Business Information Systems - Part 2

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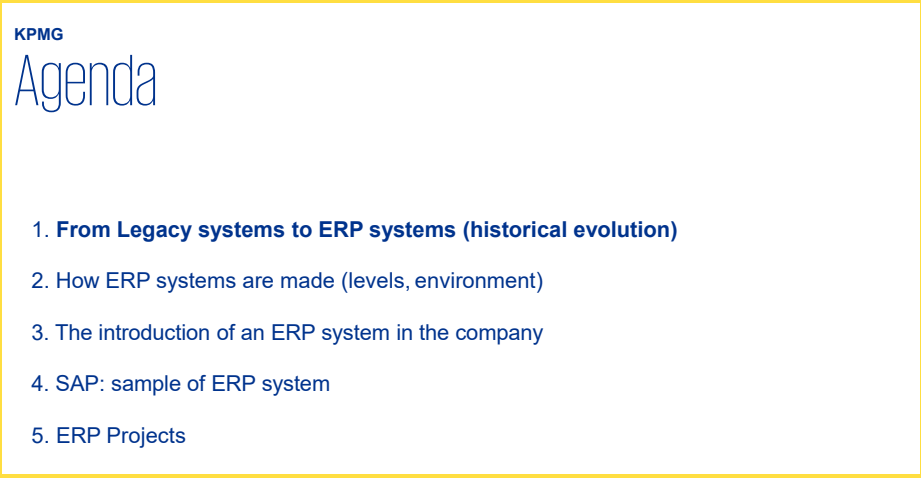
Contents

1 KPMG on ERP Systems

1.1 Introduction and Agenda



We have plenty of time this morning, so let's make the most of it. I propose structuring the next 60 minutes as follows:

First, I will provide a brief introduction about myself and the company I work for. Then, we will dive into the documentation I have prepared.

To begin, my name is Marco Trammelli, and I am a senior manager of advisory at the KPMG company. I will give you an overview of the system we will be discussing today, whic h serves as a prerequisite for understanding the rest of the session.

Next, we will move on to the second part of today's session, where I will introduce a test case scenario that you will be working on in the coming days. After that, I will hand over the stage to my colleague from the HR department.

1.2 System Overview

1.2.1 Historical Perspective and Evolution

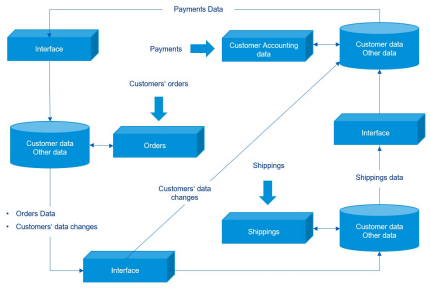
Let's start with a brief introduction to the system, considering its historical perspective and evolution. We'll also provide an overview of a sample system, the SAP ERP system, which is widely used in the market. If time permits, we'll then move on to our recommendations for implementation and development projects.

From Legacy systems to ERP systems

What Legacy systems are

- They are created as **successive layers of autonomous applications**, each of which covers the IT needs of different organizational units.
- Each Legacy application has its **own Database**
- They can be connected to each other through **interfaces.**
- They are developed in a "custom" way, i.e. they are built through an extensive use of **software programming activities**.
- They are **technologically underdeveloped** and therefore based on Mainframe or Host technologies and characterized by character-based interface.
- They are not always characterized from relational Data Base.

Sample of data flow



The term “legacy system” refers to a collection of autonomous applications, each with its own database. These systems are not interconnected, and interfaces need to be developed and implemented to establish communication between them. In the following roadmap, we’ll highlight the evolution of these systems over the decades, starting from the first enterprise resource planning system in the 1970s.

1.2.2 Legacy Systems vs. ERP Systems

Basically, this system was initially developed for manufacturing and production processes within the organization. Over time, additional features were added to support other functions and processes. This evolution led to what we now call the extended ERP system.

