

**ΠΑΝΕΠΙΣΤΗΜΙΟ ΠΕΙΡΑΙΩΣ**  
**ΤΜΗΜΑ ΟΙΚΟΝΟΜΙΚΗΣ ΕΠΙΣΤΗΜΗΣ**



**ΠΡΟΓΡΑΜΜΑ ΜΕΤΑΠΤΥΧΙΑΚΩΝ ΣΠΟΥΔΩΝ**  
**ΣΤΗΝ ΟΙΚΟΝΟΜΙΚΗ ΚΑΙ ΕΠΙΧΕΙΡΗΣΙΑΚΗ**  
**ΣΤΡΑΤΗΓΙΚΗ**

**“ΕΞΕΛΙΞΗ & ΕΦΑΡΜΟΓΗ ΣΥΣΤΗΜΑΤΩΝ**  
**ΕΝΔΟΕΠΙΧΕΙΡΗΣΙΑΚΟΥ ΣΧΕΔΙΑΣΜΟΥ ΣΕ**  
**ΜΟΝΤΕΡΝΕΣ ΕΠΙΧΕΙΡΗΣΕΙΣ”**

**ΤΣΑΚΟΣ ΧΑΡΑΛΑΜΠΟΣ ΑΛΚΗΣ**

**ΕΠΙΒΛΕΠΩΝ ΚΑΘΗΓΗΤΗΣ: ΕΜΙΡΗΣ ΔΗΜΗΤΡΙΟΣ**

Διπλωματική Εργασία υποβληθείσα στο Τμήμα Οικονομικών Επιστημών του Πανεπιστημίου  
Πειραιώς ως μέρος των απαιτήσεων για την απόκτηση Μεταπτυχιακού Διπλώματος Ειδίκευσης  
στην Οικονομική και Επιχειρησιακή Στρατηγική

Πειραιάς, Οκτώβριος 2023

**UNIVERSITY OF PIRAEUS**  
**DEPARTMENT OF ECONOMICS**



**MASTER PROGRAM IN**  
**ECONOMIC AND BUSINESS STRATEGY**

**“ENTERPRISE RESOURCE PLANNING**  
**DEVELOPMENT & APPLICATIONS TO**  
**MODERN BUSINESSES”**

**By**

**TSAKOS CHARALAMPOS ALKIS**

**SUPERVISOR: EMIRIS DIMITRIOS**

Master Thesis submitted to the Department of Economics of the University of Piraeus in partial fulfillment of the requirements for the degree of Master of Arts in Economic and Business Strategy

**Piraeus, Greece, October 2023**

## Acknowledgements

*Θέλω να ευχαριστήσω πρωτίστως τους γονείς μου που με την τόση αγάπη και διαρκή υποστήριξη τους σε κάθε βήμα της ζωής μου με γαλούχησαν και με ανέθρεψαν στον άνθρωπο που είμαι σήμερα!*

*Έπειτα θα ήθελα να ευχαριστήσω τους μέντορες που στάθηκαν αγέρωχοι στις διαρκείς ερωτήσεις μου καθώς έχω υπάρξει ανήσυχος κατά το μεγαλύτερο κομμάτι της ζωής μου μέχρι τώρα και όπως όλοι στη ζωή μου έτσι και αυτοί έδειξαν μεγάλη υπομονή στο ταπεραμέντο του χαρακτήρα μου.*

*Τέλος στους πολύτιμους για μένα ανθρώπους που με έχουν στηρίξει περισσότερο με τις συμβουλές τους και με την παρουσία τους στο πλευρό μου!*

*I want to primarily thank my parents who, with so much love and constant support in every step of my life, nurtured and raised me into the person I am today!*

*Next, I would like to thank the mentors who stood tall amidst my constant questions. I've been restless for the majority of my life so far, and just like everyone else in my life, they showed great patience with my temperament.*

*Lastly, to the invaluable people in my life who have supported me the most with their advice and their presence by my side!*



## **Εξέλιξη & Εφαρμογή Συστημάτων Ενδοεπιχειρησιακού Σχεδιασμού σε Μοντέρνες Επιχειρήσεις**

**Σημαντικοί Όροι:** Συστήματα Ενδοεπιχειρησιακού Σχεδιασμού (ERP), Διαχείριση Σχέσεων Πελατών (CRM) Ρομποτική Διαδικασία Αυτοματισμού (RPA), Προγραμματισμός, Απαιτήσεων Υλικού (MRP), Αναδιάρθρωση Επιχειρησιακών Διαδικασιών (BPR), Επιχειρησιακή Ευφυΐα (BI)

### **Περίληψη**

Καθώς οι κοινωνίες αντιπαρατίθενται σε προκλήσεις, τις οποίες καλούνται να αντιμετωπίσουν καθημερινά, έτσι και οι εταιρείες με ανάλογο τρόπο έρχονται αντιμέτωπες με νέες απαιτήσεις. Η ραγδαία εξέλιξη των αγορών και της τεχνολογίας φέρνουν νέα δεδομένα στον κόσμο των επιχειρήσεων. Για να παραμείνει μία επιχείρηση κερδοφόρα και ανταγωνιστική είναι απαραίτητο να κατέχει όλα τα αναγκαία τεχνολογικά εφόδια ώστε να εξοικονομεί χρόνο και κόστος στις διάφορες παραγωγικές της διαδικασίες. Η υλοποίηση αυτών των διαδικασιών επιτυγχάνεται με την χρήση συστημάτων τα οποία συντελούν στην αυτοματοποίηση τους. Τα συστήματα αυτά που θα αναλυθούν στην παρούσα διατριβή διαδραματίζουν σημαντικό ρόλο στην λειτουργία μεγάλων οργανισμών καθώς συμβάλλουν στην ενίσχυση του ανταγωνιστικού τους πλεονεκτήματος. Στην σημερινή εποχή έχουμε την δυνατότητα να βρούμε πολλά πακέτα λογισμικού πληροφοριών τα οποία βελτιώνουν την αποτελεσματικότητα των εταιρειών.

Το σύστημα που θα αναλυθεί παρακάτω είναι αυτό του ενδοεπιχειρησιακού σχεδιασμού (ERP). Το σύστημα αυτό όπως θα αναλυθεί στην συνέχεια ενσωματώνει εσωτερικές και εξωτερικές πληροφορίες διαχείρισης συνδυάζοντας λογιστική, πωλήσεις, στάδια της εφοδιαστικής αλυσίδας, παραμετροποίησης ενδοεταιρικών πελατειακών σχέσεων καθώς και διάφορες υπηρεσίες. Στην ουσία του ένα ERP σύστημα είναι η αυτοματοποίηση των εταιρικών διαδικασιών με απώτερο στόχο την εξοικονόμηση χρόνου και κόστους, όπως αναφέρθηκε παραπάνω.

Στο αρχικό στάδιο αυτής της διατριβής θα κατανοήσουμε τι ακριβώς είναι τα συστήματα ERP, καθώς θα γίνει και μία εκτενής ιστορική αναδρομή σχετικά με αυτά

και την αφετηρία τους, φτάνοντας στο τώρα, στα νεότερα πλέον συστήματα πληροφοριών και στις προκλήσεις τους. Στην συνέχεια θα αναφερθούν οι μεγαλύτερες εταιρείες ERP σε παγκόσμιο καθώς και σε τοπικό επίπεδο. Θα εμβαθύνουμε στο τεχνολογικό υπόβαθρο των συστημάτων ERP που αποτελείται από τον τρόπο διασύνδεσής τους με άλλα συστήματα όπως CRM και SCM, τις διαφορετικές μεθόδους χρήσης και εγκατάστασης (on-premise, cloud, mobile), και μεταξύ άλλων το περιβάλλον χρήστη (UI). Με βάση τα παραπάνω, θα παρουσιαστούν οι προκλήσεις όσο αφορά την αφομοίωσή τους από τα στελέχη των εταιρειών, όπως και οι δυσκολίες που αντιμετωπίζει το εργατικό δυναμικό στην διαχείρισή τους. Επιπλέον θα αναφερθούν και κάποιες μελέτες περίπτωσης επιχειρήσεων που έχουν αξιοποιήσει τα ERP και έχουν καταφέρει μέσω αυτού να παραμένουν δυνατοί παίκτες στην αγορά.

Επιπροσθέτως η διατριβή μέσω της ολοκληρωμένης επιστημονικής της προσέγγισης προσφέρει μία ολοκληρωμένη γνώση σχετικά με τα συστήματα ERP και την τόσο σημαντική συμβολή τους στον σύγχρονο κόσμο των επιχειρήσεων.

# **Enterprise Resource Planning Development & Applications to Modern Businesses**

**Keywords:** Enterprise Resource Planning (ERP), Customer Relationship Management (CRM), Robotic Process Automation (RPA), Material Requirements Planning (MRP), Business Process Reengineering, (BPR) Business Intelligence (BI)

## **Abstract**

As societies confront challenges they face daily, companies similarly encounter new demands. The rapid evolution of markets and technology, introduces new factors into the business world. For a company to remain profitable and competitive, it is essential to have all the necessary technological tools to save time and reduce costs in its various production processes. The implementation of these processes is achieved using systems that contribute to their automation. The systems discussed in this dissertation play a significant role in the operations of large organizations as they enhance their competitive advantage. In today's era, we have the ability to find numerous ERPs that improve company efficiency.

The system to be discussed below is the Enterprise Resource Planning (ERP). This system, as will be detailed later, integrates internal and external management information by combining accounting, sales, supply chain, internal customer relationship parameterization, and various services. Essentially, an ERP system is the automation of corporate processes aiming to save time and cost, as mentioned above.

In the initial stage of this dissertation, we will understand exactly what ERP systems are, with a comprehensive historical review of their origins, leading up to the latest information systems and their challenges. Next, we will dive in the leading ERP companies on a global and local scale. We will delve into the technological background of ERP systems, which includes their integration with other systems like CRM and SCM, the different methods of handling and installation (on-premise, cloud, mobile), and among other things, the user interface (UI). Based on the above, the challenges regarding their assimilation by company executives and the difficulties the workforce

faces in managing them will be presented. Additionally, some case studies of companies that have utilized ERP and have managed to remain strong market players will be discussed.

Furthermore, this dissertation, through its comprehensive scientific approach, offers a holistic understanding of ERP systems and their critical contribution to the modern business world.



## Table of Contents

Acknowledgements.....	3
Περίληψη .....	5
Abstract .....	7
Table of Contents.....	9
List of Charts.....	11
Chapter 1 Historical Development of ERP Systems .....	13
1.1 Introduction .....	13
1.2 Definition.....	14
1.3 Pre-ERP Era: Material Requirements Planning (MRP) .....	15
1.4 MRP Software Vendors: Pioneering the Technological Revolution in Manufacturing .....	17
1.5 Evolution: Manufacturing Resource Planning (MRP II).....	18
1.6 Birth of ERP: Beyond Manufacturing .....	21
1.7 Modern ERP Development: Technological Advancements & Evolution of Expanded Capabilities .....	23
Chapter 2 Enterprises offering development & Innovative products in the ERP Landscape .....	27
2.1 The International market.....	27
2.2 Key ERP Players in the Greek Market .....	31
Chapter 3 Understanding ERP from a Technological Perspective .....	35
3.1 The Architecture of ERP Systems .....	35
3.2. Integration with Other Systems (CRM, SCM, etc.) .....	37
3.3 Cloud vs. On-Premise ERP Solutions .....	39
3.4 Mobile ERP and Accessibility.....	41
3.5 Security and Compliance in ERP Systems .....	43
3.6 User Interface (UI) in ERP Systems.....	44
Chapter 4 Enterprise Resource Planning in Modern Businesses .....	47
4.1 Implementation and Adoption Challenges .....	47
4.2 Case Studies .....	48
ANNEX.....	57

The Future of ERP.....	57
Conclusion.....	59
References.....	67
National.....	67
International.....	67
Links.....	69

## **List of Charts**

1.1 ERP II modules .....	14
1.2 The History of ERP.....	25
3.6 Customer Satisfaction / Usability .....	45
4.2.3.1 P&G Global Business Units.....	53
4.2.3.2 Localasation Stats .....	55
4.2.3.3 Resources / Phases .....	56



# **Chapter 1**

## **Historical Development of ERP Systems**

### **1.1 Introduction**

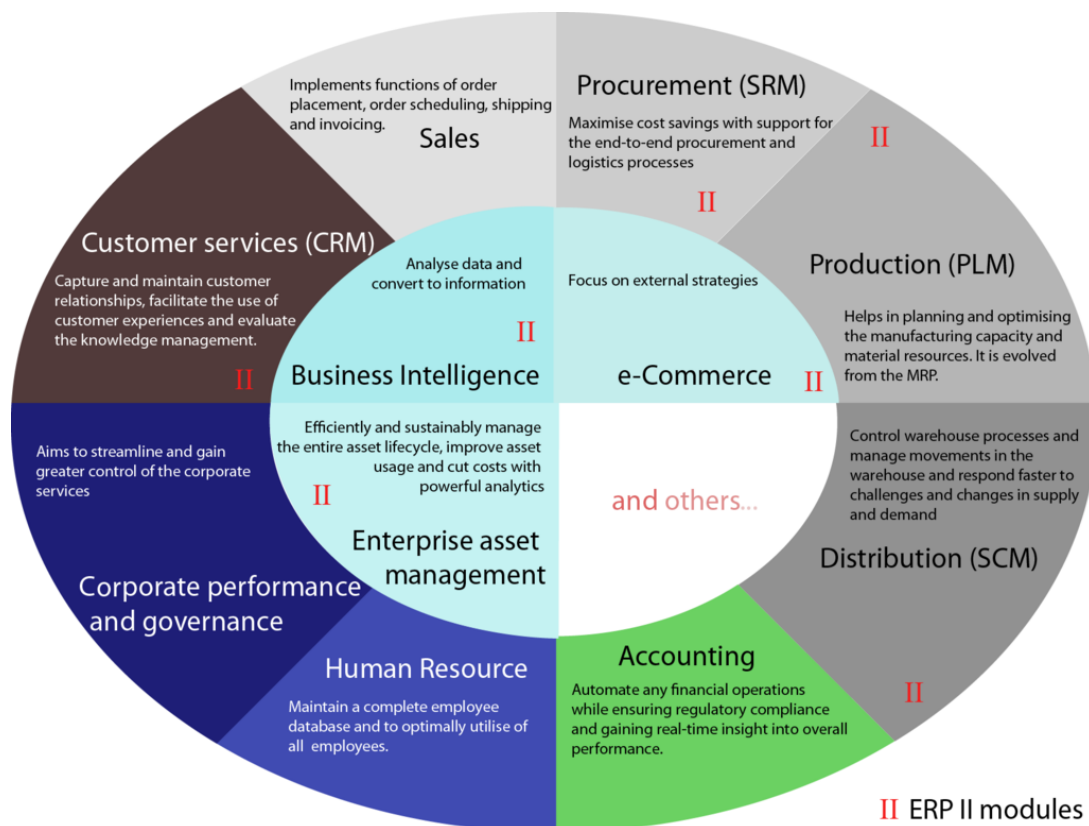
In the dynamic realm of modern business operations, where globalized markets, rapid technological advancements, and evolving organizational structures converge, stands the formidable entity of the Enterprise Resource Planning (ERP) system. Acting as the digital nexus of an organization's myriad functions, from finance to human resources, from inventory management to customer relations, ERP systems encapsulate the aspirations, challenges, and innovations of contemporary enterprises. This dissertation delves deep into the multifaceted world of ERP, tracing its historical evolution, dissecting its architecture, unraveling its implementation challenges, and projecting its trajectory into the future.

