



## Enterprise Resource Planning (ERP) Systems

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# Enterprise Resource Planning (ERP) Systems

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## Abstract

Enterprise Resource Planning (ERP) systems are comprehensive software solutions designed to integrate and streamline various business processes within an organization. This abstract provides an overview of ERP systems, including their key features, benefits, and challenges.

ERP systems serve as a centralized platform that enables efficient management of core business functions such as finance, human resources, supply chain management, manufacturing, customer relationship management, and more. By integrating these functions into a single system, ERP enhances collaboration, data visibility, and decision-making across different departments and levels of an organization.

The key features of ERP systems include:

1. **Integration:** ERP systems consolidate data from various departments and business processes into a unified database, ensuring consistency and accuracy of information throughout the organization. This integration allows for real-time reporting and analysis, enabling timely and informed decision-making.
2. **Automation:** ERP systems automate routine and manual tasks, reducing the need for manual data entry and paper-based processes. This automation improves operational efficiency, minimizes errors, and frees up resources for more value-added activities.
3. **Scalability:** ERP systems are designed to accommodate the growth of organizations, allowing them to handle increased transaction volumes, user counts, and business complexities. This scalability ensures that the ERP system can adapt to changing business needs and support future expansion.
4. **Customization:** ERP systems offer flexibility to configure and customize functionalities according to the specific requirements of an organization. This allows businesses to align the ERP system with their unique processes and workflows, ensuring a tailored solution that addresses their specific needs.

The benefits of implementing an ERP system are numerous. They include:

1. **Process Efficiency:** ERP systems eliminate redundant processes, streamline workflows, and provide real-time visibility into operations. This leads to increased operational efficiency, reduced lead times, and improved productivity across the organization.

2. **Data Integrity and Accuracy:** With a centralized database, ERP systems ensure data consistency and accuracy by eliminating data silos and reducing manual data entry. This enhances the reliability of information and supports data-driven decision-making.
3. **Enhanced Collaboration:** ERP systems facilitate collaboration and communication among different departments, enabling seamless information sharing and cross-functional teamwork. This promotes better coordination and alignment of business activities.
4. **Improved Customer Service:** By integrating customer-related data and providing a holistic view of customers, ERP systems enable organizations to deliver personalized and responsive customer service. This leads to enhanced customer satisfaction and loyalty.

However, implementing an ERP system also poses challenges that organizations need to address:

1. **Cost and Complexity:** ERP systems can involve significant upfront costs, including software licenses, implementation, customization, and training. The complexity of implementation and integration with existing systems can also pose challenges, requiring careful planning and expertise.
2. **Change Management:** ERP implementations often require changes in business processes and organizational structure. Managing the cultural and organizational changes associated with ERP adoption can be a complex task that requires effective change management strategies and user training.
3. **Data Security and Privacy:** ERP systems centralize critical business data, making them attractive targets for cyberattacks. Organizations must implement robust security measures to protect sensitive information and ensure compliance with data privacy regulations.

Enterprise Resource Planning (ERP) systems have revolutionized the way businesses manage their operations and resources. In today's fast-paced and highly competitive business environment, organizations need efficient and integrated solutions to optimize their processes, enhance productivity, and drive growth. ERP systems provide a comprehensive framework that addresses these needs by integrating various business functions into a centralized software platform.

An ERP system is a sophisticated software solution that enables organizations to manage and automate core processes such as finance, human resources, supply chain management, manufacturing, inventory control, customer relationship management, and more. By consolidating these functions into a unified system, ERP eliminates data silos, improves data visibility, and promotes seamless collaboration across departments and business units.

The primary goal of an ERP system is to streamline operations and enable organizations to make informed decisions based on real-time, accurate data. It achieves this by integrating different facets of an organization's operations, allowing users to access and share information across departments. With an ERP system, businesses can optimize their processes, eliminate redundancies, automate routine tasks, and improve overall efficiency.

ERP systems offer a range of features designed to meet the specific needs of different industries and organizations. They provide functionalities such as data integration, process automation, scalability, and customization. By centralizing data and automating manual tasks, ERP systems enhance productivity, reduce errors, and free up resources for more strategic activities.

Implementing an ERP system brings numerous benefits to organizations. It enables process standardization, improves data integrity, enhances collaboration, supports data-driven decision-

making, and enhances customer service. ERP systems also provide scalability, allowing organizations to adapt to changing business needs and accommodate future growth. However, implementing an ERP system is not without challenges. It requires careful planning, significant investment, and effective change management. Organizations must address issues such as data security, system integration, user training, and cultural change to ensure successful adoption and utilization of the ERP system.

