POLYTECHNIC SERIES

Business Information System in Supply Chain

success in final examination

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Preface

Business Information System in Supply Chain is designed to be your comprehensive guide to understanding and navigating the intricate web of Information Systems in Supply Chain Management. In the fast-paced and interconnected world of today's business landscape, effective information systems play a pivotal role in shaping the success of supply chain operations

The journey begins with a foundational exploration of the role and significance of Information Systems in the realm of supply chain management. We delve into the core concepts, principles, and the evolving landscape that drives the need for robust information systems in modern supply chains. Second, it unravel the intricacies of procurement, vendor management, and the dynamic processes involved in ensuring a seamless flow of goods and services. Learn how Information Systems can elevate efficiency and effectiveness in these crucial domains. Third, with integration and management of core business processes, ERP systems, with a focus on their role in optimizing supply chain operations.

It also serves as part of the course syllabus for DPS40083 Business Information System in Supply Chain. Get ready to embark on a learning adventure that demystifies the complexities of Information Systems in Supply Chain Management. Let's navigate the digital landscape together and unlock the potential for innovation and efficiency in your supply chain endeavors.

Happy reading!

Dedicated

I would like to convey my gratitude to the Department of Polytechnic and Community College Education.

I would like to thank all my friends for their support. Last but not least, I would like to thank my beloved family. Thank you so much for your endless support.

Abstract

The goal of the Business Information System in Supply Chain is to enhance students understanding of Supply Chain in business nowadays. This book content three chapters. Questions are accessible to show understanding of the topic.

Table of contents

01

Introduction to Information System in Supply Chain

At the end of the chapter, students can

1. Examine Information Technology, Information Systems, Data, and Information
2. Apply the role of IT in the Supply Chain
3. Derive Logistics Management System

PART 1

Overview

Information Technology (IT)
Information System (IS)
Data
Information

System Model

Input
Processing
Output
Feedback

Dimensions of IS

Organizational
Management/People
Technology

Pyramid Diagram of Organizational levels and information

Types of IS

Transaction Processing System (TPS)
Management Information System (MIS)
Decision Support System (DSS)

Artificial intelligence techniques in business

Online Analytical Processing (OLAP)

Overview

01

Information System

set of people, information technology, telecommunication networks and business process in order to achieve a business objective

02

Information Technology

the use of hardware, software, services, and supporting infrastructure to manage and deliver information using voice, data, and video.

03

Data

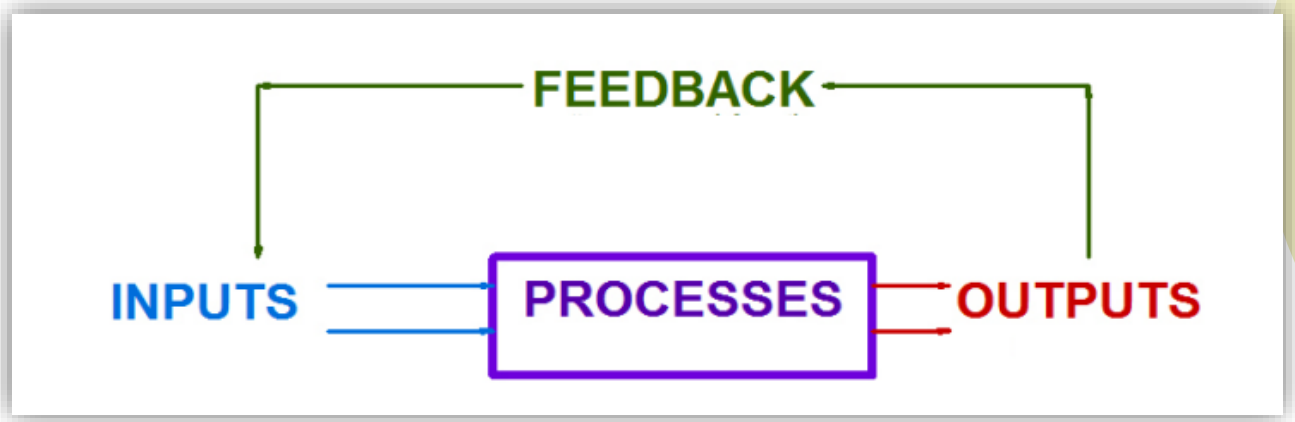
Data is raw, unorganized facts that need to be proceed. Data can come in the form of text, observations, figures, images, numbers, graphs, or symbols.

04

Information

When data is processed, organized, structured or presented in each context to make it useful.

System Model



Input

the information entered a computer system, examples: typed text, mouse clicks.

Processes

the process of transforming input information into and output

Output

the visual, auditory, or tactile perceptions provided by the computer after processing the provided information

Feedback

Output that is returned to the appropriate members of the organization to help them evaluate or correct input

Dimention Information System in Supply Chain

Organization

Information system are part of organization. Information system will have the standard operating procedure and culture of an organization embedded within them. This involves:

a) Functional specialties
b) Business processes
c) Culture
d) Political interest groups

People/Management

Managers perceive business challenges in the environment. Information systems supply tools and information needed by the managers to allocate, coordinate and monitor their work, make decision, create new products and services and make long range strategic decision.

