



# An Adventurous Practical Journey to a Large-Scale Enterprise Solution

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**FANAP Studies & Research Center**

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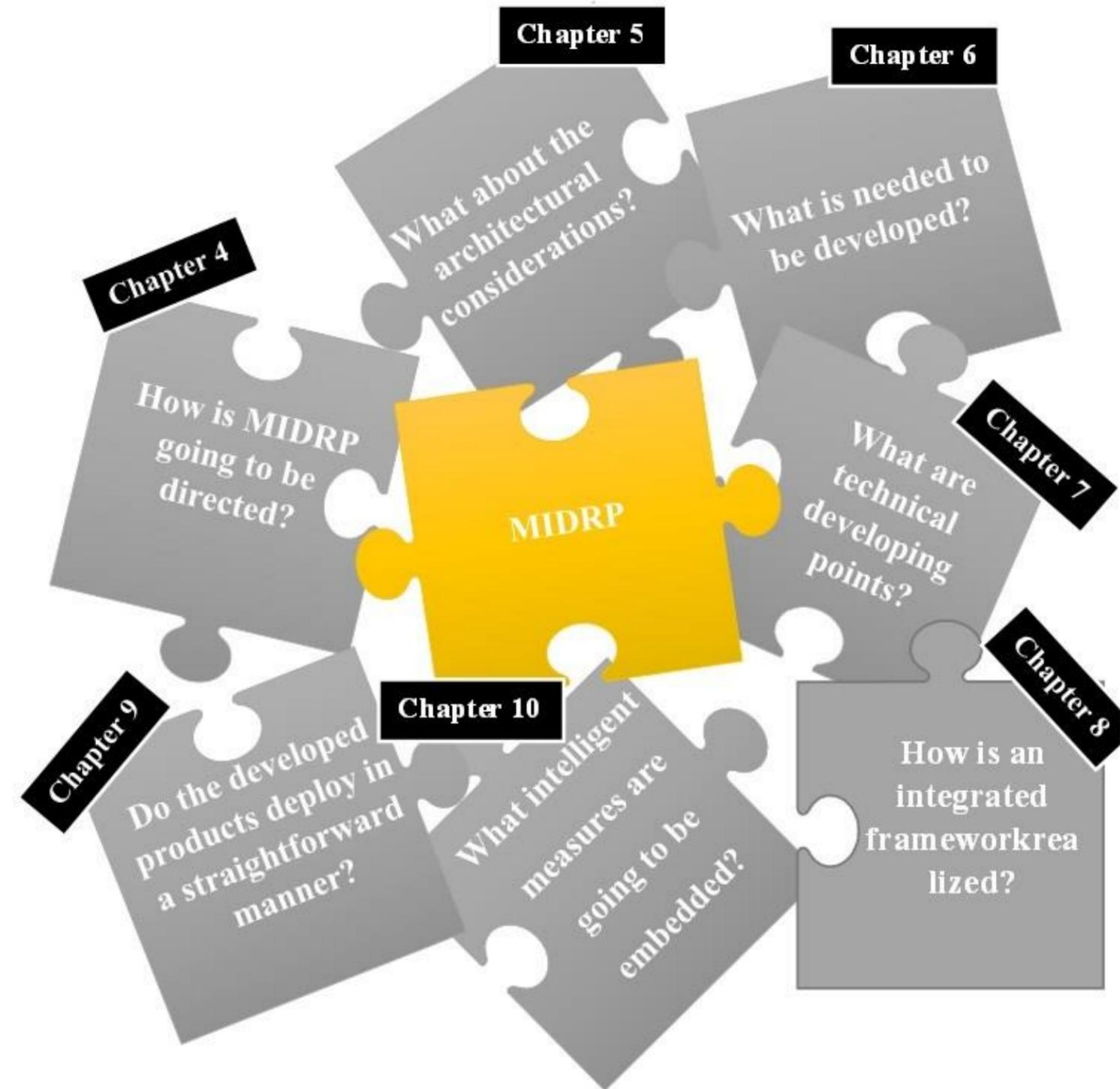
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The Intelligent Future



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To reach a robust economy that remains effective under variable market conditions, you should be the technology provider

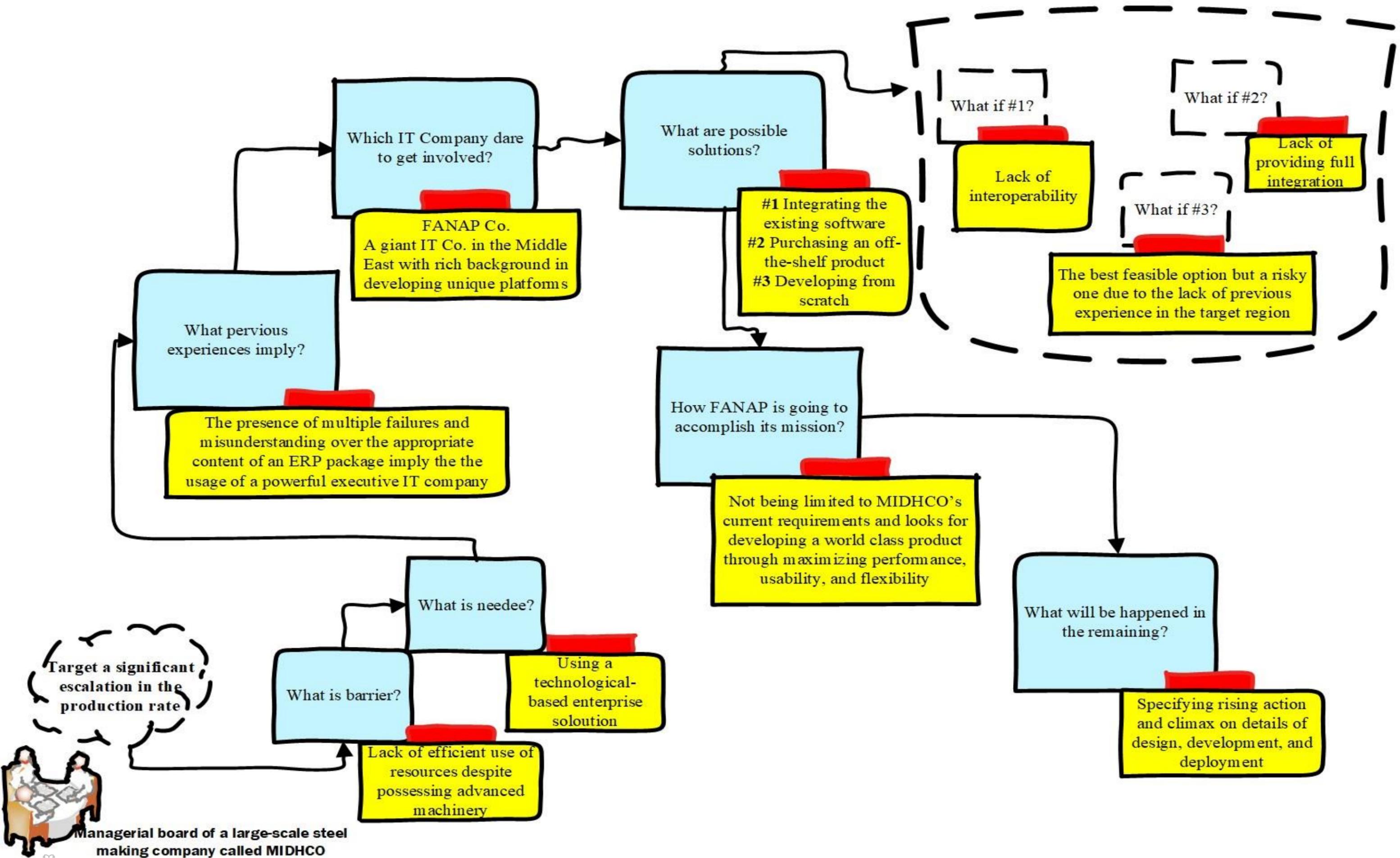
— Hamidreza Amouzegar  
Deputy of Development & Technology of FANAP Co.

