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**MIS**  
Enterprise Resource  
Planning

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# Overview

Imagine you are the CEO of a large business that sells a multitude of products, both online and in many physical branch retail stores.

You also have created your own brand and you manufacture many items as well as selling items from other companies.

Sounds a little like Walmart or Target, doesn't it?



A big organization has a large number of employees so your Human Resources Department handles hiring, firing, paying, assigning benefits, and more.

You also need to track and order inventory, maintain inventory at numerous sites, deal with suppliers, delivery companies, and more.

Overseeing the manufacture of your own brand of items is another major part of the picture.

You must also keep track of sales, sustain and expand customer relationships, oversee the maintenance of physical locations and warehouses, and manage all the managers.

# Overview (cont.)

Because your company is so large and successful, you have implemented a slew of systems that assist with each of these areas: financial management, accounting, human resource management, computer-aided design and manufacturing software, transaction processing systems, project management software, and customer relationship system software.

Even though each of those systems does a great job in its specific area, all the areas are interconnected.

Using those interconnections wisely is how the business will continue to grow and succeed.

This is where enterprise resource planning (ERP) software comes in.

**ERP** is used to manage all these activities by linking them together and creating a way to exchange data between all the areas of an organization.

# What is an Enterprise Resource Planning (ERP) System?

**Enterprise resource planning (ERP)** is software that businesses use to manage activities in both the internal and external operational environment.

These activities include accounting, acquisition of materials and services, operation and supply chain management, and project management.

These systems link together different organizational processes and create efficient means of data exchange between various areas of an organization.

The goals of ERP systems are:

- to eliminate the duplication of data
- to increase data integrity
- to enable more structured and logical decision making

# What is an Enterprise Resource Planning (ERP) System? (cont.)

Essentially, ERP systems provide an integration hub that links members of an organization and connects processes and various technologies across an organization.



ERP systems are planned and implemented using a single data schema that is linked to a shared organizational database.

- A data schema is a deconstructed view of a data set and includes a descriptive narrative about the data this provides for the analysis of the configuration of the data and for the analysis of relationships within the data

# The Use of ERP Modules in Business

Modules are commonly found in a variety of software environments, including enterprise resource management platforms.

A software **module** is an element of a computer program that is intended for a specific task.

Many ERP systems are designed to integrate enterprise software modules from a variety of operational and process areas of an organization including finance, accounting, human resources, customer relationship management, transaction processing, and project management.

Individual modules are integrated with the ERP system, thus allowing for a single source for organizational data retrieval and analysis.

- using a module approach has some distinct advantages
- a **module approach** allows businesses to acquire specific modules that are relevant to its operations
- it can add or delete modules as market conditions changes

# Using ERP Systems to Increase Efficiency and Business Value

Increasing operational efficiency and business value is important to the overall success of an organization.

In order to increase efficiency and value, many organizations have turned to enterprise resource planning (ERP) software to provide guidance on the processes and procedures that contribute to success.

ERP systems help organizations improve operational efficiency in the following ways:

- Centralized database – Organizations create and consume many different types of data that are generated from the internal and external operating environment
- Access to data – Most ERP systems are designed to be user-friendly and provide members of the organization from upper-management to lower-level employees the ability to access and interpret data
- Customizable – Many ERP systems allow for customization

# Review: ERP Systems and Modules

What is a data schema? .

- a data schema is a deconstructed view of a data set and includes a descriptive narrative about the data

What is a software module?

- a software module is an element of a computer program that is intended for a specific task

How do ERP systems help organizations improve operational efficiency?

- centralized database used to consolidate data into a central location
- access to data: ERP systems are user-friendly
- customizable: ERP systems can be customized to meet the organization's specific needs



# Most ERP Systems Are Cloud-Based

ERP systems are offered as on-premise and Cloud-based options.

- on-premise ERP systems are maintained on-site within the organization
- cloud-based ERP systems are stored and maintained off-site and accessed via the Internet

Cloud-based ERP systems are a form of Software as a Service (SaaS).

- SaaS permits users to access software that runs on collective resources including storage and processing

Cloud-based ERP allows organizations to access data and reports from remote locations at any hour of the day.

- they often have a lower price point when compared to on-premise options

# How Managers Use ERP Systems to Maximize Efficiencies

ERP systems facilitate informed business decisions due to the integration of data from various operational areas within the organization.



