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**ENSM. P.U. KOLÉA**



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in strategic management and information Systems.

**Theme:**

**Design and Implementation of a CRM System for a Security Subscription Service  
using Microsoft Dynamics 365**

**Case Study: MERTAH Security Subscription Service**

**By:**

***Chebbah Oussama***

**Jury:**

***ABID Nabila***

***MANSOUR Amina***

**Supervised by:**

**TOUMI Djamila**

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## **Abstract**

This thesis presents a qualitative study focused on the design and implementation of a customer relationship management (CRM) system for a new security subscription service company using Microsoft Dynamics 365. The primary objective is to develop an efficient CRM solution to support the company's operations and enhance customer satisfaction in the emerging field of security subscription services. The research adopts a qualitative methodology, employing document analysis and semi-structured interviews to gather data and insights. A systematic approach is followed to guide the implementation process, ensuring a comprehensive and well-structured solution. The thesis outlines the development of business process models and emphasizes the customization of the CRM system using Microsoft Dynamics 365 technologies. The significance of this research lies in its contribution to the growth and success of the emerging security subscription service company. The qualitative methodology facilitates an in-depth understanding of customer expectations and business needs, informing the design and implementation of the CRM system using Microsoft Dynamics 365. The future research directions include conducting further testing with real clients, integrating the CRM system with other systems, introducing new features and functionalities, optimizing business processes, and enhancing data flows between system components.

Keywords: customer relationship management (CRM), security subscription service, Microsoft Dynamics 365, case study, implementation

## **Résumé**

Cette thèse présente une étude qualitative axée sur la conception et la mise en œuvre d'un système de gestion de la relation client (CRM) pour une nouvelle société de services d'abonnement de sécurité, en utilisant Microsoft Dynamics 365. L'objectif principal est de développer une solution CRM efficace pour soutenir les opérations de l'entreprise et améliorer la satisfaction des clients dans le domaine émergent des services d'abonnement de sécurité. La recherche adopte une méthodologie qualitative, utilisant l'analyse de documents et des entretiens semi-structurés pour collecter des données et des informations. Une approche systématique est suivie pour guider le processus de mise en œuvre, garantissant une solution complète et bien structurée. La thèse décrit le développement de modèles de processus métier et met l'accent sur la personnalisation du système CRM en utilisant les technologies Microsoft Dynamics 365. La signification de cette recherche réside dans sa contribution à la croissance et au succès de la société émergente de services d'abonnement de sécurité. La méthodologie qualitative facilite une compréhension approfondie des attentes des clients et des besoins de l'entreprise, informant ainsi la conception et la mise en œuvre du système CRM en utilisant Microsoft Dynamics 365. Les futures orientations de recherche comprennent la réalisation de tests supplémentaires avec de vrais clients, l'intégration du système CRM avec d'autres systèmes, l'introduction de nouvelles fonctionnalités, l'optimisation des processus métier et l'amélioration des flux de données entre les composants du système.

Mots-clés : gestion de la relation client (CRM), service d'abonnement de sécurité, Microsoft Dynamics 365, étude de cas, mise en œuvre.

## ملخص

تقدم هذه الأطروحة دراسة نوعية مركزة على تصميم وتنفيذ نظام إدارة علاقات العملاء (CRM) لشركة جديدة تقدم خدمات اشتراك الأمان باستخدام Microsoft Dynamics 365. الهدف الأساسي هو تطوير حل فعال لإدارة علاقات العملاء، لدعم عمليات الشركة وتعزيز رضا العملاء في مجال خدمات الاشتراك في حلول الأمان الناشئ. يعتمد البحث على منهجية نوعية، حيث يتم استخدام تحليل المستندات والمقابلات شبه المهيكلة لجمع البيانات والتحقيقات. يتم اتباع طريقة منهجية متكاملة لتوجيه عملية التنفيذ، مما يضمن وجود حل شامل ومنظم. يتناول البحث تطوير نماذج لعمليات الأعمال ويؤكد على تخصيص نظام CRM باستخدام تقنيات Microsoft Dynamics 365. تكمن أهمية هذا البحث في مساهمته في نمو ونجاح الشركة التي ستنتشط في مجال خدمات الاشتراك في الأمان. تساعد منهجية البحث النوعية على فهم عميق لتوقعات العملاء واحتياجات الشركة والشركاء المساهمين، مما يؤدي إلى تصميم وتنفيذ نظام CRM لإدارة علاقات العملاء باستخدام Microsoft Dynamics 365. تتضمن الاتجاهات البحثية المستقبلية إجراء اختبارات إضافية مع عملاء حقيقيين، ودمج نظام CRM مع أنظمة أخرى، وإدخال ميزات ووظائف جديدة، وتحسين عمليات الأعمال، وتعزيز تدفق البيانات بين مكونات النظام.

الكلمات المفتاحية: إدارة علاقات العملاء (CRM)، خدمة اشتراك في الأمان، Microsoft Dynamics 365، دراسة حالة، تنفيذ.

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## **LIST OF ABBREVIATIONS AND ACRONYMS**

**CRM:** customer relationship management

**SaaS:** Software as a Service

**ERP:** Enterprise Resource Planning

**API:** Application Programming Interface

**IT:** Information Technology

**KPI:** key performance indicator

# **GENERAL INTRODUCTION**

# **1 Introduction**

In today's rapidly evolving business landscape, effective management of customer relationships is crucial for organizations to thrive and maintain a competitive edge. As the demands of customers continue to evolve, companies are increasingly turning to Customer Relationship Management (CRM) systems to optimize their operations and enhance customer satisfaction. This thesis focuses on the design and implementation of a CRM system for a new security subscription service company in Algeria, aiming to address the specific challenges faced by the industry and improve customer experiences.

The primary goal of this research is to provide an effective CRM system that is adapted to the specific needs of the security subscription services business. The company intends to improve operational efficiency and provide a seamless and personalized customer experience by installing a comprehensive CRM system that includes modules such as field service, customer support, customer engagement, and sales.

To attain these goals, a qualitative methodology combining document analysis and semi-structured interviews and meetings with key stakeholders is used. This method allows for a thorough understanding of the industry's dynamics, the company's specialized demands, and customer expectations. The research follows a systematic and well-structured methodology to effectively advise the CRM system installation.

The security subscription service industry in Algeria faces several challenges that necessitate the adoption of a CRM system. These challenges include increasing competition, evolving customer expectations, and the need for streamlined operational processes. To solve these issues, it is critical to create a CRM solution that meets the needs of the company while also improving customer satisfaction.

The context of this research lies within the emerging field of security subscription services, where the integration of advanced technology and customer-centric approaches is of paramount importance.

The selection of my research topic for the thesis was driven by the compelling nature of the project presented by the company, which offered a remarkable challenge alongside substantial rewards and the potential for significant impact on both the company and the Algerian market. The project's distinctive attributes and innovative approach made it an ideal subject for in-depth exploration and analysis. Particularly intriguing was its capacity to disrupt the existing landscape of the security subscription industry in Algeria. By examining the design and implementation of a CRM system using Microsoft Dynamics 365, this thesis aims to contribute valuable insights and recommendations to support the successful realization of this project.

Moreover, the anticipated impact on the company itself is of considerable significance. The successful implementation of the CRM system holds the potential to revolutionize the company's operational framework by streamlining processes, enhancing customer relationships, and driving growth and profitability. Consequently, it positions the company as a prominent industry leader, establishing a benchmark for other organizations operating in the same domain.

Furthermore, the impact on the Algerian market should not be overlooked. The introduction of a comprehensive CRM system specifically tailored to the security subscription service sector fills a notable void in the market. The absence of such solutions in Algeria underscores the need for innovative approaches and underscores the potential for significant market penetration. By addressing this gap, the project possesses the ability to shape and elevate industry standards, providing a solid foundation for sustainable growth and improved service offerings.

Despite the existing body of knowledge on CRM systems, there is a knowledge gap in understanding how such systems can be effectively integrated and tailored for Algerian security subscription service organizations. This study seeks to address this gap by giving insights on the design, deployment, and optimization of a CRM system in this particular setting.

The research question that guides this study is:

*How can a CRM system be designed and implemented to support the operations of a new security subscription service company in Algeria and enhance customer satisfaction?*

To further explore the design and implementation of Microsoft Dynamics 365 in the context of the security subscription service company, the following secondary questions have been formulated:

- *How can Microsoft Dynamics 365 be utilized to streamline and enhance the business processes of the security subscription service company?*
- *What are the key features and functionalities of Microsoft Dynamics 365 that contribute to the effective management of customer relationships and operations within the security subscription service company?*

The research area combines customer relationship management, security subscription services, and the Algerian business setting. The research intends to provide significant insights and recommendations for other organizations operating in similar sectors and areas by investigating this field.

The thesis will be structured into several parts to provide a comprehensive analysis and address the research objectives effectively. These parts will include:

- General introduction
- Chapter 1: literature review & conceptual framework
- Chapter 2: Methodological Framework & Organization
- Chapter 3: Design & implementation of the CRM
- Conclusion

Each part will contribute to a holistic understanding of the design, implementation, and impact of the CRM system on the company's operations and customer satisfaction.

# **CHAPTER I: LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK**

The opening chapter of this work is divided into two main sections:

- The first section pertains to the literature review, which aims to present a comprehensive overview of the relevant literature on the topic at hand.
- The second section is dedicated to the exposition of the conceptual framework of our study, which entails an exploration of the fundamental concepts utilized in the study, and the research model adopted,

## **2 LITERATURE REVIEW:**

### **2.1 Introduction:**

Customer Relationship Management (CRM) system design and implementation play a critical role in driving corporate growth and improving customer satisfaction. There is a scarcity of thorough publications and high-quality studies addressing the design and implementation of CRM systems in Algeria, where Security Subscription Solutions are still in their infancy. To address this knowledge gap, this literature review investigates important works from outside the Algerian context in order to obtain insights and provide a solid theoretical framework for the implementation of CRM systems in Algeria.

Recognizing the significance of CRM systems in optimizing customer interactions and improving business performance, it is essential to gather knowledge from well-established practices and studies conducted in other contexts. By leveraging the findings and best practices identified in the provided articles, this literature review seeks to identify key success factors, effective strategies, and potential challenges associated with CRM system design and implementation. The aim is to apply these insights to the unique Algerian context, where Security Subscription Solutions have yet to be fully developed.

The emphasis on foreign publications in no way diminishes the importance of the Algerian context. On the contrary, we can build a more complete and specialized approach to CRM system deployment by combining international expertise with an awareness of the specificities and challenges of the Algerian market. By utilizing these external insights as a foundation, we aim to adapt and refine CRM strategies to align with the needs and expectations of Algerian businesses and customers.

### **CRM-Based E-Business Design Case Study:**

In their 2021 study titled "CRM-Based E-Business Design Case Study: Shoe Washing Service Company S-Neat-Kers," Tsara Ayuninggati, Ninda Lutfiani, and Shofiyul Millah explore the impact of the rise of e-commerce on the emergence of customer relationship management (CRM) systems. Their study focuses on developing a CRM-based e-business system for S-Neat-Kers, an Indonesian shoe washing service business, with the objective of enhancing customer service and boosting sales. (Ayuninggati et al., 2021)

The proposed system is designed to allow customers to easily access and navigate S-Neat-Kers' products and services, as well as provide feedback and suggestions. The system uses a combination of unit testing and black box testing to ensure that it runs smoothly and is error-free. (Ayuninggati et al., 2021)

The study finds that the CRM-based system can help companies communicate with prospective new customers, improve client relationships, and extend marketing regions, all of which are projected to enhance service sales. In addition, customers will be able to quickly examine everything S-Neat-Kers has to offer, as well as testimonials and the ability to give criticism and ideas. The system also makes it easy for businesses or administrators to handle client information such as contact information, comments, and critiques. (Ayuninggati et al., 2021)

To run an e-business using this CRM-based system, human resources must be developed to support the application's operation and maintenance. The study suggests that other academics could adapt this technology for use in a shoe-washing service business with a larger operational area and the ability to collaborate with partners in multiple Indonesian cities. (Ayuninggati et al., 2021)

In conclusion, the study highlights the potential benefits of using a CRM-based e-business system to improve customer service and increase sales for businesses. The proposed system for S-Neat-Kers presents a valuable model for other shoe-washing service businesses to adapt and implement in their operations. (Ayuninggati et al., 2021) However, it is crucial to acknowledge and address the potential limitations that may affect the generalizability and applicability of the study's findings:

Firstly, the study's focus solely on S-Neat-Kers, an Indonesian shoe washing service business, may restrict the extent to which the results can be generalized to other types of businesses or those operating in different geographic locations. This limitation highlights the need for future research to consider a more diverse sample of shoe-washing service businesses in various locations to obtain a broader understanding of the effectiveness of CRM-based systems.

Secondly, the study lacks detailed information regarding the methodology employed to develop the CRM-based system, as well as specific features and functions of the system. This absence of detail makes it challenging to assess the system's effectiveness and suitability for implementation in other businesses. Future studies should aim to provide comprehensive information on the development process, including the methodology and system features, enabling researchers and practitioners to evaluate the system's potential benefits more accurately.

By addressing these limitations and implementing the suggested improvements, future studies can strengthen the knowledge base surrounding CRM-based e-business systems, contributing to their wider adoption and successful implementation in various business contexts.

### **Customer relationship management system implementation process:**

In another study titled "customer relationship management system implementation process and its critical success factors: a case study" Naya Parahita, Eitiveni, Nurchahyo, Efendi, Shafarina, and Parvian Aristio (2021) delve into the implementation of customer relationship management (CRM) in a leading tower provider in Indonesia. This research, published in the 2021 International Conference on Advanced Computer Science and Information Systems (ICACSIS) by IEEE, aims to address two fundamental research questions: how was the CRM system implemented? and what are the key success factors affecting CRM system implementation? (Parahita et al., 2021)

The authors argue that CRM should be perceived as a comprehensive business strategy rather than merely a department-specific activity. Prior to CRM implementation, the case organization encountered architectural constraints, such as scattered and redundant data, resulting in inefficiencies in data storage and diminished application performance.

(Parahita et al., 2021)

Consequently, the company embarked on a transformative journey, focusing on enhancing people, processes, and technology to ensure data validity, quality, and revenue. The CRM implementation was carried out in three distinct phases: pre-implementation, implementation, and post-implementation. (Parahita et al., 2021)

The successful implementation of CRM necessitates comprehensive business processes, integrated IT tools, the involvement of suitable personnel, and the establishment of key performance indicators (KPIs) to ensure the seamless execution of the entire process.

(Parahita et al., 2021)

Key success factors identified in this study encompassed the support and active participation of leaders and managers, adequate knowledge and capabilities of employees, well-designed training programs, effective teamwork, efficient project documentation management, internal support, and real-time transactions and integration with existing business processes and applications. (Parahita et al., 2021)

This study contributes to the existing CRM literature by providing valuable insights for companies planning to implement CRM systems. The authors emphasize the need for companies to shift their perspective, perceiving CRM implementation as a holistic business initiative rather than a purely IT-focused project. They emphasize that CRM offers a

business solution, extending beyond its role as a technological solution. However, it is important to acknowledge that the choice of an Indonesian tower provider as the context of this study may limit its generalizability. Thus, future research endeavors should explore the validity of the CRM implementation process and success factors in different industries or countries.

**The Model of Creation of Customer Relationship Management (CRM) Technology:**

In another article titled "The Model of Creation of Customer Relationship Management (CRM) Technology in Sports Services Section," Pashaie, Abdavi, BadriAzrine, Cincimino, and Fişne (2020) investigate the influence of CRM technology in the sports industry. Published in the 2020 Journal of Advanced Sport Technology, the study critically examines the development and application of CRM technology in the sports sector. (Sajjad et al., 2020)

The authors reviewed a wide range of literature sources to develop a comprehensive understanding of CRM technology and its implications in the sports industry. They emphasize the escalating competitiveness within the sports industry, underscoring the significance of organizations adopting modern technologies to maintain their market position. (Sajjad et al., 2020)

Highlighting the importance of CRM technology in the sports industry, the authors suggest its potential for fostering stronger customer relationships through personalized services. This personalized approach is believed to enhance customer loyalty, a critical factor for organizations striving to sustain a competitive advantage in the sports industry. (Sajjad et al., 2020)

However, the authors acknowledge that the use of CRM technology in the sports industry is still in its nascent stages, indicating the need for further research in this area. The study outlines key features of an effective CRM system and emphasizes the importance of organizations adopting a customer-centric approach to CRM technology implementation. (Sajjad et al., 2020)

The study concludes that the implementation of CRM technology in the sports industry can result in improved customer satisfaction and increased revenues. It calls upon organizations within the sports industry to embrace modern technologies and develop robust CRM systems to remain competitive. Furthermore, the authors encourage additional research to explore the impact of CRM technology on customer satisfaction and loyalty within the sports industry. (Sajjad et al., 2020)

Despite the valuable insights provided by the study, one limitation to consider is the lack of specific examples or case studies illustrating the successful implementation of CRM technology in the sports industry. Future research could potentially incorporate real-world examples to enhance the practical applicability of the findings and showcase the benefits of CRM technology in different sports service settings.

### **ICT-enabled CRM system adoption:**

In their paper titled "ICT-enabled CRM system adoption: a dual Indian qualitative case study and conceptual framework development," Chatterjee, Chaudhuri, Vrontis, Thrassou, and K. Ghosh (2021) aim to provide a comprehensive framework for organizations to adopt advanced Information and Communication Technology (ICT)-enabled Customer Relationship Management (CRM) systems. (Chatterjee et al., 2020)

They point out that advanced ICT-enabled CRM systems, such as mobile CRM, AI integrated CRM, and social CRM, have the potential to strengthen and expand an organization's customer base, thereby providing direct financial gain and indirect soft benefits. However, many businesses face challenges in the adoption of such systems due to lower-than-demanded adoption rates. (Chatterjee et al., 2020)

To address this issue, the authors apply a dual qualitative case study approach to develop a comprehensive CRM adoption framework that evaluates organizations' readiness to adopt advanced ICT-enabled CRM systems in terms of infrastructure and resources. They also identify critical functional areas of focus within the organization and highlight the differences in requisite approaches across various industries and organization types. The study emphasizes the importance of analyzing and managing customer big data in the context of the internet and social media, which traditional and conventional CRM systems are unable to address. Therefore, the authors argue that advanced ICT-enabled CRM systems are necessary to transcribe customer big data into usable information. (Chatterjee et al., 2020)

The proposed comprehensive CRM adoption framework directs businesses towards the successful deployment of ICT-based CRM systems. The study is significant because it is a novel attempt to identify the issues associated with the deployment of ICT-based CRM systems in an organization and propose a comprehensive framework to overcome the barriers when adopting a new system. (Chatterjee et al., 2020)

Although the study is insightful, it has limitations that should be addressed in future research. For instance, the study was conducted in India, which limits the generalization of the findings to other countries or regions. Additionally, the authors did not evaluate the cost-effectiveness of the proposed framework, which is crucial for businesses considering the adoption of advanced ICT-enabled CRM systems. Finally, future research could explore the impact of the proposed framework on organizational performance metrics.

## **2.2 Conclusion:**

In conclusion, this literature review has presented a comprehensive examination of CRM systems in different contexts from various regions around the world. The significance and value of this research lie in several key aspects:

Firstly, the implementation of a CRM system in the Algerian market represents a pioneering endeavor, as Security Subscription Solutions with integrated CRM functionalities are yet to exist. This research addresses the specificities of the Algerian context, taking into account the unique requirements and challenges faced by Algerian businesses in the security sector.