”

## 1 | Introduction



This chapter devises the story thread running through this work pertaining to implementing a large-scale enterprise resource planning solution from scratch. The chapter introduces the key elements associated with the adventurous yet scholarly content of the present book. It, in fact, describes the reasoning behind the book's configuration and specifies the key characters of the story. The scope of the story's conflict is also demonstrated through envisaging the dilemmas that the characters will face in the upcoming chapters. In response, the gist of the underlying solutions for shaping the story's climax and surmounting the associated challenges is implied. Additionally, the chapter highlights how the adopted solutions are affected by the essential mission of the main executive character of the story.



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Prior to diminishing the enterprise solutions' upshot at the level of automating the organizational activities, notice that the principles of an ERP are strictly interconnected with technology, process-oriented thinking, and cultural terms.

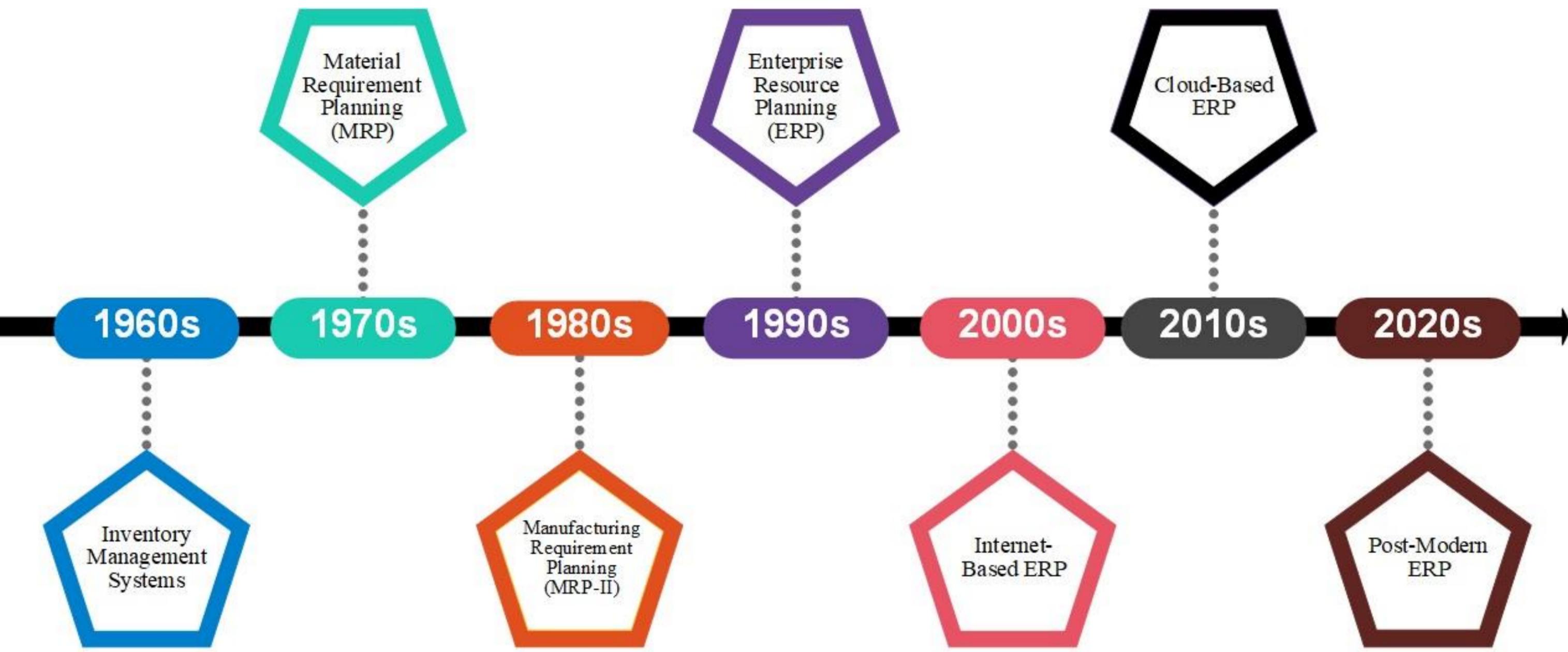
— Mohammad Saeed Gholami  
Member of Integration Committee of MIDRP

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## 2 | ERP Systems



Since enterprise resource planning (ERP) is the indispensable keyword of this chapter, Chapter 2 considers a thorough evaluation of the existing ERP systems across the globe. Furthermore, the chapter indicates how the ERP's definition, as well as its functionality, has gradually evolved. In fact, the consideration of such a chapter is to satisfy two requirements. On one hand, this chapter plays a complementary role in enhancing the knowledge of the audiences about ERP systems. On the other hand, it can be regarded as a part of the book's story as the executive character is supposed to gain insights into the best practices.



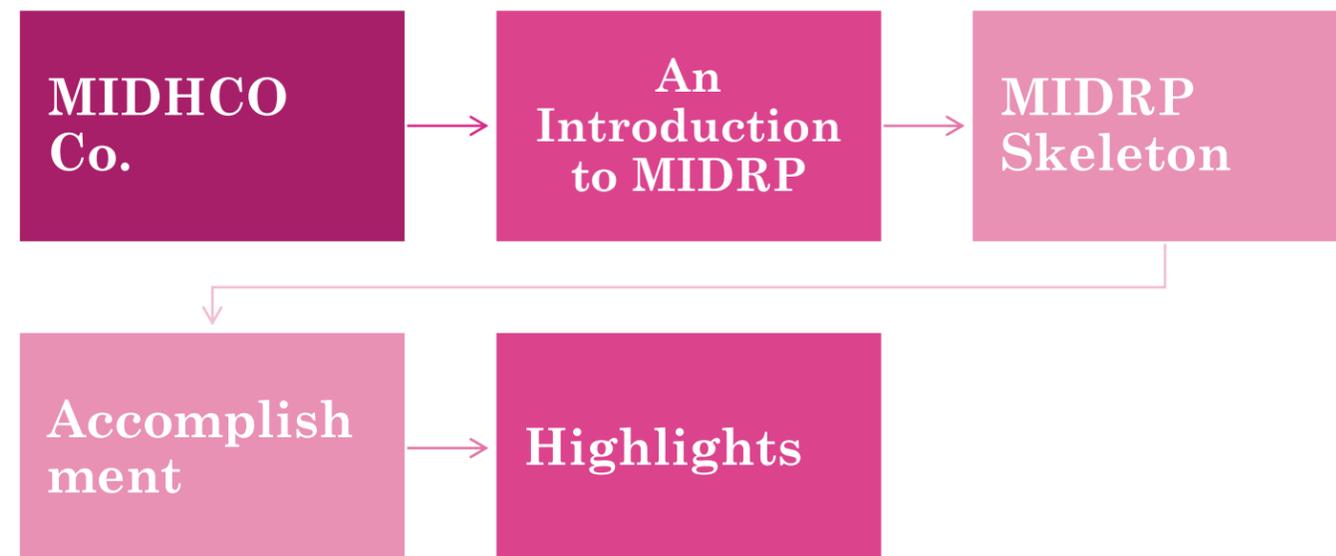
“

Organizations that avoid embracing changes are subjected to failure. The MIDRP journey was set off owing to the MIDHCO's voluntary will towards changing the way of using resources.

