise system is a structure with direct access to the database and standard database tables.

Table 1. *Customer tables*

Table name	Description
BUT000	BP: General data Contains Business Partner Number, Partner Category, Partner Type, First Name, Last Name etc.,
BUT020	BP: Addresses
BUT050	BP: Relationship
BUT051	BP: Relationship
BUT100	BP: Roles
ADR2	BP: Telephone
ADR6	BP: Mail
ADRC	BP: Addresses

In Table 2, all database tables can be seen T-Code's SE11 and SE16. Custom databes tables can be created via T-Code SE11. In SAP, a Transaction code (T-Code) is used to capture the business task that consists sequences of screen and generates SAP documents with various functions of create, change and display.

Table 2. *Order tables*

Table name	Description
CRMD_ORDERADM_H	Contains the Header Information for a Business Transaction
CRMD_ORDERADM_I	Contains the Item Information for a Business Transaction
CRM_JEST	Individual Object Status for any business transaction
SCAPPTSEG	Table for individual Appointment Types for a transaction

Sap Fiori has a platform-independent structure due to its MVC (Model-View-Controller) framework and user-friendliness. The work order application used by the technician has been designed using the Sap Fiori framework. The call center screen is shown in Figure 5. Here, a record is created by obtaining the customer's personal information such as approving the business partner according to the incoming call and creating a business partner if the business partner is not in the system. Thus, the customer's requests are created by the technician. Figure 6 shows the screen used to manage work orders in a call center. This screen allows operators to record customer requests, view existing work orders and access detailed information about each work order. In addition, the transition screen to the work order document that will be directed to the technician after the call record is designed as shown in Figure 7. HERE map API was used to determine the latitude and longitude information while entering the address information of the document partner. Figure 8 shows the details of the work orders belonging to the customers.