Furthermore, the absence of existing studies on the theme of this thesis underscores the novelty and importance of this research. By conducting an in-depth analysis of relevant articles and synthesizing their findings, this study aims to bridge the gap in knowledge and contribute to the understanding of CRM systems in the Algerian context.

Additionally, the practical implementation of the CRM system within the Algerian market adds practical value to this research. By collaborating with an IT and Business solutions company, the findings of this thesis will have direct applicability and implications for the development and enhancement of Security Subscription Services in Algeria.

In summary, this literature research serves as a foundation for the design and implementation of a CRM system for a Security Subscription Service in the Algerian market using Microsoft Dynamics 365. The unique character of Security Subscription Solutions in Algeria, together with the distinctiveness of the Algerian setting, gives great value and prominence to this study. By filling knowledge gaps and capitalizing on opportunities in the Algerian market, this thesis aims to contribute to the growth and development of the IT and business solutions industry, thereby improving business operations and customer experiences in Algeria.

### **3 CONCEPTUAL FRAMEWORK :**

#### **3.1 RESEARCH CONCEPTS :**

##### **3.1.1 CRM:**

###### **3.1.1.1 CRM Definition:**

A Customer Relationship Management (CRM) system is a technology-driven solution designed to help businesses manage and optimize their relationships with customers and potential customers. It acts as one central location for organizing and preserving customer data, as well as for enabling interactions and improving overall customer experiences. A CRM system, at its most basic level, allows organizations to store and manage client contact information such as names, addresses, phone numbers, email addresses, and social media accounts. It also includes tools and features for tracking and analyzing client interactions such as sales activity, customer service inquiries, marketing initiatives, and more. [10][15]

###### **3.1.1.2 CRM Goals:**

A CRM system's primary purpose is to strengthen company connections by leveraging customer data to drive personalized engagement and improve customer satisfaction. Businesses can customize their marketing efforts, sales strategies, and customer service contacts to better match individual needs by having a comprehensive perspective of client interactions and preferences. [8][15]

###### **3.1.1.3 CRM Components:**

Customer Relationship Management (CRM) refers to a collection of elements that work together to manage and optimize customer interactions and relationships. These components are designed to improve operational processes, increase customer experiences, and improve business outcomes. The following are key components commonly associated with CRM [5][9][25][45][47][48]:

- 1 *Contact Management:* CRM systems provide a centralized database for the storing and handling of customer contact information, which includes important details like as names, addresses, emails, and phone numbers. This component guarantees that client information is well-organized, easily accessible, and regularly updated.
- 2 *Sales Force Automation:* This section focuses on the automation and optimization of sales operations. It includes features such as lead management and opportunity monitoring, as well as pipeline management, quote generating, and sales forecasting. Businesses can effectively manage their sales operations by embracing sales force automation, hence improving overall sales performance.
- 3 *Marketing Automation:* CRM systems commonly include marketing automation features, allowing organizations to automate a variety of marketing tasks. Campaign management, lead nurturing, email marketing, and consumer segmentation are examples of such features. Marketing automation enables the accurate targeting of desired consumers, the delivery of customized messaging, and the optimization of marketing efforts.

- 4 *Customer Service and Support:* CRM systems include capabilities for properly managing customer service contacts and support requests. This component enables the fast tracking and response of client inquiries, complaints, and issues. Case management, knowledge bases, ticketing systems, and self-service portals are used to provide timely and satisfactory customer service.
- 5 *Analytics and Reporting:* CRM systems have analytical and reporting capabilities to provide insights into customer habits, trends, and performance indicators. Businesses can use this component to assess the effectiveness of their customer interaction initiatives, find areas for development, and make well-informed decisions based on data-driven studies. [28]
- 6 *E-commerce Integration:* Certain CRM systems include e-commerce components that allow for the seamless management of online sales, tracking of customer transactions, and the provision of customized shopping experiences. Integration with e-commerce platforms enables organizations to streamline online sales processes, resulting in tailored and engaging consumer experiences.
- 7 *Reporting and Dashboards:* CRM systems include reporting features, allowing firms to create customized reports, create visual dashboards, and track key performance indicators (KPIs). This component provides businesses with real-time information regarding sales, marketing, and customer service performance, allowing them to efficiently track progress and identify areas for improvement.

*Integration and Collaboration: CRM solutions are frequently integrated with other relevant business tools and systems like as email, calendars, project management platforms, and collaboration tools. This integration improves team collaboration, optimizes workflows, and ensures a unified and synchronized view of critical business operations.*

*Figure 1. CRM Components*



*Source: created by the author*

#### **3.1.1.4 The Role of a Customer Relationship management (CRM) System:**

Customer Relationship Management (CRM) plays an important role in many aspects of business operations, including improving customer interactions, optimizing business processes, and facilitating strategic decision-making. The following overview elaborates on CRM's contribution to each of these domains: [19]

##### ***Improving Customer Interactions:***

CRM systems serve as a catalyst for enhancing customer interactions by consolidating customer data and furnishing a comprehensive perspective on each customer. Employing CRM, businesses can [2][8][24][43]:

- *Personalize interactions:* CRM enables organizations to personalize interactions, modify offerings, and provide relevant suggestions based on individual preferences and behaviors by leveraging customer data.
- *Streamline communication:* CRM systems enable businesses to maintain consistent and coordinated communication across various touchpoints, ensuring that customers receive timely and relevant information. [28]
- *Efficient issue resolution:* CRM enables firms to effectively track and address customer issues by centralizing customer information, resulting in increased customer satisfaction and loyalty.

##### ***Optimizing Business Processes:***

CRM solutions play an important role in streamlining operations and increasing overall efficiency in corporate processes. CRM's key contributions in this arena include:

- *Automation and task management:* CRM solutions automate common operations, reducing manual labor and errors. This automation boosts productivity by allowing people to focus on higher-value activities.
- *Data consolidation and insights:* CRM solutions consolidate client information in a centralized repository, allowing organizations to analyze data, identify patterns, and draw actionable insights. These insights act as a catalyst for process improvements and aid in making educated decisions.
- *Cross-functional collaboration:* CRM promotes cross-departmental communication by allowing teams to share customer data, synchronize activities, and align plans. This type of collaboration increases productivity, lowers redundancy, and improves the entire customer experience.

##### ***Supporting Strategic Decision-Making:***

CRM systems provide invaluable support for strategic decision-making by offering insights and data-driven information. Prominent roles of CRM within this context encompass: [4]

- *Customer analytics:* CRM solutions include data analytics capabilities that allow firms to gain a better understanding of consumer behavior, preferences, and trends. These insights guide strategic marketing, product development, and customer acquisition/retention decisions.
- *Forecasting and predictive analysis:* CRM systems help estimate future sales, discover demand patterns, and identify market trends by analyzing historical customer data. Such data enables firms to make educated decisions and build effective strategies.
- *Integration with other systems:* CRM can be integrated with other business systems, such as marketing automation or data analytics software, to provide a comprehensive view of the company's landscape. This integration results in data-driven decision-making across multiple functions.

In conclusion, CRM assumes a multifaceted role in optimizing customer interactions, streamlining business processes, and supporting strategic decision-making. By effectively leveraging CRM systems, businesses can foster enhanced customer engagement, augment operational efficiency, and fortify their competitive advantage in the marketplace.

### **3.1.1.5 CRM Implementation Challenges:**

The deployment of a Customer Relationship Management (CRM) system provides significant benefits to firms, but it also raises several obstacles. An examination of relevant literature revealed frequent difficulties experienced during CRM adoption: [22][26]

- 1 *Convincing People to Change:* A key challenge lies in obtaining employee buy-in and persuading them to embrace new processes and technologies associated with CRM.
- 2 *Gaining Management Approval:* Securing support from management and acquiring the necessary resources for CRM implementation can prove challenging.
- 3 *Handling Data Security:* Safeguarding customer data and ensuring data security pose critical challenges during CRM implementation, particularly considering the escalating emphasis on data privacy and regulatory compliance.
- 4 *Transitioning from Preferred Programs and Software:* The transition from existing software and programs with which employees are comfortable can be challenging, as individuals may exhibit resistance to change.
- 5 *Time and Cost of CRM Implementation:* Implementing a CRM system necessitates temporal and financial investments, and effectively managing associated costs and timelines poses a challenge for organizations.
- 6 *Establishing Trust in the Technology:* Cultivating trust in the CRM system and ensuring its reliability and functionality can be challenging, particularly during the initial stages of implementation.
- 7 *Selecting the Appropriate CRM:* The selection of a CRM system that aligns with the organization's needs and goals is crucial. Choosing an unsuitable CRM can give rise to challenges and inefficiencies during implementation.

- 8 *Lack of Clarity in Scope:* Defining the scope of the CRM implementation project and establishing clear objectives can prove challenging. The absence of clarity may result in a lack of direction and difficulties throughout the project.
- 9 *Measuring Performance and Impact:* Determining how to measure the performance and impact of the CRM system poses a challenge. Establishing pertinent metrics and evaluating the system's effectiveness are essential for continuous improvement.

Effectively addressing these challenges necessitates meticulous planning, stakeholder engagement, adept change management practices, and comprehensive evaluation of CRM options to ensure a successful implementation.

### **3.1.2 Information Technology (IT) in the Context of CRM:**

The application of information technology (IT) in supporting Customer Relationship Management (CRM) activities is pivotal in various dimensions of managing customer relationships. IT systems serve as essential tools in data collection and storage, data analysis and insights, and customer interaction management. Each of these subheadings is expounded upon in greater detail below [20]:

- *Data Collection and Storage:* IT technologies make it easier to acquire and store customer data via CRM platforms. This includes critical data such as client profiles, contact information, purchase history, interactions, and preferences. Organizations can efficiently capture, organize, and centralize consumer information in a uniform repository by employing IT resources, enabling quick access for essential stakeholders. IT system adoption enables firms to overcome the obstacles associated with manual data gathering and storage, improving data correctness, integrity, and reliability.[20]
- *Data Analysis and Insights:* IT systems enable organizations to conduct in-depth analyses of customer data, producing important insights. Advanced CRM software uses data analytics to find patterns, trends, and customer behaviors. Businesses can use this study to obtain a better knowledge of their customers' preferences, uncover possibilities for up-selling or cross-selling, and make data-driven decisions to improve customer happiness and promote corporate success. IT systems provide the infrastructure and tools required to efficiently analyze enormous volumes of data, run complex analytical algorithms, and create actionable insights for strategic decision-making.
- *Customer Interaction Management:* IT systems are critical in managing client interactions throughout the customer lifecycle. CRM solutions include features like contact management, communication tracking, and connectivity with customer care systems, which allow businesses to automate and organize client interactions across numerous channels. Businesses can use IT to respond quickly to consumer inquiries, keep a complete record of contact history, and provide personalized experiences according to individual preferences and needs. IT solutions enable

efficient customer interaction management, which leads to better customer satisfaction, strengthened relationships, and increased customer loyalty.

Information technology assumes a pivotal role in automating and streamlining CRM processes, thereby improving operational efficiency, and enabling businesses to deliver exceptional customer experiences. From the collection and storage of data to the analysis and generation of insights, as well as the management of customer interactions, IT provides the fundamental foundation for effective CRM implementation and execution. By harnessing the power of IT systems, organizations can optimize customer relationship management practices, foster meaningful connections with customers, and achieve sustainable competitive advantages in today's dynamic business environment.[20]

### **3.1.3 Strategic Management:**

#### **3.1.3.1 Strategic Management overview:**

Strategic management is a systematic and ongoing approach to planning, monitoring, analyzing, and evaluating the actions and decisions required for an organization to attain its goals and objectives. It entails a thorough and proactive technique for assessing available resources, assessing the competitive landscape, and making educated decisions to position the business for long-term success. [13][31][36][49]

The strategic management process comprises several interrelated steps that guide the organization towards goal attainment:

- 1 *Goal-Setting or Business Vision:* This step involves defining the organization's long-term objectives and establishing a clear and inspiring vision of the desired future state. It provides a guiding framework that aligns the organization's efforts and resources towards a common purpose.
- 2 *Resource Analysis:* Resource analysis entails evaluating the organization's available resources, capabilities, and strengths. This assessment enables the organization to identify and leverage its internal assets and competencies to achieve its goals. It encompasses evaluating human resources, financial resources, technology, and other tangible and intangible assets.
- 3 *Formulating Action Plans and Strategies:* Based on the analysis of the internal and external environment, this step involves developing comprehensive action plans and strategies. It entails determining the optimal course of action to achieve the defined goals and aligning resources accordingly. Strategic choices are made to capitalize on opportunities and address challenges, positioning the organization for success.
- 4 *Executing Plans and Strategies:* The execution phase involves implementing the formulated plans and strategies. This requires allocating resources, assigning tasks, and coordinating efforts across the organization. It encompasses translating strategic decisions into operational actions and managing the execution process effectively.

- 5 *Evaluating Efficiency and Effectiveness*: The strategic management process includes continuously monitoring and evaluating the progress, efficiency, and effectiveness of the implemented strategies. This step enables organizations to assess their performance, identify any deviations from the intended course, and make necessary adjustments or refinements. It ensures that the organization remains adaptive and responsive to changing circumstances.

To summarize, strategic management is a dynamic and continuing process that includes the development and implementation of key goals, projects, and initiatives. To successfully allocate resources, adapt to the competitive climate, and achieve the organization's long-term goals and objectives, it requires ongoing planning, analysis, and review.

Organizations may handle complicated obstacles, capture opportunities, and position themselves for long-term success in a fast-changing business world by implementing strategic management approaches.

### ***3.1.3.2 Role of Strategic Management in CRM System Design and Implementation:***

The strategic management process is critical in directing the design and implementation of a Customer Relationship Management (CRM) system in the context of a security subscription service. Organizations may make educated judgments on CRM system design, functionalities, and deployment methods by adhering to strategic management principles. The topic is thoroughly discussed in the following detailed discussion: [29][39]

- *Alignment of CRM System with Business Objectives*: Strategic management principles play a pivotal role in aligning the design and implementation of the CRM system with the broader business objectives of the security subscription service. Strategic management ensures that the CRM system effectively supports and enhances the achievement of these objectives by considering the organization's strategic goals and vision.
- *Assessment of Customer Needs and Expectations*: Strategic management places significant emphasis on understanding customer needs and expectations. Within the CRM system design process, strategic management involves conducting thorough market research and gathering customer insights to identify the functionalities and features that will meet customer expectations and enhance their experience.
- *Analysis of the Competitive Environment*: Strategic management principles also require a comprehensive analysis of the competitive environment. This analysis informs decisions regarding the design and functionalities of the CRM system, enabling the organization to identify competitive advantages and differentiate its security subscription service from other market offerings.
- *Definition of CRM System Objectives and Key Performance Indicators (KPIs)*: Strategic management principles guide the establishment of specific objectives and key performance indicators (KPIs) for the CRM system. These objectives and KPIs must align with the overall business strategy and enable the tracking of the effectiveness and efficiency of the CRM system implementation.

- *Planning of CRM System Deployment Strategy:* Strategic management encompasses the development of a well-defined plan for the deployment of the CRM system. This plan includes determining the implementation timeline, allocating resources, implementing change management strategies, and designing appropriate training programs. The deployment strategy must align with the organization's strategic goals and account for the unique context of the security subscription service.
- *Monitoring and Evaluation:* Strategic management principles underscore the importance of monitoring and evaluating the performance and outcomes of the CRM system. This involves measuring the system's effectiveness in achieving desired outcomes, tracking customer satisfaction levels, and making necessary adjustments to ensure continuous improvement and alignment with strategic objectives.

In summary, strategic management plays a pivotal role in guiding the design and implementation of a CRM system within the context of a security subscription service. It ensures the alignment of the CRM system with business objectives, facilitates a comprehensive understanding of customer needs, enables analysis of the competitive environment, defines objectives and KPIs, plans the deployment strategy, and establishes mechanisms for monitoring and evaluation. By incorporating strategic management principles, organizations can effectively harness CRM systems to enhance customer relationships, improve service delivery, and drive overall business success.

### **3.1.4 Microsoft Dynamics 365:**

#### **3.1.4.1 Overview of Microsoft Dynamics 365:**

Microsoft Dynamics 365 is a unified suite of business applications that combines Customer Relationship Management (CRM) and Enterprise Resource Planning (ERP) capabilities. This all-inclusive solution enables businesses to successfully manage various elements of their business operations. A thorough investigation of Microsoft Dynamics 365 exposes the following features: cloud-based architecture, modular structure, and scalability [3][17][18]:

- *Integrated Business Application Suite:* Microsoft Dynamics 365 combines CRM and ERP functions into a single platform. The suite includes a variety of applications that are customized to certain business objectives, such as sales, customer support, marketing, finance, and supply chain management. These applications work in unison, promoting effective data sharing and collaboration across organizational departments.[17][37]
- *CRM and ERP Functionalities:* Microsoft Dynamics 365 provides a comprehensive set of CRM and ERP tools. Customer relationship management, sales processes, marketing campaigns, and customer service are the primary CRM functions. Its ERP functions, on the other hand, include financial management, inventory and

supply chain management, manufacturing, project management, and other operational dimensions.[17][37]

- *Cloud-Based Architecture:* Microsoft Dynamics 365 is cloud-based, utilizing the capabilities of Microsoft Azure, a comprehensive and secure cloud computing platform. This cloud-based approach provides enterprises with various benefits, including scalability, accessibility, and lower infrastructure expenses. It allows businesses to access their Dynamics 365 applications and data from any location, at any time, and on any device.[17][37]
- *Modular Nature:* Microsoft Dynamics 365 adopts a modular approach, permitting organizations to select and implement specific applications based on their unique requirements. Each application within the suite focuses on a specific facet of business operations. This modular design allows organizations to tailor their implementation of Dynamics 365 to suit their precise needs, ensuring scalability and flexibility.[17][37]
- *Scalability:* Microsoft Dynamics 365 is meticulously designed to exhibit high scalability, catering to businesses of all sizes, ranging from small enterprises to large corporations. Organizations can commence their usage of Dynamics 365 with the necessary applications and effortlessly augment or expand functionalities as their business expands. The cloud-based architecture ensures that the system adeptly handles augmented data volumes, user loads, and transactional demands, thereby offering scalability and adaptability to evolving business needs.[17][18][37]

To recap, Microsoft Dynamics 365 is a comprehensive suite of business tools that mixes CRM and ERP functionalities smoothly. Its cloud-based architecture allows for more accessibility, scalability, and lower infrastructure expenses. Because the suite is modular, businesses can select and install certain apps, offering flexibility and customization possibilities. Microsoft Dynamics 365, which comes with a plethora of tools and features, enables businesses to optimize their business processes, strengthen client interactions, and improve operational efficiency.