— Aliasghar Pourmand  
CEO of MIDHCO Co.

”

### 3 | MIDRP



The general specification of the proposed enterprise resource planning is discussed here. Firstly, the scale of the case study, that is going to host the integrated solution, is pinpointed. Secondly, the skeleton of the addressed solution is explicitly signaled while the intended deliverables, in the context of a variety of features, are explored. Afterward, the demystifying backdrop for phasing taxonomy to deliver the whole myriad of features is explained. Eventually, it is clarified what concerns are raised towards meeting the corresponding skeleton being deemed as the content of the remaining chapters. The solution to each concern involves considering a set of heuristic techniques (the scholarly aspect of the story) as well as going through the trial-and-error process (the adventurous aspect of the story).



کارخانه

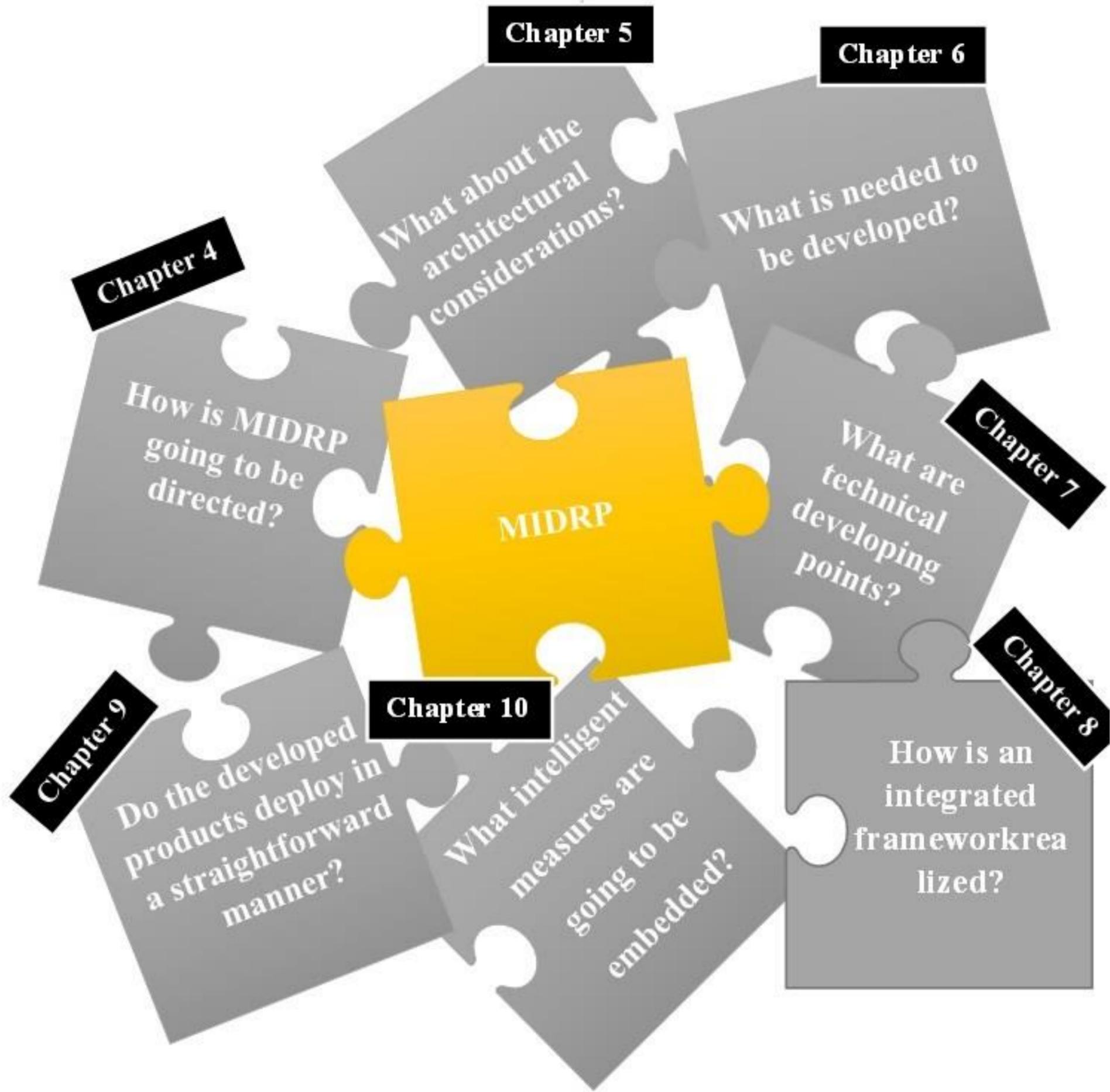


مجتمع



دفتر مرکزی ستاد





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Amidst pages of the current book, curious audiences endeavor to trace the critical factors that build the basic success origins of MIDRP. It's not an overstatement that half of the factors stem from the methodology of laying the project's foundation guaranteeing MIDRP survival in the tortuous accomplishment path.

— PMO

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## 4 | Project Management Methodology