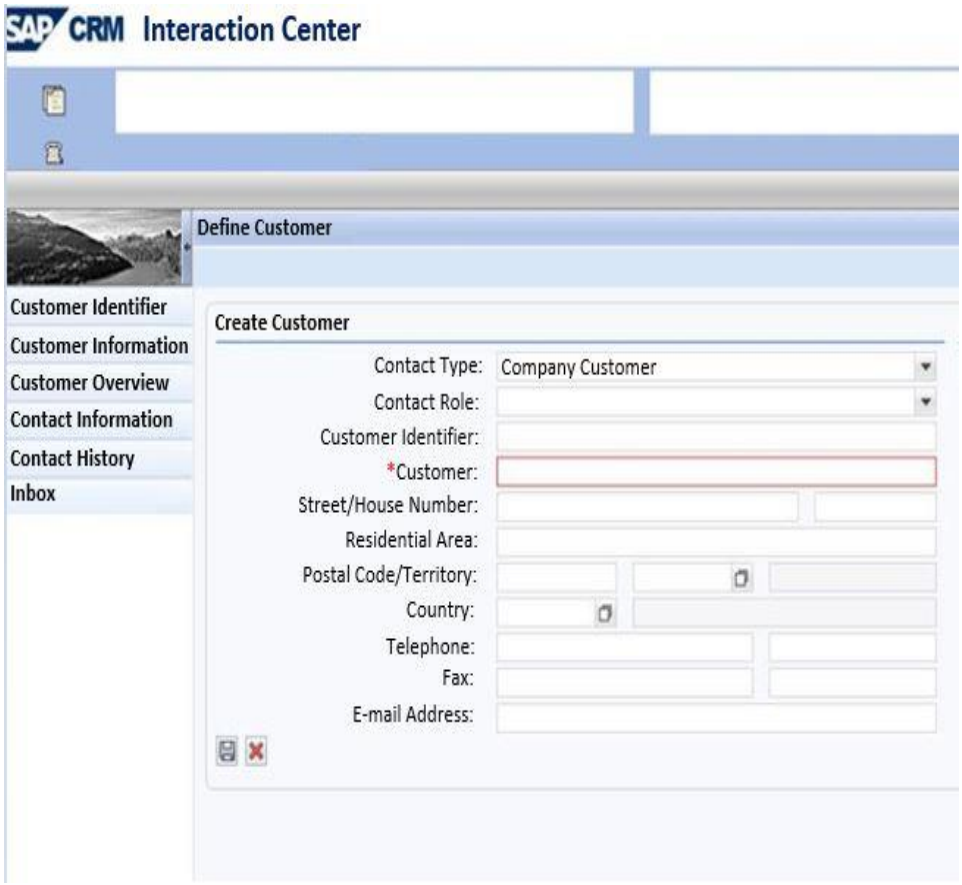

Figure 5. *Customer screens*

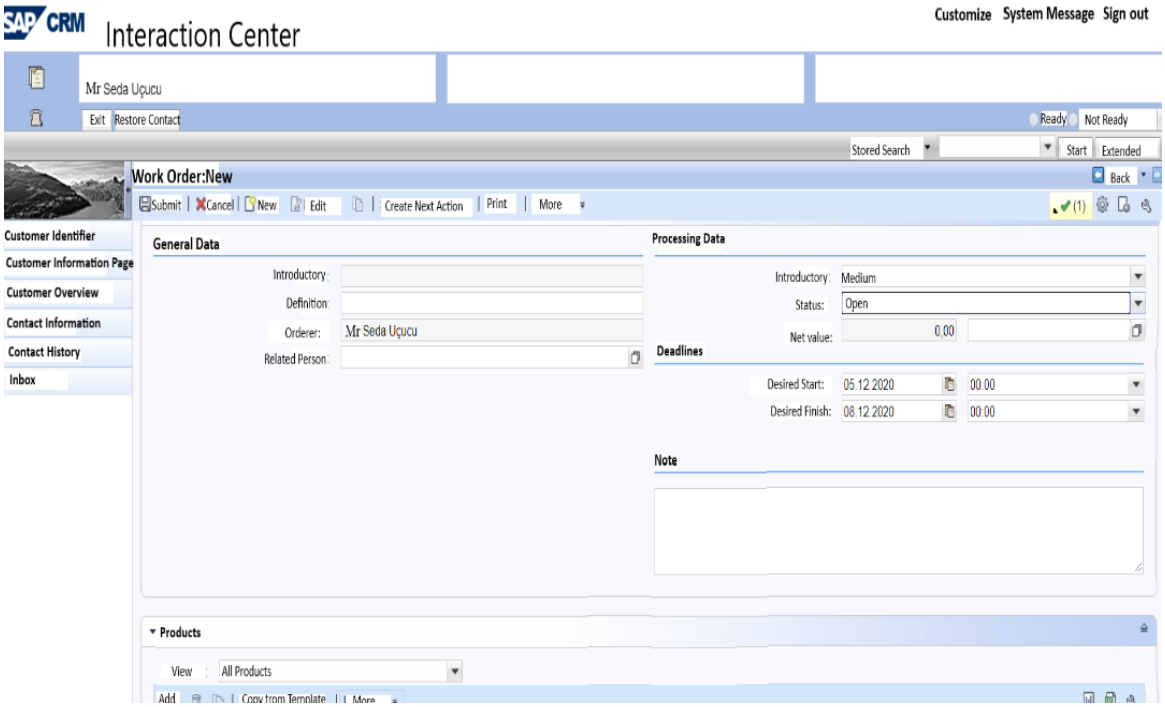

Figure 6. *Call center work order screens*

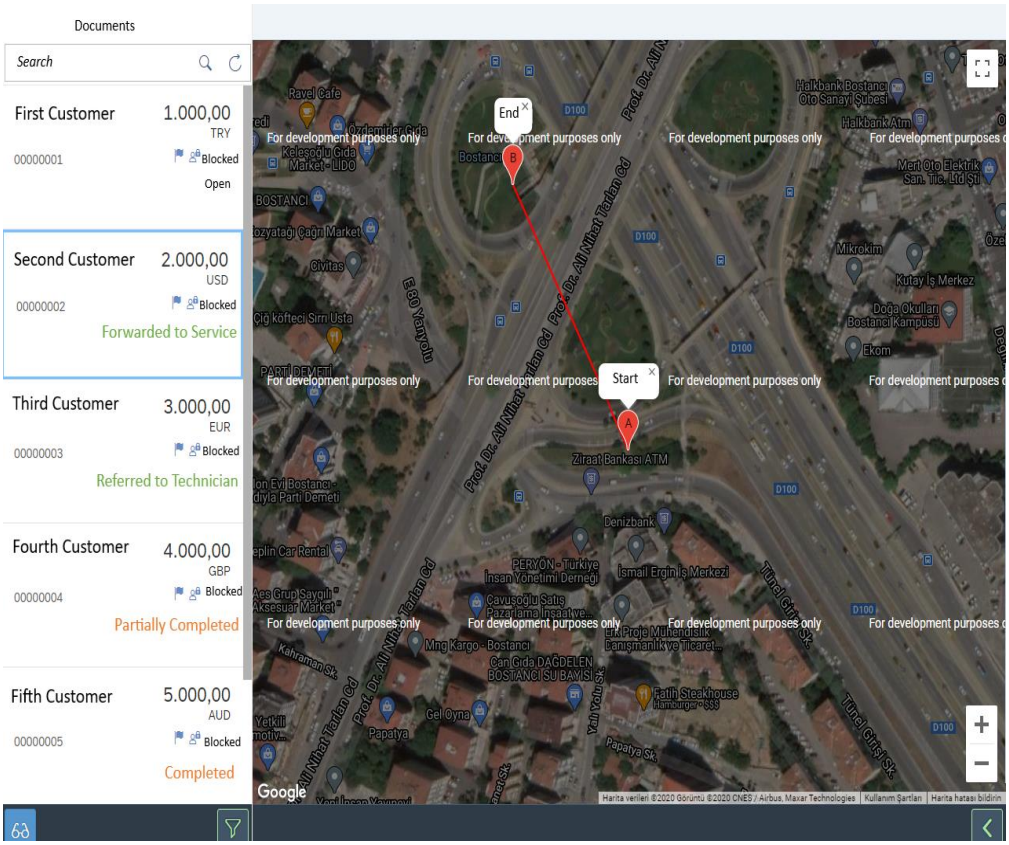

Figure 7. *Fiori Screens 1*

Figure 8. *Fiori Screens 2*

Table 3 shows how the system proposed for 2020 was evaluated by customers during a month of use. After using the system, customers evaluated their satisfaction with a scoring system from 1 to 5. A survey was conducted with 50 customers who used the system during this period. The distribution of scores given by these customers is detailed in Table 3.

Table 3. *Distribution of scores given by 50 customers for the recommended system*

Evaluation Criteria	Evaluation Score	Number of Customers	Total Score
Very good	5	14	70
Good	4	19	76
Average	3	16	48
Bad	2	1	2
Very bad	1	-	0

According to customer feedback, those who gave average, good and very good scores were considered as satisfied with the system. Customers who gave bad and very bad scores were considered as dissatisfied. According to Table 3, 49 out of 50 customers were satisfied with the system at average and above level, indicating a satisfaction rate of 98%.

6. CONCLUSION AND DISCUSSION

In Table 4, the comparison of the recent studies in the literature related to SAP with the study we recommend in terms of accuracy is given. When the results were compared, the success of our proposed study was clearly seen. In addition, the model we propose is more flexible and more powerful in terms of time and memory. It gives successful results in a very short time. Accuracy was used when calculating the success criterion of our study. The accuracy metric was calculated based on the customer satisfaction survey. 98 out of every 100 customers were satisfied with this application. Customer satisfaction has emerged from the evaluation of the following criteria.

- **Stock information:** The availability of the product in the system where the stock information of spare part products is kept is reached. Continuous updating and correct delivery of material stock information since there is a material order in the application.
- **Fast service:** All requests through the application were carried out quickly and reliably. Providing fast and effective problem-solving service in a short time
- **Referral to service**: The technical service closest to the customer coordinate was determined and work orders were issued.

When the other studies in Table 4 were examined, the obtained accuracy rates were calculated using different criteria. In our study, accuracy, speed, and reliability criteria were used to evaluate the service that real customers participated and received. Considering these criteria, customer satisfaction was expressed.