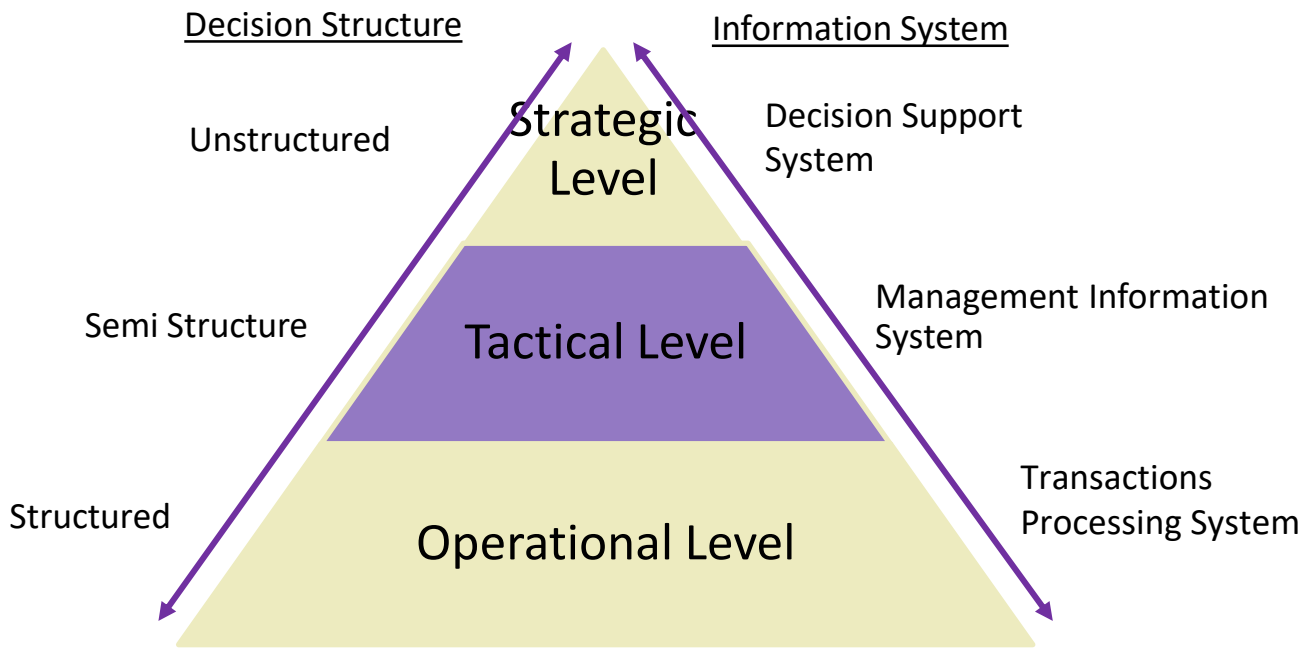
Technology

Management uses technology to carry out their functions. It consists of – computer hardware/software, data management technology, networking/telecom technology. Its one of the many tools managers use to cope with the change.

Organization
structure, business processes, politics, and culture hierarchical structure – from lower to upper levels business processes - work processes/procedures in every organization – written/unwritten/formal/informal. culture - all a company's beliefs, values, and attitudes, and how these influence the behaviour of its employees. Culture affects how people experience an organization. politics - informal, unofficial, and sometimes behind-the-scenes efforts to sell ideas, influence an organization, increase power, or achieve other targeted objectives. company – google, Netflix, Starbucks
Management
Basic Senior management makes long-range strategic decisions and ensures the firm's financial performance. Middle management carries out the plans of senior management. Operational management monitors the firm's daily activities.
Technology
an information system is an important instrument for creating value for the firm. Information systems enable the firm to increase its revenue or decrease its costs by providing information that helps managers make better decisions or that improves the execution of business processes.

Pyramid Diagram Of Organizational Levels And Information Requirements

Students must understand the various l**evels of an organization**, **the information required** by each level, and the **decision structure** that operate at their respective levels.



Organizational Levels

Operational management level

This organizational level generally used by managers at lower levels of the organization—those who run day-to-day business operations and make routine decisions. They may be transaction processing systems, process control systems, or design and production systems. Users at this level use make structured decisions. This means that they have defined rules that guides them while making decisions

Tactical management level

This organization level is dominated by middle-level managers managers, heads of departments, and supervisors. The middle management stage is where activities and actions are developed to support a company's strategy and oversee the activities of the users at the operational management level. Tactical users make semi-structured decisions. The decisions are partly based on set guidelines and judgmental calls.

Strategic management level

This is the most senior level in an organization. Senior level managers are concerned with the long-term planning of the organization. They use information from tactical managers and external data to guide them when making unstructured decisions. The users at this level make unstructured decisions.

Types Of Information Technology

01 Transaction Processing System

- Transaction Processing System are information system that processes data resulting from the occurrences of business transactions.
- Their objectives are to provide transaction to update records and generate reports to perform store keeping function.
- The transaction is performed in two ways: Batching processing and Online transaction processing.

Example: Bill system, payroll system, Stock control system.

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Types Of Information Technology

02

Management Information System

- Management Information System is designed to take relatively raw data available through a Transaction Processing System and convert them into a summarized and aggregated form for the manager, usually in a report format. It reports tending to be used by middle management and operational supervisors.
- Many different types of report are produced in MIS. Some of the reports are a summary report, on-demand report, ad-hoc reports and an exception report.

Example: Sales management systems, Human resource

Types Of Information Technology

03

Decision Support System

- Decision Support System is an interactive information system that provides information, models, and data manipulation tools to help in making the decision in a semi-structured and unstructured situation.
- Decision Support System comprises tools and techniques to help in gathering relevant information and analyse the options and alternatives, the end user is more involved in creating DSS than an MIS.

Example: Financial planning systems, Bank loan management systems.

Artificial Intelligence

Artificial intelligence refers to the ability of machines to learn and make decisions based on data and analytics. It leverages computers and machines to mimic the problem-solving and decision-making capabilities of the human mind.

Online Analytical Processing (OLAP)

Online analytical processing (OLAP) is software technology you can use to analyze business data from different points of view. Organizations collect and store data from multiple data sources, such as websites, applications, smart meters, and internal systems.

Example: A company sells laptops, desktops, and mobile device. They have four branches A, B, C and D. OLAP can be used to view the total sales of each product in all regions and compare the actual sales with the projected sales. Each piece of information such as product, number of sales, sales value represents a different dimension

The main objective of OLAP systems is to provide answers to ad hoc queries within the shortest possible time regardless of the size of the datasets being used.