#### ***3.1.4.2 CRM Capabilities of Microsoft Dynamics 365:***

Microsoft Dynamics 365 encompasses a wide range of CRM-specific capabilities that aim to bolster customer relationship management and foster improved customer relationships. Below is an in-depth examination of the CRM capabilities offered by Microsoft Dynamics 365 and their alignment with CRM objectives:

- *Contact Management:* Microsoft Dynamics 365 provides businesses with comprehensive contact management functionalities. The platform facilitates the storage and organization of all customer-related information within a centralized system. This includes crucial details such as contact information, communication history, preferences, and other pertinent data. By establishing a centralized repository for customer information, businesses can gain a deeper understanding of their customers and personalize interactions accordingly.[37]

- *Opportunity Management:* Microsoft Dynamics 365 empowers businesses to effectively manage their sales opportunities. The platform facilitates the tracking and monitoring of sales prospects, pipeline management, and accurate forecasting. Sales teams can effortlessly monitor the progress of opportunities, assign tasks, collaborate, and analyze data to make informed decisions. This capability streamlines the sales process, enhances sales productivity, and augments conversion rates.[37]
- *Lead Tracking:* Microsoft Dynamics 365 offers lead tracking capabilities that enable businesses to efficiently manage and nurture leads. The platform allows organizations to capture and qualify leads, assign them to sales representatives, and monitor their progress throughout the sales cycle. To ensure proper follow-up and conversion into opportunities, the platform provides tools for lead scoring, lead assignment rules, and automated workflows.[37]
- *Campaign Management:* Dynamics 365 facilitates the planning, execution, and tracking of marketing campaigns. It equips businesses with tools for creating targeted marketing lists, designing and implementing email campaigns, managing social media interactions, and analyzing campaign performance. This capability empowers organizations to segment their customer base, deliver personalized marketing messages, and gauge the effectiveness of their campaigns.[37]
- *Customer Service Functionalities:* Microsoft Dynamics 365 includes robust customer service functionalities that streamline customer inquiries, track support tickets, and manage service-level agreements. The platform equips businesses with tools for effective case management, knowledge base management, and omnichannel customer engagement. These capabilities enable organizations to provide efficient and personalized customer service experiences, ultimately fostering improved customer satisfaction and loyalty.[37]

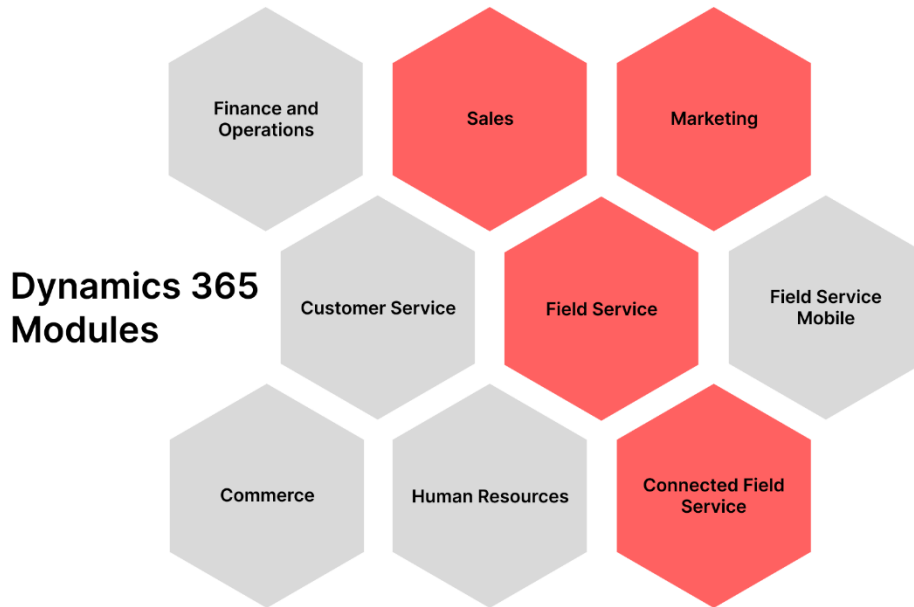
In conclusion, the CRM capabilities offered by Microsoft Dynamics 365 align with the fundamental objectives of CRM by providing businesses with an array of tools and functionalities to effectively manage customer relationships. These capabilities enhance contact management, opportunity management, lead tracking, campaign management, and customer service, thereby cultivating improved customer relationships and driving favorable business outcomes. Through the centralization of customer information, streamlining of sales processes, and delivery of personalized customer experiences, Microsoft Dynamics 365 plays a vital role in forging strong and enduring customer relationships.

### **3.1.4.3 Dynamics 365 Modules:**

Dynamics 365 CRM comprises several modules that cater to diverse aspects of customer engagement and service. The following sections provide an in-depth analysis of each module that we're using:

- **Field Service:** Dynamics 365 Field Service module aims to facilitate efficient onsite service delivery to customer locations. This module integrates workflow automation, scheduling algorithms, and mobility features to equip mobile workers with the necessary tools for resolving customer issues on-site. Noteworthy capabilities of Field Service include a mobile-optimized interface that enables technicians to access relevant information, capture asset details, and collaborate with remote experts using tools like Dynamics 365 Remote Assist and mixed-reality solutions. Additionally, the module offers smart route planning functionality to optimize travel routes, thereby reducing travel time, enhancing technician productivity, and improving service response times. Furthermore, Field Service integrates with Internet of Things (IoT) technologies, enabling organizations to shift from reactive to proactive and predictive service operations [27][32][35][37]
- **Connected Field Service:** Connected Field Service is an extension of Dynamics 365 Field Service that incorporates Azure IoT Hub services into the Field Service environment. This add-on solution empowers organizations to leverage IoT devices and Azure IoT platform-as-a-service (PaaS) capabilities to enhance their field service operations. By leveraging the power of Azure IoT and Dynamics 365, organizations can transition from reactive to proactive and predictive service models. [7][35][37][50]
- **Customer Engagement:** Dynamics 365 CRM, as a comprehensive platform, places a strong emphasis on customer engagement and relationship management. Although not explicitly defined as a module within Dynamics 365, the platform encompasses a wide array of functionalities to support customer engagement. These functionalities encompass contact management, opportunity management, lead tracking, campaign management, and customer service. Dynamics 365 CRM strives to provide organizations with a holistic understanding of their customers, thereby enabling personalized interactions, streamlined sales processes, effective marketing campaigns, and superior customer service experiences. [35][37]
- **Sales:** The Sales module is a pivotal component of Dynamics 365 CRM, focusing on sales process management and revenue growth. It encompasses various features, including lead management, opportunity management, sales forecasting, territory management, and sales analytics. By leveraging the Sales module, organizations can streamline their sales processes, effectively track and manage leads and opportunities, collaborate seamlessly, and gain valuable insights for informed sales decision-making. [35][37]

Figure 2. Dynamic 365 CRM Modules



Source: created by the author

In conclusion, Dynamics 365 CRM encompasses modules such as Field Service, Connected Field Service, Customer Engagement (with various functionalities like contact management, opportunity management, lead tracking, campaign management, and customer service), and Sales. Each module offers specific capabilities designed to address different facets of customer engagement, service delivery, and revenue generation. Leveraging these modules enables organizations to enhance customer relationships, optimize service operations, and drive sales effectiveness.

## **CHAPTER II: METHODOLOGICAL FRAMEWORK AND ORGANIZATION**

## **4 Methodological Framework**

### **4.1 Choice of internship site:**

The selection of the internship site was based on the following factors:

- Extensive industry experience: The company has been actively operating for 18 years, showcasing a deep understanding of the field and a strong foundation for project execution.
- Collaboration with major partners: The company has established partnerships with prominent organizations both within Algeria and internationally, highlighting its credibility and ability to work at a high level.
- Project focus on company creation: The internship project involves the development of a new company, presenting significant potential for growth and innovation.
- Holistic experience across departments: The internship provides the opportunity to collaborate and work with various departments within the company, offering a comprehensive understanding of organizational dynamics and skill development.

These factors collectively contribute to an enriching and valuable internship experience, aligning with my objectives of gaining practical knowledge and professional growth.

### **4.2 Research methodology**

The research methodology employed in this thesis falls under the category of qualitative research. Qualitative research is chosen as it allows for a comprehensive exploration and understanding of complex phenomena in real-world contexts. By utilizing qualitative methods, such as interviews, meetings, observations, and document analysis, this study seeks to gain in-depth insights into the design and implementation of a CRM system using Microsoft Dynamics 365 for a security subscription service company in Algeria.

The qualitative approach enables the researcher to delve into the specific details and intricacies of the implementation process, uncovering rich and nuanced data. It facilitates the exploration of the perspectives, experiences, and perceptions of key stakeholders involved in the project, including company executives, employees, and customers. Through this approach, a holistic understanding of the challenges, successes, and potential areas for improvement can be obtained.

The research methodology also includes a case study design, focusing on a single company within the Algerian market. The case study approach allows for an in-depth investigation of the implementation process, considering the unique contextual factors and dynamics at play. By closely examining the specific company's journey, this research aims to generate valuable insights and practical recommendations that can inform the successful implementation of CRM systems in similar organizational contexts.

### **4.3 Data collection methods and instruments:**

#### ***4.3.1 Documents analysis.***

As part of the data collection process, a thorough analysis of various documents and learning materials was conducted. The following table (Table 1) provides an overview of the documents and their respective purposes:

<b>Document</b>	<b>Overview</b>
Business Plan	Outlines the company's overall vision, mission, objectives, and strategies.
Pitch Deck	Provides a concise overview of the business idea, target market, and value proposition.
Financial Plan	Details the financial projections, budgeting, and revenue generation strategies.
Business Model	Describes the company's value proposition, target customers, revenue streams, and cost structure.
Marketing Strategy	Outlines the marketing goals, target audience, positioning, and promotional activities.
Brand Visual Identity	Specifies the company's brand elements, including logo, color palette, and visual guidelines.
Innovative Project Label Documents	Includes official documents certifying the project's innovative nature.
Legal Documents	Covers legal agreements, contracts, and compliance-related materials.
Company Organization Files	Provides insights into the company's organizational structure, roles, and responsibilities.
Partnerships	Contains information about existing partnerships and collaborations.
Website Proposals	Presents proposals and plans for the company's website development and design.
Mobile App Briefs and Specifications	Outlines the requirements and specifications for the mobile app development.
Mobile App Design Elements	Includes design elements such as icons, images, typography, and UI/UX guidelines.
Mobile App Design Briefs and Screens	Describes the design concept, user interface, and screens of the mobile app.
User Journey Maps	Visual representations of the user's journey and interactions with the mobile app.
Old Design Versions and Iterations	Records previous design versions and iterations for reference and comparison.
CRM Briefs & Specifications	Describes the requirements and specifications for the CRM system implementation.
Access to Dynamics 365 Learning Materials	Provides access to learning materials, licenses, and development environments for Dynamics 365 CRM.

*Table 1. List of documents provided by HALKORB*

#### **4.3.2 Semi-directive interviews/meetings**

In addition to the document analysis, a series of semi-directive interviews were conducted to gather insights from key stakeholders involved in the project. The following table (Table 2) summarizes the interviews conducted:

<b>Role</b>	<b>Number of Meetings</b>
General Manager	3
Business Development Chief	3
Marketing Staff	3
Marketing Staff	3
External Development Agency	4

*Table 2. List of informal semi-directive interviews/meetings*

These semi-directive meetings provided valuable insights into the perspectives, experiences, and expertise of the key individuals involved in the project. The interviews with the general manager, business development chief, and marketing staff allowed for a comprehensive understanding of the strategic aspects, business objectives, and marketing considerations. Additionally, the meetings with the mobile app development team facilitated a deeper comprehension of the technical aspects and implementation challenges.

By employing both document analysis and semi-directive interviews, a comprehensive and multi-dimensional understanding of the project was attained. These data collection methods and instruments serve as the foundation for the analysis and findings presented in this study.

#### **4.4 Case Study Context**

##### ***4.4.1 Overview of the Security Subscription Service Industry and Algerian Market Context***

The Security Subscription Service under investigation operates within the context of the Algerian market, which has experienced an increasing demand for security solutions. This demand is driven by a growing awareness of the importance of safeguarding personal and business assets. The Algerian market exhibits unique characteristics and challenges that shape the landscape of the security industry.

##### ***4.4.2 Target Market***

The target market for the Security Subscription Service primarily encompasses businesses and individuals seeking reliable and comprehensive security solutions. This includes small to large enterprises, government organizations, residential complexes, and individual consumers who prioritize the safety and protection of their assets.

##### ***4.4.3 Business Model***

The business model for the Security Subscription Service centers around offering subscription-based security solutions tailored to the specific needs and requirements of the Algerian market. These solutions may include 24/7 surveillance, access control systems, alarm monitoring, and emergency response services. By adopting a subscription model, the

company aims to provide customers with ongoing security support while ensuring a stable and recurring revenue stream.

#### **4.4.4 Key Challenges**

- *Regulatory Landscape and Compliance*

One of the key challenges in venturing into the Security Subscription Service sector in Algeria is navigating the regulatory landscape and ensuring compliance with relevant laws and regulations governing security services. Adhering to these regulations is crucial for establishing a legitimate and trustworthy presence in the market.

- *Building Trust and Credibility*

Another challenge involves building customer trust and establishing credibility in a relatively new and competitive market. Effective marketing strategies and targeted customer education initiatives are necessary to raise awareness of the service and highlight its benefits. Building strong relationships with customers based on trust and reliability is essential for long-term success.

- *Logistical and Operational Hurdles*

Delivering high-quality security services across diverse locations and customer segments presents logistical and operational challenges. Ensuring consistent service quality, response times, and coverage requires careful planning and efficient resource allocation. Overcoming these hurdles is crucial for maintaining customer satisfaction and retention.

#### **4.4.5 Significance and Impact of the Project**

The project being undertaken represents a strategic pivot and diversification effort for the company. Its successful execution has the potential for significant impact on both the company and the Algerian market; By entering the Security Subscription Service sector, the company aims to capitalize on emerging opportunities, leverage existing capabilities, and establish a new business entity.

The research and implementation efforts conducted in this thesis provide valuable insights and practical guidance for the company's management and stakeholders. By leveraging CRM technology and implementing customer-centric strategies, the company seeks to differentiate itself in the market, foster long-term customer relationships, and achieve a sustainable competitive advantage.

Moreover, the project's focus on the Algerian market and the specificities of the Security Subscription Service addresses a notable gap in the existing literature and research. The findings and recommendations presented contribute to the academic body of knowledge while serving as a practical guide for the successful execution of this strategic initiative.

Overall, the successful realization of the Security Subscription Service has the potential to position the company as a prominent player in the Algerian market. It not only facilitates the company's growth and diversification but also contributes to enhancing security

solutions in Algeria and meeting the evolving needs of businesses and individuals in the region.

## 5 Host organization

### 5.1 HALKORB Overview

Eurl HALKORB is an Algerian enterprise of digital services, established in 2005 with the vision of a seasoned IT services and consulting professional. The primary objective was to introduce advanced technological knowledge and expertise to the Algerian market, specifically targeting businesses. This endeavor stemmed from a wealth of experience acquired through extensive collaborations with various foreign companies.

### 5.2 Mission and objectives

As a prominent entity in the Algerian digital landscape for the past eighteen years, HALKORB has acquired a profound understanding of the burgeoning advancements in technology and their indispensable role in enterprise management.

The core mission of the company revolves around facilitating the digital transformation of businesses across various sectors, encompassing both public and private entities. This is achieved through the provision of diverse enterprise management solutions and cutting-edge information technologies, employing an organizational optimization approach that adheres to global standards while complying with Algerian legislation. HALKORB demonstrates meticulous attention to the unique operational requirements of its clients. The company's overarching objectives can be summarized as follows:

- Spearheading the implementation of ERP systems within the SME sector.
- Expanding market share in terms of both volume and value.
- Ensuring effective project management oversight.
- Nurturing client relationships and cultivating long-term customer loyalty.

### 5.3 Strategic business areas

HALKORB company offers IT services and solutions to businesses through four strategic areas of operation:

- ***Enterprise Solutions Consulting:*** HALKORB assists clients in defining effective strategies for technologies such as IT, information systems, and IT security. The aim is to optimize their processes and activities.
- ***Development and Deployment of Business Solutions:*** HALKORB provides services, software, and IT equipment to the Algerian market as representative agents for solution providers. This includes Business Intelligence, enterprise content management, CRM, and ERP solutions.
- ***IT Infrastructure Management:*** HALKORB implements network architectures and physical and software hosting infrastructures, including cloud solutions. This

supports both HALKORB's own business solutions and specific client requirements.

- ***IT Security and Data Protection:*** HALKORB prioritizes the security of physical and software systems and the safeguarding, backup, and recovery of enterprise data, even in the event of a disaster. This ensures the protection of sensitive data generated and stored by information systems.

#### **5.4 Strategic partnerships**

HALKORB has marked its trajectory by establishing strategic partnerships with IT solution providers. These partnerships form the cornerstone of the company's services, exemplified by its prestigious gold Partner status with Microsoft since 2008 for the distribution and deployment of ERP solutions, including Business Central, which is the focal point of our study. In 2009, HALKORB solidified its entry into the realm of IT security by becoming a member of the network of partners and distributors of the renowned American multinational, Fortinet, renowned for its security software and equipment.

Additionally, in order to cater to the evolving needs of clients in areas such as virtualization, networking, and mobility, the company formed collaborations with Veeam Software from Switzerland and Citrix Systems from the United States. These partnerships were forged upon meeting the rigorous requirements set forth by the software vendors in terms of commercial objectives and the successful integration rates of their respective solutions. Not only do these alliances enable HALKORB to enhance the technical expertise of its employees across diverse technologies, but they also confer a proven market credibility and facilitate effective project management, ensuring optimal execution of deliverables.

### 5.5 Suggested solutions

HALKORB currently offers, in addition to its specific software development services and consulting activities, six primary solutions for its enterprise clients. These solutions have been made possible through strategic partnerships with software vendors, as previously explained.

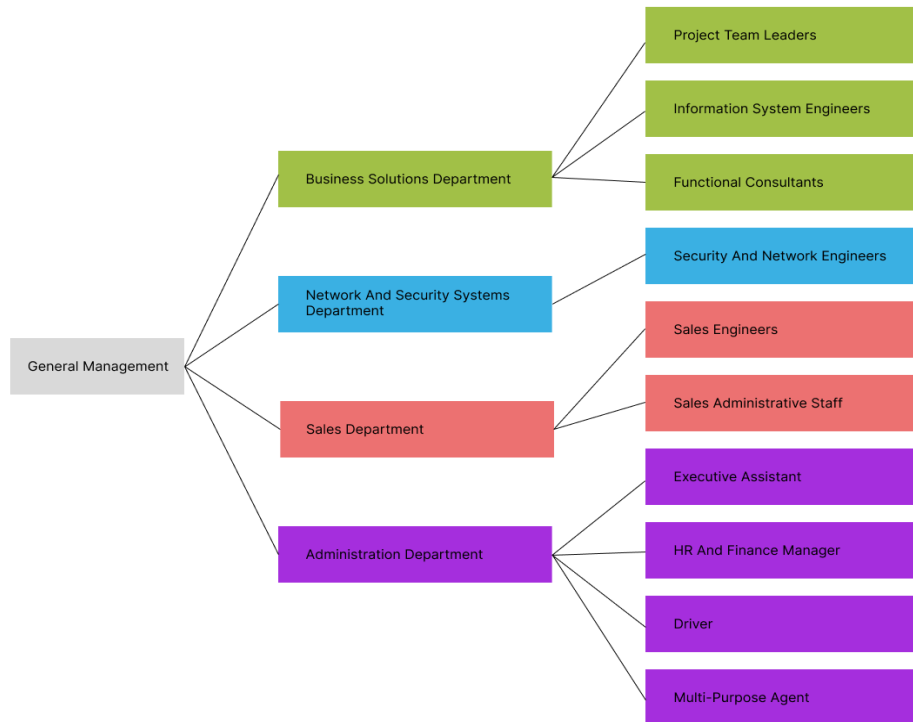
The following table (Table 3) outlines the six solutions marketed by the company:

<b>Vendor</b>	<b>Services Provided</b>	<b>Description</b>
Dynamics 365	Business Central	An ERP solution targeting SMEs, available in SaaS or on-premise deployment options.
Dynamics 365	ERP Solution	An ERP solution designed for medium and large enterprises, primarily deployed on-premise.
Power BI	Business Intelligence	A business intelligence solution for companies with an ERP, providing decision support capabilities.
Office 365	Office Suite Evolution	A collaborative SaaS office suite with integrated email, communication, and statistical reporting.
Application Security	Enterprise Application Security Solutions	Solutions for enhancing security on core networks, remote devices, and the cloud.
Cloud Security	Virtual Firewalls	Virtual firewalls that can be deployed on cloud platforms.
NOC and SOC Security	Network Operations Center (NOC) and Security Operations Center (SOC) Solution	A solution that enables the sharing, integration, and correlation of data between the company's NOC and SOC.
Advanced Threat Intelligence	Fortinet Threat Intelligence Solution	A Fortinet solution for detecting and mitigating known and unknown threats, with the ability to locally share information for coordinated defense.
Citrix Virtual Apps	Remote Application Access Software	Software for remote access to applications from thin clients, providing distribution and access of applications and services across networks.
Hyper-V, vSphere, VMWare	Virtualization Solutions	Solutions for computer virtualization.
Veeam Backup and Replication	Data Backup and Restoration	Allows backup and restoration of files, virtual machines, and applications.