The genesis of ERP can be traced back to simpler systems focused on material requirements and inventory management. As businesses grew in complexity and scale, so did the demands on these systems, leading to the birth of comprehensive ERP solutions we recognize today. But understanding ERP is not merely an exercise in historical retrospection. The architecture of these systems, a complex tapestry of modules, interfaces, and integrations, reflects the intricate operations of modern businesses. From the nuanced world of data management to the critical imperatives of security and compliance, ERP systems stand as testaments to the challenges and triumphs of digital enterprise management.

Yet, the journey of ERP integration is not without its hurdles. Organizations venturing into ERP adoption often grapple with multifarious challenges, ranging from technical intricacies to human dynamics. Data migration, system customization, employee training, and change management are but a few of the myriad considerations that determine the success of ERP implementations. And as if these immediate challenges weren't daunting enough, the rapid pace of technological evolution continually reshapes the ERP landscape. The integration of Artificial Intelligence (AI), the promises of the Internet of Things (IoT), the allure of augmented reality interfaces, and the demands of ever-evolving cybersecurity threats ensure that ERP systems are perpetually on the cusp of transformation.

## 1.2 Definition

**Enterprise Resource Planning (ERP)** is a type of software that organizations use to manage and automate various business processes across different departments and functions. An ERP system integrates these processes into a unified system, streamlining workflows and facilitating the flow of information between them.



### 1.1.1 ERP II modules

In essence, ERP systems centralize various business processes, such as finance, human resources, procurement, and supply chain management, into a single integrated software platform. This centralization allows organizations to collect, store, manage, and interpret data from these various activities, leading to improved efficiency, enhanced decision-making, and better alignment of business strategies and operations.

### **1.3 Pre-ERP Era: Material Requirements Planning (MRP)**

In the late 1960s, the industrial landscape was undergoing significant changes. Manufacturing complexities were on the rise, and businesses grappled with challenges related to inventory management, production scheduling, and demand forecasting. It was within this backdrop that Material Requirements Planning (MRP) emerged as a beacon of modernization for manufacturing processes.

Joseph Orlicky, often considered the father of MRP, was instrumental in its conceptualization. After studying Toyota's innovative lean production and Just-In-Time (JIT) systems, Orlicky recognized the need for a system that could integrate various aspects of production planning and control. His vision was to create a unified method that could systematically convert a master production schedule into requirements for sub-assemblies, raw materials, and components, all aligned with the actual demand.

Implementing his ideas at the Black & Decker manufacturing plant, Orlicky showcased the effectiveness of MRP in reducing inventory levels while improving service delivery. His approach revolved around three primary questions: What is needed? How much is needed? When is it needed? Answering these questions allowed for precise coordination between purchasing, manufacturing, and distribution.

IBM, recognizing the potential of Orlicky's methods, collaborated with him to develop and market the first computerized MRP systems. This partnership was pivotal in transitioning MRP from a conceptual framework to a tangible tool that businesses could implement. The software solutions that ensued, such as IBM's COPICS (Communications Oriented Production Information and Control System), were game-changers, heralding a new era of automated and optimized production planning.

Orlicky's 1975 publication, "Material Requirements Planning," further solidified MRP's standing in the manufacturing world, offering a comprehensive guide to its

principles and applications. The book, combined with the success stories of early adopters, propelled MRP from a niche concept to a mainstream solution, laying the groundwork for the subsequent evolutions in enterprise resource planning.



## **1.4 MRP Software Vendors: Pioneering the Technological Revolution in Manufacturing**

### ***1.4.1. IBM and COPICS***

**IBM** (International Business Machines Corporation), with its deep roots in computer hardware, software, and technology services, was among the earliest players to recognize the potential of computerized MRP. Their foray into this domain led to the development of **COPICS** (Communications Oriented Production Information and Control System). Introduced in the 1970s, COPICS was a comprehensive MRP system designed to manage inventory, production, and distribution processes.

IBM's COPICS was revolutionary for its time. The software aimed to bridge the communication gap between different manufacturing units and corporate offices, ensuring data consistency and real-time updates. It was a significant step forward from manual, spreadsheet-based planning, offering a more automated, accurate, and integrated approach to production management.

The success of COPICS can be attributed to IBM's holistic vision. They didn't just see MRP as a production tool but as an enterprise-wide solution, linking sales, procurement, finance, and manufacturing. COPICS was designed to be modular, allowing businesses to implement only the modules they needed, making it scalable and adaptable to varying needs.

### ***1.4.2 ASK Computers and MANMAN:***

Another significant player in the MRP software landscape was **ASK Computers** with its **MANMAN** system. The name "MANMAN" was derived from "Manufacturing Management." Established by Sandy Kurtzig in the early 1970s, ASK Computers aimed to provide affordable and effective MRP solutions for businesses. MANMAN, being one of the earliest MRP software solutions, gained traction, especially among medium-sized manufacturers.

Unlike the larger and more complex systems like IBM's COPICS, MANMAN was known for its relatively simpler interface and ease of use. This made it particularly attractive to companies that were transitioning from manual processes and were wary of overly complex software implementations. Over the years, MANMAN evolved, adding more features and modules, reflecting the growing needs and complexities of manufacturing businesses.

### *1.4.3 The Broader Landscape and Competition:*

As the benefits of MRP systems became evident, the 1970s and 1980s saw a proliferation of MRP software vendors. Companies like **JD Edwards, Baan, and MSA (Management Science America)** entered the market, each offering their spin on MRP solutions. The competition was fierce, as each vendor strived to differentiate their product by adding unique features, improving user interfaces, and integrating emerging technologies.

This period was marked by rapid innovations and improvements in MRP software. The systems became more user-friendly, the algorithms more sophisticated, and the integrations more seamless. As businesses recognized the value of real-time data and integrated planning, the demand for MRP software soared. The market also saw a trend of mergers and acquisitions, as larger tech companies aimed to integrate MRP capabilities into their broader software offerings.

The emergence and growth of MRP software vendors during the 1970s and 1980s were pivotal in transforming the manufacturing landscape. These systems, once considered luxury investments, became essential tools for any competitive manufacturing business. By the end of the 1980s, the foundation for the next evolution, MRP II, and eventually ERP, was firmly established, thanks in large part to the pioneering efforts of these software vendors.

## **1.5 Evolution: Manufacturing Resource Planning (MRP II)**

### *1.5.1 Recognizing the Need for a Broader System:*

As businesses in the 1980s grew in complexity and global reach, the limitations of the original MRP systems became evident. While MRP was groundbreaking in its ability to manage inventory and coordinate production schedules, manufacturers realized that the other aspects of their operations – from finance to human resources – also needed to be integrated for true efficiency. This understanding led to the development of Manufacturing Resource Planning or MRP II.

MRP II aimed to go beyond the production-centric focus of traditional MRP. It was conceptualized as a comprehensive system that would encompass all resources within a manufacturing enterprise, ensuring that every aspect of the business was aligned with production needs and schedules.

### *1.5.2 Key Components and Characteristics of MRP II:*

- **Master Production Scheduling (MPS):** While MRP focused primarily on material requirements based on the forecasted demand, MRP II introduced a more detailed MPS. This schedule considered both the forecasted demand and actual customer orders, providing a more accurate and dynamic production plan.
- **Integrated Financial Management:** One of the most significant advancements in MRP II was the integration of financial management. This allowed for real-time budgeting, cost tracking, and financial forecasting directly linked to production activities.
- **Extended Modules:** MRP II systems incorporated modules for capacity planning, shop floor control, and human resources. This ensured that not only were the materials and products managed efficiently, but also the machines, production spaces, and workforce.

- **Feedback Loops:** MRP II introduced feedback mechanisms. If there were discrepancies between the planned and actual production, the system would flag these differences, allowing managers to adjust schedules or resources accordingly.

### *1.5.3 Influential Figures and Pioneering Systems in MRP II:*

**Oliver Wight**, a key figure in the evolution from MRP to MRP II, championed the need for a more integrated and comprehensive approach to manufacturing planning. Wight emphasized that for a business to truly optimize its production, it needed to consider all its resources, not just its materials. His teachings and publications played a pivotal role in shaping the methodologies and principles underlying MRP II.

Companies like **SAP** began introducing MRP II systems that reflected this broader vision. SAP's R/2, for instance, was an early example of an MRP II system that integrated various business functions, setting the stage for future ERP systems.

### *1.5.4 The Impact of MRP II on Businesses:*

MRP II brought about a paradigm shift in how businesses viewed integrated planning. By providing a holistic view of the entire manufacturing process, from order receipt to production to financial management, MRP II systems allowed businesses to be more agile and responsive to market changes. The real-time feedback and integrated financial planning meant that businesses could make more informed decisions, optimizing costs, and improving customer satisfaction.

## 1.6 Birth of ERP: Beyond Manufacturing

### *1.6.1 The Need for a More Comprehensive System:*

As businesses entered the 1990s, the globalized market and the rapid pace of technological advancements posed new challenges and opportunities. Organizations were not just looking to optimize their manufacturing processes but sought to streamline and integrate all facets of their operations. The limitations of MRP II, which was still largely production-focused, became evident. There was a clear need for a system that could unify diverse departments from finance to human resources to sales, under a single integrated framework. Enter ERP.

### *1.6.2 Definition and Core Components of ERP:*

ERP systems were conceptualized to go beyond the boundaries of manufacturing and production. The aim was to create a seamless environment where data from one department could be easily accessed and utilized by another, ensuring real-time communication and decision-making across the enterprise.

- **Modular Design:** ERP systems were designed to be modular. An organization could choose which modules to implement based on its needs. Common modules included finance, human resources, customer relationship management (CRM), and supply chain management.
- **Unified Database:** One of the hallmarks of ERP was its reliance on a unified database. This ensured that irrespective of the department or function, all data was consistent, up-to-date, and accessible from a single source of truth.
- **Flexible and Scalable:** Recognizing the diverse needs of businesses, ERP systems were designed to be both flexible and scalable. They could be customized to suit specific industry requirements and could grow and adapt as the business evolved.

### *1.6.3 Major Players and Systems of the 1990s:*

The 1990s saw the rise of several major players in the ERP market, each bringing its unique offerings and innovations:

- **SAP:** The German company SAP, which had already made its mark with MRP II systems, launched its R/3 system in the 1990s. This was a groundbreaking solution, moving from the previous mainframe-based architecture to a more flexible client-server model. SAP R/3 became synonymous with ERP during this period, with many large corporations adopting it as their core business system.
- **Oracle:** While initially known for its database solutions, Oracle made a strategic move into the ERP market. By acquiring companies like PeopleSoft (which had earlier acquired JD Edwards), Oracle expanded its portfolio to offer comprehensive ERP solutions.
- **Baan:** Baan, a Dutch company, emerged as another significant player in the ERP market. Known for its flexible architecture and user-friendly interface, Baan ERP found its niche, especially among manufacturing businesses.

### *1.6.4 The Broader Impacts of ERP Adoption:*

The adoption of ERP systems in the 1990s had profound impacts on businesses:

- **Process Reengineering:** Implementing an ERP system often required businesses to reevaluate and reengineer their existing processes. This led to broader organizational transformations, with companies streamlining and standardizing their operations to align with ERP best practices.
- **Data-Driven Decision Making:** With real-time data from across the enterprise at their fingertips, businesses could make more informed decisions. Whether it was forecasting sales, managing inventory, or allocating budgets, decisions were now backed by concrete data.

- **Challenges and Criticisms:** The adoption of ERP was not without its challenges. Implementations were often costly, time-consuming, and fraught with risks. Some businesses faced disruptions as they grappled with the complexities of ERP implementation. Additionally, there were criticisms about ERP systems being too rigid or generic, not catering to the unique needs of specific industries or businesses.

## **1.7 Modern ERP Development: Technological Advancements & Evolution of Expanded Capabilities**

### *1.7.1 The 2000s and Beyond: Rise of the Cloud*

One of the most defining shifts of the 2000s was the move towards cloud computing. With the internet becoming more robust and accessible, the idea of hosting software and data on the cloud, rather than on-premise servers, gained traction.