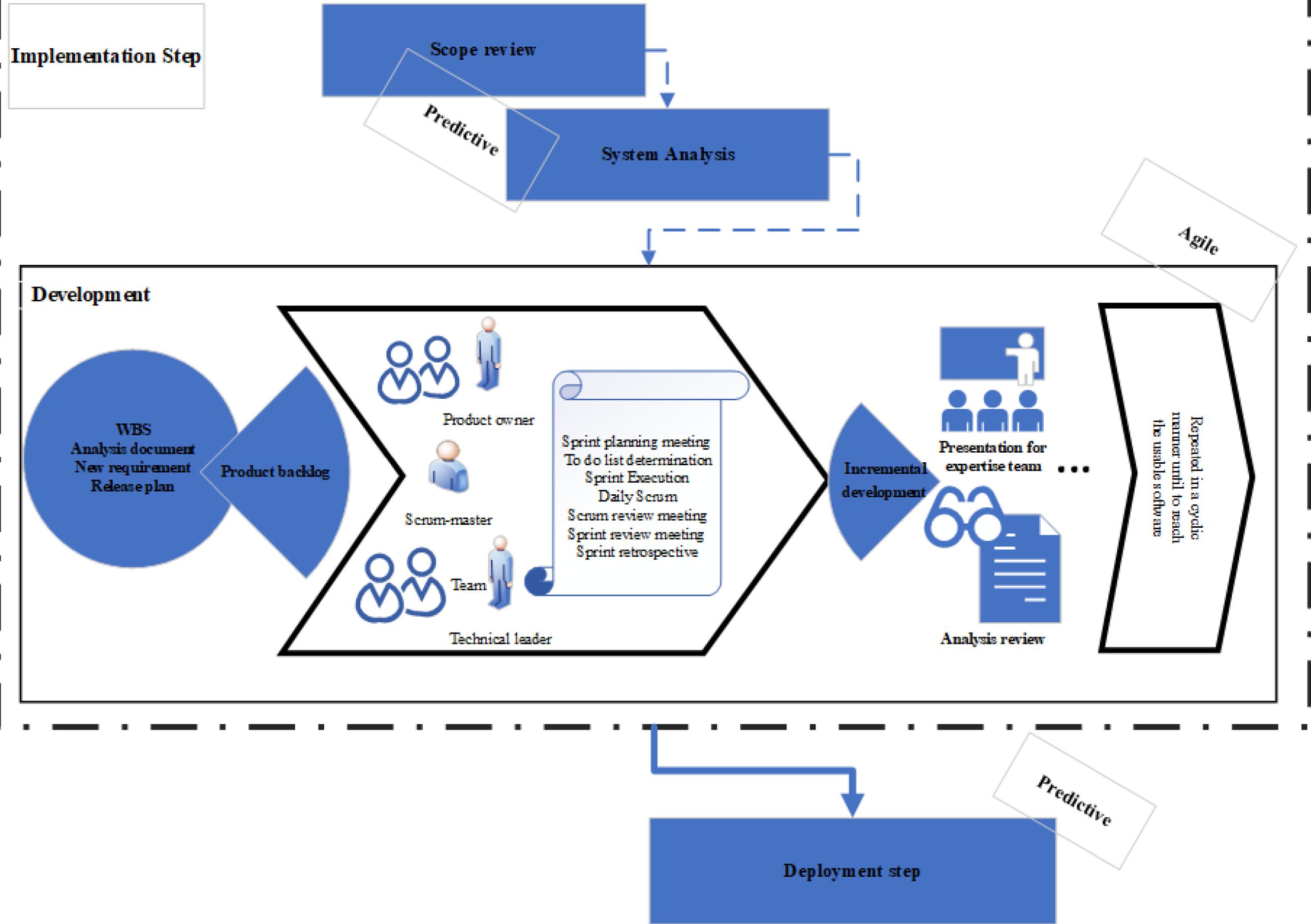
An Introduction to PMM

Towards Maturing MIDRP PMM

Project Collaboration

Conclusion

Chapter 4 aims at devising the exact roadmap of the accomplishment procedure related to the proposed software solution. The chapter narrates the way of achieving the ideal hybrid methodology and carrying out the corresponding technical issues in realizing the several deliverables of the project. The hybrid methodology is a combination of the classical waterfall approach plus the Large-Scale Scrum (LeSS) branch of the agile method. Actually, finding the best fitting methodology for truly managing the unique large-scale practice of this study is one of the most adventurous scene of the story. The chapter also embraces the devised project collaboration structure for effectively capturing the plethora of the participants' communications.



“

**To produce an ERP system, you must see the system architecture on the ERP scale from the beginning. An ERP cannot be achieved with the approach of producing simple single-purpose software packages.**

— Mohsen Ghasemi  
Head of Integration Committee

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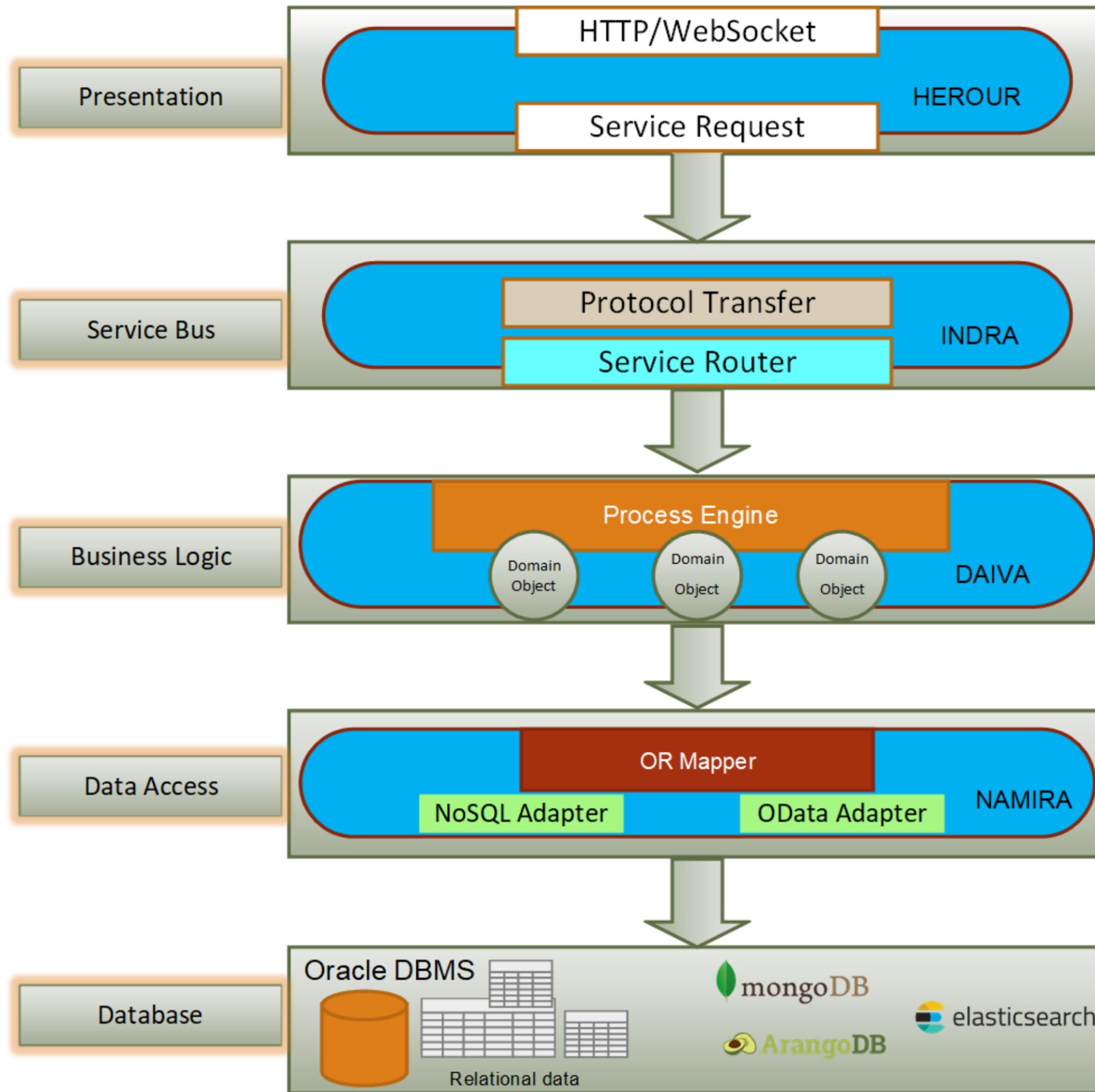
## 5 | Software Architecture

Enterprise  
Solutions  
Architecture

Architecture  
of  
Popular  
ERP  
Solutions

MIDRP  
Architecture

Before designing and aspect, in this chapter, we first implementing a large-scale mission-critical project such as ERP, it is provide basic definitions and important to have a proper concepts related to ERP understanding and accurate architecture. Then, the technical knowledge of the technical architecture of successful ERP systems in the world is presented. Establishing a well-designed and efficient architecture based on state-of-the-art technologies will play a critical role in the high performance, stability, and scalability of the system. Considering this important Finally, we introduce the architecture of MIDRP and describe how it has been designed according to modern ERP architecture styles and technologies to provide the desired functionality and performance.