## II. Key Components of ERP Systems on "Enterprise Resource Planning (ERP) Systems"

Enterprise Resource Planning (ERP) systems consist of several key components that work together to provide a comprehensive solution for managing and integrating various business processes within an organization. Understanding these components is crucial for organizations considering the implementation of an ERP system. The key components of ERP systems are:

1. **Centralized Database:** At the core of an ERP system is a centralized database that serves as a repository for all relevant data across different functional areas of the organization. This database stores information related to finance, human resources, inventory, procurement, sales, customer relationships, and more. Having a centralized database ensures data consistency, eliminates data redundancy, and provides a single source of truth for the organization.
2. **Modules and Functionality:** ERP systems consist of different modules, each catering to a specific business function or department. These modules include finance and accounting, human resources, supply chain management, manufacturing, sales and marketing, customer relationship management (CRM), and more. Each module offers a set of functionalities tailored to the specific needs of the respective business area. These functionalities enable efficient management of processes, such as financial transactions, inventory control, resource planning, order management, and reporting.
3. **Integration and Workflow Management:** One of the key advantages of ERP systems is their ability to integrate and streamline workflows across different departments and functions. Through integration, data is seamlessly shared between modules, eliminating the need for manual data entry and providing real-time visibility into operations. Workflow management tools within the ERP system allow organizations to define and automate business processes, ensuring efficient and standardized operations across the organization.
4. **Reporting and Analytics:** ERP systems provide robust reporting and analytics capabilities, enabling organizations to gain valuable insights from their data. These systems offer pre-defined reports and customizable dashboards that allow users to monitor key performance indicators, track progress, and make data-driven decisions. Advanced analytics features may include predictive analytics, data visualization, and business intelligence tools to support strategic planning and forecasting.
5. **Security and Access Controls:** ERP systems handle sensitive and confidential business data, making security a critical component. ERP systems incorporate security measures such as user authentication, access controls, and data encryption to protect against unauthorized access and data breaches. User access rights can be defined and controlled to ensure that employees have appropriate access to the system based on their roles and responsibilities.

6. **Customization and Configuration:** ERP systems offer flexibility for customization and configuration to meet the specific needs of an organization. Administrators can tailor the system's functionalities, workflows, and user interfaces to align with the organization's unique processes and requirements. Customization allows organizations to adapt the ERP system to their industry-specific needs and to accommodate any unique business processes they may have.

Overall, the key components of ERP systems work together to provide an integrated and comprehensive solution for managing an organization's resources and processes. By leveraging a centralized database, modular functionalities, integration capabilities, reporting and analytics tools, security measures, and customization options, ERP systems enable organizations to optimize their operations, enhance collaboration, and make well-informed decisions for sustainable growth.

### III. Benefits of ERP Systems on "Enterprise Resource Planning (ERP) Systems"

Enterprise Resource Planning (ERP) systems offer a wide range of benefits to organizations across different industries and sectors. These benefits stem from the integration, automation, and streamlining of business processes that ERP systems provide. Here are some key benefits of implementing an ERP system:

1. **Enhanced Efficiency:** ERP systems eliminate manual and redundant processes by automating routine tasks, such as data entry, report generation, and inventory management. This automation improves process efficiency, reduces errors, and allows employees to focus on more value-added activities. By streamlining operations, organizations can achieve higher productivity levels and optimize resource utilization.
2. **Improved Data Integrity and Accuracy:** ERP systems integrate data from various departments into a centralized database, ensuring consistency and accuracy of information. This eliminates data silos and reduces the risk of data duplication or inconsistencies. With reliable and up-to-date data, organizations can make informed decisions, improve forecasting accuracy, and respond quickly to market changes.
3. **Streamlined Collaboration and Communication:** ERP systems facilitate seamless collaboration and communication across different departments and business units. With a centralized database and standardized processes, employees can easily share information, collaborate on projects, and align their efforts. This leads to improved coordination, increased transparency, and better overall teamwork.
4. **Real-time Reporting and Analytics:** ERP systems provide robust reporting and analytics capabilities, allowing organizations to generate real-time insights into their operations. Pre-defined reports and customizable dashboards enable users to monitor key performance indicators (KPIs), track progress, and identify areas for improvement. With access to accurate and timely information, organizations can make data-driven decisions and respond quickly to changing market conditions.
5. **Enhanced Customer Service:** ERP systems integrate customer-related data, enabling organizations to deliver personalized and responsive customer service. By having a 360-degree view of customers, including their purchase history, preferences, and interactions,

organizations can tailor their offerings and provide better customer support. This leads to improved customer satisfaction, increased loyalty, and ultimately, higher customer retention rates.