Now, let’s briefly compare legacy systems with ERP systems. Legacy systems are often referred to as closed systems. They store information about past actions in their own databases. Each function in the organization, such as purchasing, shipping, production, warehouse administration, and sales, typically has its own separate system. This lack of a common repository can lead to duplicated activities and operational inconsistencies across different business functions.

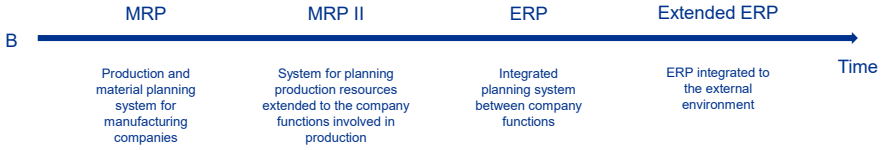
On the other hand, the ERP system is a unique system that can simulate and propose future scenarios instead of focusing on the past. This system shares a common database, which I will refer to as a table or database. Additionally, there is a sharing of operational logic among different functional areas within a company, such as purchasing, shipping, and production. Each block in this

From Legacy systems to ERP systems

Legacy and the evolution from MRP to ERP

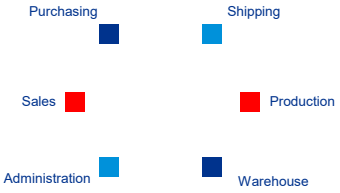
Legacy systems are softwares usually developed in-house which allow the registration of all the operational activities of the corporate functions.

ERP Systems are the extension of **MRP (Material Requirement Planning)** and MRP II (Manufacturing Requirement Planning).
MRP Systems were born to rationalize the use of materials in factories and were transformed first into **MRP II** which were able to control the entire production activity, and finally into **ERP** with the addition of administrative, management and financial functions.



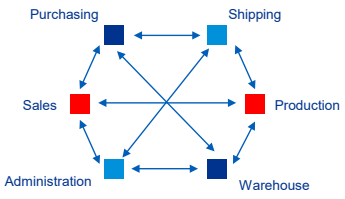
From Legacy systems to ERP systems

Legacy System vs ERP (1/2)



Legacy: closed systems

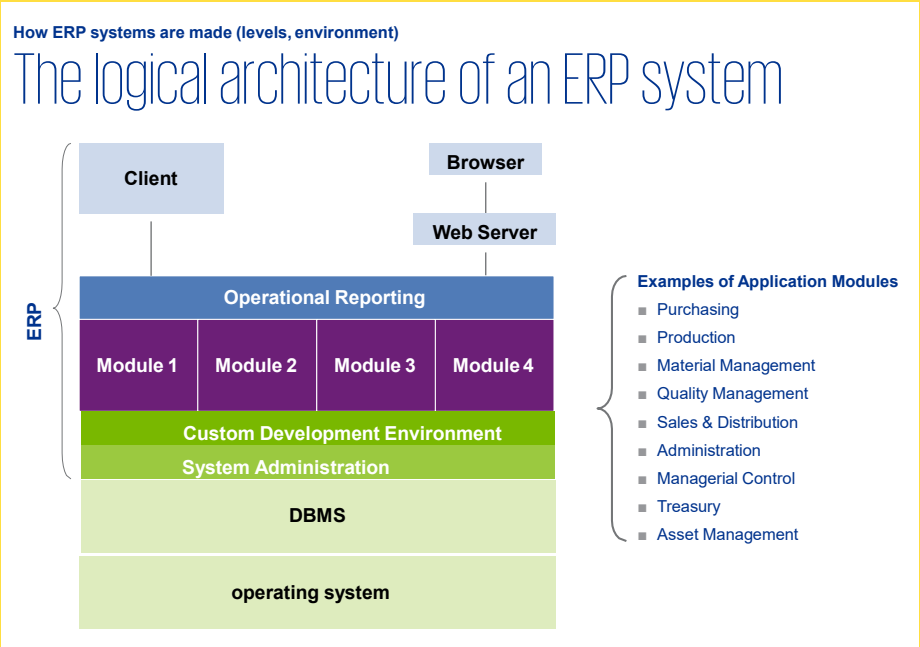
- Ex-post records of information about past actions.
- Use of non-shared repositories, duplication of activities.
- Heterogeneity of operating methods across business functions.