Table 4. *Comparison with studies in the literature*

Literature Studies and Our Study	Used Method	Accuracy (%)
Serumana et al. [49]	SAP PLM ((Supplier Relationship Management)	80
Bakar et al. [14]	SAP CRM	75
Esgin [50]	Hybrid Classification Model	85
Medvedev et al. [51]	-	95
Our study	SAP FIORI	98.94

The service-oriented customer communication approach has been at the center of service theory since the 1970s. It argues that the potential operating efficiency of a service is inversely proportional to the extent of customer contact with the provider's operations, and that various service design issues are determined by the presence or absence of customer contact. With ERP software, which is one of the most important developments in information technologies, it is important to reduce operational costs and increase competitiveness by responding to market needs. However, in addition to all these positive aspects, challenging business processes and technical implementation difficulties also bring problems in corporate data flows.

In our study, a systematic application including the technical service after the sale of a company that produces kitchen products using SAP Fiori technology, one of the most advanced enterprise resource planning applications in the world, is presented. In our study, in the light of digital technologies, customers can interact with service providers or service providers can interact with customers to improve service quality. This application provides customers with a service where all these transactions are reported and recorded by ensuring the correct, reliable, and fast supply of spare parts orders. In addition, with this application, our system works integrated with Google maps in order to reach the customer in a timely and cost-effective manner during the spare part supply processes.

In order to calculate the accuracy rate in our study, criteria such as correct, speed and reliable customer satisfaction surveys related to our system were created. Considering these criteria, 98% customer satisfaction was achieved. In this way, both the customer satisfaction will be kept at a high level and the problems that may arise due to the ineffective use of the system resources will automatically be prevented, and it will make your own working life more comfortable.

CONFLICTS OF INTEREST

No conflict of interest was declared by the authors.

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