ERP systems allow managers to view reports that are generated from across the organization, providing them with focused data in a timely manner.

There are a number of different business software applications that can be integrated with an ERP system.

These include customer relationship management (CRM), business intelligence (BI), e-commerce, and project management.

# How Managers Use ERP Systems to Maximize Efficiencies (cont.)

- **Customer relationship management (CRM)** – **CRM** focuses on the management of customer relationships including transactions and communication
- **Business Intelligence (BI)** – **BI** software provides organizations with past, present, and future views of operations that can be used to make informed decisions
- **E-commerce** – E-commerce operations capture a large volume of customer data
- **Project Management** – Project management software organizes data related to projects currently being worked on by an organization

# Review: ERP Systems: Good and Not So Good

Why are most ERP systems Cloud based?

- users have constant access to the system and often cost less than on-site options

How do ERP systems inform business decisions?

- by integrating data from different operational areas, managers can see reports from across the organization

What are the drawbacks of using an ERP system?

- costs
- learning curve
- maintenance costs

# How Financial Systems Software Interacts With ERP

**Financial management systems** are designed to create, store, and report financial transactions.

These systems allow organizations the ability to measure cash flows, calculate tax liabilities, maintain compliance to legal and accounting regulations, and optimize profitability.

ERP systems can be integrated with financial management systems to provide centralized access and management of financial data.

The benefits of this type of integration include: speed, visibility, structure, reporting



# How Financial Systems Software Interacts With ERP (cont.)

- Speed - increased speed of financial report generation is due to streamlined consolidation of financial data from different operating areas
- Visibility - improved visibility of businesses activities and financial reports is due to access from a single source of truth
- Structure - structured compliance architecture exists across various business units
  - regulatory and compliance information can be created and maintained from a centralized location
- Reporting – the system allows for the ability to generate financial reports from across the organization regardless of location or time

# How Accounting Systems Software Interacts With ERP

**Accounting systems software** is designed to handle a variety of financial calculations that are used for reporting and monitoring business performance.

- these activities include accounts receivable and payable, billing, and payroll

Additional activities include payment processing, ledger journaling, expenses, and purchase orders.

Today, accounting systems are commonly being integrated with ERP systems.

This allows organizations to not only structure basic accounting information, but to also track a variety of other resources including: tangible assets, intangible assets, and human resources.

# How Accounting Systems Software Interacts With ERP (cont.)

- **Tangible assets** – a tangible asset has a determined value and is usually in a physical form. Tangible assets include land, equipment, and inventory
- **Intangible assets** – an intangible asset is not physical in nature and has a theorized value. Intangible assets include good will, brand equity, intellectual property, patents, and trademarks
- **Human resources** – human resources include all of the employees within an organization

Integration of accounting software with ERP assists in creating links between financial data and causality.

This allows managers to view data and create reports that factor in intangibles that affect financial performance such as employee work hours, customer relationships, and production and product lifecycles.



# How Human Resource Management Software Interacts With ERP

**Human resources (HR)** includes all of the employees within an organization.

**Human resource management (HRM)** is the area of the organization that oversees the recruitment, hiring, training, compensation, and establishment of personnel-related policies of an organization.



Enterprise resource management (ERP) systems can be designed to include an HRM module.

An HRM module provides the ability to join human resource management and information technology to provide a single source of connectivity and data exchange for personnel-related information.

# How Human Resource Management Software Interacts With ERP (cont.)

Many HR modules are equipped with features that may include a centralized employee database, performance evaluation design and collection, timesheet features, and performance tracking.

One of the key benefits of a HRM module is the ability for management to retrieve and analyze HR related data in a centralized location.

This makes the analysis of HR data more efficient and leads to more informed decision-making.

Most HRM modules provide a structured dashboard that provides information to managers and includes employee absences or leaves, task monitoring, compensation, and performance review status.

# Review: Interacting with Financial, Accounting, and HR Management

How does human resource management software interact with ERP?

- an HRM module allows management to retrieve and analyze HR-related data in a central location

How does accounting systems software interact with ERP?

- integration of accounting software with ERP assists in creating links between financial data and causality

How does financial management systems software interact with ERP?