PART 2

OVERVIEW

Supply Chain Management

e-Supply Chain Management (e-SCM)

Compare between SCM and e-SCM

Impact technology in Supply Chain

Logistic operations flow in supply chain information system

Push flows

Pull flows

Just in time flows

Synchronized flows

Main modules of a Logistics Management System

Order Management

Inventory Management

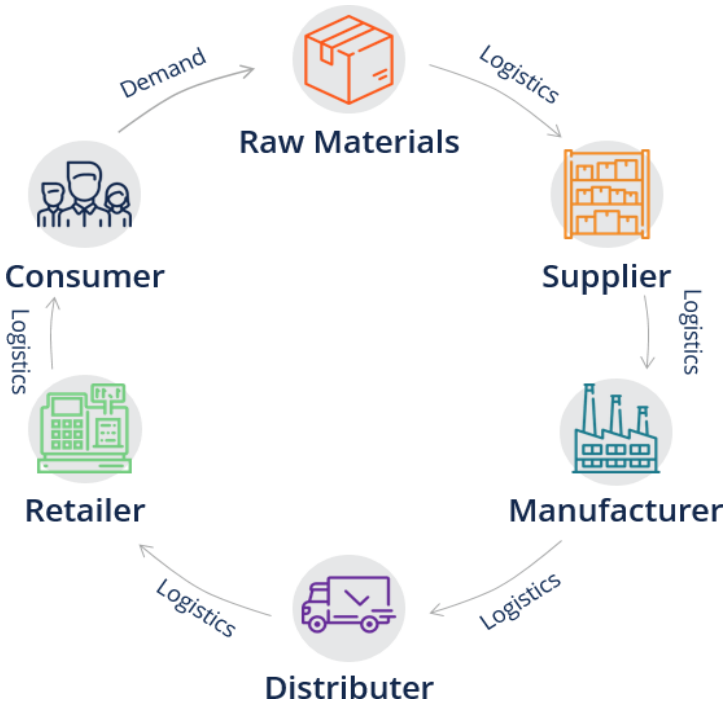
Warehouse Management

Transport Management

Reverse Logistics

Logistics Analytics

Overview



Supply Chain Process

Supply Chain Management (SCM)

Supply chain management is the handling of the entire production flow of goods, data, and finances related to a product or service, from the procurement of raw materials to the delivery of the product at its destination.

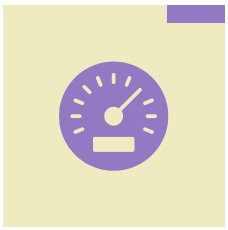
Electronic supply chain management (e-SCM)

Collaborative use of technology to improve the operations of supply chain activities as well as the management of supply chains.

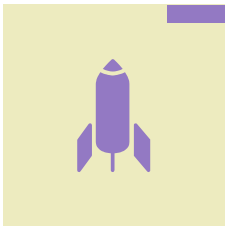
Compare SCM and e-SCM

e-SCM	SCM
focuses on the needs of the customers	focuses only on production and provision
create and provide value to the product which is consumed by the final customer	has no such strategies to improve the value of the finished product.
visibility across the entire supply chain	would not have any visibility across the supply chain
Modern technologies and strategies are incorporated	involves the collection of raw materials, supplying them to the manufacturer, manufacture of the book, printing of content, packing, shipping, and delivery.
Allows faster progression with highly advanced and integrated technology systems to ensure the expansion	involves a series of value-adding activities from the supply side (raw materials, inbound logistics, production processes) to the demand side (outbound logistics, marketing, sales).
Utilizes logistics management to ensures the process is effective and efficient, and also ensures the safe delivery of the goods	Does not use any tool like logistics management
focuses more on building partnerships, alliances, and collaborations	allows listed companies to follow a single pathway.

Impacts Technology In Supply Chain



Enhance Efficiency



Improve visibility

Improve collaborative & communication

Enhance decision making

Overall, the impact of technology in supply chain management has been transformative, leading to increased efficiency, reduced costs, improved customer service, and enhanced supply chain visibility

Enhance Efficiency

Increased efficiency is brought about by the presence of automation. Automation technologies such as robotics, machine learning, and artificial intelligence (AI) have automated various supply chain processes, reduced manual errors, and improved efficiency. Automated systems can handle tasks like order processing, inventory management, demand forecasting, and even robotic warehouse operations. This results in faster order fulfilment, reduced lead times, and improved overall operational efficiency.

Improve visibility

Technology has enabled real-time visibility and tracking of products and materials throughout the supply chain. Barcodes, RFID tags, and GPS tracking systems allow businesses to monitor the movement of goods, providing valuable data on location, status, and potential delays. With blockchain, supply chain companies can document production updates to a single shared ledger, which provides complete data visibility and a single source of truth. Because transactions are always time-stamped and up to date, companies can query a product's status and location at any point in time.This enhanced visibility helps optimize inventory management, reduce stockouts, and streamline the entire supply chain.

Improve collaborative & communication

Technology and automation for the supply chain utilize real or near real-time data. Cloud-based technologies have facilitated collaboration and information sharing among supply chain partners. Cloud-based platforms enable real-time communication, data sharing, and collaborative planning, ensuring all stakeholders have access to accurate and up-to-date information. This improves coordination, reduces delays, and enables better decision-making across the supply chain

Enhance decision making

Decisions are made based on Data Analytics. Advanced data analytics tools and techniques enable businesses to collect and analyse vast amounts of supply chain data, providing valuable insights and predictive capabilities. By leveraging historical data, businesses can forecast demand more accurately, optimize inventory levels, identify potential bottlenecks, and make data-driven decisions to improve supply chain performance. Predictive analytics also help in identifying trends, mitigating risks, and optimizing supply chain networks.

Logistic Management

Logistics management refers to the acquisition, storage and transportation of inventory from its origin to its destination.

Logistics management system is subset of Supply Chain Management. Logistics management system is a combination of software tools that optimize business processes from beginning to end.

A logistics management system will help increase efficiency in processing orders, managing inventory, transporting orders to customers, and returning orders if necessary

The 7R's of logistic. Getting the Right product, in the Right quantity, in the Right condition, at the Right place, at the Right time, to the Right customer, at the Right price.