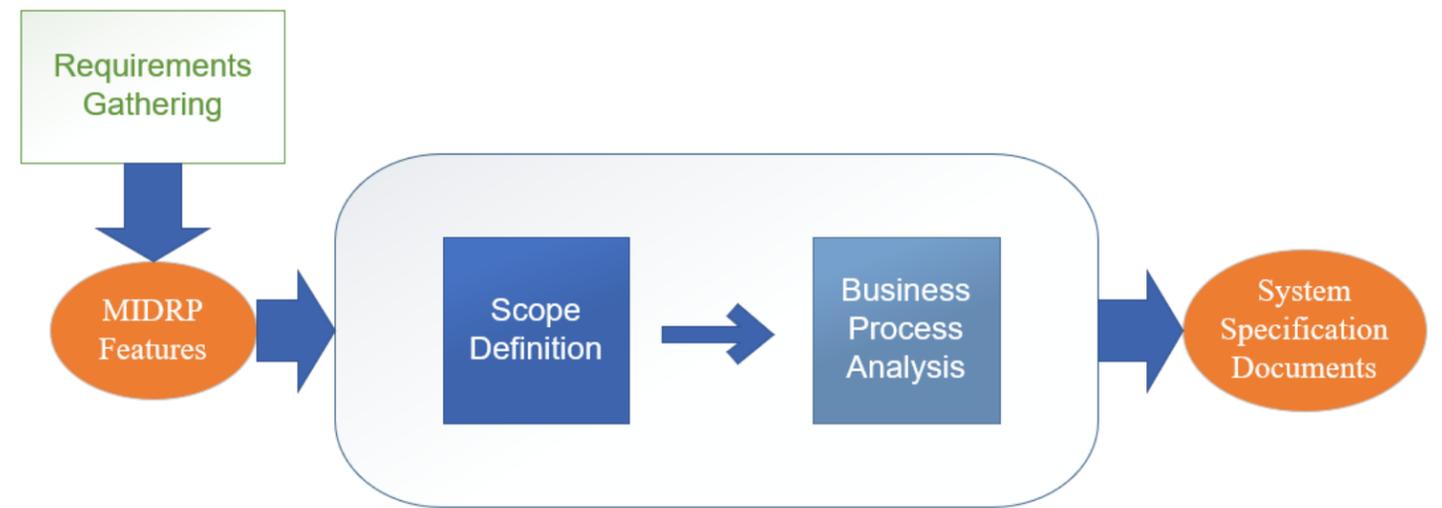
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**The business process analysis of MIDRP is framed based on the stakeholders' requirements from top-level managers to shop-floor experts by considering the process architecture of the best practices. The challenges of the proposed framework are met when it comes to persevering the integration among different domains besides surmounting the end-user's incompatibility with the specialized functionality of BPMS.**

— Amir Arsalan Safari Moghadam  
Member of Business Analyst Committee

”

## 6 | Business & System Analysis



MIDRP is a large-scale enterprise solution built based on the canonical concept of the business process. The foundation for MIDRP development is formed by understanding, identifying, and categorizing all business processes that need to be automated throughout MIDHCO Holding. In addition, for developing any type of enterprise software, requirement analysis, and system analysis need to be considered. Therefore, the critical aspects of business process analysis have been incorporated into these two steps for MIDRP software development. In this chapter, we perform a thorough

analysis to understand the required business processes in the systems and define the structure and interoperability of those business processes within the whole ERP system. We first provide an overview of the main steps of the business and system analysis process for the MIDRP project. Then a comprehensive description of the two core activities inside the analysis stage (scope definition and business process analysis) is presented.



## 1. Inputs:

- Business Requirements
- TEC features
- Product Big Pictures
- Process Hierarchy Diagrams
- As-is Analysis reports
- POSCO Proposals

## Business Process Analysis

## 2. Outputs:

- Business Process Diagrams (BPMN Diagrams)
- Business Process Specification
- UI Prototypes

## 3. How (tools):

- **“YAMA BPMN Editor”** For Process Modeling
- **“AMS”** (Analysis Management System) For Process Specification
- **“GUI Design Studio Professional”** For Prototype Design

## 4. Who:

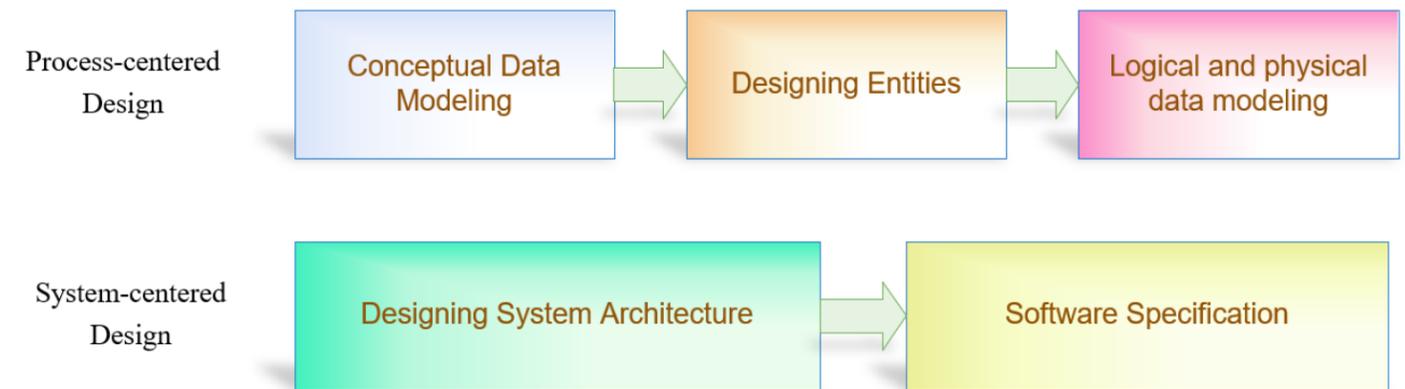
- FANAP Business Process Analysis Team
- POSCO ICT business experts (supervisors)
- Product Expert Groups

“  
**Simultaneous attention to the high performance of the software infrastructure and the technical complexities of the development activities is critical to building a large-scale enterprise software.**  
”