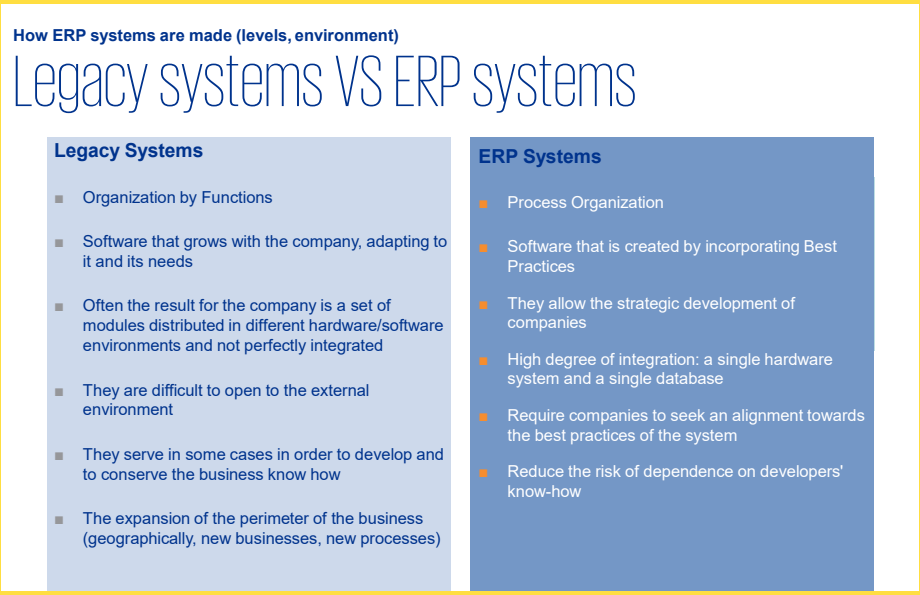
ERP: internal integration

- Systems that can perform simulations and make proposals on future actions.
- Sharing the same archives and information.
- Sharing of the same operational logic among the various company functions.

diagram represents a specific function within the organization. It is important to note the close interconnection of activities carried out in these functional areas. Instead of developing separate programs for each function, the system allows for the development of shared programs for multiple functions. These



key features cover various business processes, including logistics, accounting, production, and human resources. These processes are supported by a set of application elements known as modules. Throughout this presentation, we will explore how each module represents a specific function within the organization.



Can someone explain what a legacy system is and what the main differences are between a legacy system and an ERP system? Let's imagine a company and focus on the purchase processes, such as purchase requisitions, purchase orders, receiving invoices, etc. Invoicing is related to accounting and finance, while purchasing is mainly related to the buyer or someone in the purchasing department. It's not interesting to discuss the connection between finance and accounting in these processes. A legacy system uses different tables that need to be reconciled, requiring the implementation of multiple interfaces and effort to check for redundant data. On the other hand, an ERP system has a common structure with a unique table, eliminating the need for reconciliation and interfaces. By implementing an ERP system from the beginning, an organization can focus on developing efficiency in processes instead of spending time and money on reconciling data. Legacy systems are difficult to integrate with external tools, while ERP systems already have connections in place. ERP systems also come with embedded best practices for accounting, finance, and purchasing processes, making them ready to use with just configuration based on the organization's specificity. Legacy systems require specific interfaces to integrate with other software and require the organization to align with best practices. If a specific process is not in line with best practices, it cannot be included in an ERP system without revising and adapting it. When selecting an ERP system, industry specificity, specific organizational issues, business strategy, industrial development plans, processes, and resources should be considered. These factors will guide the software selection process, whether it involves implementing an ERP system from the market or looking for specific software applications from local vendors.