Logistic Operation Flow

Push Flow

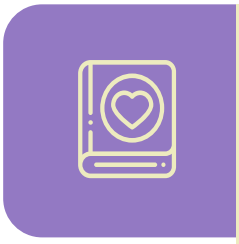
not fixated by the market demand. The company continues to carry out production activities to anticipate market needs

Pull Flow

production method essentially based on the logic of demand. It focuses on the number of demands. Production will be executed only when the demand exists.

Just in Time Flow

A combination of push flows and pull flows. The company manages the flow of raw materials and is ready to sell products to match market demand



Synchronized flow

supply logistics are governed by production processes. The components are brought in at the precise moment they are needed in the production process

Main modules of a Logistics Management System

1. Order Management

Order management is the process of order capturing, tracking, and fulfilling customer orders. The order management process begins when an order is placed and ends when the customer receives their package.

2. Inventory Management

Inventory management refers to the process of ordering, storing, using, and selling a company's inventory. This includes the management of raw materials, components, and finished products, as well as warehousing and processing of such items

Main modules of a Logistics Management System

3. Warehouse Management

Warehouse Management encompasses the principles and processes involved in running the day-to-day operations of a warehouse. At a high level, this includes receiving and organizing warehouse space, scheduling labour, managing inventory and fulfilling orders

4. Transport Management

Transport Management is a logistics platform that uses technology to help businesses plan, execute, and optimize the physical movement of goods, both incoming and outgoing, and making sure the shipment is compliant, proper documentation is available

Main modules of a Logistics Management System

5. Reverse Logistic

Reverse logistics is a type of supply chain management that moves goods from customers back to the sellers or manufacturers. Once a customer receives a product, processes such as returns, or recycling require reverse logistics.

6. Logistic Analytics

Logistics analysis is the technical planning a company will go through to manage the flow of goods or information through various business channels. Large firms may have their own set of sub-units that provide supply chain services such as packaging, shipping, warehousing and distributing

Activity

Have a discussion with your groupmate

How are Amazon, Starbucks, and FreshDirect using AI to expand their business?

What makes Walmart/Starbucks/Dell/IKEA supply chain so successful?

Impacts of technology in Walmart/Starbucks/Dell/IKEA on supply chain management.

02

Purchasing & Supply Management

At the end of the chapter, students can

1. Examine Purchasing, Procurement, Supply Management, and Material Management
2. Apply Strategic Sourcing

Overview

Purchasing

Procument

Types of purchasing

Personal, Commercial, Industrial, Government agencies or institutions

Categories of Industrial Purchases

Capital goods, Raw Material, Component Parts, Major Equipment, Accessory Equipment, Operating Supplies, Services

Purchasing Process – Relate the purchasing process in a supply chain organization

Strategic Sourcing

Supply Management

Commodity strategy

Supplier Evaluation

Supplier Evaluation criteria

Benefits of Supplier Evaluation process

Calculate the weighted point score for the vendors

Overview

Purchasing

01

Purchasing is a subset of Procurement. Purchasing is the act of buying the goods and services that a company needs to operate and/or manufacture products

Procument

02

Procurement is obtaining or purchasing goods or services, typically for business purposes.

Procurement vs Purchasing

purchasing is essentially transactional, focusing on managing specific orders to meet company needs, a reactive approach — simply focusing on obtaining what the company has already decided it needs.

Procurement is a much broader and more complex set of processes, including establishing and maintaining supplier relationships, procurement takes a proactive approach that starts with analyzing the company's needs

Types of Purchases

1 Personal/Individual Purchases

It involves the consumer purchasing for their consumption. It is the most common and important type of purchase.

2 Commercial/ Mercantile Purchases

Buying items in order to resell them at a profit. Commercial purchases are made possible by the middlemen for the re-sale of products to meet other needs.