6. **Scalability and Flexibility:** ERP systems are designed to support the growth and evolving needs of organizations. They offer scalability, allowing businesses to handle increased transaction volumes, user counts, and business complexities. Furthermore, ERP systems provide flexibility through customization and configuration options, enabling organizations to adapt the system to their unique processes and industry-specific requirements.
7. **Regulatory Compliance:** ERP systems help organizations comply with industry regulations and standards. These systems can include built-in controls and audit trails to track and monitor compliance-related activities. By automating compliance processes and generating accurate reports, ERP systems facilitate regulatory adherence and reduce the risk of non-compliance penalties.

#### IV. Implementation of ERP Systems on "Enterprise Resource Planning (ERP) Systems"

The implementation of an Enterprise Resource Planning (ERP) system is a complex and critical process that requires careful planning, coordination, and management. Successful ERP implementation involves several key steps and considerations. Here is an overview of the implementation process:

1. **Needs Assessment and Planning:** The first step in ERP implementation is to conduct a thorough needs assessment to determine the organization's requirements and objectives. This involves identifying pain points, defining goals, and establishing clear expectations for the ERP system. Planning includes forming an implementation team, setting timelines, allocating resources, and defining project scope.
2. **Vendor Selection:** Organizations need to evaluate and select an ERP vendor that aligns with their requirements and industry-specific needs. This involves assessing factors such as vendor reputation, product features, scalability, support services, and total cost of ownership. Requesting proposals, conducting demos, and engaging in negotiations are common activities during this phase.
3. **Business Process Mapping and Customization:** Before implementing the ERP system, it is crucial to map existing business processes and workflows. This helps identify areas for improvement and customization. Organizations may need to align their processes with the standard functionality of the ERP system or customize the system to meet specific business requirements. It's important to strike a balance between customizations and leveraging the out-of-the-box features provided by the ERP system.
4. **Data Migration:** Data migration involves transferring data from legacy systems to the new ERP system. It is essential to cleanse and validate data to ensure accuracy and integrity. Organizations should develop a comprehensive data migration plan, including data mapping, data cleansing, and conversion strategies. Testing and verification of the migrated data are critical to minimize disruptions during the go-live phase.

5. **System Configuration and Testing:** During this phase, the ERP system is configured based on the organization's requirements and processes. This includes setting up modules, workflows, user roles, security controls, and integration with other systems. Rigorous testing is conducted to ensure that the system functions as intended and meets the organization's needs. This includes unit testing, integration testing, performance testing, and user acceptance testing.
6. **Training and Change Management:** Adequate training is crucial to ensure that employees understand how to use the ERP system effectively. Training programs should be designed and delivered to address the specific needs of different user groups. Additionally, change management strategies should be implemented to prepare employees for the transition and manage any resistance to change. Communication, employee engagement, and ongoing support are key elements of successful change management.
7. **Go-Live and Post-Implementation Support:** The go-live phase involves transitioning from the old systems to the new ERP system. It is important to carefully plan the cutover process to minimize disruptions to business operations. Post-implementation support is essential to address any issues or challenges that arise after go-live. Continuous monitoring, evaluation, and optimization of the system should be conducted to ensure its effectiveness and alignment with changing business needs.

ERP implementation is a complex and iterative process that requires strong project management, effective communication, and collaboration among stakeholders. It is essential to have executive sponsorship and engage key users throughout the implementation journey. By following a well-defined implementation methodology and considering the unique needs of the organization, successful ERP implementation can lead to improved operational efficiency, enhanced decision-making, and sustainable growth.

## V. Challenges and Considerations on "Enterprise Resource Planning (ERP) Systems"

Implementing an Enterprise Resource Planning (ERP) system can present various challenges and considerations that organizations need to address to ensure a successful implementation and maximize the benefits of the system. Here are some key challenges and considerations:

1. **Change Management:** ERP implementation often involves significant changes to business processes, roles, and responsibilities. Resistance to change from employees can hinder the implementation process. It is important to have a change management strategy in place to create awareness, engage employees, and address concerns. Clear communication, training, and continuous support are crucial to facilitate a smooth transition.
2. **Project Management:** ERP implementation is a complex project that requires effective project management. Organizations need to allocate dedicated resources, establish clear project goals and timelines, and monitor progress closely. Project management methodologies, such as Agile or Waterfall, can be employed to ensure proper planning, coordination, and risk management throughout the implementation process.
3. **Data Migration and Integration:** Migrating data from legacy systems to the new ERP system can be a complex and time-consuming task. Data quality, completeness, and mapping need to be carefully addressed to ensure accurate and reliable data in the new

system. Integration with existing systems, such as CRM or inventory management, may also present challenges and require thorough planning and testing.