- **Cloud-Based ERP:** Vendors began offering cloud-based ERP solutions, which had several advantages. Organizations could reduce the costs associated with maintaining in-house IT infrastructure. Implementations became faster, updates were more seamless, and scalability was enhanced as businesses could easily adjust their ERP capacities based on demand. This democratized access to ERP systems, allowing even small and medium enterprises to harness their capabilities.
- **Real-time Access and Collaboration:** With cloud-based systems, real-time data access and collaboration became possible. Employees could access the ERP system from anywhere, enhancing mobility and flexibility. This was particularly beneficial for global businesses with multiple locations.

### *1.7.2 Integration of Advanced Technologies*

The 2000s and 2010s witnessed rapid advancements in technologies like Artificial Intelligence (AI), Internet of Things (IoT), and machine learning.

- **AI and Machine Learning:** ERP vendors began incorporating AI and machine learning into their systems. This enabled predictive analytics, where businesses could forecast trends and make proactive decisions. Routine tasks could be automated, and data analysis became more sophisticated, offering deeper insights.
- **IoT Integration:** With the proliferation of connected devices, ERP systems started integrating IoT data. This had profound implications, especially for sectors like manufacturing and logistics. Real-time tracking, predictive maintenance, and enhanced supply chain visibility became achievable.

### *1.7.3 Focus on User Experience and Customization*

As ERP systems became more sophisticated, there was a growing emphasis on user experience (UX).

- **Intuitive Interfaces:** Vendors invested in creating more intuitive, user-friendly interfaces. The goal was to reduce the learning curve and enhance productivity.
- **Customization and Modular Design:** Recognizing that businesses had diverse needs, ERP systems of the 2000s became more modular and customizable. Organizations could choose specific modules relevant to them and even tailor functionalities to their unique requirements.

### *1.7.4 Emergence of New Players and Industry-Specific Solutions*

While giants like SAP and Oracle continued to dominate the market, the new millennium saw the rise of several new players:

- **NetSuite:** One of the pioneers in cloud-based ERP solutions, NetSuite catered particularly to small and medium-sized businesses, offering a comprehensive suite of applications from finance to CRM.



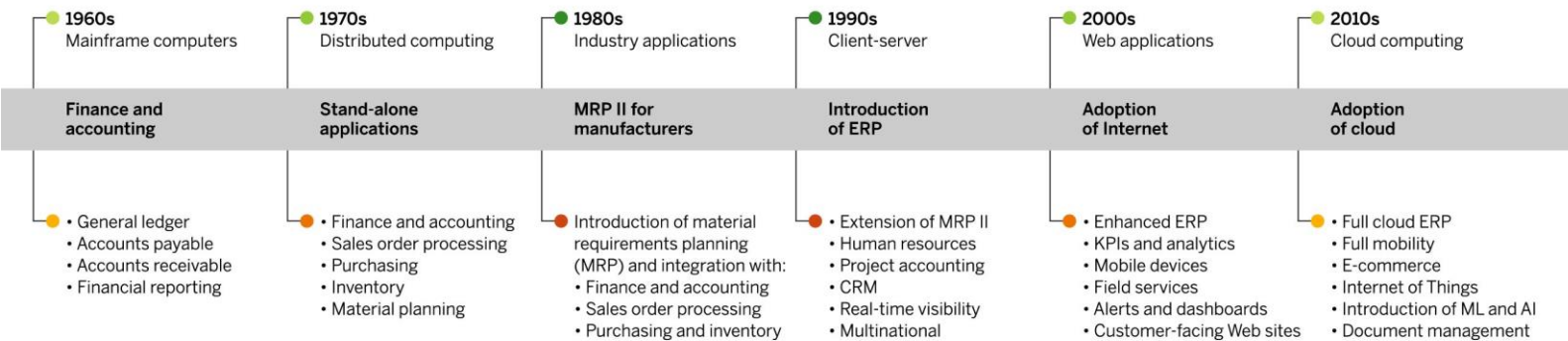
- **Industry-Specific Solutions:** Recognizing that different industries had unique challenges and requirements, vendors began offering industry-specific ERP solutions. Whether it was healthcare, retail, manufacturing, or education, these tailored solutions catered to the nuances of each sector.

### 1.7.5 Challenges in the Modern Era

Despite the advancements, the adoption of modern ERP systems wasn't without challenges:

- **Cybersecurity Concerns:** As businesses stored more data on the cloud, concerns about data breaches and cyberattacks grew. Ensuring the security and integrity of data became paramount.
- **Implementation Woes:** While cloud-based systems simplified some aspects of ERP implementation, businesses still faced challenges in terms of change management, training, and aligning the ERP system with their strategic goals.

The history of ERP



## 2 1.2 The History of ERP



## Chapter 2

### Enterprises offering development & Innovative products in the ERP Landscape

#### 2.1 The International market

##### 2.1.1 SAP

Systeme, Anwendungen und Produkte in der Datenverarbeitung, a German multinational, has been a dominant force in the ERP industry since the 1970s.

- **Innovations and Offerings:**
  - **SAP R/3:** Launched in the 1990s, R/3 was one of the first ERP solutions to adopt the client-server model, a shift from the earlier mainframe-based R/2. This modular system allowed businesses to choose and integrate various functions, from finance to HR to supply chain management.
  - **SAP S/4HANA:** Introduced in 2015, S/4HANA represents SAP's move into cloud-based ERP solutions with a focus on real-time data analytics and in-memory computing. With its advanced features, it promises speed, flexibility, and a user-friendly interface.
- **Business One:** Is their most recent attempt in creating an ERP targeted specifically at SMEs keeping cost at the lower end while being competitive
- **Contribution:** SAP's strength lies in its deep industry knowledge and its commitment to continuous innovation. The company's solutions are used by large corporations worldwide, making it a benchmark in the ERP industry.

##### 2.1.2 Oracle

Originally known for its database solutions, **Oracle** became a significant player in the ERP market through strategic acquisitions and robust in-house developments.

- **Innovations and Offerings:**
  - **Oracle E-Business Suite:** Oracle's flagship ERP product, the E-Business Suite, offers a comprehensive range of applications, from CRM to financials, tailored to various industries.
  - **Acquisitions:** Oracle's acquisition of PeopleSoft, JD Edwards, and later NetSuite, has allowed it to expand its ERP offerings, catering to both large enterprises and smaller businesses.
- **Contribution:** Oracle's approach to ERP has always been about scalability and integration. Their products cater to businesses of all sizes, and their emphasis on cloud-based solutions ensures flexibility and accessibility.

### 2.1.3 Microsoft

While **Microsoft** might be best known for its operating systems and productivity software, its foray into ERP has been noteworthy.

- **Innovations and Offerings:**
  - **Microsoft Dynamics:** Following the acquisition of Great Plains Software in 2001, Microsoft launched its ERP solution, Dynamics. Over the years, Dynamics has evolved into a suite of tools, including Dynamics 365, which integrates CRM and ERP capabilities on a cloud-based platform.
  - **Business Central:** Following SAP, this is Microsoft's most recent attempt in creating an ERP targeted specifically at SMEs keeping cost at the lower end while being competitive
- **Contribution:** Microsoft's strength in the ERP domain lies in its user-friendly interfaces, integration with other Microsoft products, and a strong network of partners offering customized solutions.

### 2.1.4 NetSuite

**NetSuite**, now a part of Oracle, was one of the pioneers in offering cloud-based ERP solutions, especially tailored for small and medium-sized businesses.

- **Innovations and Offerings:**
  - **Cloud-Based ERP:** Before it became mainstream, NetSuite recognized the potential of cloud computing for ERP. Their solutions emphasized real-time data access, scalability, and reduced IT overheads.
- **Contribution:** NetSuite's focus has always been on providing comprehensive yet straightforward solutions. Their cloud-native approach has made ERP

accessible to businesses that might have found traditional implementations too cumbersome or costly.

### *2.1.5 Emerging Global Players*

While the aforementioned giants dominate the industry, several newer players are bringing fresh perspectives and innovations:

- **Workday:** Initially focused on human capital management, Workday has expanded into the ERP space, emphasizing cloud-based solutions and user-friendly interfaces.
- **Epicor:** Offering industry-specific solutions, Epicor's ERP systems emphasize flexibility and ease-of-use.
- **Infor:** With its CloudSuite ERP solutions, Infor focuses on specific industries, providing tailored tools and functionalities.

## 2.2 Key ERP Players in the Greek Market

### 2.2.1 Epsilon – Singular Logic

Epsilon Singular Net (Epsilon Net – Singular Logic) is one of the leading software vendors in Greece, providing a range of business solutions, including ERP systems tailored for the Greek market.

- **Innovations and Offerings:**
  - **Galaxy ERP:** This was SingularLogic's flagship ERP product. After SingularLogic's acquisition by Epsilon it now belongs right beside Pylon, in their ERP lineup and it is designed to cater the needs of Greek businesses, from SMEs to larger enterprises. It covers a broad spectrum of operations, including finance, supply chain management, and HR, all tailored to local regulatory and business requirements.
  - **Pylon ERP:** is the secondary ERP designed to give a new dimension to the intra-company possibilities. It brings multilingual environment, multi-company structure and flexible user security system.
  - **Local Integrations:** Recognizing the unique tax, regulatory, and reporting needs of the Greek market, Epsilon's ERP solutions are integrated with local systems, ensuring seamless compliance and reporting.
- **Contribution:** Epsilon's deep understanding of the Greek business landscape and its specific challenges make it a preferred choice for many local businesses. Their solutions emphasize ease-of-use, local compliance, and adaptability.

### 2.2.2 SoftOne

**SoftOne**, headquartered in Athens, has made significant inroads in the Greek ERP market with its cloud-based solutions.

- **Innovations and Offerings:**
  - **Soft1 ERP:** This cloud ERP solution is designed for scalability and flexibility. Recognizing the shift towards cloud computing, SoftOne has positioned its ERP offering as a modern, accessible, and cost-effective solution for Greek businesses.
- **Contribution:** SoftOne's cloud-first approach has democratized access to ERP solutions in Greece, especially for SMEs. Their solutions are known for their robustness, user-friendly interfaces, and adaptability to the evolving business environment.

### *2.2.3 Entersoft*

**Entersoft** is another major player in the Greek ERP market, offering a suite of integrated business software solutions.

- **Innovations and Offerings:**
  - **Entersoft Business Suite:** This comprehensive ERP solution is designed for medium to large enterprises, offering modules for finance, distribution, production, and CRM. Its modern architecture and user-friendly interface have made it popular among Greek businesses.
  - **Mobile and E-commerce Integrations:** Entersoft places a strong emphasis on mobile solutions and e-commerce integrations, reflecting the modern business landscape and the importance of digital channels.
- **Contribution:** Entersoft's forward-thinking approach, combined with a deep understanding of local business needs, positions it as a leading ERP solution provider in Greece. Their emphasis on innovation and adaptability has garnered them significant market share.



#### *2.2.4 Global Players in the Greek Market*

While local vendors have a strong presence in Greece, global ERP giants like **SAP**, **Oracle**, and **Microsoft** also have a significant footprint.

- **Localized Solutions:** Recognizing the unique requirements of the Greek market, these global players often offer localized versions of their ERP systems, ensuring compliance with local regulations and catering to specific business practices prevalent in Greece.
- **Partnerships and Ecosystems:** These global vendors often collaborate with local partners, ensuring that their solutions are tailored for the Greek market. This local-global collaboration ensures that Greek businesses get the best of both worlds: global best practices combined with local expertise.

### *2.2.5 Emerging Players in the Greek Market*

- **Dataway:** As a new company making its first steps in the ERP industry Dataway develops their solution to the market named **Plano** which is an intuitive ERP with an extreme level of implementations and customizations developed with process clarity and openminded out of the box thinking
- **Data Communication:** A veteran in the Greek IT industry, Data Communication has been offering its own ERP solution, Marathon ERP, designed to cater to the specific needs of Greek companies, ensuring compliance with local regulations and business practices.
- **Prosvasis:** Is an accounting software that supports real time reporting, electronic invoicing and employee digital management!
- **Elorus:** With its self-service, low-cost approach, Elorus distinguishes itself from the giants that raise the barrier to entry of back-office solutions for SMEs.

## Chapter 3

### Understanding ERP from a Technological Perspective

#### 3.1 The Architecture of ERP Systems

The architecture of an ERP system is foundational to its functionality, providing the structural framework that determines how different components interact, integrate, and function cohesively. Understanding this architecture is essential, as it not only dictates the system's capabilities but also influences its adaptability, scalability, and performance.

##### *3.1.1 Foundational Layers and Components*

At the core of any ERP system lies its foundational layers and components, which are the building blocks of the system. Typically, ERP architectures are multi-tiered, often described in terms of layers or tiers.

The data layer contains databases that store organizational data, from financial records to human resources information. Given the critical nature of this data, this layer emphasizes security, integrity, and redundancy. Modern ERP systems often employ relational databases, which allow for complex queries and reporting, enabling businesses to extract insights from their data.

The application layer is where the actual business logic resides. This layer contains modules—distinct yet integrated components that handle specific business functions, such as finance, sales, or inventory management. These modules interact with the data layer, retrieving and storing information as needed. The modularity of this layer is crucial, allowing organizations to tailor their ERP systems based on specific needs, adding or removing modules as required.

Finally, the presentation layer serves as the interface between users and the ERP system. It determines how information is displayed and how users interact with the system. Given the diverse roles within an organization, from top-level executives to frontline employees, modern ERP systems offer customizable dashboards, ensuring that users receive relevant information tailored to their roles.

### ***3.1.2 Integration Mechanisms***

One of the primary value propositions of ERP systems is their integrative capability. To achieve seamless integration across modules and even with external systems, ERP architectures employ middleware. Middleware facilitates communication and data exchange, ensuring that different parts of the system can work together cohesively. This is particularly crucial for businesses that might integrate their ERP systems with other tools, such as Customer Relationship Management (CRM) systems or e-commerce platforms.