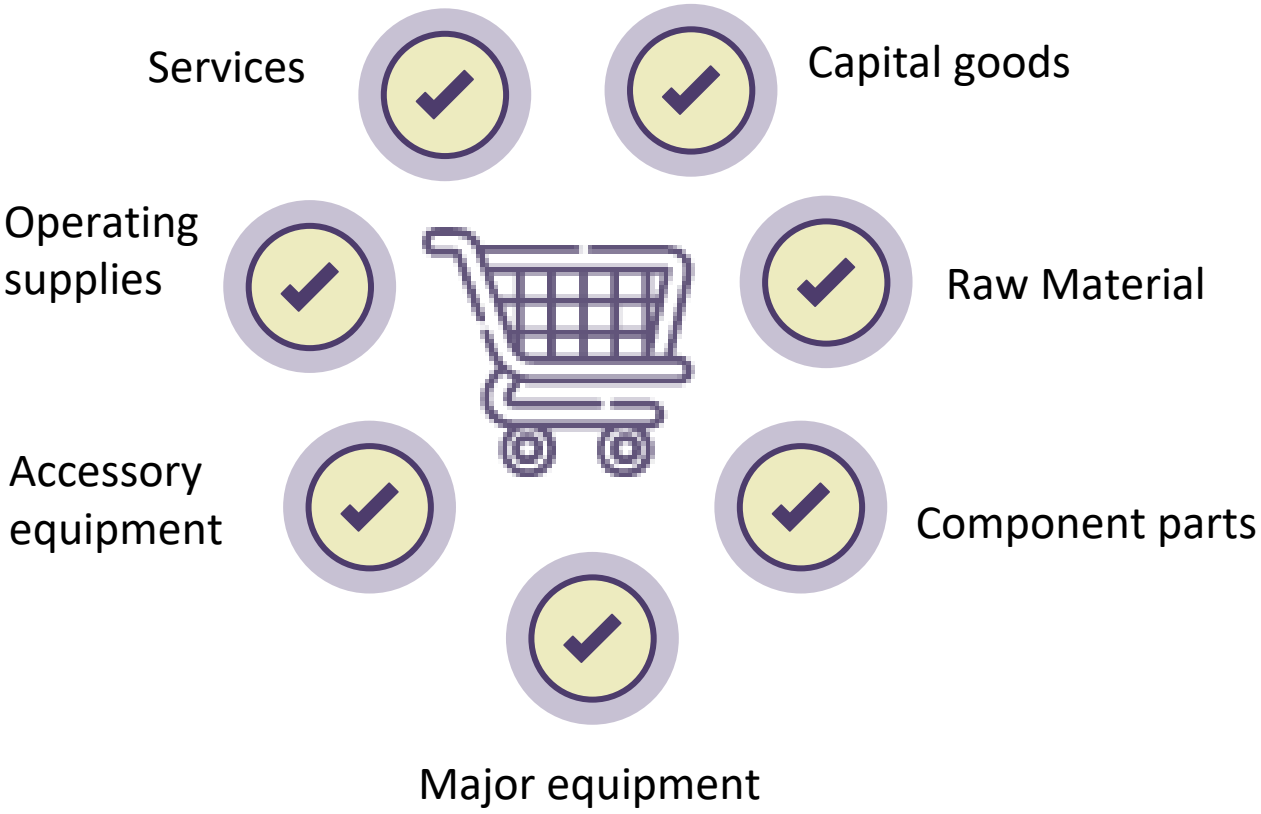
3 Industrial Purchases

Purchase of products by organizations for their own use or re-sell. The purchaser is buying to convert material into finished goods and product. It entails buying raw materials.

4 Government agencies or institutions Purchases

A purchase are very important, critical, they purchase in bulk for public utilities. These procurements methods are open competitive bidding, limited tendering, shopping, and direct or sole source contracting

Categories of Industrial Purchases



Categories of Industrial Purchases

Capital goods
physical assets a company uses to produce goods and services for consumers. Capital goods include fixed assets, such as buildings, machinery, equipment, vehicles, and tools.
Raw Material
The input goods or inventory that a company needs to manufacture its products.
Component parts
semi-finished parts that can be installed directly into the products with little or no additional change. Examples ball bearings, small motors, switches, motors, customized gears, batteries, and tires.
Major equipment
used to make, process, or sell other goods. Examples machinery, computers, automobiles, tractors, engines
Accessory equipment
goods and materials purchased by organizations for use in production, administrative, clerical or marketing activities, but not directly in the manufacture of finished products. Examples hand tools, computers, desk calculators, and forklifts
Operating supplies
the goods which are needed in industrial production process but do not become the part of finished goods are called 'operating supplies'. Fuels like petroleum, coal, oily materials, grease, cleaning cloth, paper, pencil, carbon paper, type ribbon, ink
Services
service to production and manufacturing related business including refineries, with proper zoning and which conducts business.

Purchasing process

The purchasing process is the steps a business goes through to complete a transaction

1. **Identify the need**
   Need for a product, tool or service that will enhance operations
2. **Specify the requirement**
   Managers investigate the need further and produce a plan for exactly what they need.
3. **Find and choose a supplier**
   Find potential suppliers who can provide the specific product or service you want to purchase.
4. **Negotiate costs**
   Negotiate costs with a supplier, especially when placing high-priced orders
5. **Get order approval**
   get approval for the order. ensure there are enough available funds within the budget for the purchase
6. **Place the order**
   Place the order when both sides agree to the transaction.
   Get everything in writing specific details, such as price, delivery times, fees and installations.
7. **Receive and approve the order**
   When the order arrives, check for any issues with the product or anything the supplier failed to deliver on.
8. **Review supplier performance**
   make a record of suppliers' deliveries for quality and timeliness and continue relationships with suppliers

Apply Strategic Sourcing

Strategic Sourcing

Strategic sourcing is a procurement process that connects data collection, spend analysis, market research, negotiation, and contracting.

Supply Management

Supply management is the act of identifying, acquiring, and managing resources and suppliers that are essential to the operations of an organization. It includes the purchase of physical goods, information, services, and any other necessary resources that enable a company to continue operating and growing.

Commodity Strategy

A commodity/service strategy is effectively a purchasing plan for a particular good or service. example, a company that uses steel to make products will need to purchase steel when the price is low and sell when the price is high.

Supplier Evaluation

A supplier evaluation is the process of assessing and approving potential suppliers through quantitative and qualitative assessments

Criteria to Evaluate Suppliers

Quality

Choosing a company that has ISO certification remains the industry standard indicates that the supplier excels in management responsibility, resource management, product realization, and measurement, analysis, and improvement.

Financial Stability

The supplier has sufficiently strong cash flow to meet our need. A credit check will help reassure that they do not close their business when you need them most.

Value for money

Choose an affordable supplier. It is important to strike a balance between cost, reliability, quality, and service.

Environmental Impact

An evaluation should cover a supplier’s waste management strategies, waste reduction practices, and material procurement procedures, as well as efforts to achieve energy efficiency and any protocols employed when handling harmful materials.

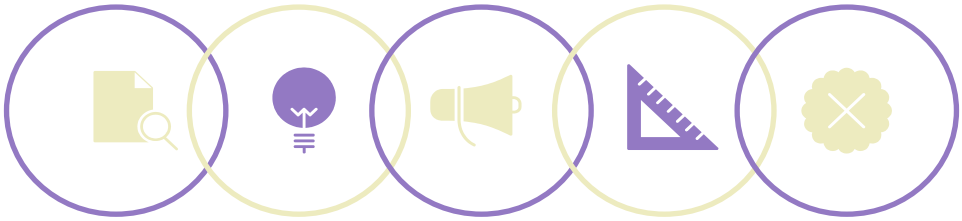
Performance

Flexible suppliers help you respond quickly to changing customer demands and sudden emergencies. The supplier can fulfill these orders, and the time it takes to deliver the goods or services according to the client's expectations. Reviewing performance metrics such as overall delays, average response time, and corrective actions

Production Capacity

Appraise the supplier’s abilities and limitations. A supplier can respond to production cycles.