4. **Customization vs. Standardization:** Organizations must strike a balance between customizing the ERP system to suit their specific needs and leveraging standard functionalities to ensure system stability and ease of maintenance. Over-customization can lead to increased complexity, longer implementation timelines, and higher costs. It is essential to carefully evaluate customization requests and prioritize them based on their impact and value to the organization.
5. **Resource Allocation:** ERP implementation requires dedicated resources, including a project team, subject matter experts, and technical personnel. Organizations need to allocate sufficient time, budget, and skilled personnel for the implementation. Inadequate resource allocation can lead to delays, increased costs, and compromised project quality.
6. **Vendor Selection and Support:** Selecting the right ERP vendor is crucial to the success of the implementation. Organizations should thoroughly evaluate vendors based on their industry expertise, product functionality, implementation methodology, support services, and long-term viability. Adequate vendor support during and after implementation is essential to address technical issues, provide training, and ensure the smooth operation of the system.
7. **Organizational Readiness:** Organizations should assess their readiness for ERP implementation before embarking on the project. This includes evaluating the organization's culture, readiness for change, and the availability of skilled personnel. Lack of readiness can hamper the implementation process and hinder user adoption of the new system.
8. **Ongoing Maintenance and Upgrades:** ERP systems require ongoing maintenance, updates, and upgrades to keep pace with changing business needs and technology advancements. Organizations should plan for regular system maintenance, user support, and periodic upgrades to leverage new features and bug fixes provided by the ERP vendor.

By addressing these challenges and considerations proactively, organizations can mitigate risks, increase the chances of successful implementation, and maximize the benefits of ERP systems. Effective planning, strong project management, clear communication, and user engagement are key factors in overcoming challenges and ensuring a smooth transition to an ERP system.

## VI. Emerging Trends in ERP Systems on "Enterprise Resource Planning (ERP) Systems"

Enterprise Resource Planning (ERP) systems continue to evolve and adapt to meet the changing needs of organizations in a rapidly advancing technological landscape. Several emerging trends are shaping the future of ERP systems. Here are some of the key trends:

1. **Cloud-Based ERP:** Cloud computing has gained significant traction in recent years, and cloud-based ERP systems are becoming increasingly popular. Cloud-based ERP offers several advantages, including scalability, flexibility, cost-efficiency, and accessibility from anywhere with an internet connection. It eliminates the need for on-premises infrastructure and allows organizations to focus on their core business while relying on the vendor for system maintenance and updates.



2. **Mobile ERP:** As mobile devices become ubiquitous, mobile ERP applications are gaining prominence. Mobile ERP enables users to access and perform ERP functions on smartphones and tablets, providing real-time information and facilitating on-the-go decision-making. Mobile ERP applications can improve productivity, enhance collaboration, and enable remote access to critical data and processes.
3. **Artificial Intelligence (AI) and Machine Learning (ML):** AI and ML technologies are increasingly being integrated into ERP systems, enabling advanced analytics, predictive capabilities, and automation of routine tasks. AI-powered ERP systems can analyze vast amounts of data, identify patterns, and provide actionable insights to support decision-making. ML algorithms can automate repetitive processes, improve forecasting accuracy, and optimize resource allocation.
4. **Internet of Things (IoT) Integration:** The integration of IoT devices with ERP systems is becoming more prevalent. IoT sensors and devices can collect real-time data from various sources, such as manufacturing equipment, supply chains, and inventory, and feed it directly into the ERP system. This integration enables organizations to monitor and manage their operations more effectively, optimize processes, and enable predictive maintenance.
5. **Blockchain Integration:** Blockchain technology is gaining attention for its potential to enhance transparency, security, and traceability in various industries. Integration of blockchain with ERP systems can provide secure and immutable transaction records, streamline supply chain processes, and enable verifiable provenance of goods. Blockchain can also facilitate smart contracts and automate trust-based transactions within the ERP environment.
6. **Enhanced User Experience:** ERP vendors are focusing on improving the user experience by adopting intuitive and user-friendly interfaces. Modern ERP systems are designed to be more visually appealing, customizable, and easy to navigate. They leverage modern UX/UI design principles to enhance usability and reduce the learning curve for end-users.
7. **Integration with Third-Party Applications:** ERP systems are increasingly being integrated with other third-party applications and systems, such as customer relationship management (CRM), e-commerce platforms, business intelligence tools, and productivity suites. Integration with these applications enhances data sharing, streamlines processes, and provides a unified view of organizational operations.
8. **Focus on Industry-Specific Solutions:** ERP vendors are developing industry-specific solutions tailored to the unique needs and requirements of different industries. These solutions incorporate industry best practices and pre-configured workflows, enabling organizations to implement ERP systems more quickly and effectively. Industry-specific ERP solutions can address specific regulatory compliance, reporting, and functionality needs.