— Mohammad Bastam

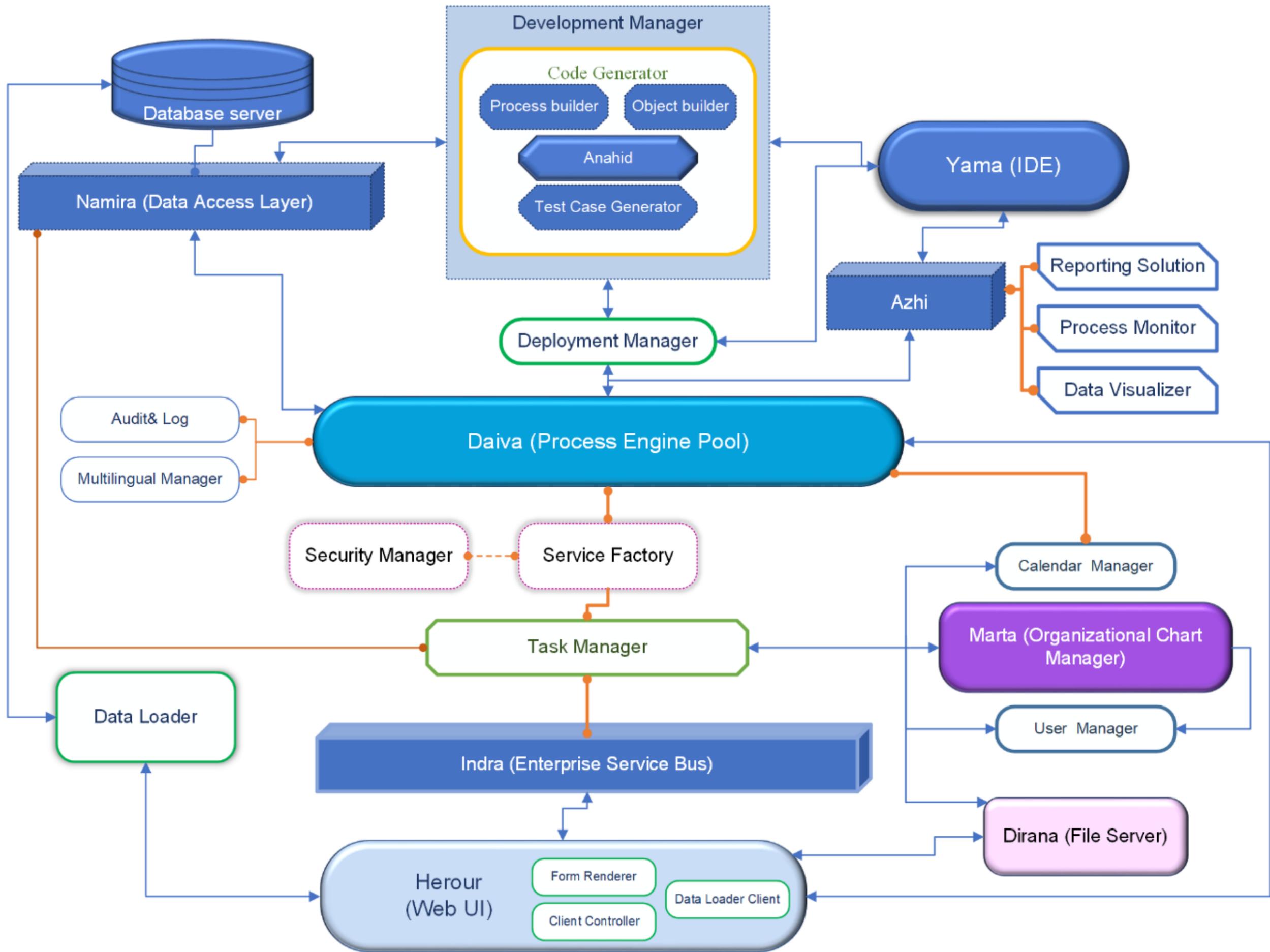
*Supervisor of Information Solutions Platform Development of FANAP Co*

## 7 | Design & Development



The output of the analysis phase is a set of specifications for all components of the system which shows what should be implemented in the system and what the output of such system should be. The system specifications are used to design and develop the actual software system that is going to be placed in the organization. This chapter begins with a brief overview of the software development life cycle (SDLC) with an emphasis on enterprise systems. SDLC provides useful guidelines for the ERP

implementation process and shows how we went through the software development journey. Then, we explain what type of SDLC is chosen for developing MIDRP based on the specific needs of the project. Next, we describe the process of designing, developing, and testing the MIDRP software system according to the business process specifications and the product structures that were prepared by the system analysts in the analysis phase.



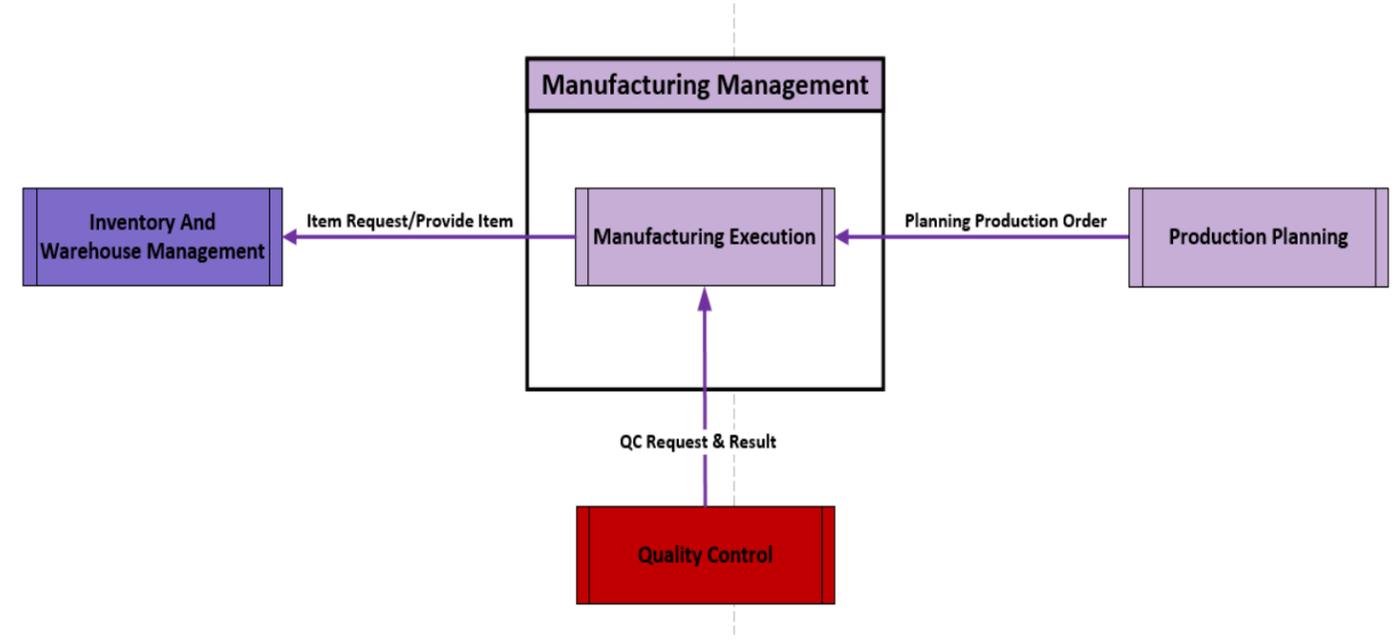
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The axiom of integration has been the top priority of MIDHCO since the inception of the MIDRP project.

— Mohammad Jafar Ekramjafari  
CEO Consultant of MIDHCO CO.