### ***3.1.3 Adaptive and Open Architectures***

The dynamic nature of the business environment necessitates ERP systems that are adaptive and can evolve with changing needs. Adaptive architectures ensure that ERP systems remain flexible, allowing for modifications, upgrades, and integrations without massive overhauls. Additionally, open architectures are becoming increasingly popular, where ERP systems are designed with open APIs (Application Programming Interfaces). This allows third-party integrations, ensuring that businesses can extend the functionality of their ERP systems as needed.

## **3.2. Integration with Other Systems (CRM, SCM, etc.)**

Enterprise Resource Planning (ERP) systems, while comprehensive, are often just one component of a larger technological ecosystem within an organization. Given the diverse and specialized needs of different business functions, organizations frequently employ various software solutions, each catering to specific operational domains. However, for a business to truly harness the power of its digital infrastructure, these disparate systems must be integrated seamlessly. This ensures data consistency, process efficiency, and a unified view of the organization's operations.

### ***3.2.1 CRM Integration: Bridging Sales and Operations***

Customer Relationship Management (CRM) systems are pivotal for businesses that aim to cultivate and maintain strong relationships with their customers. These systems manage interactions with current and potential customers, track sales leads, monitor marketing campaigns, and provide insights into customer behavior and preferences.

Integrating CRM with ERP brings multiple benefits. First, sales data from the CRM can be automatically fed into the ERP, ensuring that inventory, finance, and production teams have real-time insights into sales trends. Conversely, the CRM system can access data from the ERP to provide sales teams with up-to-date information on product availability, order status, or customer purchase history. This bi-directional flow of data ensures that sales strategies are grounded in operational realities and that customer commitments are always based on accurate information.

### ***3.2.2 SCM Integration: Streamlining the Supply Chain***

Supply Chain Management (SCM) systems focus on the movement of products, right from raw material procurement to the delivery of finished goods to customers. Given the complexities of global supply chains, these systems play a crucial role in

optimizing logistics, managing supplier relationships, and ensuring timely product availability.

When SCM systems are integrated with ERP, the entire supply chain can be viewed and managed from a central platform. Inventory levels from the ERP can inform procurement decisions in the SCM, ensuring that stock levels are optimized.

Similarly, production schedules from the ERP can be aligned with supplier deliveries managed by the SCM, ensuring that production is never halted due to material shortages. This integration not only reduces operational inefficiencies but also allows for more agile and responsive supply chain strategies.

### ***3.2.3 Integration with Other Systems***

Beyond CRM and SCM, modern businesses often employ a plethora of specialized software solutions. This includes Human Resource Management systems (for employee data and payroll), e-commerce platforms (for online sales), and Business Intelligence tools (for data analytics). Integrating these systems with the ERP ensures a unified data repository, eliminating inconsistencies and data silos. For instance, integrating e-commerce platforms can automate order entries into the ERP, while HR integrations can ensure that financial modules are always updated with the latest payroll and expense data.

### ***3.2.4 Middleware and APIs: The Glue of Integration***

Achieving these integrations often requires specialized software known as middleware. Middleware facilitates communication between different software systems, translating data formats and ensuring smooth data flow. Additionally, with the rise of open architectures, many ERP vendors now offer Application Programming Interfaces (APIs) that allow third-party software to interact with the

ERP directly. This not only simplifies integrations but also ensures that businesses can easily extend their ERP's functionality as they adopt new software solutions.

### **3.3 Cloud vs. On-Premise ERP Solutions**

The choice between cloud and on-premise solutions is one of the most critical decisions businesses face when considering ERP implementation. Both approaches offer distinct advantages and come with their own set of challenges. The best choice often depends on the organization's specific needs, resources, and long-term strategic goals.

#### ***3.3.1 On-Premise ERP Solutions: Control at a Cost***

Traditional on-premise ERP solutions are hosted on an organization's own servers and managed by its in-house IT team. This approach has been the norm for decades, and many large enterprises have heavily invested in infrastructure to support these systems.

One of the primary advantages of on-premise solutions is the degree of control they offer. Organizations can customize the software to their exact requirements, ensuring that the ERP system fits like a glove. This control extends to data management as well, with businesses having full oversight over data storage, access, and security protocols.

However, this control comes with its own set of challenges. The upfront costs for on-premise ERP solutions can be substantial, encompassing server infrastructure, licensing fees, and implementation costs. Moreover, maintaining the system also demands consistent investment, both in terms of hardware maintenance and software updates. These systems also require a dedicated IT team, capable of managing and troubleshooting the ERP solution.

### ***3.3.2 Cloud ERP Solutions: Flexibility and Scalability***

Cloud ERP solutions, a more recent development in the world of enterprise software, are hosted on external servers and managed by third-party providers. These solutions are accessible via the internet, ensuring that users can access the system from anywhere, provided they have an internet connection.

Cloud-based ERPs have gained traction due to the flexibility and scalability they offer. With no need for hefty upfront infrastructure investments, businesses can get started with cloud ERPs with significantly lower initial costs. Scalability is another major advantage; as the organization grows, the ERP system can scale seamlessly, accommodating increased data and user loads without the need for manual infrastructure upgrades.

Data security and system uptime are often managed by the ERP vendor, which can be both an advantage and a concern. Reputable vendors invest heavily in state-of-the-art security protocols and guarantee high levels of system availability. However, entrusting critical business data to third parties does raise valid concerns about data ownership, privacy, and potential vulnerabilities.

### ***3.3.3 Hybrid Solutions: Bridging the Gap***

Recognizing the distinct advantages of both cloud and on-premise solutions, some organizations opt for hybrid ERP solutions. These systems combine on-premise infrastructure with cloud components, aiming to harness the strengths of both approaches. For instance, critical data might be stored on-premise, ensuring maximum control, while more dynamic modules, like customer portals or sales platforms, might be hosted in the cloud, offering scalability and remote accessibility.



### *3.3.4 Making the Choice*

Choosing between cloud and on-premise ERP solutions is not a binary decision; it's a strategic one. Organizations must consider their operational needs, budgetary constraints, IT capabilities, and long-term growth plans. For startups and SMEs with limited resources, cloud solutions might offer the best balance between functionality and cost. In contrast, large enterprises with established IT infrastructure might lean towards on-premise or hybrid solutions, valuing the control and customization they offer.

## **3.4 Mobile ERP and Accessibility**

In an era characterized by digital transformation and the ubiquity of mobile devices, the demand for business solutions that can be accessed on-the-go has skyrocketed. The realm of Enterprise Resource Planning (ERP) systems is no exception. Mobile ERP solutions and enhanced accessibility features have emerged as pivotal components of modern ERP strategies, addressing the needs of a dynamic, globalized, and increasingly mobile workforce.

### *3.4.1 The Rise of Mobile ERP*

As businesses expand, their operations often span multiple regions, time zones, and even continents. Add to this the rise of remote work, and it's evident that employees can't always be tethered to a desk or a specific location. They require access to critical business data and functionalities wherever they are. Mobile ERP solutions have emerged to address this need, offering users the ability to access the ERP system via smartphones, tablets, and other mobile devices.

But mobile ERP isn't merely about accessibility; it's about functionality. These mobile solutions are designed with the mobile user in mind. This means intuitive interfaces, touch-screen optimized controls, and functionalities tailored for smaller screens. For

instance, a sales representative in the field can quickly check inventory levels, confirm orders, or update client data, all from their mobile device.

### ***3.4.2 Benefits of Mobile ERP***

The advantages of adopting mobile ERP solutions are manifold:

**Real-time Decision Making:** With access to real-time data, decisions can be made promptly, whether it's a manager approving a purchase order on the move or a technician updating the status of a maintenance task from the field.

**Increased Productivity:** Employees no longer need to wait to get back to their desks to perform critical tasks, leading to faster turnaround times and enhanced efficiency.

**Enhanced Collaboration:** Mobile access ensures that teams, even if dispersed geographically, have consistent data, leading to better collaboration and coordination.

**Customer Satisfaction:** Quick response times, enabled by mobile ERP access, can significantly enhance customer satisfaction, especially in sectors like sales or customer support.

### ***3.4.3 Accessibility Beyond Mobility***

While mobile ERP addresses the needs of users on-the-move, the broader theme of accessibility extends to ensuring that all users, including those with disabilities, can effectively use the system. Modern ERP solutions are being designed with accessibility features like screen readers, voice commands, and interface customization options to cater to users with visual, auditory, or motor impairments. Such inclusivity ensures that the ERP system is truly an enterprise-wide solution, accessible and usable by all employees.

### **3.5 Security and Compliance in ERP Systems**

In the interconnected digital realm of modern businesses, Enterprise Resource Planning (ERP) systems stand as crucial pillars, anchoring vast arrays of sensitive data. From intricate financial details to confidential employee records, these systems are repositories of information that is both invaluable and vulnerable. The dual imperatives of security and compliance aren't mere adjuncts to these systems but are woven into their very fabric, reflecting the challenges and responsibilities of today's digital enterprises.

At the heart of ERP security lies the sanctity of data. In an era where data breaches can spell both financial and reputational catastrophes, ensuring that data, whether it's static or in transit, remains shielded is paramount. This is achieved through sophisticated encryption protocols, which act as digital fortresses, guarding the data against unauthorized access. Complementing this is the principle of data integrity, which necessitates regular backups, ideally spread across geographically distinct locations to mitigate risks. As the axiom goes, security is only as robust as its weakest link. In expansive organizations, with hundreds or even thousands of employees accessing the ERP, stringent access controls become vital. Rather than granting blanket access, modern ERP systems adopt a nuanced approach, granting employees access solely to the information relevant to their roles. This not only minimizes potential data leaks but also ensures the compartmentalization of sensitive information. Beyond these protective measures lies the realm of accountability. By maintaining meticulous audit trails, ERP systems chronicle every interaction, from the innocuous to the critical. This chronological tapestry of interactions serves a dual purpose. Firstly, it aids in investigations, should breaches occur. Secondly, it fosters a culture of responsibility, where every action within the system is traceable, deterring potential internal malfeasance.

In the global theatre of business, regulatory compliance introduces another layer of complexity. Financial behemoths and publicly traded entities find themselves

ensnared in a web of financial regulations, demanding transparent and punctual reporting. Here, ERP systems transition from being operational tools to compliance facilitators, ensuring that financial disclosures align with stringent standards, such as the Sarbanes-Oxley Act in the U.S.

The tendrils of compliance further extend into the domain of data protection. With landmark regulations like the European Union's General Data Protection Regulation (GDPR) redefining data privacy norms, ERP systems must be agile, adapting to ensure that data handling practices honor these regulatory edicts, from obtaining explicit user consent to providing mechanisms for data erasure.

However, the realm of compliance isn't homogenous. Depending on the industry, bespoke regulatory frameworks come into play. For instance, in the U.S., healthcare organizations grapple with the Health Insurance Portability and Accountability Act (HIPAA), which outlines specific mandates related to patient data, yet, in the ever-evolving world of cyber threats, resting on one's laurels is not an option. ERP security demands relentless vigilance. This entails periodic software updates, patching emerging vulnerabilities, and conducting regular security audits. Moreover, the human dimension of security cannot be overlooked. Comprehensive employee training sessions, emphasizing best practices and potential threats, are crucial to ensure that inadvertent human errors don't compromise system integrity.

### **3.6 User Interface (UI) in ERP Systems**

In the vast landscape of Enterprise Resource Planning (ERP) systems, technical prowess and functional capabilities often take center stage. However, an equally pivotal, yet occasionally overlooked component, is the User Interface (UI). It's the bridge between intricate algorithms, vast data repositories, and the end-users who must interact with these systems daily. The design, intuitiveness, and flexibility of the UI can significantly impact user adoption, efficiency, and overall system effectiveness.

The evolution of ERP systems over the decades provides a telling narrative about the role of UI. In the early days, ERPs were predominantly tools for the IT-savvy, with interfaces that were laden with technical jargon, dense data tables, and limited visual appeal. These systems were powerful, no doubt, but they demanded a steep learning curve from users. Fast forward to the present, and the scenario has shifted dramatically. With the democratization of technology and the realization that ERPs serve a vast cross-section of organizational roles, the emphasis on intuitive and user-friendly interfaces has surged. A well-designed UI in modern ERP systems strives for simplicity without compromising on functionality. This means decluttering screens, grouping related functions logically, and ensuring that users can access the tools they need without wading through layers of menus. Streamlined workflows, guided by the interface, ensure that tasks, whether it's entering sales data, generating reports, or processing orders, become intuitive and efficient.

Personalization plays a significant role in enhancing the UI experience. Recognizing that no two users are the same, modern ERP systems offer customizable dashboards. An executive might prioritize financial summaries and performance metrics, while a procurement officer would focus on inventory levels and supplier data. By allowing users to tailor their interface based on role-specific needs, ERPs not only increase user satisfaction but also enhance productivity. Visual appeal and interactivity also become cornerstones of modern ERP UI design. Gone are the static tables and monochrome screens. In their place, we find interactive charts, color-coded data points, and even integrations with augmented reality (AR) for specific modules. These visual elements aren't mere aesthetic enhancements; they aid in data comprehension, allowing users to grasp trends, anomalies, and insights at a glance.

Accessibility, in the context of UI, extends beyond the traditional desktop environment. With the proliferation of mobile devices and the rise of remote work, ERP interfaces are now designed to be responsive. This ensures that whether accessed from a desktop, tablet, or smartphone, the UI retains its functionality and visual

coherence. Feedback mechanisms embedded within the UI serve a dual purpose. They allow users to report issues, provide suggestions, or seek clarifications, fostering a two-way communication channel between users and system administrators or developers. Additionally, they facilitate continuous improvement, ensuring that the UI evolves based on real-world user experiences and needs.

## **Chapter 4**

### **Enterprise Resource Planning in Modern Businesses**

#### **4.1 Implementation and Adoption Challenges**

The journey of integrating an Enterprise Resource Planning (ERP) system into an organization's operational framework is akin to a complex dance. While the destination—a seamlessly functioning, holistic system—is enticing, the path is rife with challenges. The intricacies of ERP implementation and adoption are multifaceted, stemming from technical complexities, human dynamics, and strategic considerations.