*Table 3. Solutions offered by HALKORB (Source: Documents provided by the company)*

## 5.6 Company organization chart

Figure 3. HALKORB organizational chart (Source: Document provided by the company)



Source: created by the author

The organizational structure of HALKORB, as depicted in Figure 1, consists of the General Management at the top, supported by the administrative department. Three key departments drive the company's activities, each with its specific roles and responsibilities:

- *General Management:* This department is responsible for setting overall objectives and strategic direction for the company.
- *Business Solutions Department:* Comprising IT engineers and functional consultants, this team works under the leadership of the Business Solutions Director. Their primary role is to understand and translate client requirements into functional solutions. They also provide support and training to clients, and team members take turns leading projects.
- *Systems, Networks, and Security Department:* In addition to supporting the Business Solutions Department, this team focuses on designing and implementing network architectures, data hosting and storage, and IT security solutions.

- *Sales Department:* The Sales Department is responsible for acquiring new markets, maintaining partnerships with software vendors, prospecting for new opportunities, conducting competitive analysis, and preparing and submitting commercial proposals.

Notably, HALKORB does not have a dedicated marketing department due to its smaller size. Our involvement primarily centered around the Business Solutions Department, working closely with the Sales Department under the guidance of the General Management.

## **CHAPTER III: DESIGN & IMPLEMENTATION OF THE CRM**

## **6 Introduction**

The purpose of this chapter is to discuss the design and implementation of the Customer Relationship Management (CRM) system as it relates to the Security Subscription Service project. The primary goal is to provide a thorough overview of the design and implementation process, emphasizing its importance in attaining the project's objectives, the following steps are covered in this chapter:

- Analyzing project requirements and expectations: A detailed evaluation of the project's requirements and expectations to ensure alignment with the goals and objectives.
- Phase of documentation and learning: Gathering and reviewing pertinent data such as business plans, CRM specifications, and learning resources in order to establish a solid basis for the design and implementation process.
- Understanding the architecture of a system and the interactions between its components: Investigating the complexities of the system's design, understanding how different components interact and integrate with one another.
- Business process definition: Modeling and mapping the CRM system's workflows and operating procedures to ensure maximum efficiency and effectiveness.
- Database design: Creating a strong and scalable data infrastructure through rigorous database design, which includes the production of a detailed database diagram.
- Mobile app screens: Creating smart and user-friendly mobile app displays that interface with the CRM system to provide a consistent user experience.
- CRM system functionality: Configuring and fine-tuning the CRM system to deliver the desired functionality, utilizing tools such as the CRM sandbox environment and AJAX documentation.

This chapter will provide useful insights into the design and implementation process by systematically exploring these areas, shedding light on the critical components that contribute to the success of the Security Subscription Service project.

## **7 Significance of Design and Implementation:**

The design and implementation of the CRM system play a crucial role in the success of the Security Subscription Service project. The CRM system serves as a central hub for managing customer interactions, tracking sales activities, and enhancing overall customer experience. By implementing an efficient and effective CRM system, the project aims to streamline business processes, improve customer satisfaction, and drive sustainable growth. Furthermore, the integration of the CRM system with the mobile app and ERP enables seamless data flow and empowers the organization to deliver a comprehensive and unified solution to its customers.

## **8 Implementation Flow:**

The implementation process followed a defined flow, ensuring a systematic and holistic approach to CRM system design and development. It started with a detailed investigation of the needs and expectations, garnering insights into the Security Subscription Service project's specific requirements. Following that, a documentation and learning phase was initiated, which included a study of important information such as business strategies, CRM standards, and learning resources.

A thorough investigation was carried out in order to provide a thorough grasp of the system architecture and how its components interact. This entailed determining the core functionalities and mapping out the data flow between the CRM system's various modules. Furthermore, defining business processes, which required modeling the workflows and operational procedures that the CRM system would support, was a vital stage.

The database design received special attention, ensuring the construction of a solid and scalable data infrastructure. A thorough database diagram was produced, which included all of the entities, connections, and attributes that make up the CRM system's data model.

Simultaneously, the mobile app screens were designed to interact smoothly with the CRM system, giving users with a straightforward and user-friendly experience. The mobile app design elements were carefully aligned with the overall brand visual identity and the specific needs of the Security Subscription Service.

Finally, the CRM system was configured and fine-tuned to give the needed capabilities at the end of the deployment phase. This entailed using the CRM sandbox environment to develop displays that demonstrated the solution's capabilities. AJAX documentation and APIs were also used in the implementation to enable dynamic interactions and integration with external services or data sources.

The Security Subscription Service project aims to create a well-designed and fully functional CRM system that works in tandem with the mobile app and ERP by following this comprehensive implementation procedure. The parts that follow will go into each component of the design and execution process, providing detailed insights and analysis.

## 9 Analyzing project requirements and expectations:

Several meetings were held with the General Manager, Business Development Manager, and Marketing Manager during the early phase of assessing project requirements and expectations to ensure a thorough understanding of the project's requirements. The meetings went as follows:

Date	Duration	Attendees	Discussion Topics
February 5th, 2023	2 hours	General Manager, Business Development Manager, Marketing Manager	Business overview, company goals, and business plan
February 6th, 2023	3 hours	Marketing Manager	Business model canvas, PADEC framework, and marketing strategy
February 9th, 2023	2 hours	Business Development Manager, Marketing Manager	CRM functionalities and objectives, assessment of achieved milestones
February 13th, 2023	2 hours	General Manager, Business Development Manager, Marketing Manager	Requirement validation, task and deadline creation, overall business components review

*Table 4. List of meetings held during the Requirements analysis phase.*

These sessions were critical in acquiring a thorough grasp of the project's vision, objectives, and specific CRM system requirements. The project team was able to align their understanding, identify critical areas of concentration, and lay a solid foundation for the next phases of the design and implementation process as a result of these discussions.

## **10 Phase of documentation and learning:**

During this initial phase, an intensive gathering and evaluation of vital data, including company strategies, CRM specifications, and numerous learning resources, took place. The goal was to provide a solid foundation for subsequent design and execution procedures.

I was given access to critical company documents to guarantee a thorough grasp of the project. In addition, to select high-quality learning materials and resources, I used learning resources supplied by credible sources such as Microsoft, Ajax documentation, and independent research. Through this thorough investigation, I gained in-depth knowledge of CRM capabilities, Ajax integration, and their coherent implementation.

This phase lasted two weeks, giving enough time for complete information assimilation and preparedness.

## **11 Understanding the architecture of a system and the interactions between its components:**

The system comprises three main components: Customer Relationship Management (CRM), Enterprise Resource Planning (ERP), and a mobile app. Each component plays a crucial role in delivering a seamless Security Subscription Service experience.

### **CRM Component:**

The CRM component encompasses various modules designed to streamline customer-related processes. These modules include:

- *Field Service:*
  - This module facilitates the installation of security equipment at clients' premises upon subscription.
  - It enables efficient client assistance, repairs, and interventions based on client requests.
  - Field technicians can log their activities, track service tickets, and provide timely support.
- *Connected Field Service:*
  - this module handles alerts from devices via the mobile app, allowing teams to notify clients or dispatch technical support teams.

- *Customer Engagement:*
  - The Customer Engagement module serves as a centralized repository for storing customer and prospect data.
  - It provides valuable customer insights, enabling targeted marketing campaigns and personalized communication.
  - Marketing automation tools streamline promotional activities, enhancing customer engagement and retention.
- *Sales:*
  - Handles lead management, opportunity tracking, and sales activities.
  - Sales representatives can efficiently manage the entire sales process, from lead generation to closing deals.
  - It offers features such as pipeline management, quotation generation, and sales forecasting.

### **ERP Component:**

The ERP component focuses on financial and operational management aspects. Key functionalities include:

- *Finance and Accounting:*
  - This module handles financial transactions, including invoicing, payment processing, and financial reporting.
  - It ensures accurate recording and tracking of revenues, expenses, and other financial data.
  - Integration with CRM and other systems provides a comprehensive view of customer financial interactions.
- *Stock and Inventory Control:*
  - The Stock and Inventory module enables effective management of security equipment stock.
  - It ensures optimal inventory levels, tracks stock movements, and facilitates stock replenishment.
  - Integration with CRM and other components allows for seamless coordination between sales and inventory.

### **Mobile App:**

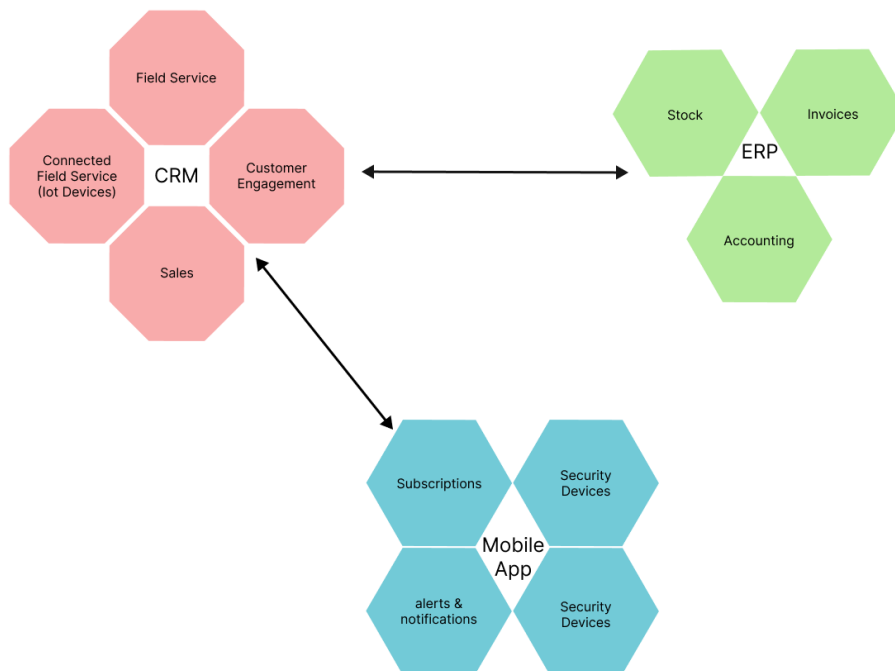
The mobile app serves as the interface between the company and its clients, offering convenient access to various services. Its functionalities include:

- *Client Onboarding and Subscriptions:*
  - The app simplifies the client onboarding process, enabling seamless account creation and subscription setup.

- Clients can select their desired subscription plans, manage their account details, and update preferences.
- *Payment Processing and Security Device Management:*
  - The mobile app facilitates secure and convenient payment processing for subscription fees.
  - It enables clients to manage their security devices, set alerts, and receive notifications.
- *Real-time Synchronization with CRM:*
  - The app ensures real-time data synchronization with the CRM component.
  - Any changes or updates made in the app, such as subscription status or client preferences, reflect immediately in the CRM system.

The following figure showcases the different components and their modules, as well as the interactions between them.

*Figure 4. Security system Components and their interactions*



*Source: created by the author*

## 12 Business Process Modeling:

The emphasis during the business process modeling phase was on mapping out the various workflows and activities associated with the Security Subscription Service project. The goal of this phase was to identify and describe the essential processes, relationships, and dependencies between various stakeholders and components.

Business process modeling involved the following activities:

- *Identifying Key Processes:*
  - Analyzing the Security Subscription Service's end-to-end workflow, from client onboarding through ongoing support and maintenance.
  - Identifying important processes and sub processes involved in service delivery.
- *Mapping Process Flows:*
  - Creating a visual representation of the flow of operations, decision points, and information exchange within each process.
  - Making process diagrams to depict the sequential steps and dependencies between various tasks.
- *Defining Roles and Responsibilities:*
  - Individuals and teams involved in each step are assigned roles and duties.
  - Ensuring clarity and accountability in executing process tasks.
- *Analyzing Process Efficiency and Optimization:*
  - Identifying opportunities for streamlining and optimizing processes.
  - Eliminating bottlenecks and redundant activities to enhance overall efficiency.
- *Ensuring Alignment with CRM System and Mobile App:*
  - Aligning business process models with CRM system and mobile app functionality.
  - Verifying sure the modeled processes are supported by the system and can be incorporated seamlessly.

The business process modeling phase served as a foundation for the subsequent stages of the design and implementation process. It provided a clear understanding of how different activities and stakeholders interacted within the Security Subscription Service project. By documenting and analyzing the processes, it enabled the identification of areas for improvement, ensuring a smooth and efficient implementation of the CRM system and mobile app.

To reflect the complexities of the Security Subscription Service project, a complete list of over 15 processes was discovered and modeled during the business process modeling phase. The following macro processes were included:

- *Subscription process*: Capturing the processes involved in signing up for the service and becoming a member is known as the subscription process.
- *Creating new account process*: Detailing the process of creating new accounts for clients in the system.
- *Deleting account process*: Outlines the actions required to delete an account from the system.
- *Inviting new users process*: Describe the process of inviting new users to use the service.
- *Adding family members*: Documenting the process of adding family members to an existing account.
- *Adding options*: Illustrating the steps for adding optional features or services to a subscription.
- *Non-covered region*: Describes the procedure for dealing with regions that are currently not served by the service.
- *Moving property*: Describing the process of transferring a subscription to a new property.
- *Installing equipment in client property*: Outlining the procedures for installing security equipment on client properties.
- *Subscription cancellation*: Explaining the process of canceling a subscription and dealing with related activities.
- *Repairing device*: Documenting the steps for repairing faulty or malfunctioning security devices.
- *Insurance claims*: Describes the procedure for dealing with insurance claims relating to the Security Subscription Service.
- *Assistance process*: Outlining the steps for providing assistance and support to clients.
- *KYC verification process*: Describes the procedure for confirming subscribers' identities using Know Your Customer (KYC) protocols.

***Disclaimer: It is important to note that, in adherence to a non-disclosure agreement, the researcher refrains from disclosing the full details of the macro processes involved in the Security Subscription Service project. This commitment to confidentiality arises from the sensitivity of the information and the ongoing nature of the project, as the company is still in its creation phase and protecting its business interests is paramount.***

As part of the business process modeling phase, several diagrams were created to visualize and communicate the modeled processes. The following five diagrams were among those developed:

1. Adding new account process diagram
2. KYC Verification process diagram
3. Installation process diagram
4. Non-covered region process diagram
5. Cancel subscription process diagram.

### **12.1 Adding new account process diagram:**

The "Adding new account" process diagram represents the steps involved in creating a new account for clients within the Security Subscription Service project. The process can be outlined as follows:

1. The client downloads the mobile app.
2. The client goes through the on-boarding process.
3. The client fills out personal information.
4. If the client's region is not covered by the service, they are prompted to enter their email for a newsletter subscription and be notified when the service becomes available in their region.
5. If the client's region is covered, they proceed to enter information about their property.
6. The client selects a subscription type based on the property type.
7. The client chooses the type of insurance and assistance desired.
8. The client is prompted to authenticate by entering their email and phone number.
9. The client receives a verification code via email or SMS
10. The client enters the verification code to finalize the account creation process.

In this manner, the "Adding new account" process ensures a systematic and user-friendly approach for clients to register and create their accounts within the Security Subscription Service, allowing for a seamless and efficient on-boarding experience.

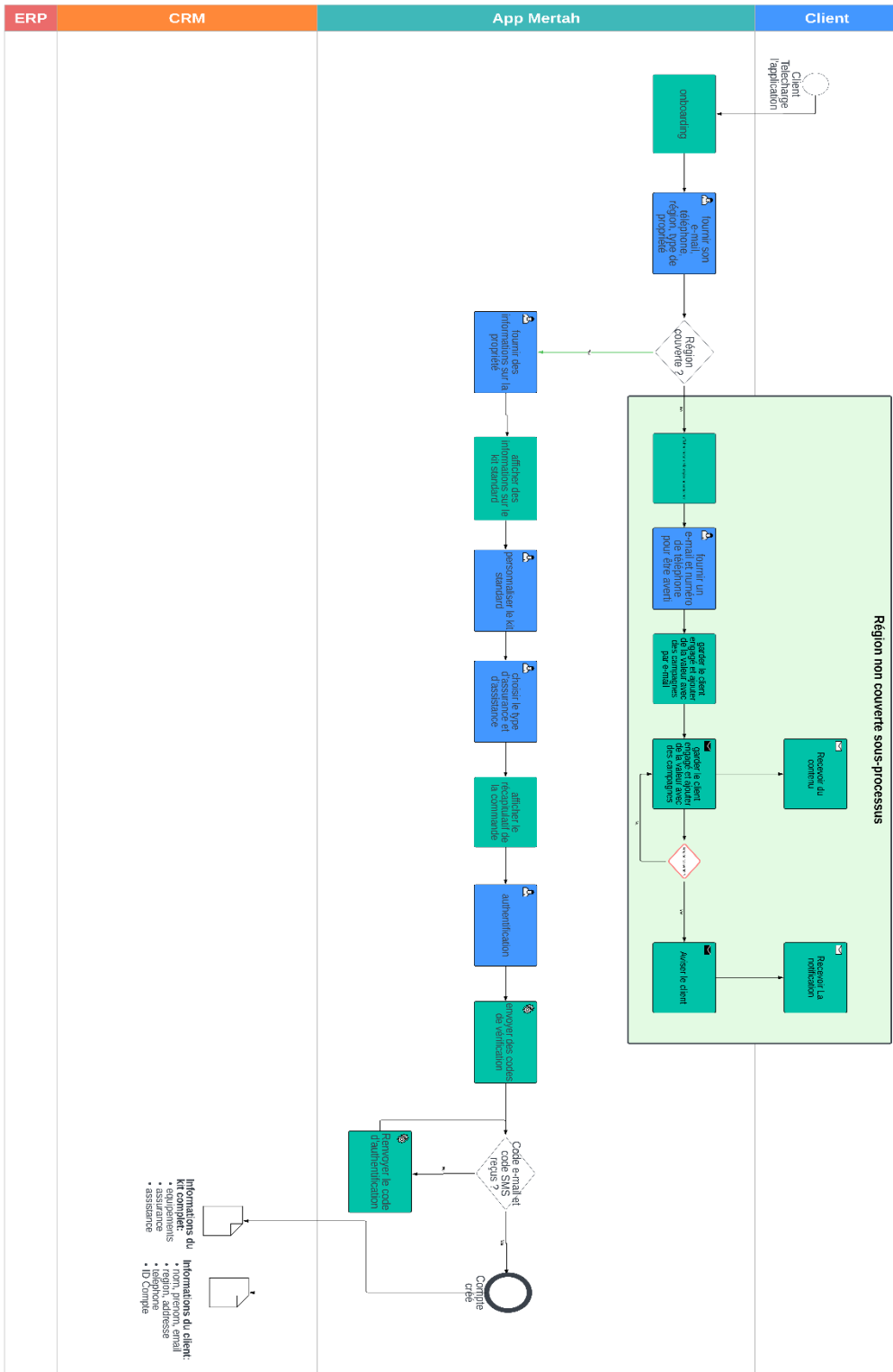


Figure 5. Add new account process. (Source: created by the author)

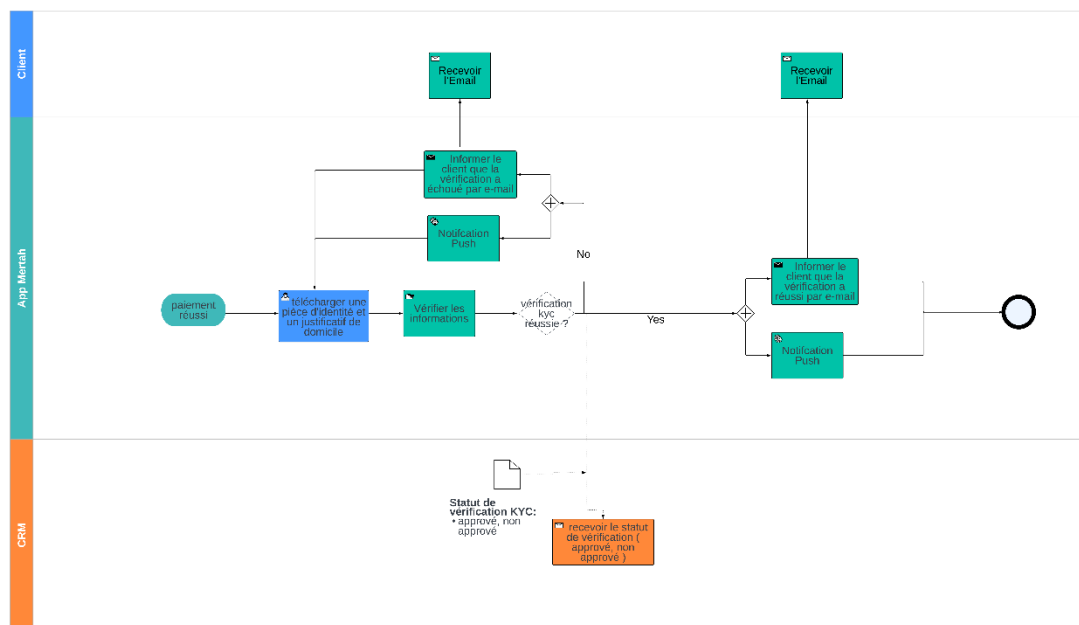
## 12.2 KYC Verification process diagram:

The "KYC verification" process diagram illustrates the sequential steps involved in the account creation process within the Security Subscription Service project. The process can be outlined as follows:

1. Client successfully makes a payment.
2. Client is prompted to upload a proof of address document, national ID card, and take a selfie.
3. If an error occurs during the document upload, the client is notified of the issue.
4. If the document upload is successful, the system verifies the integrity of the uploaded documents.
5. If the system approves the client's documents, the client is notified and can proceed with the next steps. Simultaneously, the verification status is synchronized with the CRM system.
6. If the document verification fails, the client is notified and requested to upload new documents and repeat the procedure.