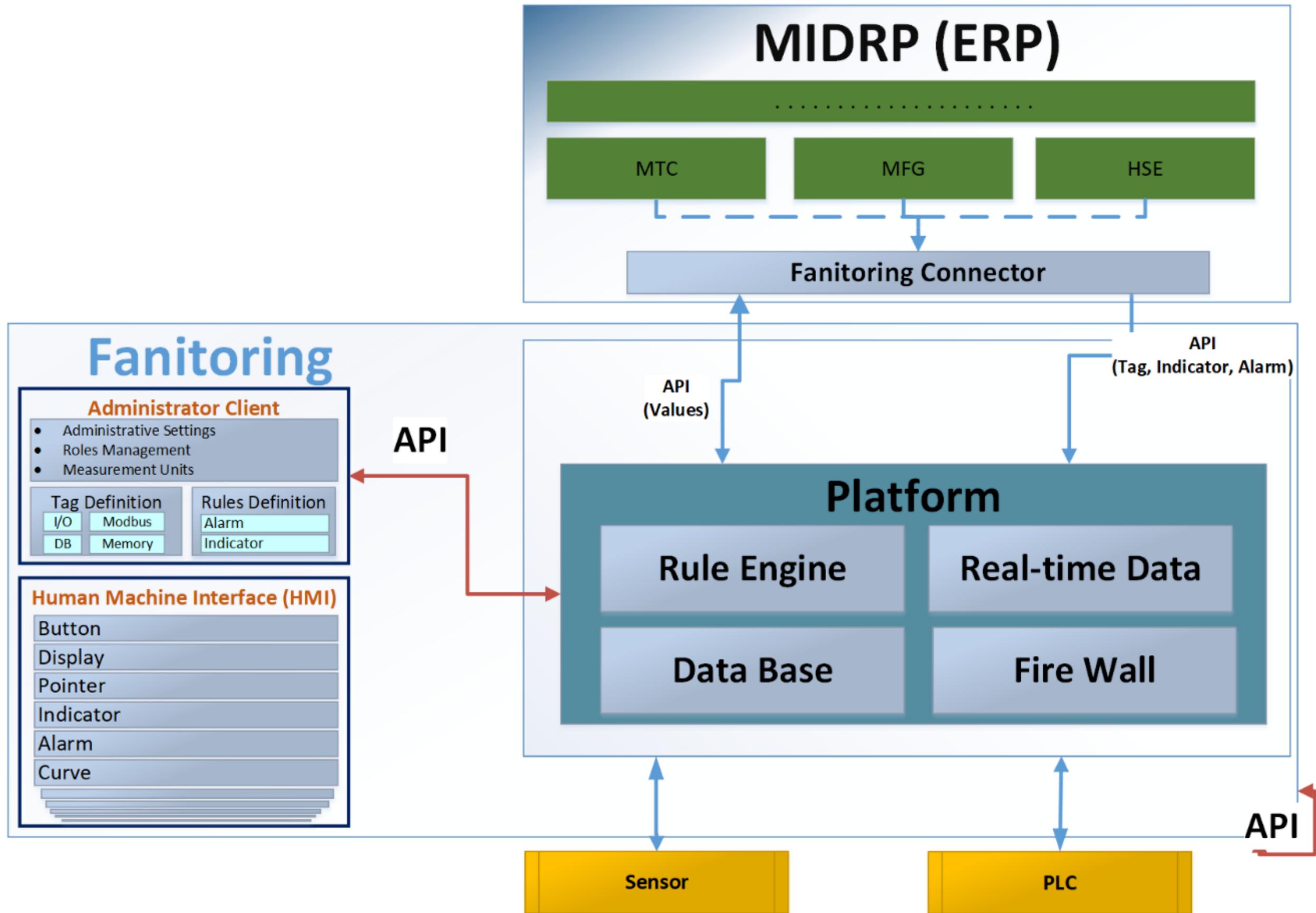
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## 8 | Integration



Successful implementation of the developed integration of the system modules with the ERP depends on how this centralized system is business and operational environment. We first integrated with other existing systems to present a background of ERP integration, the improve business operations performance and most prevalent approaches to implementing ensure that consistent information is shared ERP integration, and the best practices in this among individual components. Despite all the area. Next, we explain the integration solution efforts made in designing and developing provided for the MIDRP project, the different MIDRP, its tremendous benefits are not evident levels of integration, and the important cases in until we implement it with a correct integration the integration of the MIDRP with the rest of methodology. This chapter discusses the the organization.

integration of MIDRP in two important aspects:  
integration of processes in the system;



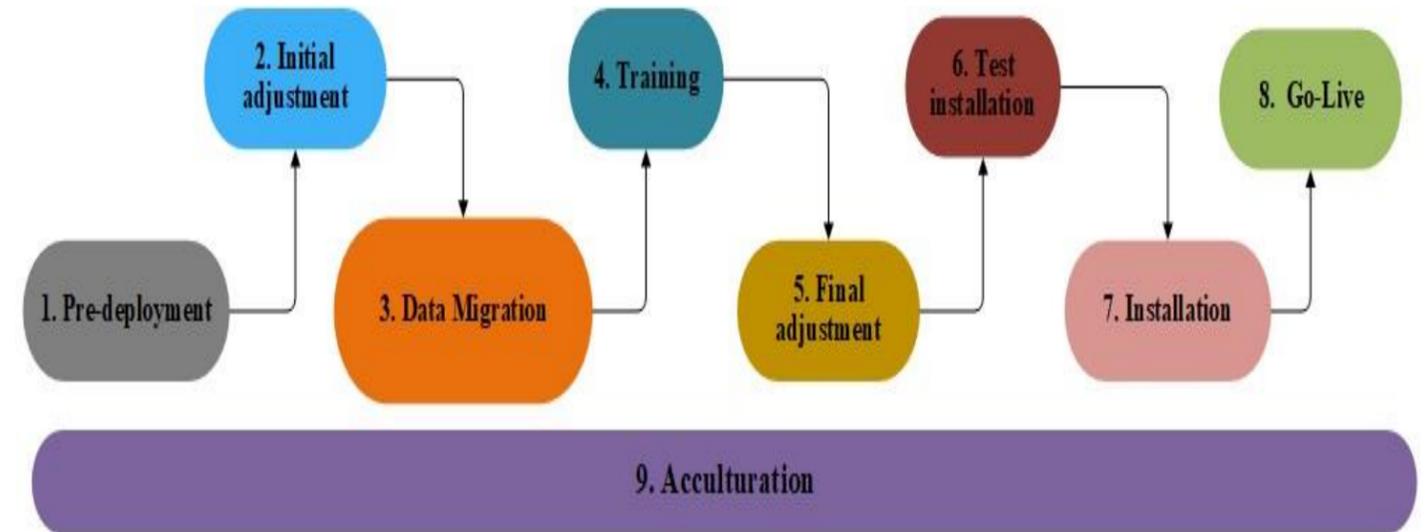
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Progress is the outcome of movement, even at a snail's pace. By standing motionless, you are supposed to get off the bike, otherwise, you'll be falling off.