At the outset, one of the most formidable challenges is the sheer magnitude of data migration. Organizations, especially those with a rich operational history, possess vast repositories of data, stored in varied formats across disparate systems. Migrating this data to the new ERP system is not merely a task of data transfer. It involves data cleansing—removing redundancies and errors—format standardization, and ensuring data integrity. This process, if not executed meticulously, can lead to data loss, inconsistencies, or integration failures, which can have cascading effects on the system's functionality. Parallel to the data challenges is the task of system customization and configuration. While modern ERP systems are robust and versatile, each organization has unique operational nuances. Tailoring the ERP to cater to these specific needs, without compromising on system stability or future scalability, is a delicate balance to achieve. Over-customization can lead to system bloat, reduced performance, and challenges in future updates. Beyond the technical realm, human factors introduce their own set of challenges. Employees, habituated to legacy systems and processes, might view the new ERP system with apprehension or resistance. This is a natural human response to change, especially when the change is perceived as disruptive or threatening. Addressing this requires comprehensive training programs, not just focusing on the "how" of the system—how to input data,

how to generate reports—but also the "why": elucidating the long-term benefits, efficiencies, and growth potentials the ERP system brings. However, training alone might not suffice. The shift to an ERP system often entails changes in workflows, roles, and even organizational hierarchies. Managing this change, ensuring smooth transitions, and addressing concerns or anxieties becomes pivotal. Change management, in the context of ERP adoption, is as much about psychological and cultural adaptation as it is about operational shifts.

Financial considerations, too, come into play. ERP implementations can be capital-intensive, and budget overruns are not uncommon. This could be due to unforeseen technical challenges, scope changes, or extended timelines. Financial planning, therefore, needs to be both realistic and provisioned for contingencies.

Lastly, the ERP ecosystem is not static. Post the initial implementation, there are periodic updates, patches, and new modules to consider. Ensuring that the system remains updated without disrupting operations, and that these updates align with the organization's evolving needs, is a continuous challenge.

## **4.2 Case Studies**

### ***4.2.1 Cisco Systems: Streamlining Operations for Global Growth***

Founded in the heart of Silicon Valley, Cisco Systems, Inc. quickly grew to become a multinational behemoth in the world of networking hardware, software, and telecommunications. By the dawn of the 1990s, the rapid pace of their growth presented a unique set of challenges. Their legacy IT infrastructure, a tapestry woven from different systems over the years, found itself under increasing strain. These disparate systems, though functional in their own right, lacked the cohesion necessary for a global company operating at Cisco's scale. Data inconsistencies emerged, and operational bottlenecks began to hinder efficiency.



This patchwork IT environment wasn't just an operational hurdle; it was a strategic impediment. As Cisco cast its eyes towards global expansion, the need for a unified, scalable system became paramount. Regional nuances in business operations would need a system that ensured standardization while accommodating specific regional needs.

The solution? An Enterprise Resource Planning (ERP) system. After meticulous evaluation of various vendors, Cisco decided on Oracle's ERP software, drawn to its robust track record, scalability, and alignment with Cisco's objectives. The initial phase was characterized by a careful pilot program. Instead of an ambitious full-scale rollout, Cisco opted to test waters with a single module, ironing out kinks and ensuring the system was robust enough for broader deployment.

But technology was just one piece of the puzzle. People, with their habits and resistances, posed a challenge of their own. Recognizing this, Cisco's approach was rooted in cross-functional collaboration. Teams comprising members from diverse departments, from IT to finance to manufacturing, were formed. This ensured that the ERP system, while technologically sound, was also grounded in the realities and needs of those who would use it daily. This human-centric approach was further bolstered by Cisco's commitment to change management. The company understood that an ERP system, with its transformative potential, would reshape the operational landscape. To ensure a smooth transition, extensive training programs were rolled out, and communication campaigns were launched to get buy-in from employees at all levels.

The results of this meticulous, people-first approach were evident post-implementation. Operational processes at Cisco were streamlined, leading to efficiencies that saw monthly close times reduced by 20%. The once-elusive data consistency was now a reality, empowering decision-makers with reliable, real-time data. More importantly, the ERP system provided the scalability Cisco desperately

needed, equipping them to handle increased transaction volumes and the intricate dance of global operations.

#### ***4.2.2 BP (British Petroleum): Integrating Decentralized Operations***

In the vast expanse of the global energy sector, few names resonate as powerfully as BP, or British Petroleum. With operations spanning the globe, from exploration to refining to marketing, BP's prominence is a testament to its ability to adapt, innovate, and navigate the complexities inherent in the energy industry. However, by the turn of the millennium, BP found itself grappling with a challenge that threatened its operational efficiency and strategic agility: decentralization.

For years, BP's modus operandi was characterized by a decentralized approach, with multiple business units operating with a degree of autonomy. While this provided flexibility and allowed for regional customizations, it also led to inefficiencies. Siloed operations meant that data was fragmented, leading to delays in decision-making. Furthermore, the lack of a unified system made it challenging to harness synergies across units and regions.

Recognizing the need for a more integrated approach, BP's leadership turned their attention to Enterprise Resource Planning (ERP) systems. The goal was clear: to weave the disparate strands of BP's global operations into a cohesive tapestry, enhancing efficiency and data-driven decision-making. After evaluating various vendors, BP chose SAP, a global leader in ERP solutions. This choice was underpinned by SAP's robust capabilities, its scalability, and its proven track record in managing complex, large-scale operations.

The implementation journey was neither swift nor without challenges. Given the vastness of BP's operations, a phased rollout was deemed the most prudent approach. This ensured that challenges encountered in one phase could be addressed before proceeding to the next, thereby minimizing disruptions. A cornerstone of BP's implementation strategy was collaboration. Cross-functional teams, encompassing members from diverse departments and regions, were constituted. This ensured that

the ERP system was not just technologically adept but also aligned with the ground realities of BP's operations.

Training and change management emerged as critical pillars of the implementation process. BP recognized that the success of the ERP system hinged not just on its technical prowess but on its acceptance and adoption by employees. To this end, extensive training programs were rolled out, ensuring that employees were equipped with the skills and knowledge to leverage the ERP system effectively. Furthermore, communication initiatives were undertaken to highlight the benefits of the system, securing buy-in from the workforce.

Post-implementation, the benefits of the ERP system became palpably evident. BP's global operations, once fragmented, now operated with a newfound cohesion. Real-time data access facilitated swifter, more informed decision-making. Supply chain efficiencies were realized, leading to cost savings. Moreover, the ERP system provided a robust foundation for BP's future growth, ensuring that the company was equipped to navigate the ever-evolving challenges of the energy sector.

#### ***4.2.3 Boeing: Customized ERP for Complex Manufacturing***

In the realm of aerospace and defense, Boeing stands as a colossus, a testament to human ingenuity and the relentless pursuit of the skies. With its roots tracing back to the early 20th century, Boeing's journey has been marked by innovation, challenges, and adaptation. By the late 1990s and early 2000s, amidst a backdrop of increasing competition and the complexities of aerospace manufacturing, Boeing confronted an operational challenge that demanded a strategic response: the need for a unified system to manage its vast and intricate manufacturing processes.

Boeing's operations, characterized by the manufacturing of aircraft with tens of thousands of components and multi-year production schedules, presented a unique set of challenges. The legacy systems in place, though functional, lacked the cohesion and scalability necessary for a company of Boeing's magnitude and operational

complexity. Data silos, fragmented communication, and the absence of real-time data access hindered efficiency and timely decision-making.

The solution, Boeing's leadership realized, lay in the realm of Enterprise Resource Planning (ERP). However, given the unique challenges of aerospace manufacturing, a standard ERP solution would not suffice. Boeing needed a system that was both robust and customizable. After a comprehensive evaluation process, Boeing opted for a collaboration with several vendors, including SAP, to develop a customized ERP solution tailored to its specific needs.

The implementation of this bespoke ERP system was a monumental endeavor. Boeing adopted a phased approach, ensuring that each module was meticulously tested and integrated before the broader rollout. The company recognized the importance of not just technological excellence but also human-centric considerations. Cross-functional teams were formed, drawing members from various departments, ensuring that the ERP system was being crafted with insights from every facet of Boeing's operations.

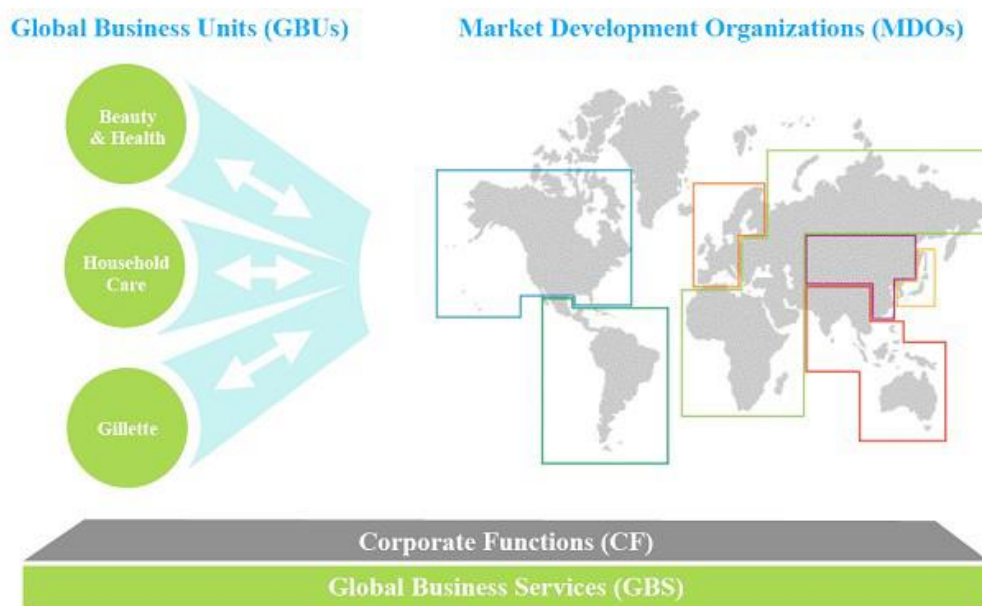
Training emerged as a pivotal component of the implementation strategy. Given the scale of change that the ERP system introduced, Boeing invested heavily in comprehensive training programs, ensuring that employees at all levels were adept at leveraging the system's capabilities. Furthermore, communication initiatives highlighted the long-term benefits and efficiencies that the ERP system would bring, securing organizational buy-in.

The outcomes of this meticulous, multi-faceted approach were transformative. The ERP system provided Boeing with a unified view of its operations, from component tracking to production scheduling to supply chain management. The previously fragmented processes now operated with a synergy, leading to significant efficiencies. Real-time data access empowered decision-makers, enabling proactive responses to challenges. Furthermore, the system's scalability ensured that Boeing was equipped to handle future growth and the evolving demands of aerospace manufacturing.

### 4.2.3 Procter & Gamble Co.

Procter & Gamble is a multinational American corporation headquartered in Cincinnati, Ohio, USA. It specializes in the manufacturing of a diverse range of consumer products. This company was founded back in 1837 by individuals named Mr. Procter and Mr. Gamble. P&G is renowned for its significant contributions to business practices, including the development of brand management and the soap opera genre.

P&G boasts an impressive annual sales revenue of \$76.5 billion and boasts a portfolio of 300 different brands. Among these, 23 are recognized globally and generate sales exceeding \$1 billion each. The company employs a total of 138,000 individuals and maintains 80 corporate offices scattered across the globe. In 2005, P&G completed the acquisition of Gillette, solidifying its position as the largest consumer goods company in neighboring markets.



#### 4.2.3.1 P&G Global Business Units

P&G operates through three Global Business Units (GBUs), as illustrated. The Beauty Care GBU is primarily responsible for cosmetics, deodorants, feminine care,

fragrances, hair care, and skincare products. The Household Care GBU concentrates on house hygiene, snacks, coffee, and batteries. Meanwhile, the Gillette GBU encompasses products for children and families, oral hygiene, pet care, household appliances, and razors. These GBUs adopt a global perspective, aiming to establish robust brands, strategies, and a culture of continuous innovation in both product development and marketing.

To ensure the success of marketing plans at the local level, Market Development Organizations (MDOs) play a crucial role. They engage with trade partners to ensure that the marketing strategies effectively resonate with local consumers. Global Business Services (GBS) provide a wide array of services to support the company's various functions. This includes tasks such as accounting, payroll management, supplier orders, logistics, and systems management.

Furthermore, P&G has nine Corporate Functions (CF) which encompass Consumer Market Knowledge, Research and Development, Product Supply, Finance, Customer Business Development, Marketing, External Relations, Human Resources, and Information and Decision Solutions. The company employs a decision-making system known as the "PACE Model," where each process involves a Process Owner, an Approver, individuals to be Consulted, and those responsible for Execution.

P&G follows a production approach known as "produce to demand" (PTD). Their production system, referred to as "continuous in-line," is characterized by high volume and a wide variety of products within their production lines.

In 2005, Procter & Gamble initiated an extensive ERP implementation project across Europe, the Middle East, and Africa (EMEA). The primary goal was to establish consistent processes that would lead to substantial cost savings and align with the company's ambitious "100 Billion \$ Company" vision for 2010. This research study zooms in on the specific implementation of the ERP project at the Pomezia Plant.

The Pomezia Plant, which began operations in 1961, specializes in the production of washing powders. By the time of this study in 2007/2008, the plant had achieved an annual turnover of \$16 million. It features six manufacturing units, ten packing lines, and a warehouse with a capacity for 20,500 pallets. The majority of its products are distributed within Italy, although a smaller portion is exported to various European countries.

The ERP implementation project at the Pomezia Plant commenced in September 2006 and continued for a duration of 15 months.