1.2.3 ERP Implementation and Development

The logistics department, accounting, production, sales, and human resources all benefit from the adoption of an ERP system. By sharing the same repository and database, businesses can ensure the uniqueness and universality of their data and business information. Major software vendors like Microsoft and SAP produce and release ERP systems, such as MRP (Material Requirements Planning).

From a technical perspective, ERP systems use a relational database and operate on a client-server architecture. They also offer vertical solutions tailored to specific industries, such as automotive or healthcare, which have unique business processes and requirements.

Implementing an ERP system allows companies to leverage best practices and standardized processes across departments, eliminating the need to reinvent the wheel for each company. This saves time and resources while ensuring efficiency and consistency.

Moving forward, many companies are already using ERP systems like Mi-

How ERP systems are made (levels, environment)

ERP systems features

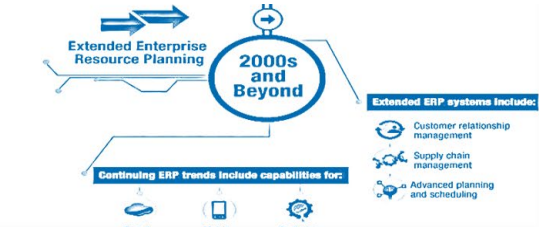
- They cover the **main business processes** (logistics, accounting, production, human resources) through a set of application elements called "modules" or "granules";
- They guarantee the **uniqueness of the data** and therefore the univocity of business information, thanks to the fact that transactions update online the data managed by all business functions;
- They are produced by the **major software houses** that develop them according to the requirements of pilot customers and update them continuously according to technological, regulatory or best practice evolutions;
- **Controlled** data management and **uniqueness** imply that data cannot be modified directly but through "transfers";
- They are characterized by **relational DB**;
- They are characterized by a **Client/Server architecture**;
- Although they do not cover all Core Business processes, **vertical solutions by industry** are available for the main ERPs;
- They bring into the company a set of processes referred to best practices, without having to "reinvent the wheel".

crosoft or SAP, but they continue to seek improvements and enhancements to their systems.

1.2.4 Future Directions and Cloud Computing

How ERP systems are made (levels, environment)

The present and the future...(1/2)



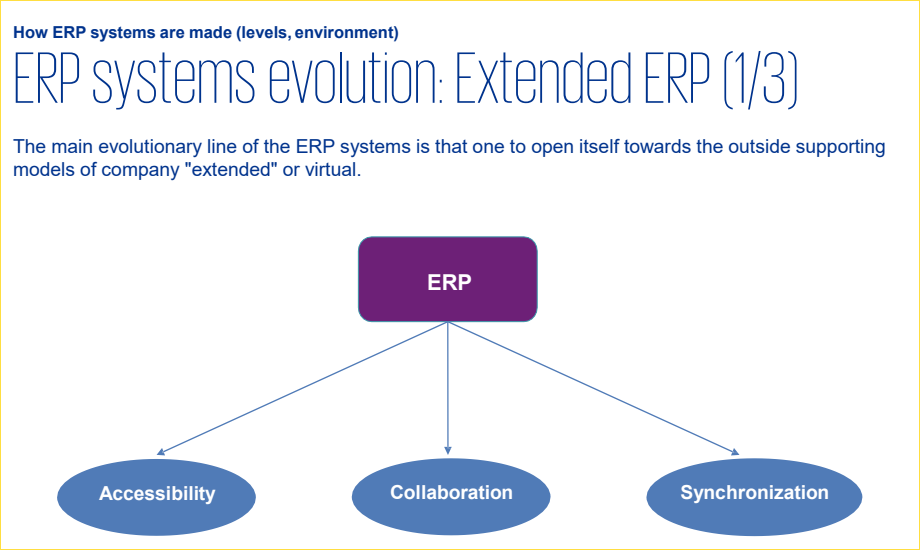
ESTENDED ENTERPRISE RESOURCE PLANNING (ERP)