Benefits of supplier evaluation



1. Improve supplier performance

Proper supplier evaluation methods and systems, companies can analyse different aspects such as quality, delivery, and cost management leading to the poor performance of suppliers. They can even strategize corrective measures to gain positive results.

2. Leverage the supply base

An enterprise can set a threshold for its suppliers that can yield higher-quality results. Companies can develop new products and services based on a better understanding of their suppliers' capabilities and performance levels.

3. Increase performance visibility

When companies do not have data on how their suppliers are performing, supplier management tends to be based on assumptions. The simple act of measuring performance is when companies award additional business based on suppliers meeting performance goals.

4. Risk mitigation

Devise effective strategies and mitigate business risks. These risks can be financial and operational and escalate with geographic distance

5. Cost reduction

Reduce wasteful costs occurring due to suppliers' activities such as additional inspections, extra freight charges, obsolete inventory

Weighted point score for the vendors

One approach toward evaluating and certifying suppliers is to use the weighed criteria evaluation system described below

1. Select the key dimensions of performing mutually acceptable to both customer and supplier
2. Monitor and collect performance data
3. Assign weight to each dimensions of performance based on their relative importance to the company's objectives. The weights for all dimensions must sum to 1.
4. Evaluate each of the performance measures on a rating between zero (fails to meet any intended purpose or performance) and 100 (exceptional in meeting intended purpose or performance)
5. Multiply the dimension taring by their respective importance weights and then sum to get overall weighted score.

Supplier Selection by weighted point method

FACTORS	WEIGHT	VENDOR A	VENDOR B	VENDOR C
Price	0.30	0.20	0.15	0.25
Delivery	0.10	0.15	0.20	0.12
Quality	0.08	0.10	0.10	0.05
Service	0.15	0.15	0.05	0.10
Business Structure	0.10	0.08	0.15	0.10
Production Capacity	0.05	0.17	0.20	0.08
Engineering Capacity	0.22	0.15	0.15	0.30

VENDOR	CALCULATION	TOTAL
A	(0.20x0.30) + (0.15x0.10) + (0.10x0.08) + 0.15x0.15) + (0.08x0.10) + (0.17x0.05) + 0.15x0.22) 0.06 + 0.015 + 0.008 + 0.023 + 0.008 + 0.009 + 0.033	0.155
B	(0.15x0.30) + (0.20x0.10) + (0.10x0.08) + (0.05x0.15) + (0.15x0.10) + (0.20x0.05) + (0.15x0.22) 0.045 + .0.02 + 0.008 + 0.0075 + 0.015 + 0.01 + 0.033	0.1385
C	(0.25x0.30) + (0.12x0.10) + (0.05x0.08) + (0.10x0.15) + (0.10x0.10) + (0.08x0.05) + (0.30x0.22) 0.075 + 0.012 + 0.004 + 0.015 + 0.01 + 0.004 + 0.066	0.186

The best supplier is Vendor 3 with score 0.186.

Activity

Have a discussion with your groupmate

Relate purchasing process in a supply chain organization.

03

Enterprise Resource Planning (ERP) System

At the end of the chapter, students can

1. Examine the Enterprise Resource Planning (ERP) System
2. Apply the role of ERP in SCM
3. Demonstrate the types of ERP in SCM

Enterprise Resource Planning (ERP) System

Enterprise resource planning (ERP) refers to a type of software that organizations use to manage day-to-day business activities. It is centralized and integrated management of main business processes, often in real time.

Industries that use ERP

- Healthcare
- Manufacturing companies
- Small businesses
- E-commerce
- Non-profit organizations

Benefits of ERP

DATA SECURITY
ERP systems using internal cloud-based data protection components like solid password policies, multiple-factor authentication, software updates and denied installation on unauthorised systems

CENTRALIZED DATA
Information from all function unified in one system

COMPLIANCE
Traceability and reporting to meet evolving standard. ERP system allows you to manage your finances accurately, legally, and easily with built-in auditing tools and easily generated reports.

INCREASED PRODUCTIVITY
Simplify and improve processes for greater efficiency. By automating major processes like inventory tracking or invoice generation, productivity gains across the board

VISIBILITY
Increase communication and collaboration with other teams. Employees have the information they need at their fingertips and can make decisions accordingly

SCALABILITY
Grows with you to support increasing needs

Benefits of ERP

MOBILITY
Access critical insights anywhere, from any device

REPORTING
Analyze and compare every aspect of the business

COST SAVING
Automation and efficiency gains reduce costs.
Prevent disruptions and delays downsizing possibilities as ERP automates most of the manual process
Streamline operations
Empower your team to use their time more efficiently

CUSTOMER SERVICE
Faster, personalized support to keep customers happy. CRM tools give you instant access to customer information, thus making it easier for employees to be aware of and attend to customers' needs.

FORECASTING
Accurate predictions to better prepare for the future

FLEXIBILITY
Ready to meet your evolving needs

If you want to streamline your business under one system, then an ERP system is just what you need. You will have better access to your company data and can make changes to reduce costs, save time, and increase profitability.

Differences between SCM and ERP

Nature

Transactional
ERPs recording a company's daily transactions and making that information accessible
Collaborative
SCMs collaborative workflows and building networks of interconnected stakeholders in the supply chain.