The "KYC verification" process ensures that clients undergo a thorough verification process to establish the integrity of their documents and maintain the security of the Security Subscription Service. By incorporating document uploads, selfie verification, and system-based verification, the process aims to provide a secure and reliable account creation experience for clients.

Figure 6. KYC verification process



Source: created by the author

### **12.3 Installation process diagram:**

The "Installation" process diagram outlines the sequential steps involved in the account creation process within the Security Subscription Service project. The process can be described as follows:

1. Upon successful completion of the Know Your Customer (KYC) verification process, the client proceeds to the next step.
2. The system presents the client with available installation dates to choose from.
3. The client selects a preferred installation date and provides the complete address of their property.
4. A work order is generated based on the chosen date, and the technical teams are dispatched to the client's property for the installation of the security equipment.
5. If the installation process is successful, the technical team collects feedback from the client via the mobile app.
6. Upon receiving positive feedback, the subscription is activated, and the client gains full access to the Security Subscription Service.
7. In case the installation is unsuccessful or encounters any issues, the client may need to reschedule another installation date.
8. If the client chooses to reschedule, they may be required to pay any applicable late installation fees.

The "Installation" process diagram encompasses key stages, including installation scheduling, property address confirmation, work order generation, installation execution, client feedback, and subscription activation. These steps aim to ensure a seamless and efficient process for onboarding new clients and establishing a strong foundation for their engagement with the Security Subscription Service.

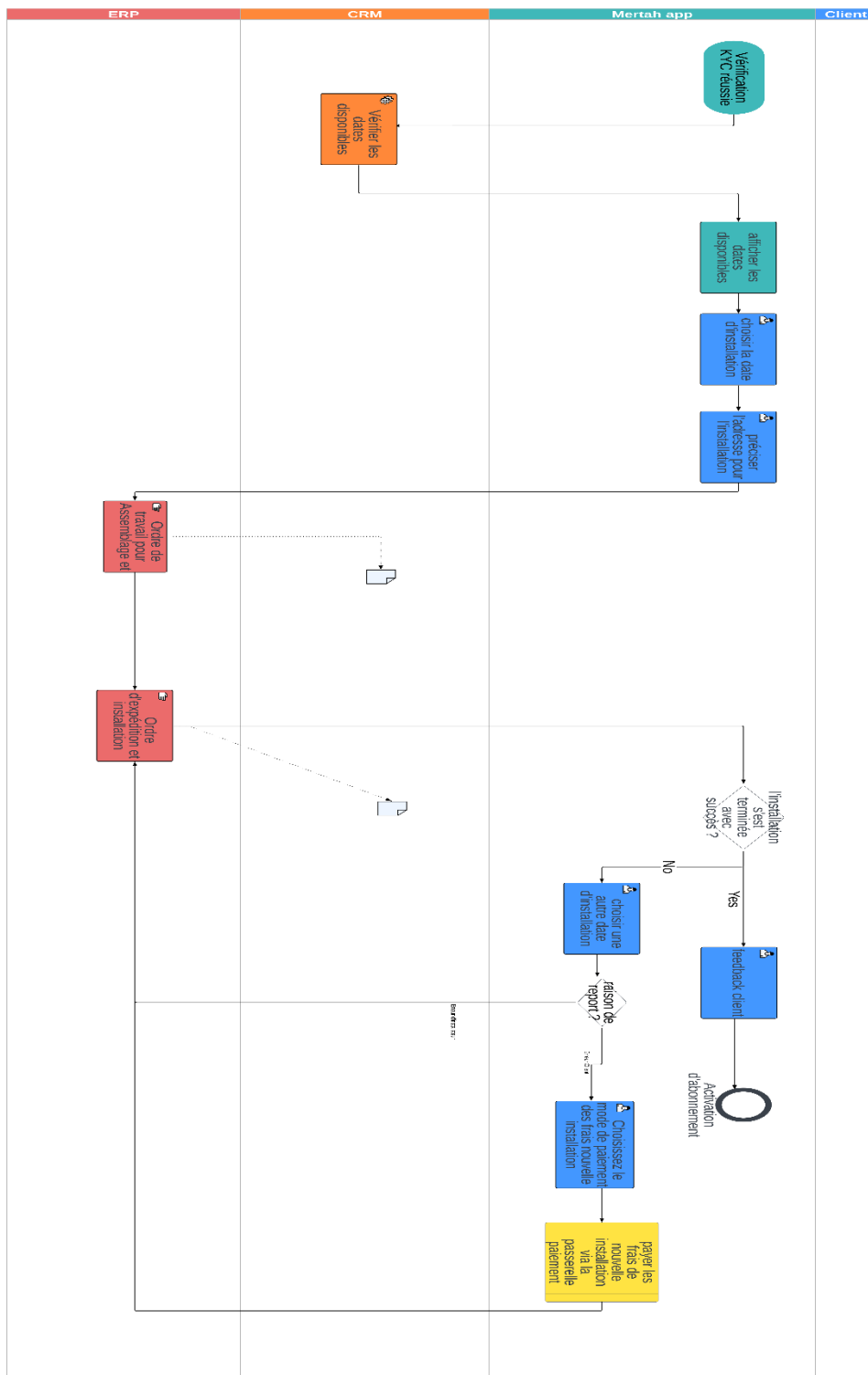


Figure 7. Security Kit installation process (Source: created by the author)

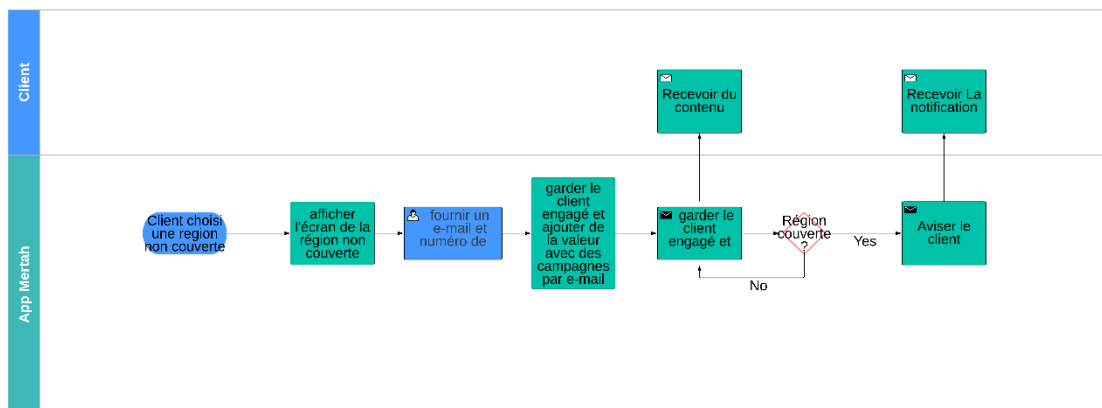
### 12.4 Non-covered region process diagram:

The "Region Not Covered" diagram illustrates the steps involved when a client enters a region that is not currently covered by the Security Subscription Service. The process can be described as follows:

1. When the client selects a region that is not covered, the mobile app detects the region and presents a dedicated screen to the client.
2. The screen displays a notification informing the client that the selected region is currently not supported by the Security Subscription Service.
3. The client is prompted to enter their email address to receive notifications and updates when their region becomes covered by the service.
4. Upon entering their email address, the client is added to an email list specifically designed for individuals interested in being notified when their region becomes available.
5. The client is provided with high-value and engaging content through email, which serves to keep them informed and updated about the progress and developments related to the expansion of coverage to their region.
6. Once the client's region is included in the Security Subscription Service, they receive a notification informing them of the region's coverage availability.
7. At this point, the the client can proceed with the account creation process, utilizing the steps outlined in the "Adding new account" process.

The "Region Not Covered" diagram demonstrates the system's capability to handle regions that are not currently covered by the Security Subscription Service. By capturing the client's interest, collecting their contact information, and providing them with relevant and engaging content, the process aims to keep clients informed and engaged until their region becomes covered.

Figure 8. Region not covered process



Source: created by the author

### **12.5 Cancel subscription process diagram:**

The "Subscription Cancellation" diagram outlines the steps involved in the process of canceling a subscription within the Security Subscription Service. The process can be described as follows:

- 1.** When the client decides to cancel their subscription, they initiate the cancellation process by selecting the cancellation option through the mobile app.
- 2.** Once the cancellation request is received, the client is immediately notified that their request has been acknowledged.
- 3.** Simultaneously, a member of the support team is assigned to follow up with the client. The support team member contacts the client directly to understand the reason for the cancellation and to gather feedback on their experience with the service.
- 4.** During the conversation with the support team member, if the client expresses a desire to renew their subscription, they are informed about the outstanding subscription fees and any debts they may have accumulated. The client is then given the option to proceed with payment, which would reactivate their account.
- 5.** If the client confirms their decision to cancel the subscription, the system checks if the client has any outstanding debts or unpaid subscriptions.
- 6.** If the client has outstanding debts, they are required to settle those before proceeding with the cancellation process. The client is prompted to make the necessary payments to clear their debts.
- 7.** Once any outstanding debts are settled, or if the client has no outstanding debts, the system deactivates the client's account, terminating their access to the Security Subscription Service.
- 8.** Additionally, the client is asked to select a date for the uninstallation of the security equipment from their property. This date selection is performed through the mobile app.
- 9.** After the client chooses the uninstallation date, a work order for equipment removal is generated. The work order contains all the necessary details and instructions for the team responsible for uninstallation.
- 10.** On the chosen date, the technical team is dispatched to the client's property to perform the uninstallation of the security equipment, completing the cancellation process.

The "Subscription Cancellation" diagram showcases the comprehensive process involved in canceling a subscription within the Security Subscription Service. It highlights the steps taken to address client requests, gather feedback, settle outstanding payments, deactivate accounts, and facilitate the proper removal of security equipment from the client's property.

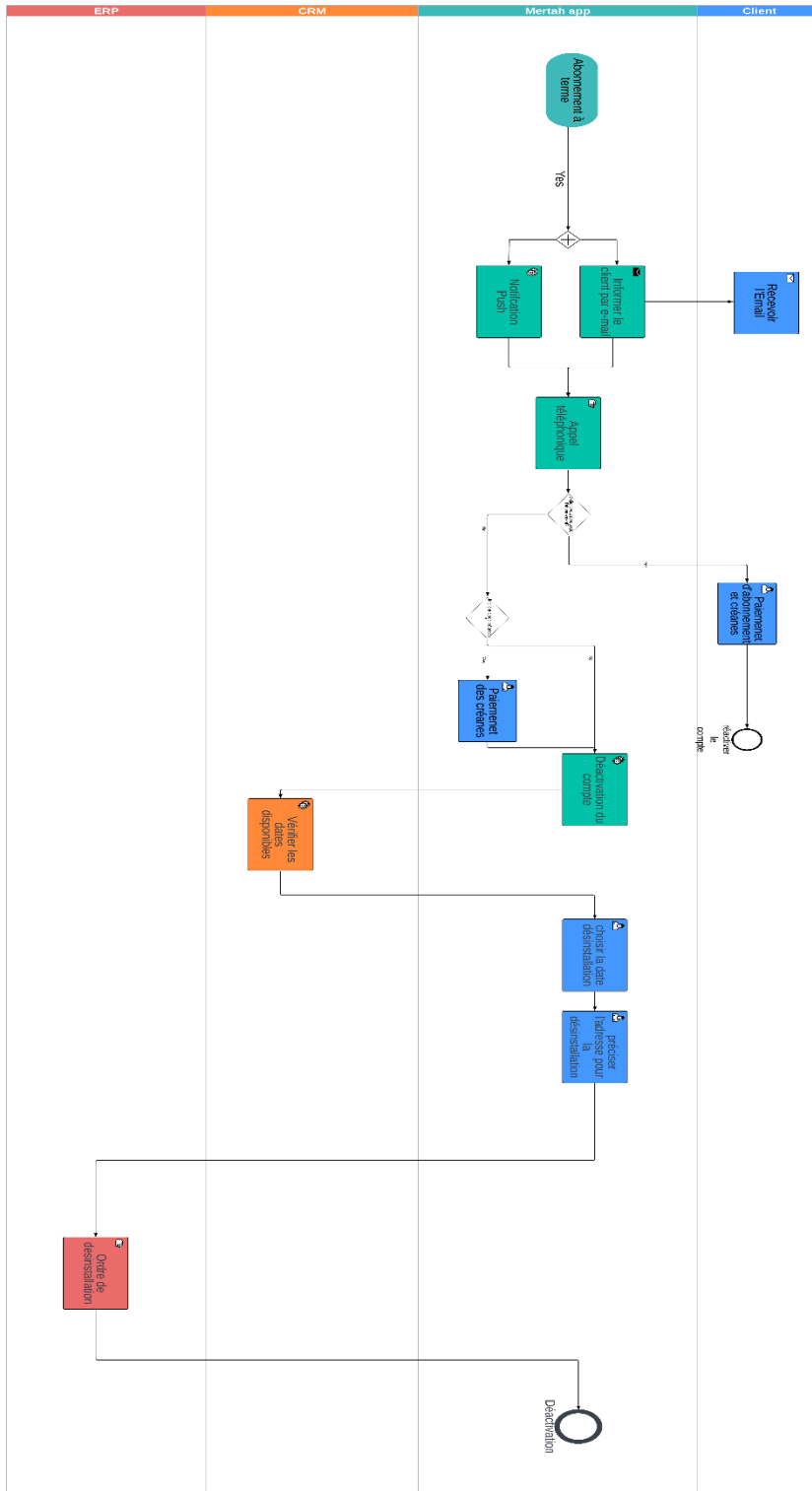


Figure 9. Subscription Cancellation process(Source: created by the author)

### **13 Database Design:**

The next critical step in the CRM system design and deployment process is database design. The database is a critical component that stores and organizes critical Security Subscription Service data. It is critical to the system's functionality and efficacy. The database model's significance stems from its capacity to give a structured and ordered representation of data, ensuring efficient storage, retrieval, and modification.

The database design process includes identifying entities and their relationships (such as customers, subscriptions, payments, devices, and so on) as well as defining properties and data types. It becomes easier to handle and maintain the information required by the CRM system by establishing a well-structured database. The database model acts as a blueprint that guides the implementation of the system and ensures data integrity, security, and scalability.

*It is important to note that the database diagram presented in the figure is a simplified version for illustrative purposes. The actual database encompasses more than 200 entities, reflecting the complexity and comprehensive nature of the system. However, due to the sensitivity of the information it contains and the commitment to a non-disclosure agreement, I am unable to disclose the full details of the database model. Protecting the confidentiality and security of the data is of utmost importance to the company and its operations.*

*Despite the restrictions in displaying the entire database model, the supplied diagram highlights some of the key entities and their interactions, providing an overview of the overall structure. The full-scale database architecture includes several more entities, properties, relationships, and constraints that are required for the CRM system to function properly.*



## **14 Mobile app User Interfaces:**

The subsequent step in the design and implementation process involved the mobile user interface (UI) design for the Security Subscription Service app. This phase entailed a collaborative effort between the project team, including designers and developers, to create a visually appealing and user-friendly interface. Through multiple iterations and feedback sessions, the team refined the design until reaching a consensus on the final version. The mobile UI designs served as a blueprint for the development of the app. They provided a comprehensive visual representation of the app's screens, layouts, navigation, and interactions. The designs incorporated the company's branding elements, ensuring a consistent and cohesive user experience across the app.

To facilitate the integration of the app with the CRM system, my role involved fostering effective communication and collaboration between the development team and other stakeholders. This included providing the necessary documentation, guidelines, and specifications to the development team, ensuring a clear understanding of the required functionalities and interactions between the app and the CRM system.

Regular meetings, both in-person and online, were conducted to track the progress of the development and address any issues or challenges that arose. These meetings served as an opportunity to review the development milestones, address technical queries, and ensure alignment with the project's objectives and timeline. Through active collaboration and regular communication, the integration of the app with the CRM system was seamlessly achieved.

The following figures showcase the tangible outcomes of the mobile UI design and development process. They provide a visual representation of the app's screens, demonstrating the intuitive user interfaces, layout structures, and navigation flows that were implemented. The culmination of this phase resulted in the development of a functional and aesthetically pleasing mobile app that serves as an interface between the company and its clients.