- Customer Relationship Management (**CRM**)
- Supply chain management (**SRM**)
- Advanced management of **planning** and scheduling processes

The new ERP platforms are developed consistent with current paradigms regarding:

- ***Cloud** Computing*
- *Remote usability **Mobility***
- *Leveraging the processing capabilities of large volumes of data **Analitics (Process Mining)***
- *Extension of the Internet to the world of concrete objects and places (**IOT Internet of Things**)*

In recent years, there have been common words and concepts that have gained popularity, such as cloud computing and mobility. As a consulting firm, our clients are increasingly requesting these features to enhance their processes and handle larger volumes of data. This includes leveraging analytics and exploring the Internet of Things.



These are the keywords that define the evolution of the market: accessibility, collaboration, and synchronization are the driving forces behind this shift. One of the leading software vendors in this field is SAP, an international company that has been instrumental in shaping this framework. Until about five years ago, most companies were developing and implementing their systems on-premise. This meant that they purchased licenses and installed the software on their own servers.

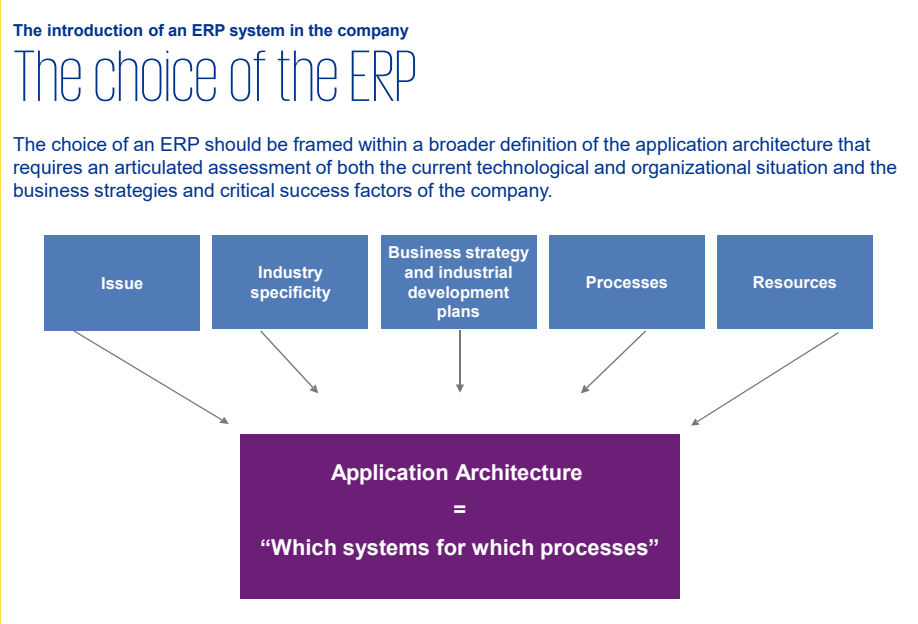
Nowadays, many vendors, including SAP, are adopting a philosophy of moving everything to the cloud. This means that companies looking to implement SAP solutions no longer need to install them on their own servers. Instead, everything is accessible through the cloud. The core business processes, such as finance and accounting, can still be kept on-premises using the core ERP system. However, specific processes, like purchasing, can be linked to dedicated cloud solutions.

For instance, consider the purchasing processes of creating a purchase request, issuing a purchase order, and receiving goods. These processes can be efficiently managed using a dedicated cloud solution called Ariba[1], which is tightly integrated with the core ERP system. This is the direction the market is moving towards, and it is important to consider this when making a business case.

In summary, the trend is to move towards cloud-based solutions, with core processes remaining on-premises and specific processes being managed through dedicated cloud solutions.