Data Collection

Internal Data
ERPs are well suited at recording, processing and reporting on well understood, internal business information.
SCMs integrated with data from multiple external partners and rationalize if for management across the supply chain

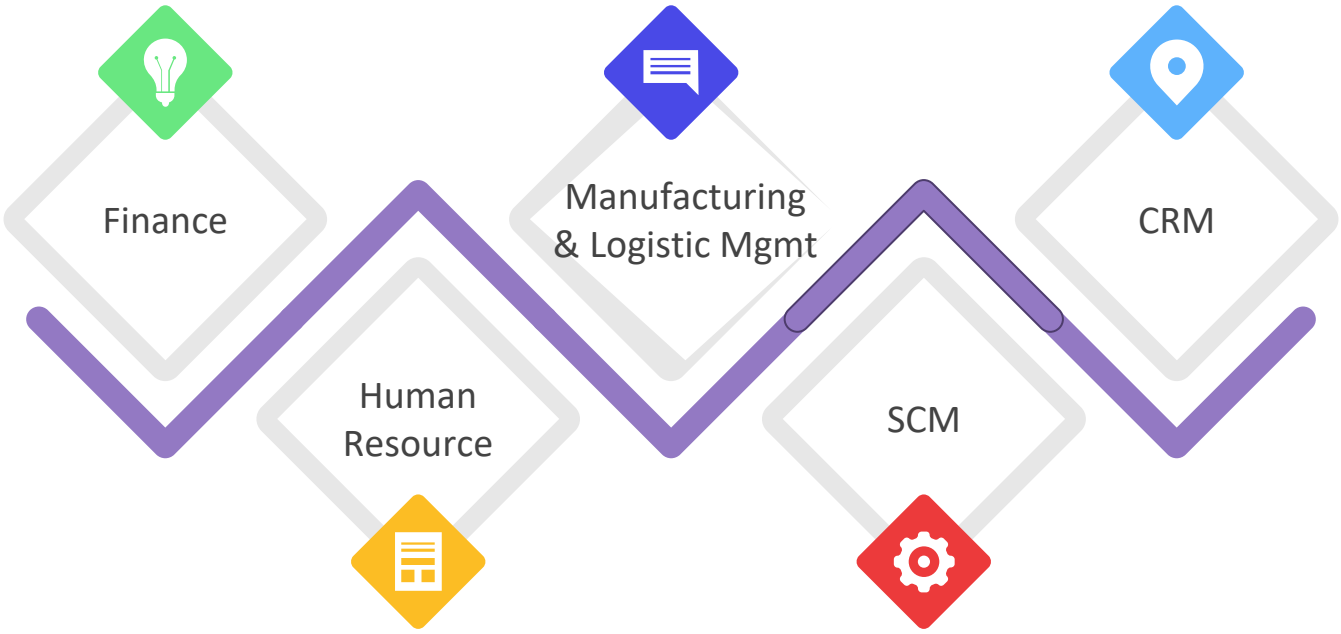
Process Coverage

ERPs do well at integrating various functions such as financial and resource planning with other spheres of business-like sales, CRM and basic SCM.
SCMs specialize in detailed processes within the supply chain such as buying, sourcing, pre-production, production, quality management and sustainability & compliance.

Benefits of combining SCM and ERP System

- Improved efficiency. ERP systems improve supply chain management efficiency in multiple ways. They enable companies to streamline supply chain functions through automation. They improve visibility across the supply chain, so stakeholders can quickly make informed decisions about how to reduce costs in manufacturing, logistics and procurement.
- Increased customer retention. By integrating supply chain data and processes, ERP systems facilitate better planning, streamlined production schedules and more accurate estimates of delivery dates. These gains help businesses ensure that they can reliably fulfill their promises to customers. This consistent performance builds customer loyalty and retention.
- Workflow automation. Cloud-based ERP systems automate the flow of data within and between departments, accelerating supply chain processes while greatly reducing manual effort. For example, the system can automatically alert purchasing groups if the inventory of key raw materials falls below predetermined thresholds.
- Reduced overhead and operational costs. With better visibility into supply and demand, companies can optimize inventory — buying just enough to meet demand without overstocking. This can result in considerable warehouse space and cost savings. Automated processes also reduce administrative costs and errors — like ordering the wrong amounts of raw materials — that can have costly knock-on effects throughout the supply chain.

Five Main Functions/Components of the ERP system



Finance

It keeps a track on all your financial data including Accounts receivable, Accounts payable, General ledger, costs, budgets and forecasts. It helps to keep a record of cash flow, lower costs, increase profits and make sure that all the bills are paid on time.

Human Resource (HR)

This component is responsible for automated payments to employees, payment of taxes, generating performance reports, attendance tracking, promotions, deciding working hours and holiday hours of the staff.

Manufacturing & Logistic Management

It provides all the stock summary and production plans beneficial for the business. It includes Production planning, order entry and processing also the warehouse management.

Supply Chain Management (SCM)

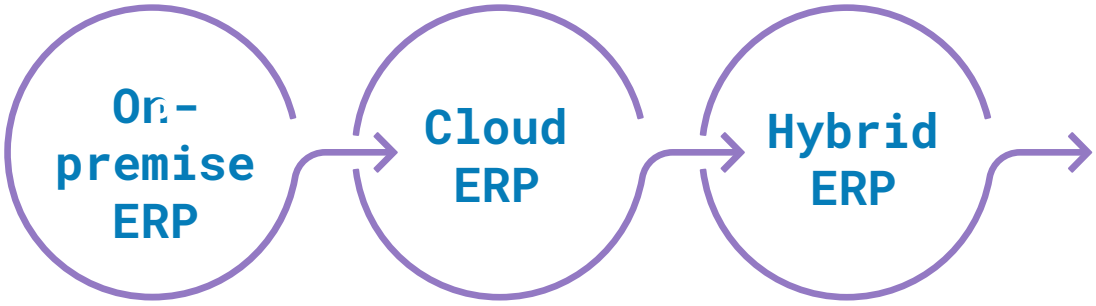
Planning, Manufacturing, Marketing, Distribution and the purchasing organizations through a supply chain operate independently. These organizations have their own goals and objective.

Customer Relationship Management (CRM)

The component gathers customer data from multiple channels. Hence, CRM stores detailed information on overall purchase history, personal info, and even purchasing behaviour patterns.

Types of ERP

ERP software that is accessible over the Internet



ERP software is manually installed on the local computers and servers owned and operated by the company itself.

ERP system is **a combination of both on-premise and cloud ERP systems**.