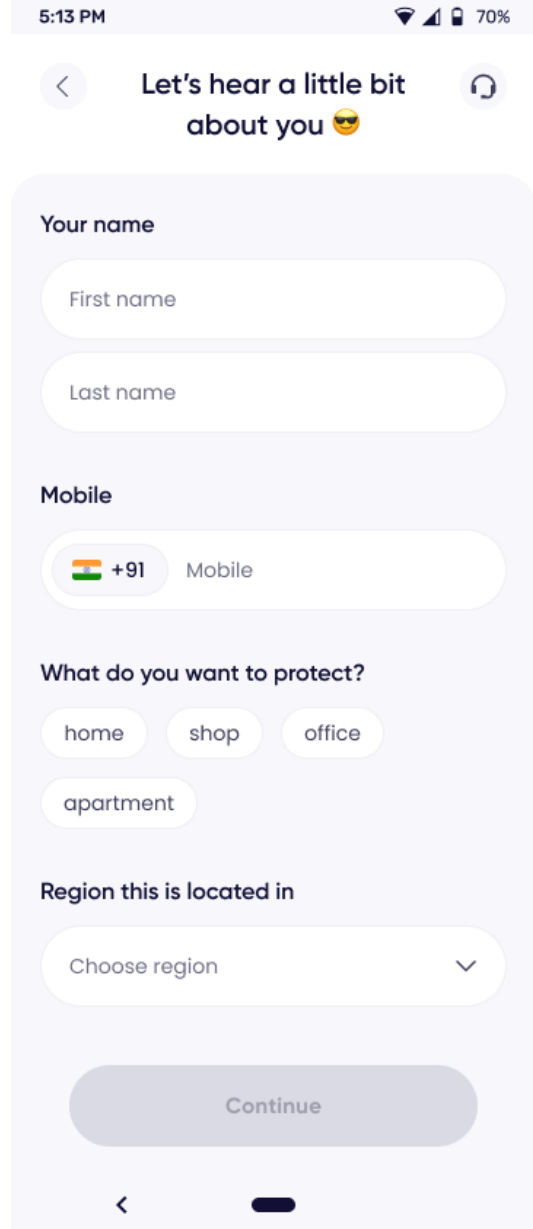
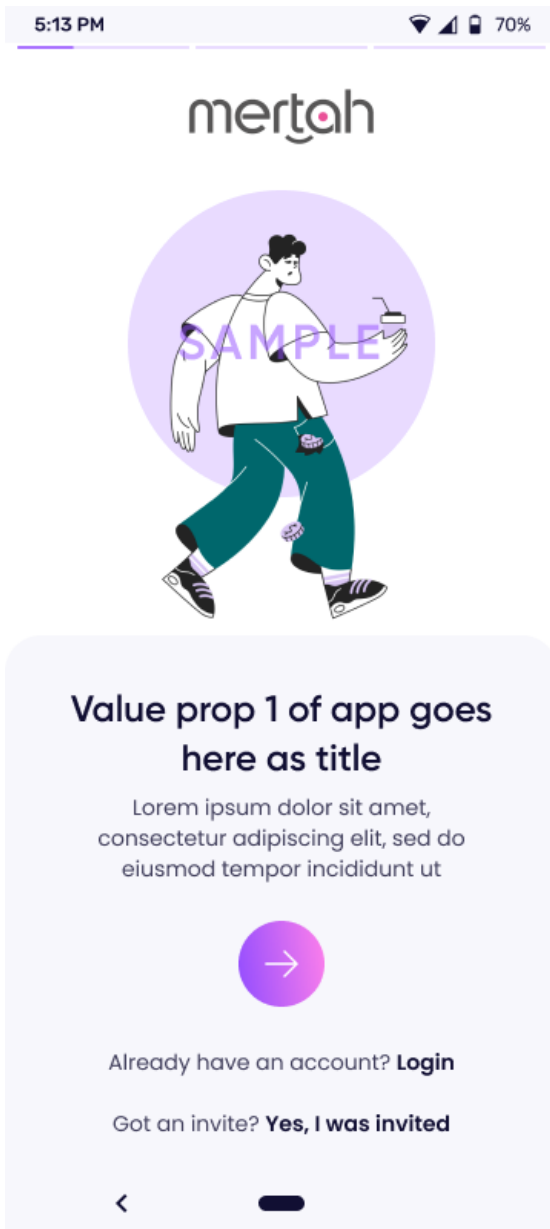


Figure 11.. onboarding and user information form interfaces

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[←](#) **Help us understand your need better 😊** [🔊](#)

This will allow us to create the best suited plan for you

**Approximate area of your shop**  
in square meters

<100  100-150  150-200

200+

**Do u own this shop?**

yes  no

**How many floors?**

1  2  3  3+

**How many entrances?**

1  2  3  3+

**Do u have a garage?**

yes  no

**Do u have a courtyard?**

yes  no

**Do you have a fixed internet connection?**

yes  no

[←](#) 🔴

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[←](#) **Thankyou! 🙏**

For choosing us as your home protect partner

**Now, first things first.**  
**Let's create your account.**

Lorem ipsum dolor sit amet, consec adipiscing elit lorem ipsum

We will send 2 different 4-digit codes on your email and your phone for verification

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Figure 12. Property details and signup form interfaces

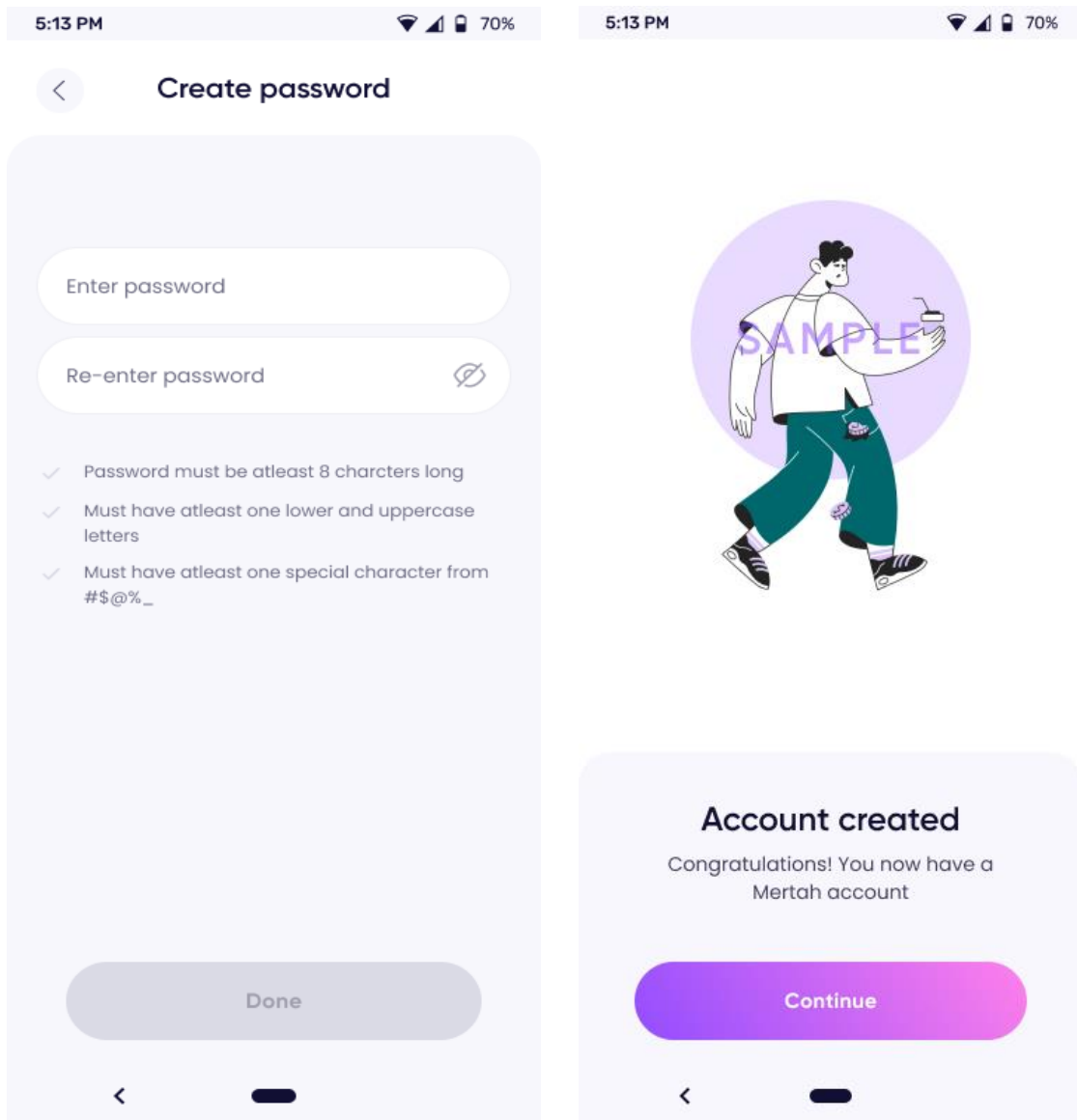


Figure 13. create password and "account created successfully" interfaces

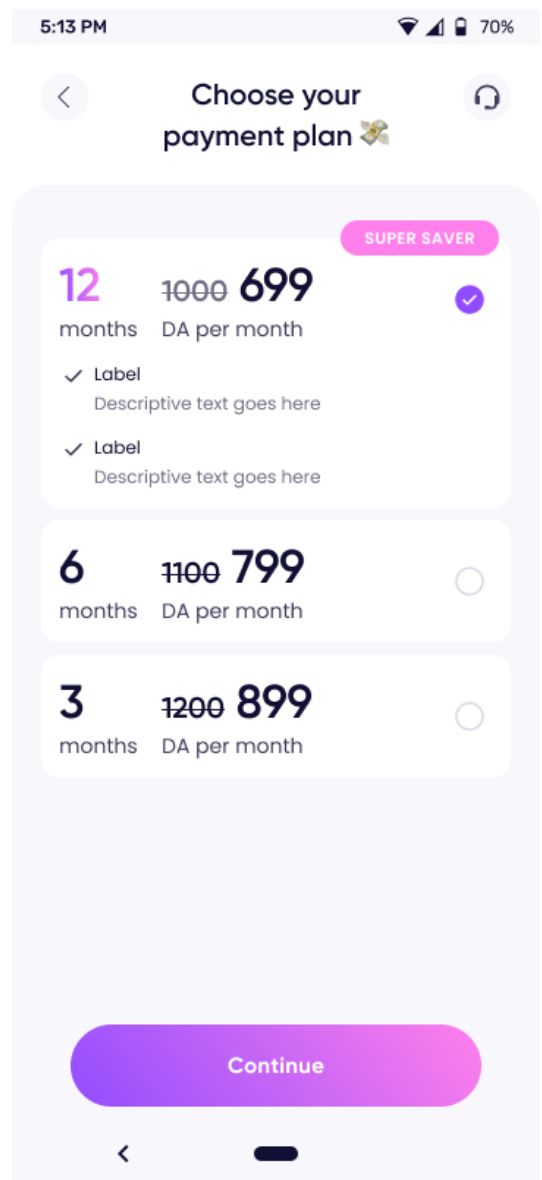
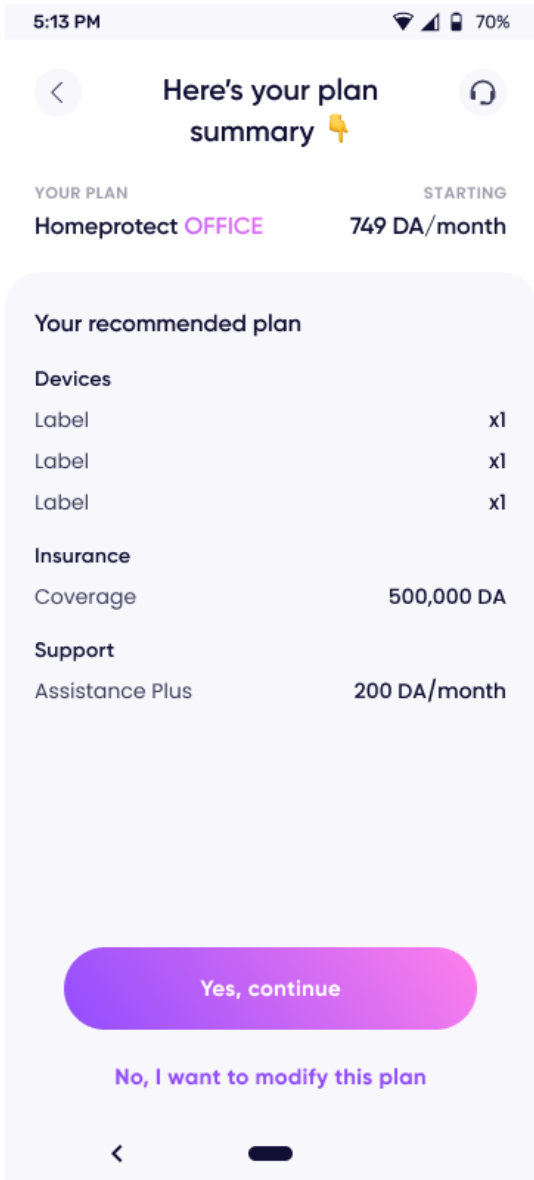


Figure 14. Subscription plan summary and payment plan interfaces

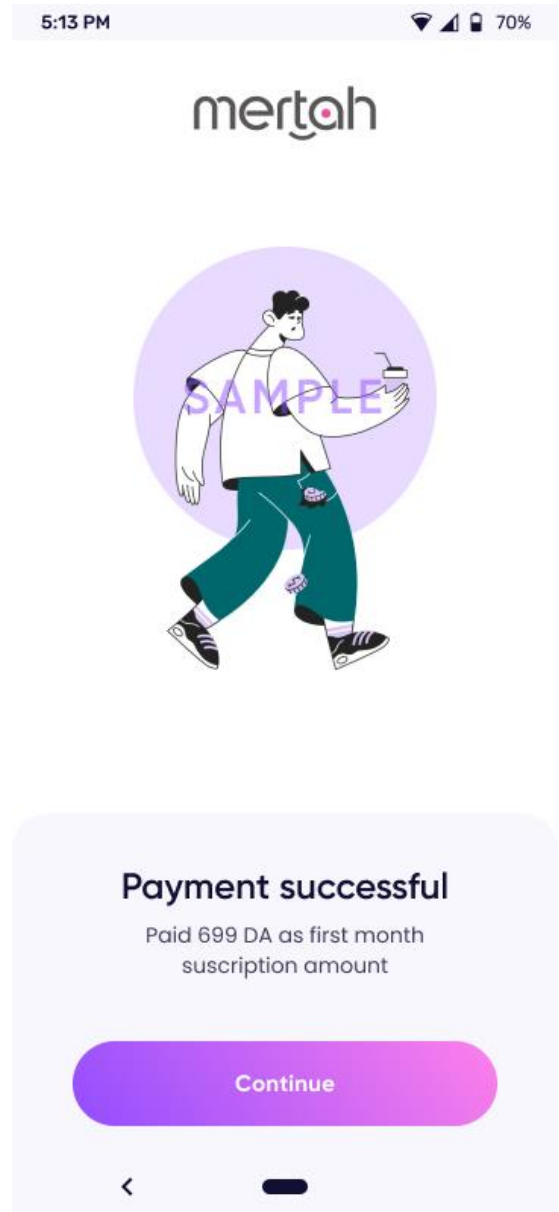
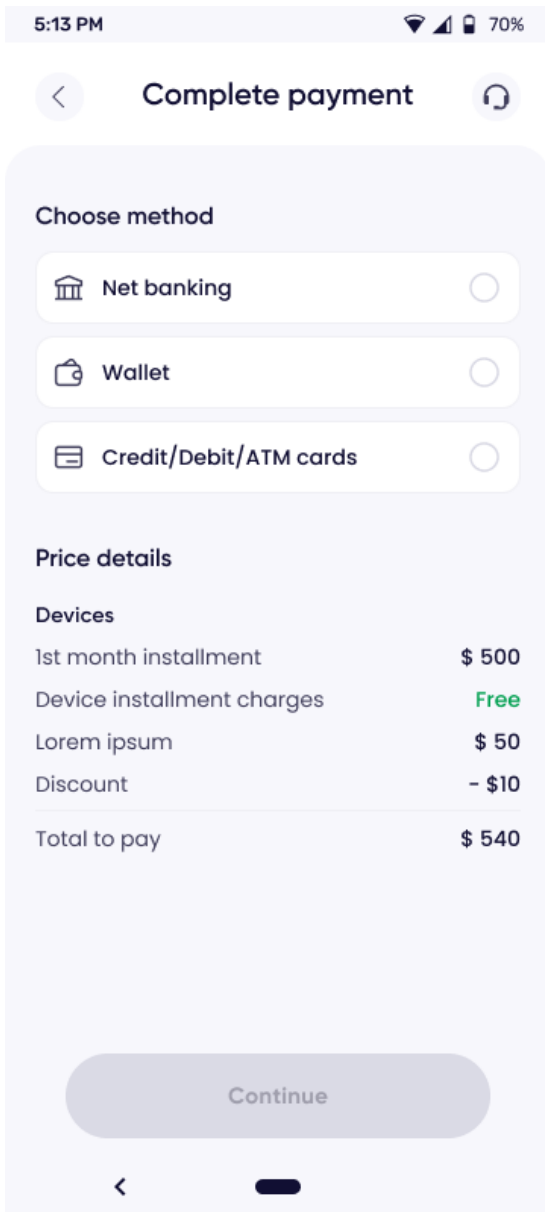


Figure 15. Complete payment and payment succesful interfaces

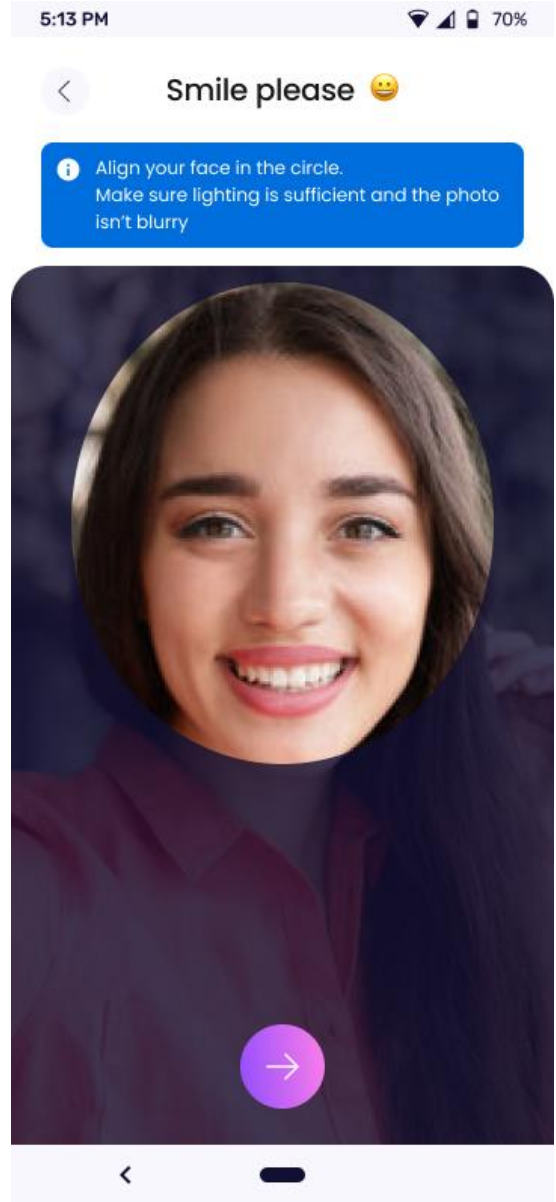
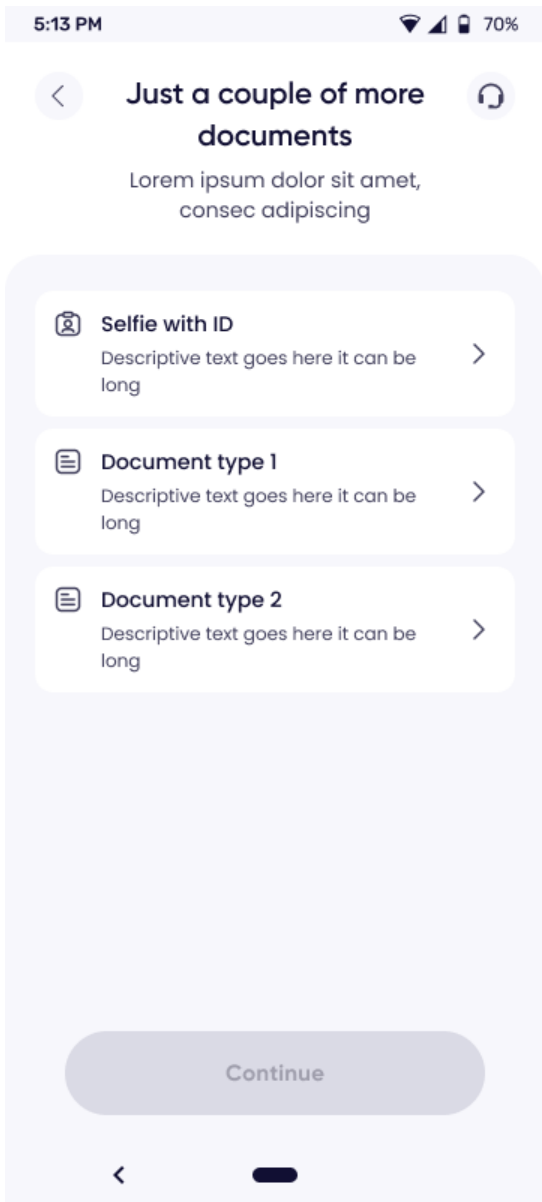