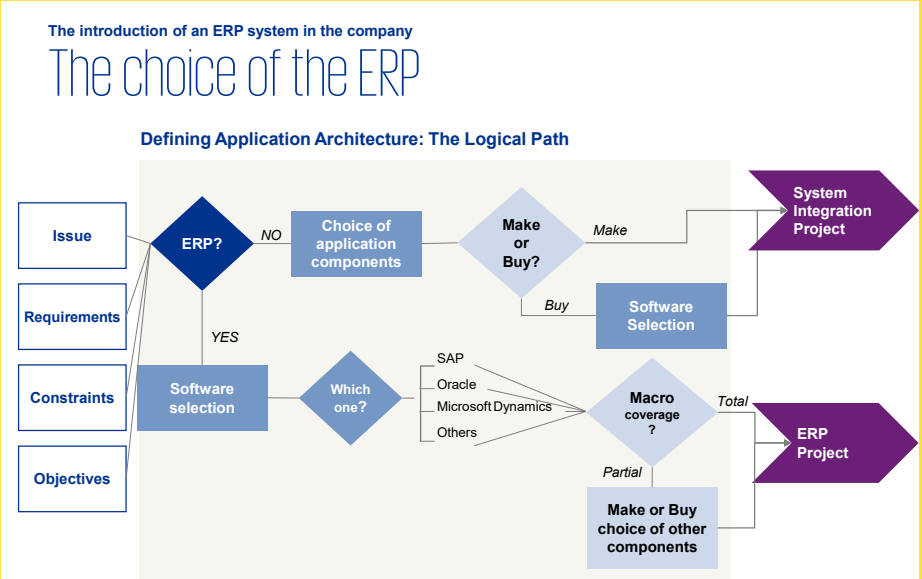
1.3 Integration Challenges and Strategies

1.3.1 Choice of an ERP

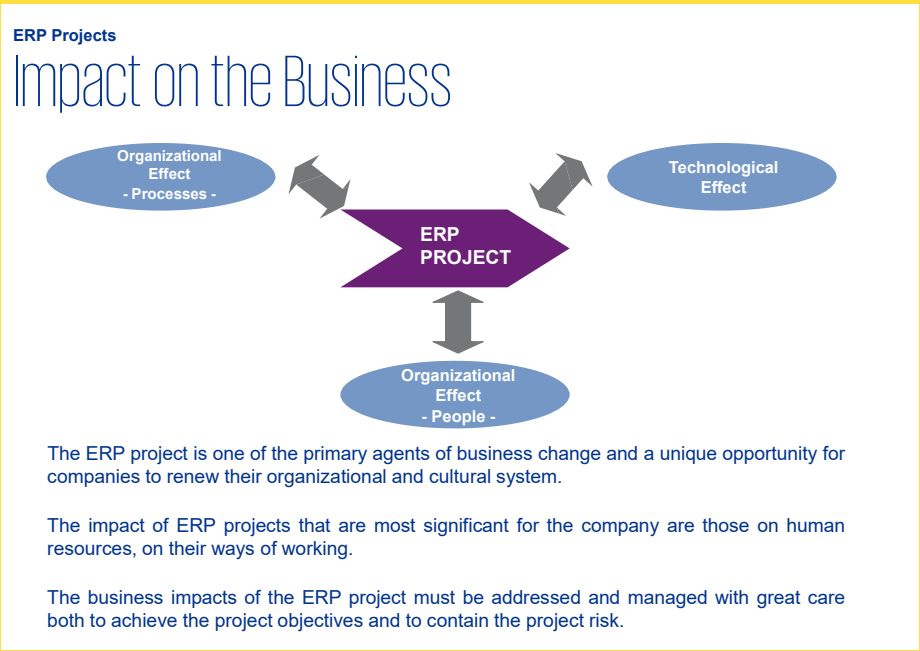


In terms of the main software vendor for the ERP there are Oracle and SAP, but first there are some keywords that are important to consider. The structure of the software is based on modules, with each module representing a specific area, department, or process. For example, there are modules for the financial department, controlling, sales, purchasing, and production. Each module is connected to the others, meaning that actions in one module can impact other modules. For instance, creating a purchase requisition or order in the purchasing module may require entering financial objects that are key elements in the controlling or finance modules.