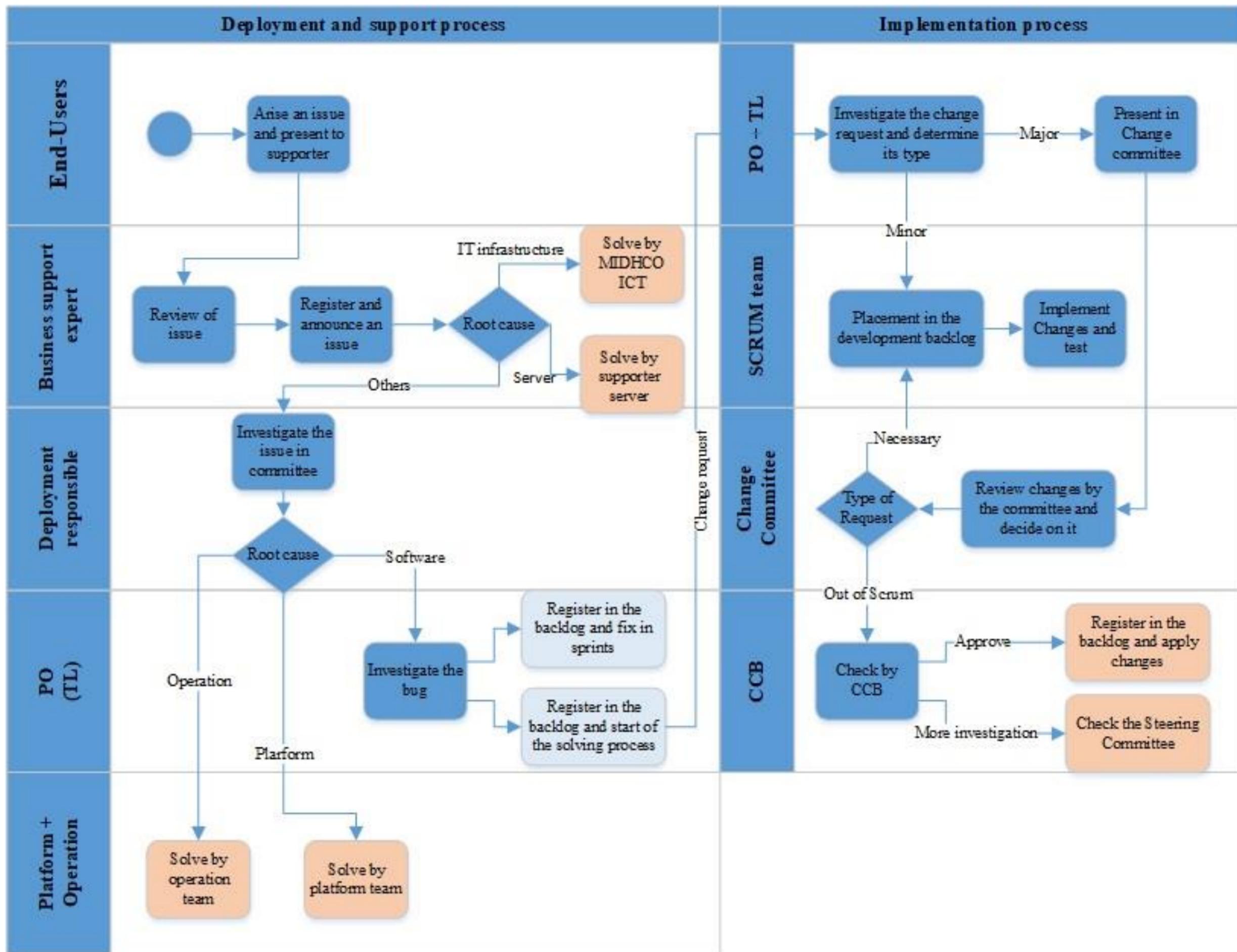
— Majid Ghasemi  
CEO of Pasargad Financial Group

”

## 9 | Deployment Framework



Chapter 9 explains the addition to elaborating the adopted framework for highlights of the initial deploying the case study. It narrates the failures as well as the remedies within the Go-live process of the case study. It indeed represents the climax of the story where the project's participants encounter the formidable obstacle to deploying the developed enterprise resource planning software in the pilot site. In addition to elaborating the adopted framework for highlights of the initial deployment's failure, it explains how the underlying methodology is matured to bring about the subsequent triumph and the denouement of the story. In this regard, applied lessons learned from the involved individuals within the project are articulated to provide a perfect managerial insight for audiences.



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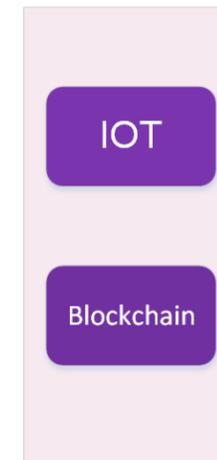
Not only does MIDRP automate the business processes of MIDHCO, but also aims at employing the industry 4.0 model even at the sensor level using Internet of Things

— Shahab Javanmardi  
CEO of FANAP Co.

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## 10 | The Intelligent Future

Advanced Technologies



System Intelligence



Chapter 10 is the end of the story. It goes around the remarkable segment of the enterprise solutions, i.e., the use of intelligent maneuvers in response to realizing a world-class enterprise resource planning solution. This can be regarded as a happy ending for the plot in which the initial planning of purchasing an off-the-shelf software product has now led to a highly up-to-date developed solution. The

chapter addresses the way of injecting tools associated with artificial intelligence and big data analysis into the body of the proposed solution. Regarding enhancing the efficacy of the corresponding software, the usage of advanced technologies, like cloud computing, the Internet of Things, and Blockchain, is explored.

# # About Author

FANAP Studies & Research Center



FANAP Studies & Research Center serves as the knowledge preservation and dissemination headquarters of the FANAP Co., a giant information and communications technology (ICT) solution provider. To align with the devised mission, the divisional structure of the center encompasses four departments of scientific research, market research, scientific publication, and scientific events. The scientific research department spotlights and documents the groundwork of the valuable applied maneuvers of the company in dealing with real-world business challenges. The market research department puts the knowledge-based ideas into practice by directing the development of high-tech services such as a data annotation platform and an AI-enabled robotic

system in the banking sector. The division of the scientific publication also hosts the editorial office of the Journal of Applied Intelligent Systems & Information Sciences (JAISIS) through embracing practical studies on different streams of ICT. Furthermore, the center looks for designing scientific events to learn the target audiences how to cope with novel technological concepts/tools using innovative educational methods like gamified ones. Currently, 15 full-time specialists and a broad network of experts in ICT projects with profound academic and seasoned business backgrounds are interactively pursuing the Center's mission.

Despite being founded recently (i.e., in 2020), several research works are conducted under the supervision and affiliation of the center (i.e., Research Center, FANAP Co., Tehran, Iran). Notably, the senior scholars of the center who contributes to the present book, i.e., Vahid Hajipour, Sajjad Jalali, Mohammad Amini, and Ali Gharaei have successfully published prolific papers in a significant number of prestigious journals such as Safety Science, Computers & Operations Research, Knowledge-based Systems, Expert Systems with Applications, Computer and Industrial Engineering, IEEE Transaction of Engineering Management, Journal of Intelligent Manufacturing, Applied Soft Computing,

International Journal of System Science, Engineering Optimization, Measurement, Journal of Computational Design and Engineering, Reliability Engineering and System Safety, International Journal of Advanced Manufacturing Technology, among others. To expand interprofessional collaborations, FANAP Studies & Research Center welcomes joint research programs with active scholarly parties all around the globe in the context of cutting-edge topics, including but not limited to, Enterprise Solutions, Artificial Intelligence, Data Science, Internet of Things, Cloud Computing, Blockchain, and Robotics.

# The Adventurous and Practical Journey to a Large-Scale Enterprise Solution

Threading the Way of Implementing an ERP through MIDRP Practice

Analysis

Agile

ERP

Intelligent

Development

Deployment

 **CRC Press**  
Taylor & Francis Group

FANAP Studies & Research Center

CRC

The Adventurous and Practical Journey to a Large-Scale Enterprise Solution



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