- allows increased speed of financial report generation
- improves visibility of business activities and financial reports
- allows structured compliance across various business units
- allows the ability to generate financial reports from across the organization regardless of location or time

# How CAD and Manufacturing Software Interacts With ERP

**Computer-aided design (CAD)**, also known as **computer-aided design and drafting (CADD)**, was designed to supplement or replace manual drafting and design.

- CAD is an automated process using software and hardware for the documentation and design of real-world objects

The integration of CAD software with ERP systems benefits manufacturers because of the single source integration and data analysis which results in increased efficiency.

ERP software takes data from CAD files and decodes the design and manufacture specifications into usable inf.

Processes can be tracked through the whole manufacturing progression.

- this allows managers to monitor efficiency and to monitor the use of materials, machines and labor being employed as well as the level of completion

# How Transaction Processing System Software Interacts With ERP

**Transaction processing systems (TPS)** are designed to collect data pertaining to business transactions.

A **business transaction** is any event that involves a financial transaction including sales, orders, purchases, payments, and refunds.

**Transaction processing** is the structured process and guidelines for handling business transactions and includes the collection, calculation, storage, retrieval, and reporting of this data.

The proliferation of e-commerce-based organizations has perpetuated the use of TPS in today's business environment.



# How Transaction Processing System Software Interacts With ERP (cont.)

Integration of TPS with ERP has many advantages to managers including:

- **Saves time** – information provided by payment processors in the past was delivered as batch information which had to be re-created and entered into a system
- **Reduces human error** – removing the human elements of transaction processing reduces the probability for data entry, assignment, or interpretation errors
- **Cash flow reporting** – organizations need current information regarding the status of organizational cash flows
- **Labor cost reduction** – the integration of TPS with ERP has the ability to reduce labor costs
  - due to the streamlined nature of transaction reporting, the services of accounts receivable or payroll may be reduced or eliminated

# How Project Management System Software Interacts With ERP

There are two functions provided by **project management software (PM)**.

These are project scheduling and project communications.

Although this may not appear confusing, each of these functions can be complicated and require constant adjustment.

Further, these two factors interact all the time.

PM modules are specifically designed to integrate with an ERP system to support the integration of project data and information.

- these modules provide a centralized location where data is stored and easily retrieved, allowing management to review planning, management, and analysis of an organization's project, regardless of whether the project is in the planning, development, or monitoring phase

# How Project Management System Software Interacts With ERP (cont.)

Integration also allows for projects to be divided into phases, subprojects, and tasks to make data analysis and project monitoring easier.

The stages of project fulfillment can also be tracked, making visualization of project completion more straightforward for management.

Lastly, management has the ability to assign project management tasks and responsibilities.

The performance of the project plan is usually evaluated by one individual who then reports information to various departments.

Through integration, monitoring and reporting is more efficient due to the single source of data collection and interpretation.





# How Customer Relationship System Software Interacts With ERP

Organizations use customer relationship management (CRM) systems to assist in the management of the critical relationships that have been developed with customers.

These systems assist organizations to synchronize business operating units relating to customer interaction.

**Customer interaction** includes the marketing, sales, and service areas of the organization.

CRM provides insights into customer satisfaction and how best to retain customers once they are acquired.

CRM software allows organizations to better identify and attract prospective customers, maintain customer engagement and relationships, provide wanted or needed services, and ultimately increase sales.

# How Customer Relationship System Software Interacts With ERP (cont.)

Typically, businesses purchase and deploy ERP and CRM systems separately.

- if a business's ERP and CRM systems maintain their own databases, there is a high probability that these databases will have to be regularly synchronized
- manual synchronization can cause gaps in data alignment and lead to redundant and misinformed data as well as longer data access times

Businesses that utilize integrated CRM and ERP systems mitigate the probability of the aforementioned issues by employing a shared database which results in automatic updates and instantaneous data visibility.

Outcomes of an integrated approach include better visibility of customer relationships, faster billing, and single source reporting via user customized dashboards.

# Review: Interacting with CAD, Transaction Processing, Project Management, and Customer Relations

## What is CAD?

- CAD stands for computer-aided design and is an automated process that uses software and hardware to document and design real-world objects

## How do project management modules integrate with an ERP system?

- integration provides a centralized location and allows managers to review planning, management, and analysis of a project, no matter what phase the project is in

## What are the advantages of integrating transaction processing software with ERP?

- saves time, reduces human error, provides a streamlined approach to cash flow reporting, and has the ability to reduce labor costs



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