Figure 16. KYC verification interfaces

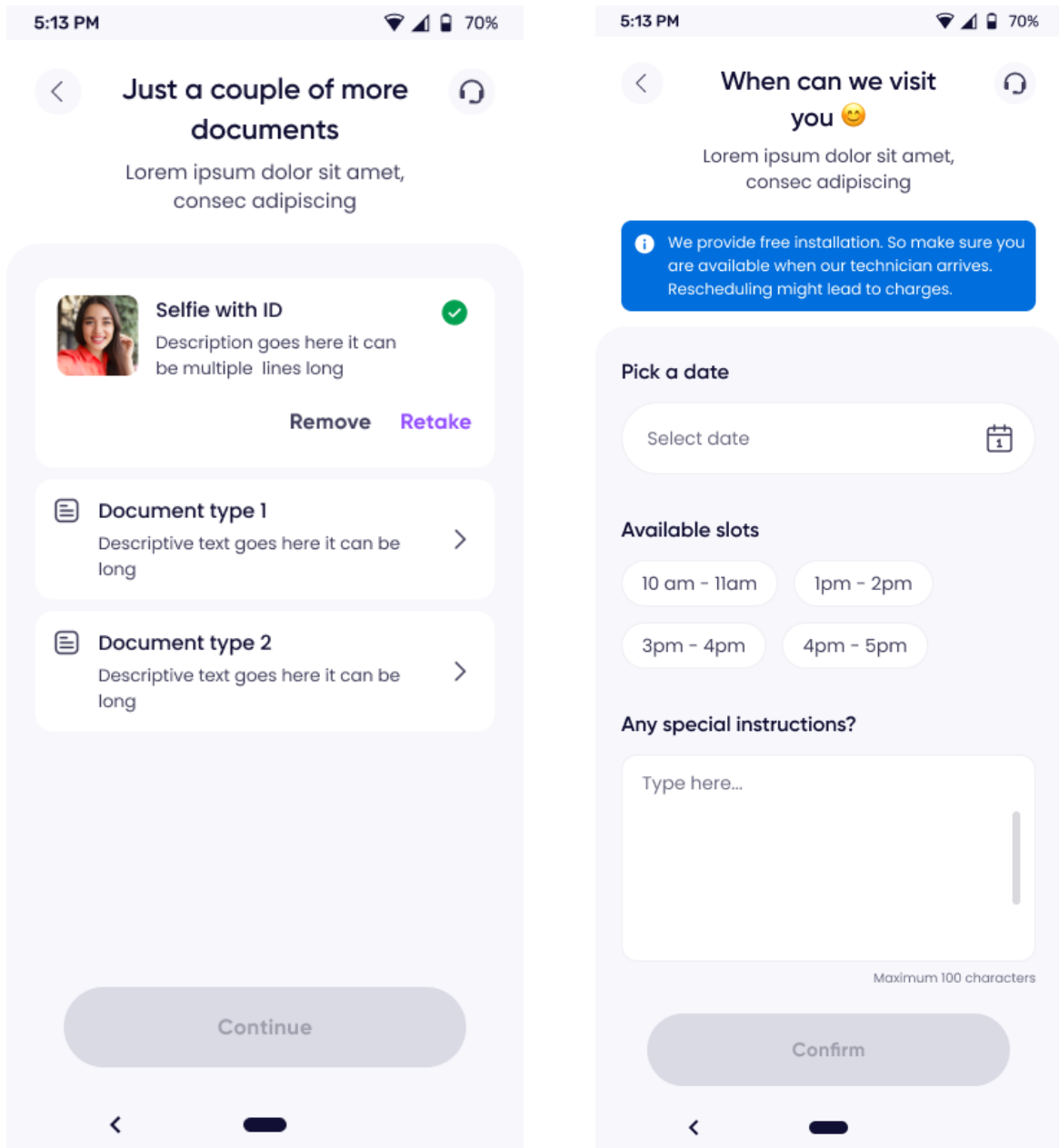


Figure 17. Device installation Scheduling interface

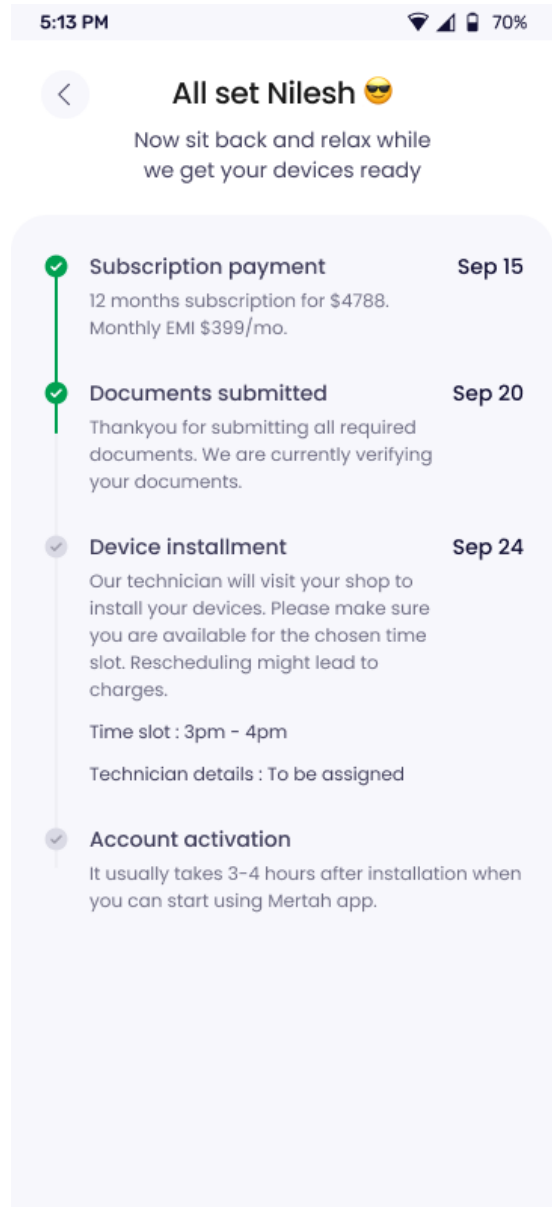
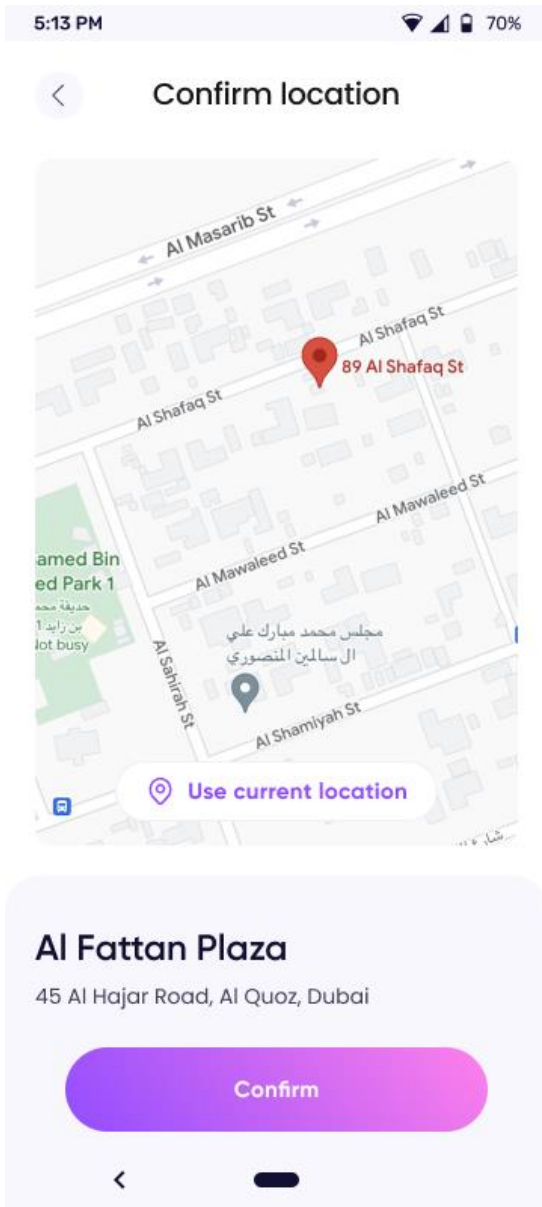


Figure 18. Confirm installation location and Installation progress interfaces

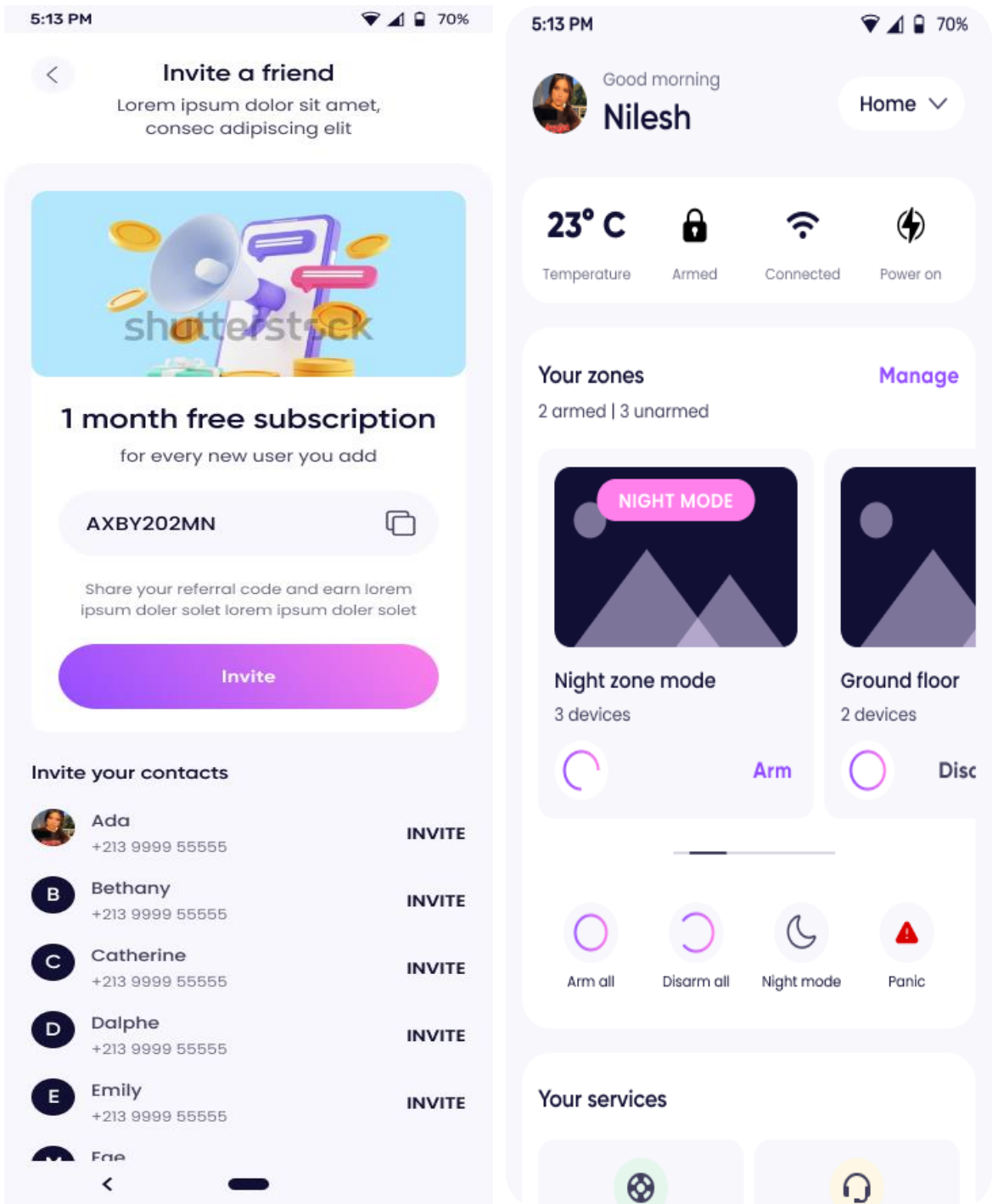


Figure 19. Invite New user and Home Screen interfaces

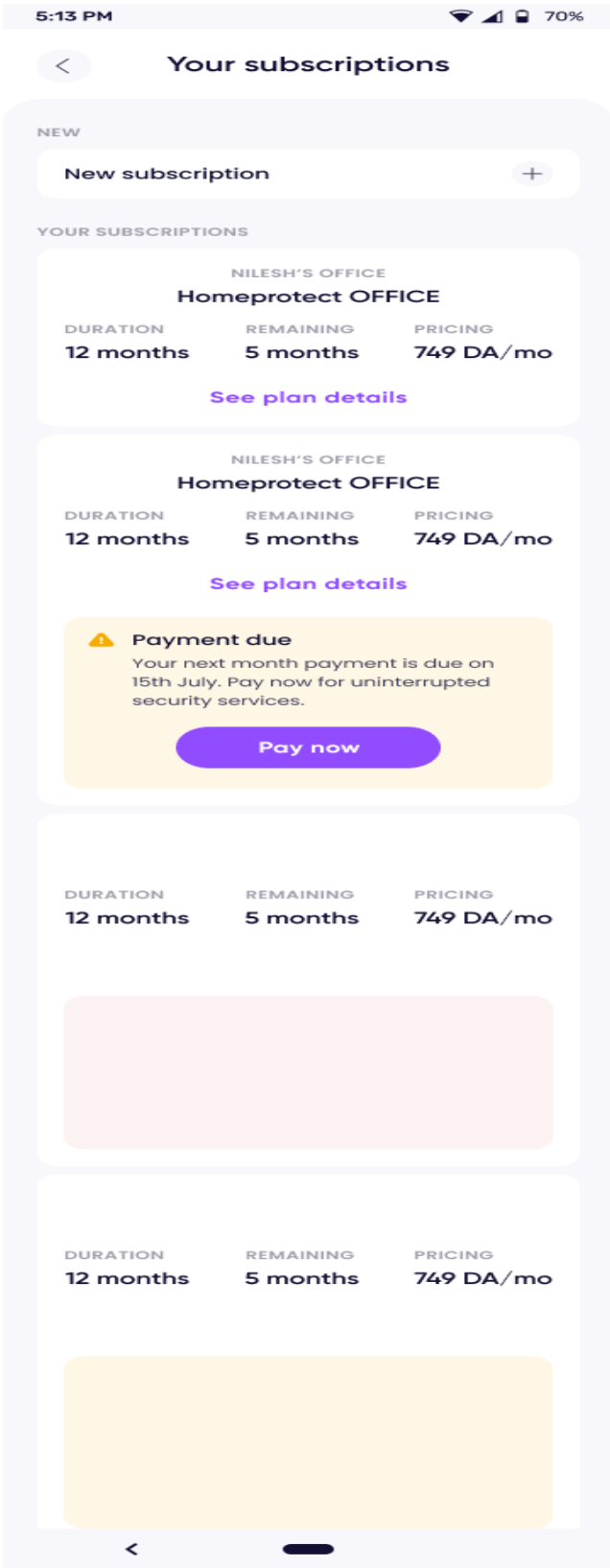


Figure 20. Subscription details and history interface

In conclusion, the mobile UI design phase played a pivotal role in shaping the visual and interactive aspects of the Security Subscription Service app. Through iterative design processes, collaboration with designers and developers, and regular communication, a final version of the mobile UI design was achieved. The subsequent development and integration of the app with the CRM system further enhanced its functionality and provided a seamless user experience for clients.

## **15 CRM system functionality & interfaces:**

The final step in the design and implementation process of the Security Subscription Service project involved the configuration of the Customer Relationship Management (CRM) system using the Dynamics 365 modules. As previously mentioned, the selected modules included field service, connected field service, sales, and customer engagement. Each component underwent rigorous testing to ensure smooth functionality and seamless integration within the overall operational flow.

The configuration of the CRM system was guided by a comprehensive understanding of the business vision and the specific needs of the organization. The principle of "everything you need and nothing that you don't need" served as a guiding philosophy, ensuring that the CRM system was tailored precisely to meet the requirements of the Security Subscription Service project.

Thorough consideration was given to the design and implementation of the CRM modules to ensure optimal functionality and usability. The field service module encompassed various functionalities such as equipment installation at client properties, client assistance and support, and client-requested repairs or interventions.

The connected field service module played a crucial role in handling alerts received from devices via the mobile app, enabling the team to promptly alert clients or dispatch technical support teams when necessary.

The sales module was designed to efficiently manage leads, opportunities, and sales processes. It facilitated the tracking and management of sales activities, ensuring effective communication and collaboration between the sales team and potential clients. The customer engagement module served as a centralized repository for storing customer and prospect data, offering insights for targeted marketing initiatives and facilitating marketing automation.

To provide a visual representation of the configured CRM system, several figures were created to showcase the interfaces and functionalities of the CRM modules. These figures offer tangible examples of the results of the configuration, highlighting the intuitive user interfaces, the flow of operations, and the various modules' functionalities.