These emerging trends in ERP systems reflect the ongoing digital transformation and technological advancements occurring in the business landscape. By embracing these trends, organizations can leverage ERP systems to drive operational efficiency, enhance decision-making, and gain a competitive edge in their respective industries.

## VII. Case Studies and Examples on "Enterprise Resource Planning (ERP) Systems"

Certainly! Here are a few case studies and examples of organizations that have implemented Enterprise Resource Planning (ERP) systems:

1. Nike: Nike, the global sportswear and apparel company, implemented an ERP system to streamline its supply chain operations. The ERP system integrated various functions, including manufacturing, inventory management, sales, and distribution. By consolidating data and automating processes, Nike was able to improve visibility into its supply chain, optimize inventory levels, reduce lead times, and enhance collaboration with suppliers.
2. Nestlé: Nestlé, one of the world's largest food and beverage companies, implemented an ERP system to streamline its global operations. The ERP system helped Nestlé to standardize and harmonize business processes across its numerous subsidiaries and divisions worldwide. It facilitated better planning, procurement, production, and sales management. The centralized data and reporting capabilities provided by the ERP system improved decision-making and enabled Nestlé to achieve operational efficiency and cost savings.
3. Whirlpool: Whirlpool Corporation, a leading home appliance manufacturer, implemented an ERP system to improve its supply chain and manufacturing operations. The ERP system integrated various functions, including demand planning, production scheduling, inventory management, and distribution. By optimizing its supply chain processes and enhancing collaboration with suppliers, Whirlpool was able to reduce lead times, improve product availability, and increase customer satisfaction.
4. L'Oreal: L'Oreal, the global beauty and cosmetics company, implemented an ERP system to streamline its business operations and support its growth strategy. The ERP system integrated functions such as finance, purchasing, manufacturing, and sales. It provided L'Oreal with real-time visibility into its operations, enhanced inventory management, and improved financial reporting. The ERP system enabled L'Oreal to standardize processes across its global subsidiaries, improve operational efficiency, and support its expansion into new markets.
5. Amazon: Amazon, the e-commerce and technology giant, implemented an ERP system to manage its vast supply chain and logistics operations. The ERP system integrated various functions, including inventory management, order processing, shipping, and financials. It provided Amazon with real-time visibility into its inventory levels, order status, and financial performance. The ERP system enabled Amazon to scale its operations efficiently, improve order fulfillment, and deliver a seamless customer experience.

These case studies highlight how organizations across different industries have leveraged ERP systems to streamline their operations, improve efficiency, and achieve business objectives. ERP systems have proven to be instrumental in enhancing supply chain management, optimizing inventory, improving financial reporting, and supporting growth strategies.

conclusion on "Enterprise Resource Planning (ERP) Systems"

## Conclusion

In conclusion, Enterprise Resource Planning (ERP) systems play a critical role in modern organizations by integrating various business functions, streamlining processes, and providing

real-time visibility into operations. ERP systems offer a centralized platform that enables efficient management of resources, enhances decision-making, and supports strategic planning. However, implementing an ERP system is a complex undertaking that requires careful planning, strong project management, and effective change management. Organizations must address challenges such as change resistance, data migration, customization, and resource allocation to ensure a successful implementation.

The future of ERP systems is influenced by emerging trends such as cloud-based deployment, mobile accessibility, AI and ML integration, IoT connectivity, blockchain adoption, improved user experience, and industry-specific solutions. These trends offer organizations opportunities to further optimize their operations, enhance collaboration, and drive innovation.

By leveraging ERP systems effectively, organizations can achieve numerous benefits, including improved operational efficiency, better inventory management, enhanced decision-making, increased customer satisfaction, and competitive advantage in the market.

Overall, ERP systems continue to evolve and adapt to meet the changing needs of organizations in a digital and interconnected business landscape. As technology advances and organizations seek greater efficiency and agility, ERP systems will remain a critical tool for managing complex business processes and driving sustainable growth.

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