[1] Ariba is a cloud-based procurement management solution provided by SAP. It integrates with the core ERP system to automate complex workflows, making it easier for employees to search for goods and services, collaborate with suppliers, and manage approvals and invoices Source 1.



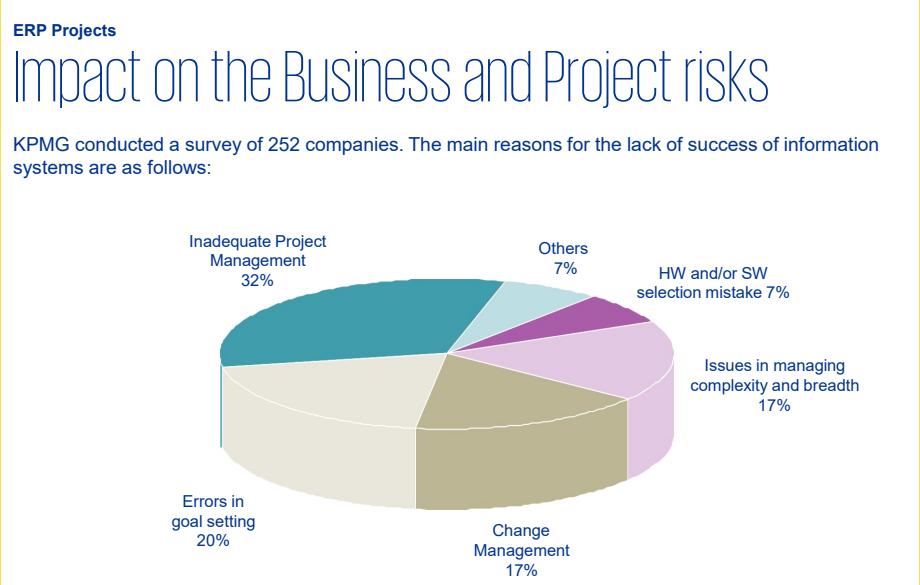
1.3.2 ERP Projects



Implementing an ERP system involves three key dimensions: technology, processes, and people. There are several risks associated with ERP projects,

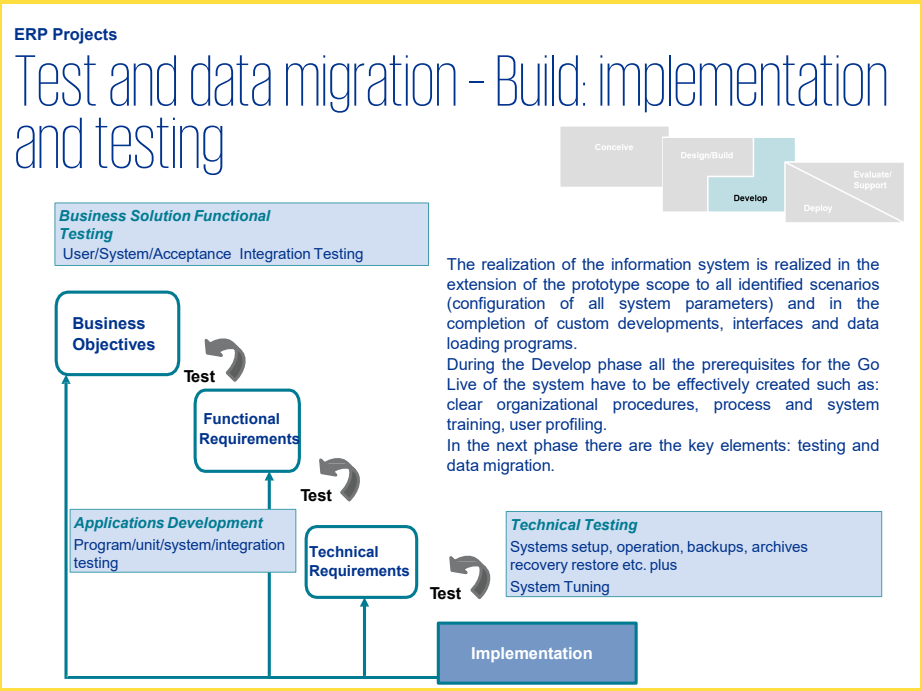
as shown by the results of previous campaigns. Project management is crucial, as a poorly structured project plan can lead to issues. Setting clear business objectives from the beginning is essential to manage expectations and measure the benefits of the implementation. Managing complexity and making the right software selection are also important factors.