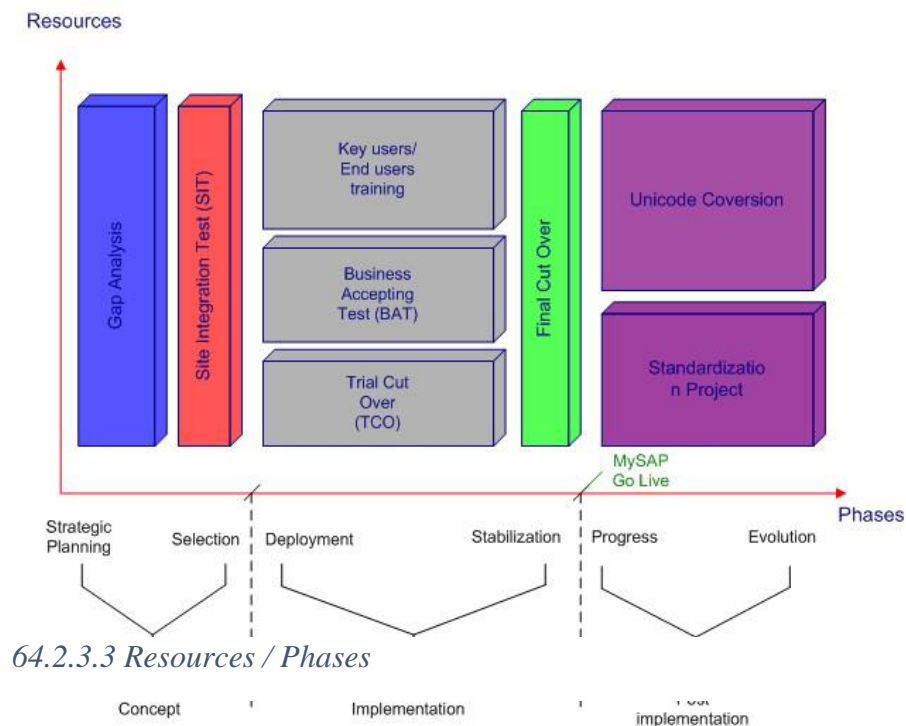
#### *5 4.2.3.2 Localisation Stats*

### **Motivations**

Procter & Gamble had several compelling reasons for deciding to implement an ERP (Enterprise Resource Planning) system. Firstly, the company needed to replace its outdated legacy system with a more modern and efficient solution. This was driven by the need to improve the speed and efficiency of their business transactions.

Additionally, P&G was going through a period of significant change. The acquisition of The Gillette Company in 2005 resulted in a shift in their business needs and processes. To adapt to this change, the company sought a system that could seamlessly integrate these new elements and ensure the safety and integrity of their data. They also aimed to reduce the number of disparate systems and interfaces in use, with the goal of simplifying their IT landscape. This simplification was intended to enhance system management and make it easier to maintain.

Another key objective was to provide better managerial tools that would support decision-making processes and improve planning. This would enable P&G to access more accurate and timely information, ultimately facilitating faster and more informed decision-making across the organization.





## **ANNEX**

### **The Future of ERP**

One of the most compelling advancements on the horizon is the integration of Artificial Intelligence (AI) within ERP systems. AI, with its capacity for data analysis, pattern recognition, and predictive modeling, holds the promise of transforming ERPs from reactive to proactive systems. Imagine an ERP that doesn't just collate sales data but can predict sales trends based on market dynamics, historical data, and even global socio-political events. Or consider an inventory management module that autonomously places orders, gauging product demand from real-time data feeds, social media sentiment analysis, and more. This AI-driven proactive approach could revolutionize decision-making processes, allowing businesses to stay several steps ahead of the curve. Parallel to AI is the burgeoning realm of the Internet of Things (IoT). As devices become smarter and more interconnected, the data they generate offers a goldmine of insights. Integrating this IoT data stream with ERP systems can lead to unparalleled operational efficiencies. For instance, in a manufacturing setup, sensors on machinery could feed real-time performance data to the ERP, enabling predictive maintenance, optimizing production schedules, and even automating quality checks. Another transformative trend is the move towards even more modular and flexible ERP architectures. While modularity isn't new to ERPs, the future might see hyper-modular systems where organizations can plug and play not just large modules, but microservices. This would allow businesses to craft ERP solutions that are tailor-made to their unique needs, all the while ensuring that system bloat and redundancy are minimized. The evolution of user interfaces in ERP systems is also set for a leap, driven by Augmented Reality (AR) and Virtual Reality (VR). These technologies, while often associated with gaming or entertainment, have profound business applications. For instance, a warehouse manager could use AR glasses to visualize inventory levels, projected stock movements, or even optimal storage configurations, all overlaid on the real-world warehouse environment. Similarly, VR

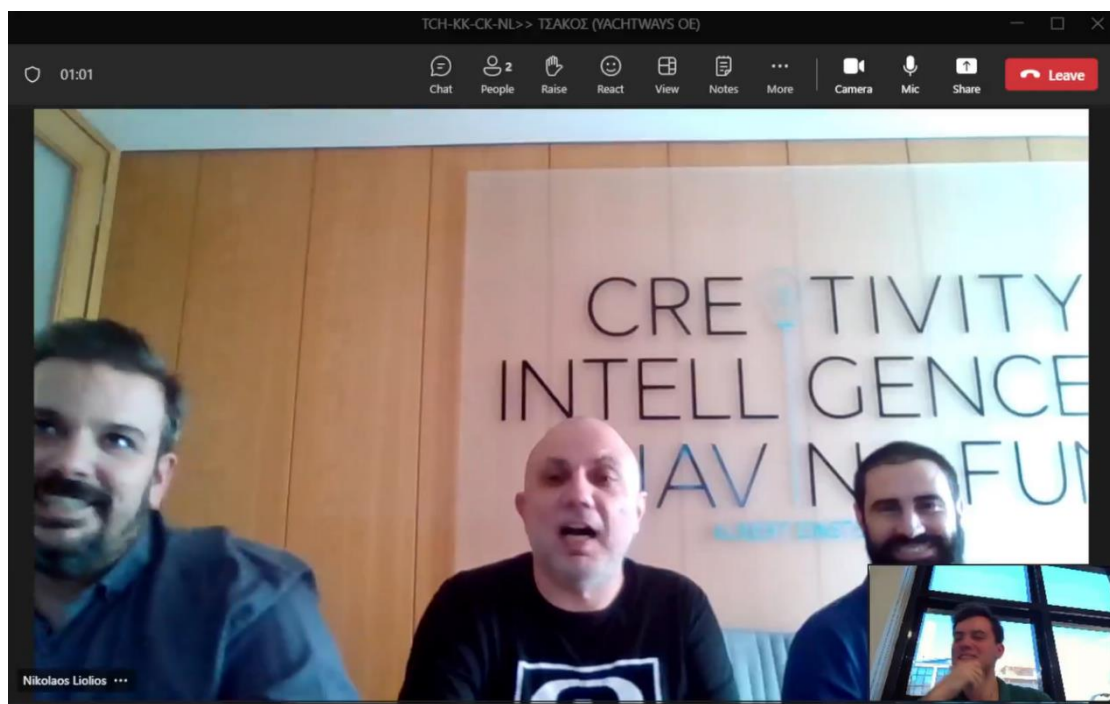
could facilitate virtual training environments for ERP modules, enhancing user engagement and retention.

In terms of accessibility, the ERP systems of the future will be ubiquitous, not limited to office spaces or even Earth. With advancements in space travel and the potential of off-planet colonies or businesses, it's not far-fetched to envision ERP systems that cater to interplanetary trade, resource management, and more. However, with these advancements come challenges, especially in terms of security and ethics. As ERP systems become more integrated and proactive, the data they handle and generate becomes even more sensitive. Ensuring robust cybersecurity measures, safeguarding user privacy, and addressing ethical considerations of AI decision-making will be critical.

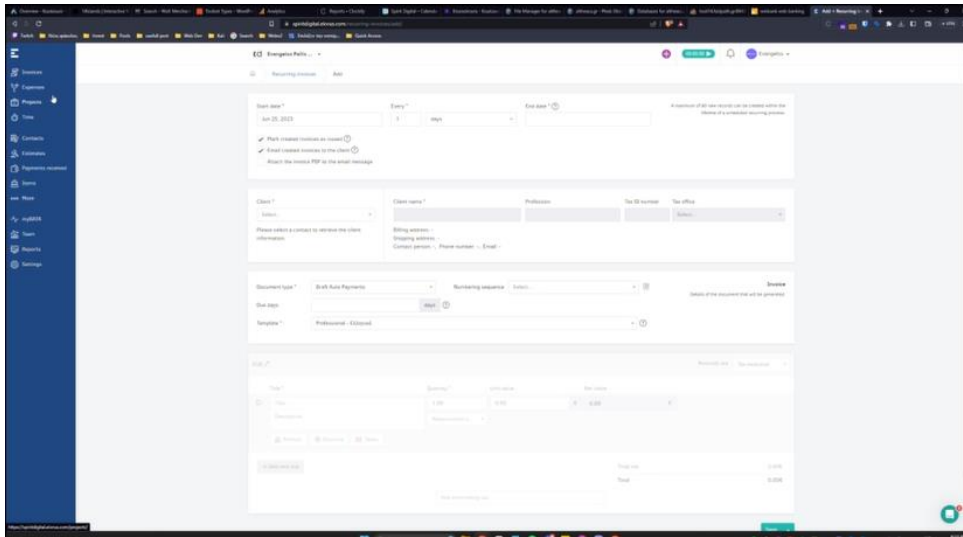
## Conclusion

I would like for this dissertation to be a beacon for everyone who wishes to proceed to the digital transformation of a company. Having read all of the above he or she can proceed in making a more informed decision while speaking with the developers in the discovery meetings making sure that their offerings match the needs of the company.

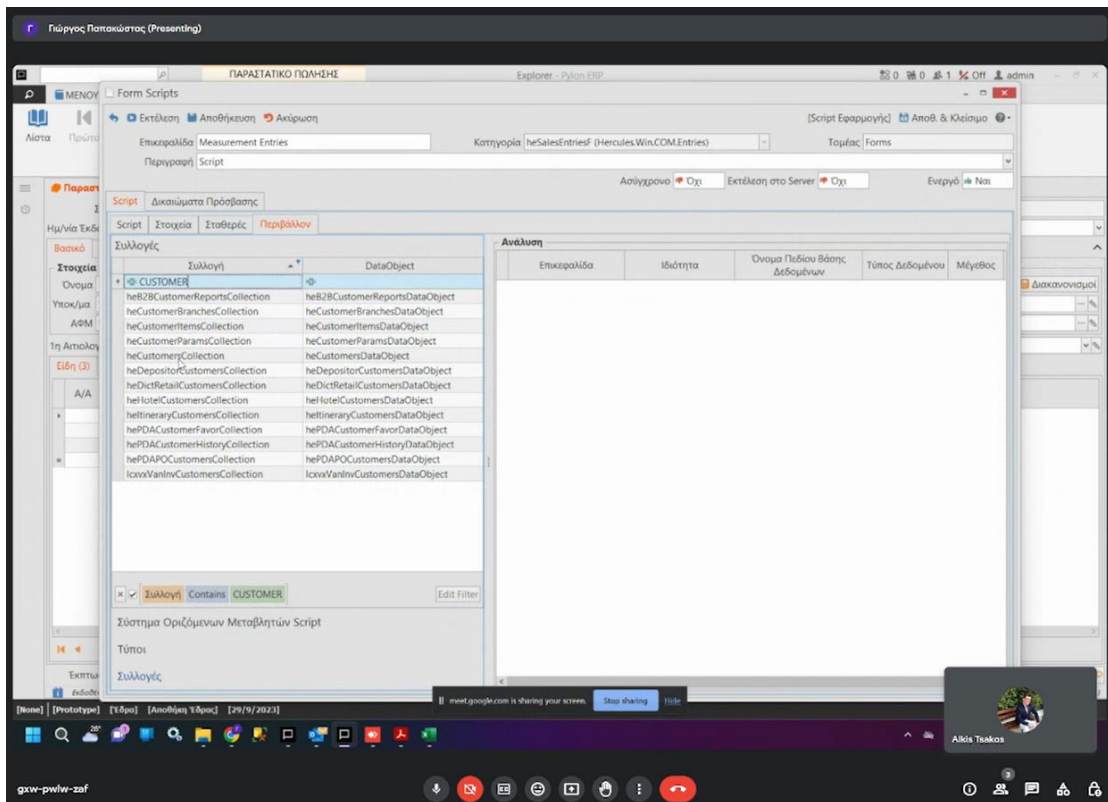
This was my journey through the meetings with various aforementioned ERP vendors and enterprises offering their solutions to the Greek market:



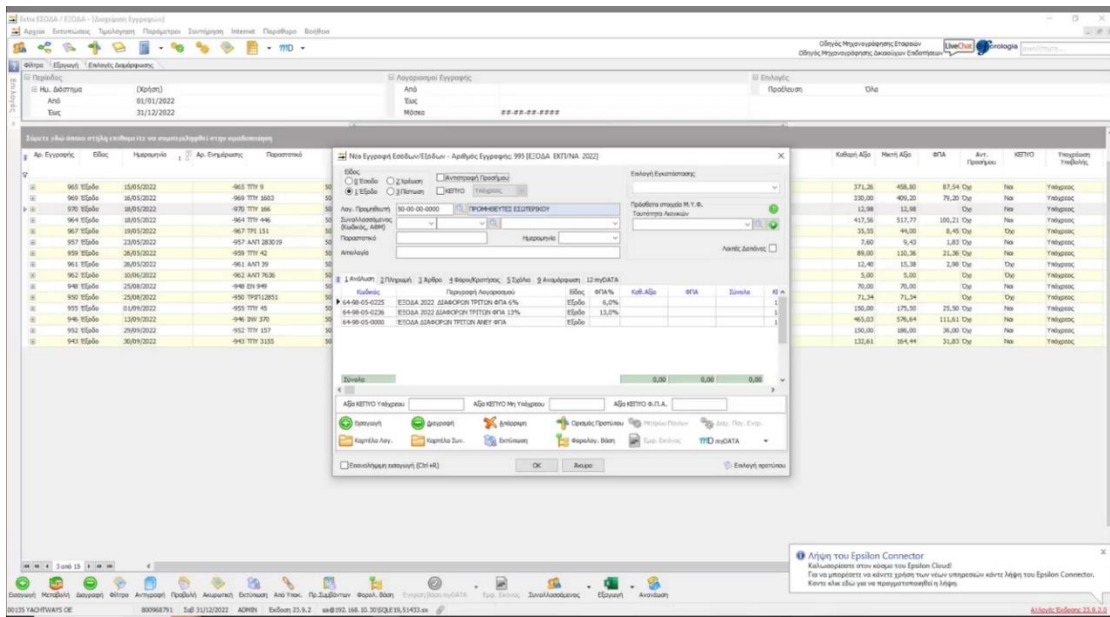
*Entersoft Presentation*



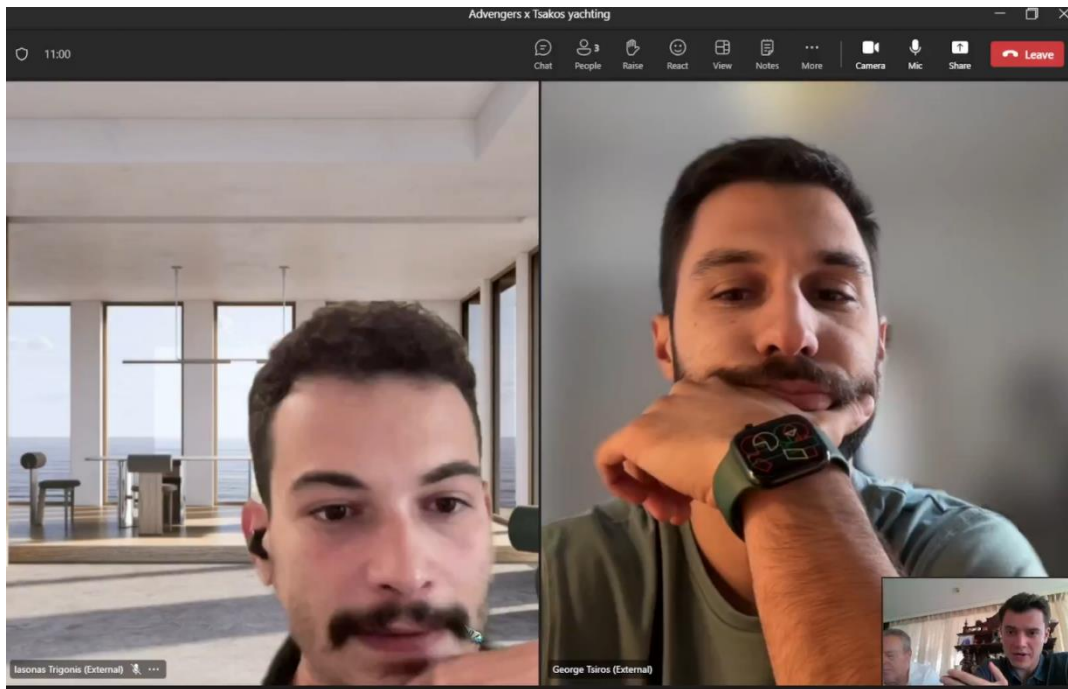
Elorus Presentation



Epsilon 1st demo



Epsilon2nd demo



Atcom Erp In development

Owner Company  
 Πρωτοβουλίες  
 Services  
 Ανοδός  
 Ρολόγιας  
 Yachts  
 Yachts profit/damage  
 Yachts start/finish  
 Στοιχεία Γ.Γ.Λ.Σ.  
 Χρηματοοικονομικά  
 Χρηματικοί λογαριασμοί  
 Κινήσεις Χρηματικών Λογαριασμών  
 Μετοχές  
 Τομσακός δανασμός μετόχου  
 Μεταφορές χρηματικών λογ.  
 Ειδικές χρηματικών λογαρίων  
 Λογιά Εξόδα  
 Μεθοδοσολο-Ικα  
 Πληρωμή Μεθοδοσολο  
 Ειδοσμοτα προμυθουταίν  
 Πληρωμιά προμυθουταίν  
 Ειδοσμοτα πελατών  
 Εισπράξεις πελατών  
 Πληρωμιάς τραπεζικών εξόδων  
 Αναμηνιάς  
 Συμμετοχούσ  
 myDATA  
 Υπερσολιάς

Κινήσεις Χρηματικών Λογαριασμών - Μετοχές - Τομσακός δανασμός μετόχου - Μεθοδοσολο-Ικα - Μεθοδοσολο-Ικα - Πληρωμή Μεθοδοσολο - Ειδοσμοτα προμυθουταίν - Πληρωμιάς προμυθουταίν

Πληρωμιάς

Ημερ/α	Παραστατικό	Υποκ/ση	Κωδικός	Επιγραφή	Αιτιολογία	Συνολ.Αξία
16/8/2023	ΑΠ00000151	ΕΔΡΑ	00553	MEATWISE ΙΚΕ		32,2100
16/8/2023	ΑΠ00000152	ΕΔΡΑ	00309	ΔΙΑΜΑΝΤΗΣ ΜΑΣΟΥΤΗΣ ΑΕ ΣΟΥΠΕΡ ΜΑΡΚΕΤ	ΣΟΥΒΛΑΚΙ ΜΠΟΥΤΙ	241,4600
16/8/2023	ΑΠ00000165	ΕΔΡΑ	00143	Πρωτοβουλίες Γενικών Εξόδων		22,6100
14/8/2023	ΑΠ00000149	ΕΔΡΑ	00977	ΕΠΙΣΤΗ ΣΥΝΕΤΑΙΡΙΣΜΟΝ ΘΗΡΑΚΟΝ ΠΡΟΪΟΝΤΩΝ		28,2700
14/8/2023	ΑΠ00000150	ΕΔΡΑ	00553	MEATWISE ΙΚΕ	ΣΟΥΒΛΑΚΙ ΜΠΟΥΤΙ	21,4200
14/8/2023	ΑΠ00000152	ΕΔΡΑ	00553	MEATWISE ΙΚΕ	ΣΟΥΒΛΑΚΙ ΜΠΟΥΤΙ	42,5600
14/8/2023	ΑΠ00000160	ΕΔΡΑ	00309	ΔΙΑΜΑΝΤΗΣ ΜΑΣΟΥΤΗΣ ΑΕ ΣΟΥΠΕΡ ΜΑΡΚΕΤ		48,7500
14/8/2023	ΑΠ00000161	ΕΔΡΑ	00309	ΔΙΑΜΑΝΤΗΣ ΜΑΣΟΥΤΗΣ ΑΕ ΣΟΥΠΕΡ ΜΑΡΚΕΤ		48,5400
14/8/2023	ΑΠ00000168	ΕΔΡΑ	00852	GREAT MON ΙΚΕ		25,0000
14/8/2023	ΑΠ00000171	ΕΔΡΑ	00262	ΑΛΦΑ ΒΗΤΑ ΒΑΣΙΛΟΠΟΥΛΟΣ ΑΝΩΝΥΜΗ ΕΤΑΙΡΕΙΑ		166,8200
11/8/2023	ΑΠ00000169	ΕΔΡΑ	00853	ΣΑΜΙ ΤΑΡΑΞΙ		52,5000
10/8/2023	ΑΠ00000157	ΕΔΡΑ	00309	ΔΙΑΜΑΝΤΗΣ ΜΑΣΟΥΤΗΣ ΑΕ ΣΟΥΠΕΡ ΜΑΡΚΕΤ		121,4300
10/8/2023	ΑΠ00000167	ΕΔΡΑ	00852	GREAT MON ΙΚΕ		21,4200
9/8/2023	ΑΠ00000158	ΕΔΡΑ	00309	ΔΙΑΜΑΝΤΗΣ ΜΑΣΟΥΤΗΣ ΑΕ ΣΟΥΠΕΡ ΜΑΡΚΕΤ		71,3500
8/8/2023	ΑΠ00000159	ΕΔΡΑ	00309	ΔΙΑΜΑΝΤΗΣ ΜΑΣΟΥΤΗΣ ΑΕ ΣΟΥΠΕΡ ΜΑΡΚΕΤ		103,4400
8/8/2023	ΑΠ00000166	ΕΔΡΑ	00143	Πρωτοβουλίες Γενικών Εξόδων		96,4300
7/8/2023	ΑΠ00000148	ΕΔΡΑ	00949	ΚΑΛΟΤΕΡΑΚΗΣ ΙΚΕ	CLASSIC CLEANER	18,0000
5/8/2023	ΑΠ00000156	ΕΔΡΑ	00309	ΔΙΑΜΑΝΤΗΣ ΜΑΣΟΥΤΗΣ ΑΕ ΣΟΥΠΕΡ ΜΑΡΚΕΤ		54,4300
4/8/2023	ΑΠ00000146	ΕΔΡΑ	00512	ΜΙΔΑΣ ΙΚΕ	ΚΑΥΣΙΜΑ ΥΝΚ3026	51,2100
4/8/2023	ΑΠ00000155	ΕΔΡΑ	00309	ΔΙΑΜΑΝΤΗΣ ΜΑΣΟΥΤΗΣ ΑΕ ΣΟΥΠΕΡ ΜΑΡΚΕΤ		41,0900
3/8/2023	ΑΠ00000154	ΕΔΡΑ	00309	ΔΙΑΜΑΝΤΗΣ ΜΑΣΟΥΤΗΣ ΑΕ ΣΟΥΠΕΡ ΜΑΡΚΕΤ		129,0900
3/8/2023	ΑΠ00000173	ΕΔΡΑ	00955	EURONET MERCHANT SERVICES		1.600,0000
3/8/2023	ΑΠ00000173	ΕΔΡΑ	00955	ΕΥΡΩΝΕΤ ΜΕΡΧΑΝΤ ΣΕΡΒΙΣΕΣ	ΠΡΟΣΦΕΡΟΜΕΝΗ ΑΟΓΑ ΑΚΥΡΩΣΗΣ ΠΑΥΛΟΥ 16/8/2023	1.600,0000
2/8/2023	ΑΠ00000147	ΕΔΡΑ	00949	ΚΑΛΟΤΕΡΑΚΗΣ ΙΚΕ	ΦΙΛΤΡΟ	15,0000
2/8/2023	ΑΠ00000153	ΕΔΡΑ	00309	ΔΙΑΜΑΝΤΗΣ ΜΑΣΟΥΤΗΣ ΑΕ ΣΟΥΠΕΡ ΜΑΡΚΕΤ		53,3800
1/8/2023	ΑΠ00000129	ΕΔΡΑ	01041	ΓΡΑΒΑΛΑΣ ΓΕΩΡΓΙΟΣ & ΣΙΑ ΕΕ		281,1700
31/7/2023	ΑΠ00000096	ΕΔΡΑ	01042	ΤΡΙΑΔΗΣ ΑΝΕΣΤΗΣ & ΣΙΑ ΕΕ		1.488,0000
31/7/2023	ΑΠ00000101	ΕΔΡΑ	00309	ΔΙΑΜΑΝΤΗΣ ΜΑΣΟΥΤΗΣ ΑΕ ΣΟΥΠΕΡ ΜΑΡΚΕΤ		198,9500
31/7/2023	ΥΑΠ1	ΕΔΡΑ	00143	Πρωτοβουλίες Γενικών Εξόδων		81,0000
31/7/2023	ΑΠ00000130	ΕΔΡΑ	00708	ΒΕΤΡΟΣ ΑΝΤΩΝΙΟΣ	ΔΙΑΒΟΡΑ ΕΞΟΔΑ	263,0000
31/7/2023	ΑΠ00000131	ΕΔΡΑ	00882	A.E.M.E ΕΡΗΦΗ		60,0000
28/7/2023	ΑΠ00000102	ΕΔΡΑ	00309	ΔΙΑΜΑΝΤΗΣ ΜΑΣΟΥΤΗΣ ΑΕ ΣΟΥΠΕΡ ΜΑΡΚΕΤ		93,5000
28/7/2023	ΑΠ00000125	ΕΔΡΑ	00553	MEATWISE ΙΚΕ	ΣΟΥΒΛΑΚΙ ΜΠΟΥΤΙ	55,9200
27/7/2023	ΑΠ00000097	ΕΔΡΑ	00512	ΜΙΔΑΣ ΙΚΕ	ΚΑΥΣΙΜΑ ΥΝΚ3026	50,0000
27/7/2023	ΑΠ00000104	ΕΔΡΑ	00309	ΔΙΑΜΑΝΤΗΣ ΜΑΣΟΥΤΗΣ ΑΕ ΣΟΥΠΕΡ ΜΑΡΚΕΤ		138,2000
						<b>11.735,2500</b>