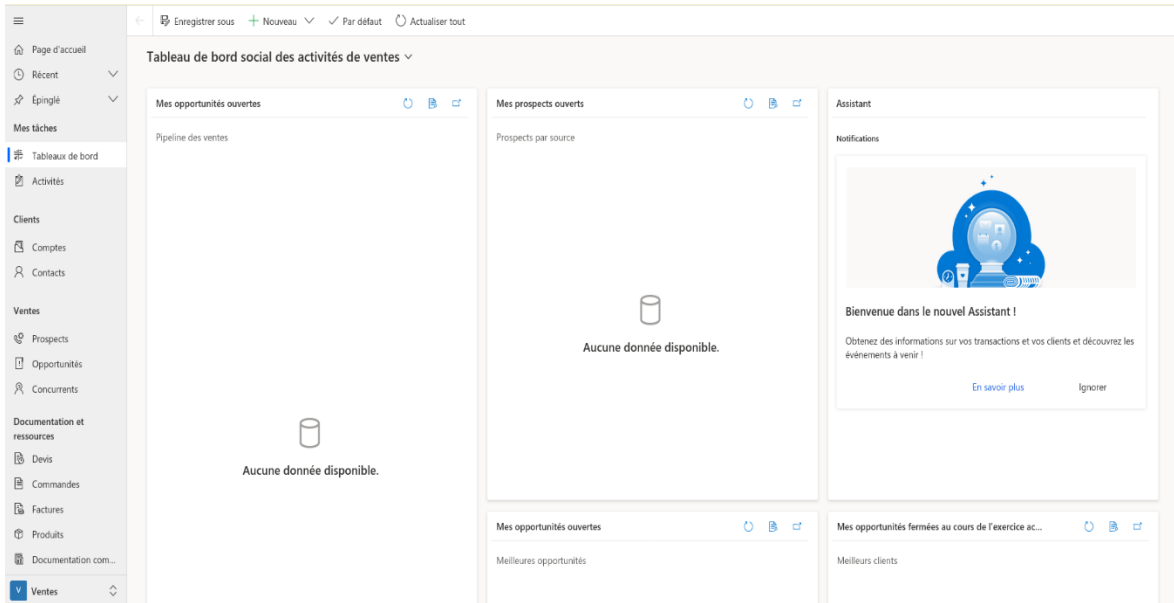


Figure 21. Sales activity Dashboard

The Sales Activity Dashboard, with its inclusion of opportunities, prospects, and assistance notifications, provides a comprehensive overview of the sales pipeline and customer engagement. By displaying the number of opportunities and prospects, it allows sales teams to track and prioritize their efforts effectively. The inclusion of assistance notifications ensures that relevant support and follow-up actions are promptly addressed. This dashboard serves as a valuable tool for sales management, enabling them to monitor the progress of sales activities, identify potential bottlenecks, and make data-driven decisions to maximize sales success.

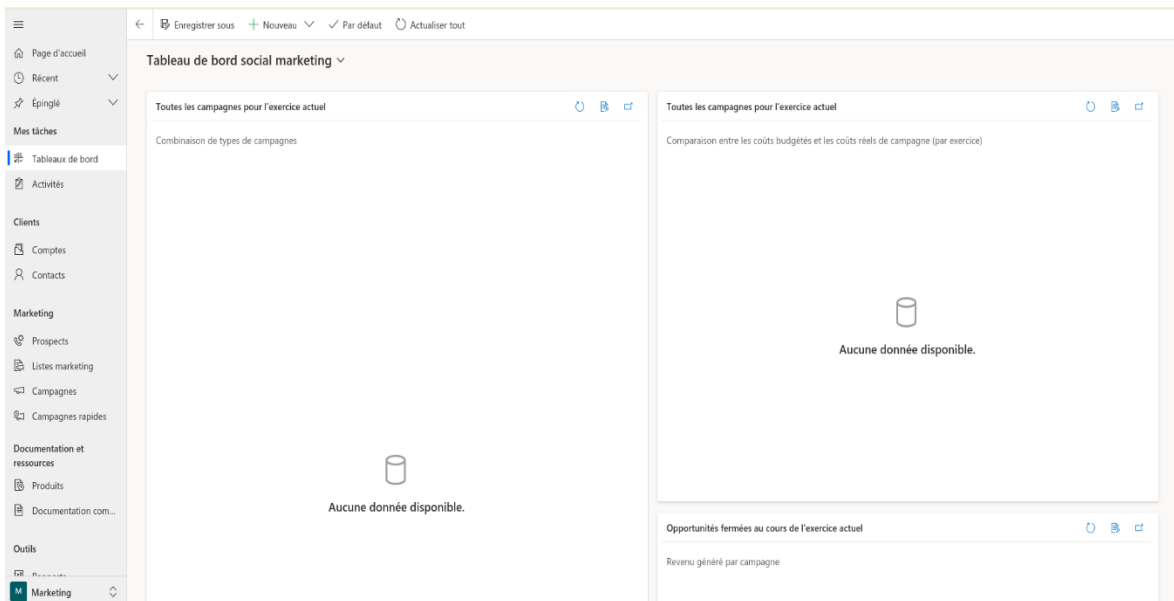
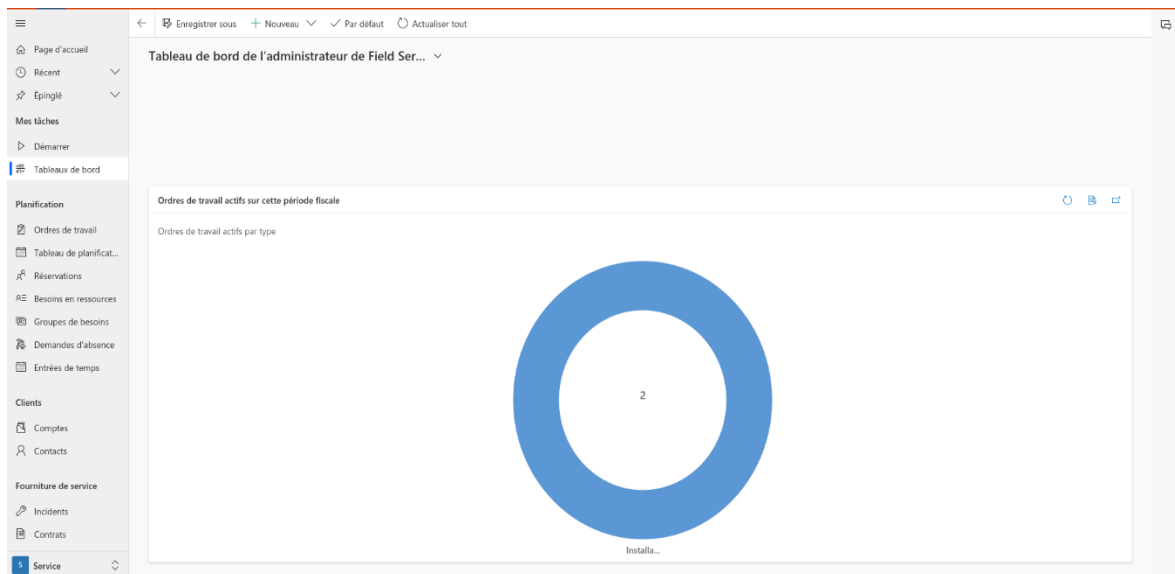


Figure 22. Marketing Dashboard

The Marketing Dashboard, featuring campaigns displayed by type and campaign performance statistics, along with opportunities, provides valuable insights into the effectiveness of marketing efforts. By categorizing campaigns by type, it allows marketers to assess the performance of different campaign strategies and allocate resources accordingly. The inclusion of campaign performance statistics enables marketers to analyze key metrics such as reach, engagement, and conversion rates, providing a clear understanding of campaign effectiveness. Additionally, the integration of opportunities on the dashboard helps identify the impact of marketing initiatives on generating new leads and driving sales. This comprehensive view empowers marketing teams to optimize their campaigns, make data-driven decisions, and align their strategies with organizational goals.



*Figure 23. Field Service Dashboard*

The Field Service Dashboard, focused on work order statistics, provides a centralized view of key metrics related to field service operations. By highlighting work order statistics, such as the number of open work orders, completed work orders, and average response and resolution times, the dashboard offers valuable insights into the performance and efficiency of field service activities. This enables managers and field service teams to monitor and track work order progress, identify bottlenecks, and make informed decisions to improve service delivery. With a clear understanding of work order metrics

Numéro d'ordre de travail	Compte de service	Poste technique	Sous-statut	État du système	Date de création	Type d'ordre de tra...	Type d'incident principal	Description de l'incident principal
00007	Amazon			Non planifié	08/03/2023 15:26	Installation		
00006	Sample Account			Planifié	16/02/2023 11:34	Installation		

Figure 24. Active work orders

The Active Work Order interface serves as a real-time tracking and management tool for ongoing work orders. It provides a dynamic and interactive display of active work orders, allowing users to monitor their progress, allocate resources, and track key details such as work order status, assigned technicians, and estimated completion times. With this interface, organizations can ensure efficient workflow management, prioritize tasks, and address any potential issues or delays promptly. By providing a centralized view of active work orders, this interface enhances visibility and coordination within the organization, leading to improved productivity, timely service delivery, and enhanced customer satisfaction.

Resource	21/05/2023	22/05/2023
abdellah amran (0m réserve) @ 0%		
ahmed Larbi (0m réserve) @ 0%		
Ali Mokhtar (0m réserve) @ 0%		
Bachir Bekkouch (0m réserve) @ 0%		
Karim Belgacem (0m réserve) @ 0%		
Maroua DAHIM (0m réserve) @ 0%		
Omar Lekhdar (0m réserve) @ 0%		
Ouassama CHEBBAH		

Figure 25. Field service work order Scheduling -timeline view-

The Field Service Work Order Scheduling - Timeline View provides a visual representation of scheduled work orders in a timeline format. It allows users to easily manage and assign tasks based on available resources, time slots, and customer requirements. The timeline view provides a clear overview of the scheduling process, enabling efficient coordination and optimization of field service activities.

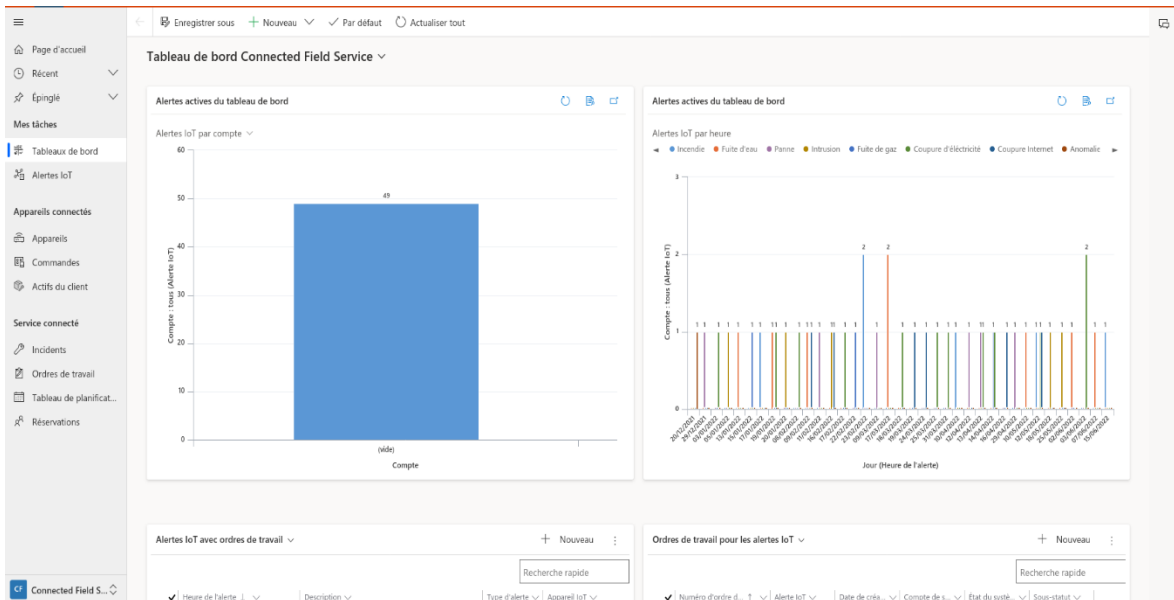


Figure 26. Connected Field Service Dashboard

The Connected Field Service Dashboard provides valuable insights into the status of IoT alerts and their corresponding work orders. It displays statistics on the total number of IoT alerts generated, allowing users to monitor the overall health and performance of connected devices. By integrating IoT alerts with work orders, this dashboard enables a proactive approach to field service management. It highlights the work orders associated with each IoT alert, allowing service teams to quickly identify and prioritize tasks based on their urgency and impact on customer satisfaction.

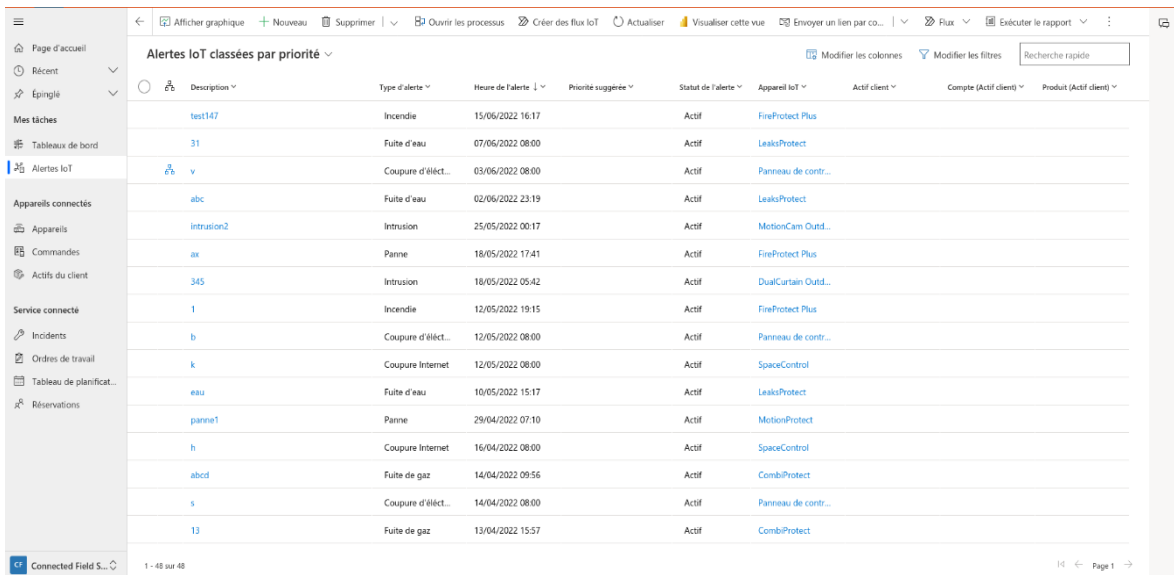


Figure 27. IOT Devices Alerts interface

The IoT Devices Alerts View, organized by priority, provides a comprehensive overview of the alerts generated by IoT devices. By categorizing alerts based on priority levels, this dashboard allows users to quickly identify and address critical issues that require immediate attention. It helps prioritize resources and allocate them effectively to ensure prompt resolution of high-priority alerts, thereby minimizing potential disruptions or downtime.

Nom	Catégorie	Compte	Simulé	Statut de l'inscription	Créé le	État de la connexion	Heure de la dernière...
CombProtect					16/01/2022 18:03	Déconnecté	
DoorProtect					16/01/2022 18:01	Déconnecté	
DoorProtect Plus					16/01/2022 18:02	Déconnecté	
DualCurtain Outdoor					16/01/2022 18:05	Déconnecté	
FireProtect Plus					16/01/2022 18:09	Déconnecté	
GlassProtect					16/01/2022 18:02	Déconnecté	
HomeSiren					16/01/2022 18:07	Déconnecté	
Hood pour MotionProtect					16/01/2022 18:04	Déconnecté	
LeakProtect					16/01/2022 18:08	Déconnecté	
MotionCam Outdoor					16/01/2022 18:05	Déconnecté	
MotionProtect					16/01/2022 18:04	Déconnecté	
MotionProtect Curtain					16/01/2022 18:02	Déconnecté	
MotionProtect Outdoor					16/01/2022 18:05	Déconnecté	
MotionProtect Plus					16/01/2022 18:08	Déconnecté	
Panneau de contrôle de sécurité avec prise en charge de la levée de ...							
SpaceControl					16/01/2022 18:07	Déconnecté	

Figure 28. IOT Devices Interface

The IoT Devices Interface showcases a list of IoT devices deployed at clients' properties, including homes and businesses. This interface provides crucial visibility into the distributed network of IoT devices across various client locations. By displaying the device types, categories, and their linked accounts, the interface allows users to efficiently track and manage the IoT devices associated with each client.

In summary, the configuration of the CRM system using the Dynamics 365 modules was a critical step in the design and implementation process. The thorough testing and integration ensured a well-functioning system that aligned with the business vision and effectively met the specific needs of the Security Subscription Service project. The figures presented serve as concrete examples of the interfaces and functionalities achieved through the CRM system configuration.

## **CONCLUSION**

In conclusion, this thesis has focused on the design and implementation of a comprehensive Security Subscription Service project, with a particular emphasis on the development of a Customer Relationship Management (CRM) system. The significance of this research lies in its potential to transform the operations of the company, enhancing customer satisfaction, streamlining business processes, and driving growth in the Algerian context.

To achieve these results, a systematic and iterative approach was undertaken. Firstly, a thorough analysis of project requirements and expectations was conducted, ensuring a holistic understanding of the business and its objectives. Secondly, extensive documentation and learning were carried out to establish a solid foundation for the design and implementation process. Thirdly, the architecture of the system and the interactions between its components were comprehensively understood, enabling the seamless integration of the CRM system with the field service, sales, and customer engagement modules.

Moreover, business processes were meticulously modeled, including macro processes such as the subscription process, account creation process, installation process, and cancellation process. These models provided a blueprint for efficient and streamlined operations within the organization.

The database design played a crucial role in storing and managing critical information, while the mobile app user interface design ensured a user-friendly experience for clients. The configuration of the CRM system using Dynamics 365 modules further enhanced the system's functionalities and alignment with the company's vision.

The impact of this research on the company cannot be overstated. It has the potential to revolutionize the way the organization interacts with its clients, improving customer satisfaction, and fostering long-term relationships. Additionally, the value of this research extends beyond the company, as it sets a precedent for other Algerian businesses to adopt advanced CRM systems especially in the security subscription market, enhancing their competitiveness and meeting the evolving demands of the market.

While significant progress has been made, there are several areas that require further attention and development in the future. The following steps are recommended to enhance the project:

- Conduct further testing with real clients outside of the sandbox environment to ensure the system's performance and gather valuable feedback.
- Integrate the CRM system with the ERP system to facilitate seamless data exchange and enhance overall operational efficiency.
- Continuously add new features and functionalities to adapt to evolving customer needs and market trends.
- Optimize business processes to further streamline operations and improve productivity.

- Enhance the data flows between different components to ensure efficient communication and synchronization.
- Roll out regular updates for the mobile app and CRM system to incorporate technological advancements and address any identified issues.

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## **APPENDIX**

## **APPENDIX A : SEMI-DIRECTIVE INTERVIEW GUIDE**

Thank you for taking the time to participate in this semi-structured interview. Your valuable insights and perspectives are essential to the success of this research project. The purpose of this interview is to gather in-depth information and gain a comprehensive understanding of the subject matter. The interview will follow a semi-structured format, which means that while there are specific questions to guide our discussion, there is also room for you to share any additional insights or experiences you believe are relevant.

Please feel free to express your thoughts openly and honestly. There are no right or wrong answers, as we are interested in capturing diverse perspectives and uncovering different aspects of the topic. Your input will contribute significantly to the development of a robust and insightful analysis.

1. Can you provide an overview of your role and responsibilities within the company?
2. What motivated you to start this security subscription service venture?
3. How would you describe the current stage of the company's development?
4. What are your goals and objectives for the company in the short and long term?
5. Have you conducted any market research to identify the target audience and their needs?
6. What are the key challenges or pain points you anticipate in the security subscription service industry?
7. How do you envision a CRM system supporting your business operations and customer satisfaction?
8. What specific functionalities and features do you believe a CRM system should have for your company?
9. How do you plan to manage customer interactions and engagement without a deployed CRM system?
10. Are there any data management and security considerations you have identified for the future CRM system?
11. How do you plan to train and support employees in using the CRM system effectively once it's implemented?
12. What are your expectations regarding the impact of the CRM system on operational efficiency and customer satisfaction?
13. Can you share insights into your plans for marketing and growth strategies in the security subscription service industry?
14. What are the key factors you will consider when selecting a CRM system for your company?
15. How do you envision the CRM system contributing to the success and growth of your business in the future?