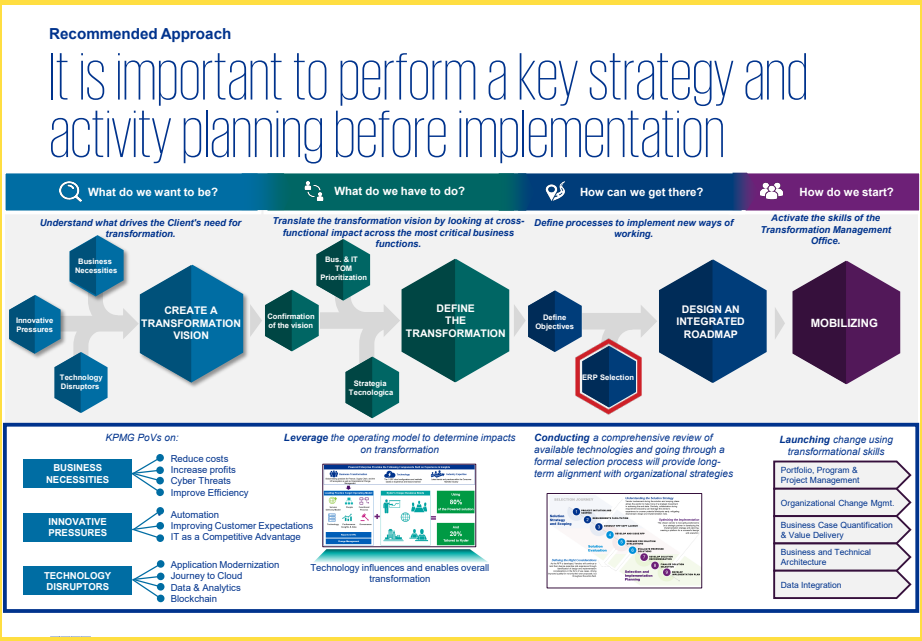
When starting a project, it is necessary to collect functional requirements by interviewing process owners and key users from each department. These requirements need to be translated into the language of the ERP system to proceed with the implementation. The implementation process includes system setup, testing in a quality environment, user acceptance testing, and training for all users in the company.



Choosing the right software and implementing it can be complex. Consulting companies often have their own approach and tools to accelerate the process. It is important to consider the business needs and plan for the future when selecting and implementing an ERP system.

In terms of transformation projects, change management is crucial. It involves explaining the benefits and changes to the organization and its departments. This includes cost savings and potential revenue increases. It is important to consider the current state of the legacy system and its ability to manage processes. If acquiring another company, integration planning is necessary, whether it involves adopting their system or finding a common system. The selection of software depends on specific requirements and constraints, such as supporting collaboration with suppliers. The relationship between processes, technology, and change management is essential. In the case of a global com-





pany, localization requirements and multiple instances may need to be considered. The integration of acquired companies and their IT landscape is also a

strategic consideration.