Soft1 Database

Soft1

Τράπεζα Πειραιώς

Sync account please  
 Διαθέσιμο: 272.576,69€  
 More info

Sync account please  
 Διαθέσιμο: 847,59€  
 More info

Sync account please  
 Διαθέσιμο: 0,00€  
 More info

3 λογαριασμοί  
 272.576,69€

Sync account please

Από: 02-10-2023 Έως: 03-10-2023

Ασυγχρόνισμα

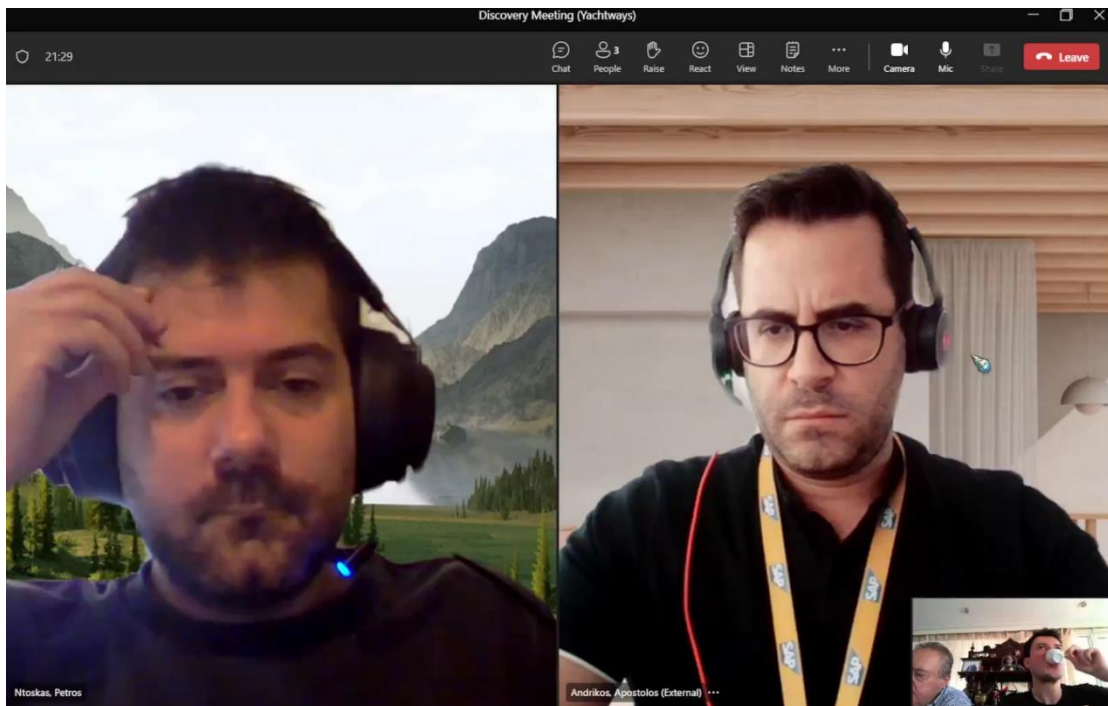
Ενεργεια

Ημερομηνία	Συναλλασσόμενος	Αιτιολογία	Τύπος Συναλλ...	Ποσό
03/10/2023 0...	5706022397841 ΠΑΝΑΓ...	TRANS.TO THI...		1.017,00€
03/10/2023 0...	GOOGLE GSUITE TSAKO...	CARD PURCH...		46,80€
03/10/2023 0...	MEATWISE ACHARNES 1...	CARD PURCH...		14,36€
03/10/2023 0...	MASOUTIS MEGALOCHE...	CARD PURCH...		87,26€
02/10/2023 0...	ΕΞΟΔΑ ΑΠΟΣΤΟΛΗΣ WI...	TRANSFER CO...		1,40€
02/10/2023 0...	ΥΠΕΡ MARINE MOTORS...	OUTGOING T...		1.148,91€
02/10/2023 0...		TRANSFER CO...		1,00€
02/10/2023 0...	B/O Stripe Technology E...	INCOMING TR...		974,75€
02/10/2023 0...	BOUBIS THIRA 5,50 EUR...	CARD PURCH...		5,50€
02/10/2023 0...	MEATWISE ACHARNES 3...	CARD PURCH...		36,23€
02/10/2023 0...	ΜΙΟΥΤΣΙΕΥ ΜΑΙ ΕΔΙ ΒΑΙ...	CARD DI ΕΠΩ...		379,94€
Σύνολο:				1.027,03€

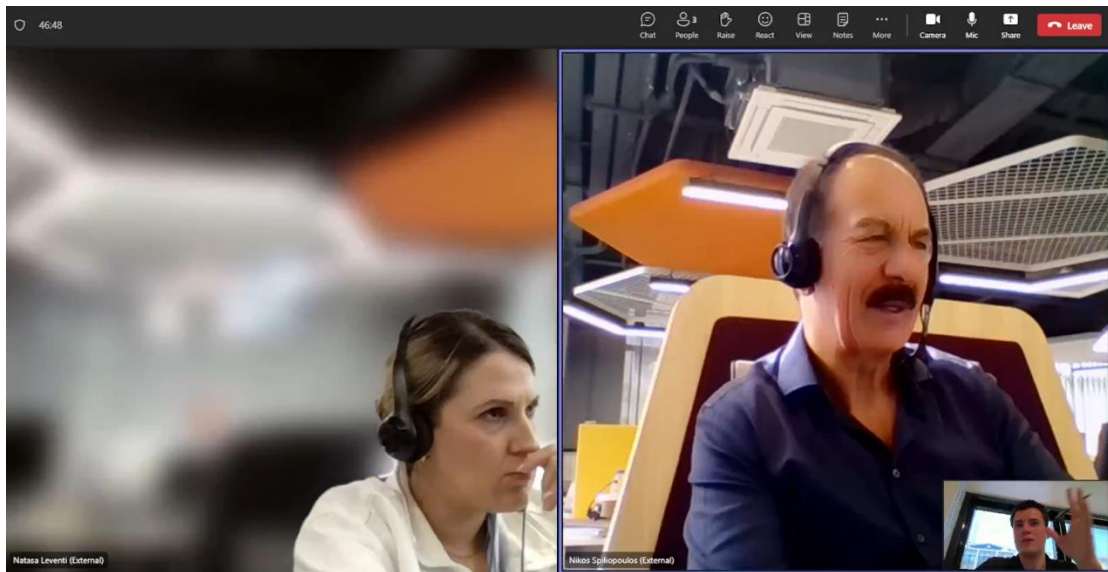
Soft1 FinTech e-banking

Ημερομηνία	Περιγραφή	Κωδικός	Κατάσταση	Ποσό (€)	Σύνολο (€)
08/05/2022	Δελτίο Αποστολής - Τρι. Πωλήσεις	TDA-1A-49330	Χρέωση	52,21 €	2.658,84 €
18/05/2022	Δελτίο Αποστολής - Τρι. Πωλήσεις	TDA-1A-49334	Χρέωση	34,42 €	2.724,26 €
15/05/2022	Δελτίο Αποστολής - Τρι. Πωλήσεις	TDA-1A-49540	Χρέωση	321,94 €	3.056,20 €
17/05/2022	Δελτίο Αποστολής - Τρι. Πωλήσεις	TDA-1A-49843	Χρέωση	111,01 €	3.167,21 €
23/05/2022	Δελτίο Αποστολής - Τρι. Πωλήσεις	TDA-1A-49770	Χρέωση	15,68 €	3.204,25 €
25/05/2022	Δελτίο Αποστολής - Τρι. Πωλήσεις	TDA-1A-50030	Χρέωση	32,22 €	3.236,52 €
29/05/2022	Δελτίο Αποστολής - Τρι. Πωλήσεις	TDA-1A-50375	Χρέωση	492,27 €	3.956,79 €
30/05/2022	Δελτίο Αποστολής - Τρι. Πωλήσεις	TDA-1A-50322	Χρέωση	6,09 €	3.762,53 €
31/05/2022	Δελτίο Αποστολής - Τρι. Πωλήσεις	TDA-1A-50382	Χρέωση	12,71 €	3.715,09 €
05/06/2022	Δελτίο Αποστολής - Τρι. Πωλήσεις	TDA-1A-50329	Χρέωση	36,11 €	3.751,78 €
06/06/2022	Δελτίο Αποστολής - Τρι. Πωλήσεις	TDA-1A-50342	Χρέωση	52,99 €	3.805,09 €
12/06/2022	Δελτίο Αποστολής - Τρι. Πωλήσεις	TDA-1A-50591	Χρέωση	65,54 €	3.955,53 €
13/06/2022	Δελτίο Αποστολής - Τρι. Πωλήσεις	TDA-1A-50548	Χρέωση	390,90 €	4.265,09 €
15/06/2022	Δελτίο Αποστολής - Τρι. Πωλήσεις	TDA-1A-50947	Χρέωση	265,59 €	4.612,19 €

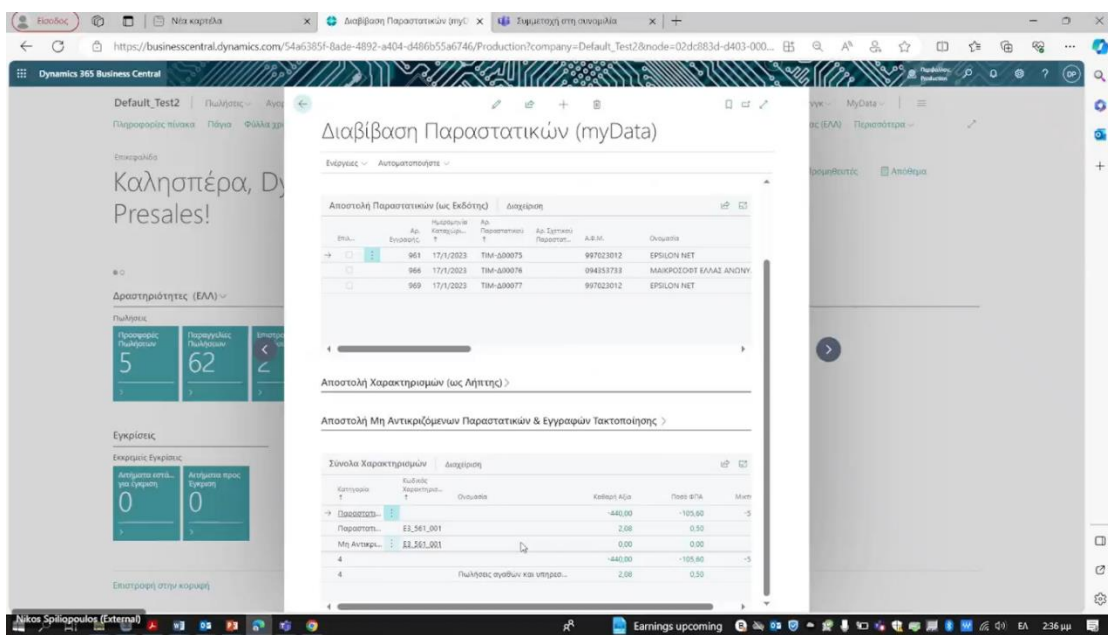
Regate connector Erp to eshop



SAP Discovery Meeting



Data Communication - Microsoft Dynamics 365



Data Communication - Microsoft Dynamics 365 Demo

By having an ERP system, organizations are able to observe their inventory levels in actual-time and make informed decisions about their products inputs. Managing your employees through having the ability to share information between all departments of



the organization is typically the highest priority and a prominent component of ERP. Such systems are vital as they can automate time-consuming & fallible routines otherwise made manually, boost productiveness & keep employees motivated. Minimizing your business manually will hinder your possesses, setting you back in the competitive landscape. Especially if other enterprise owners are automating their workflow operations through ERP CRM & RPA solutions.

I truly believe that ERP systems can and will help SMEs the same way that they helped giant companies increase their growth rate immensely!

Thank you for reading my dissertation! ^\_^



## **References**

### **National**

-

### **International**

Joseph Orlicky's Contribution to MRP Orlicky, J., (1975), Material Requirements Planning. New York: McGraw-Hill.

Wight, O., (1984), Manufacturing Resource Planning: MRP II: Unlocking America's Productivity Potential. New York: Wiley.

Liker, J. K., (2004), The Toyota Way: Toyota's Lean Production and JIT Systems

Miguel Buleje, (2014), The Impact of Enterprise Resource Planning Systems on Small and Medium Enterprises, Nova Southeastern University

Davide Aloini Pisa, A.Y., (2008-2009), Risk Management in Enterprise Resource Planning projects, IMM-PHD- University of Rome "Tor Vergata"

Antero, Michelle, (2015), A Multi-case Analysis of the Development of Enterprise Resource Planning Systems (ERP) Business Practices, Carol PhD Series, No. 6

Elizabeth A. Arthur, (2016), Successful Enterprise Resource Planning System Implementation: A Higher Education Managerial Perspective, Walden University

Houman Kalbasi, (2007), Assessing ERP Implementation Critical Success Factors

By Florence W. Wanyoike, (2017), The Influence Of Enterprise Resource Planning System On Organisational Performance

Jianqiao Jiao, (2020), Analysis Of An Enterprise Resource Planning System

Hammer, M., & Champy, J., (1993), Reengineering the Corporation  
A Manifesto for Business Revolution. Harper Business.

Davenport, T. H., (1998), Putting the Enterprise into the Enterprise System. Harvard Business Review.

Monk, E., & Wagner, B., (2012), Concepts in Enterprise Resource Planning. Cengage Learning.

Bingi, P., Sharma, M. K., & Godla, J. K., (1999), Critical issues affecting an ERP implementation. IS Management.

Al-Mashari, M., Al-Mudimigh, A., & Zairi, M., (2003), Enterprise resource planning: A taxonomy of critical factors. European Journal of Operational Research.

Scott, J. E., & Vessey, I., (2002), Managing risks in enterprise systems implementations. Communications of the ACM.

Beheshti, H. M., (2006), What managers should know about ERP/ERP II. Management Research News.

Lu, Y., & Ramamurthy, K., (2011), Understanding the link between information technology capability and organizational agility. MIS Quarterly.

## **Links**

<https://wiki.soft1.eu/pages/viewpage.action?pageId=287998438>

<https://www.softwareadvice.com/erp/>

[https://en.wikipedia.org/wiki/Enterprise\\_resource\\_planning](https://en.wikipedia.org/wiki/Enterprise_resource_planning)

<https://youtu.be/E0GeKn4KBn8?si=bB8B0coEZM7Lawwm>

<https://www.youtube.com/watch?v=CrlxnlxVjJM&t=578s>

<https://link.springer.com/article/10.1023/a:1026543906354>

<https://www.emerald.com/insight/content/doi/10.1108/02635570210414640/full/html>

<https://www.sciencedirect.com/science/article/abs/pii/S0377221702005490>

<https://www.tandfonline.com/doi/abs/10.1080/02683960010009051>