Activity

Have a discussion with your groupmate

Advantages and disadvantages of

- ❑ On-premise ERP
- ❑ Cloud ERP
- ❑ Hybrid ERP

Cloud ERP vs. On-Premise ERP
Why company shift to cloud-based ERP
Why company choose hybrid ERP

Match the situation to best solution of ERP

SITUATION	BEST SOLUTION OF ERP
1. You want to avoid needless software spend over a long period of time and are looking to buy a solution outright. 2. Software flexibility is a concern for you, and you don't want the specific modules of your system to be determined by the vendor who produces a given ERP system. 3. Your organization already has a built-out and well-trained IT team that can assist with the maintenance of an ERP system. 4. Data control is a concern for you and your company. While intermediaries do business by being trustworthy with their client's information, sometimes it pays to have total control over the dissemination of your business information. 5. You work in the industry of manufacturing, healthcare, ore construction and have need of a system to help you manage your specific records and ensure data security.	
1. You don't have a high amount of flexible capital to invest in an on-premises system and the surrounding supportive infrastructure. 2. There isn't a dedicated, on-sight IT team for your organization that can help rollout updates and keep your data secure. 3. You need to access the data in your ERP system on the go. 4. You have a smaller business. 5. You want to stay on the cutting edge of the software solutions for your industry.	
1. Your organization is already using a legacy in-house system or you're already using an on-premises ERP. 2. Your business requires integration with web-based services. 3. You need flexibility and control over core processes but want up-to-date industry specific modules. 4. You want the benefits of an on-premises ERP system without having to build out the entire IT infrastructure that comes along with it.	

Match the type of ERP for each statement

An extremely high up-front cost that can limit its accessibility to all but the largest of organizations.	
Over a long enough period, you will probably end up spending more time to this ERP.	
A lack of technical specialization makes this ERP less efficient than their more focused counterparts. It never affords quite as much control and flexibility as an on-premises system, while also lacking the true flexibility and ease of use that comes with cloud ERP.	
A lack of control over the applications you have access to. Once you choose a vendor, you're stuck with their specialty, so make sure you choose one that's well respected for your industry and organization type.	
The complexity of this ERP systems can make them difficult to manage. While you don't need a full IT infrastructure as you might for an on-premises system, you still need to have a dedicated core of people able to manage and operate the aspects of the software you're hosting.	
A shorter shelf life than that of cloud ERP systems. It will be up to you to keep it up to date on the latest features and security unless you want to spend a lot of money having the vendor do it for you.	
Can cause is the initial issue that ERP systems were designed to solve in the first place: data siloing. While this can be avoided with the proper time and management, it's possible for the different modules used by separate departments to lead to a bottleneck of information or data that should be easily accessible to the entire organization.	
Vendors remain competitive by offering strong security for their client's data, they might not quite be up to your standards, especially if you work with highly sensitive information.	
Difficult implementation due to the requirement of furnishing the appropriate hardware, training your team in how to use it, as well as allowing time for your IT department to learn how best to secure the data that flows through the software.	
On-premises ERP	
Cloud ERP	
Hybrid ERP	

04

Final Examination

Example

QUESTION

Amazon is the largest online retailer in the world by market cap. As of 2020, online retail product sales account for most of the company's net revenues. Today, the company boasts mature AI applications across E-Commerce, logistics, warehousing, and more.
Share **3 (THREE)** benefit of Amazon using AI to help maintain the business.

ANSWER

1. Improved speed of business

As fast as business moves in this digital age, AI will help it move even faster. AI enables shorter development cycles and cuts the time it takes to move from design to commercialization, and that shortened timeline in turn delivers better, and more immediate, ROI on development dollars.

2. Better customer service

Delivering a positive customer experience has become the price of doing business. AI can do all that and more, leading to more customized and personalized interactions between organizations and each individual customer.

3. Better quality and reduction of human error

Organizations can expect a reduction of errors as well as stronger adherence to established standards when they add AI technologies to processes, The use of AI in financial reconciliation, for example, would deliver error-free results whereas that same reconciliation when handled, even in part, by human employees is prone to mistakes.

References

DemandCaster. (November 16, 2021). THE IMPACT OF TECHNOLOGY IN SUPPLY CHAIN MANAGEMENT. https://www.demandcaster.com/blog/the-impact-of-technology-in-supply-chain-management/

EcoVadis. (2022). Supplier Evaluation. https://ecovadis.com/glossary/supplier-evaluation/

Frank Willie Bodal. Apr 4, 2022. Supplier Evaluation and Assessment: The What, How, and Why. https://www.igniteprocurement.com/blog/supplier-evaluation-and-assessment-the-what-how-and-why

GEFCO. (2022). Logistic Flow. https://www.gefco.net/en/glossary/definition/logistic-flow/#:~:text=What%20is%20a%20logistic%20flow,%E2%80%9D%20or%20%E2%80%9Csupply%20chains%E2%80%9D.

iduNote (2022). Types of Products (Consumer Products and Industrial Products) https://www.iedunote.com/types-of-products

Indeed, Editorial Tema. (March 23, 2021). Purchasing rocess: Definition and Stpes. https://www.indeed.com/career-advice/career-development/purchase-process

JAVAPoint. Information System Definition https://www.javatpoint.com/information-system-definition

Jenkins, Abby.(January 14, 2021). A Guide to Reverse Logistics: How It Works, Types and Strategies. https://www.netsuite.com/portal/resource/articles/inventory-management/reverse-logistics.shtml

Kezia. (May,24, 2022). 4 Types of Logistics Flow, Which One is The Best for You? https://www.advotics.com/en/4-types-of-logistics-flow/

Kim O'Shaughnessy. (2020). 8 Reasons Why ERP is Important. https://www.selecthub.com/enterprise-resource-planning/why-erp-systems-are-important/

References

Logistic Brew, Stockarea (2022). Benefits Of Technology In Supply Chain Management (SCM). https://stockarea.io/blogs/benefits-of-technology-in-supply-chain-management/

Martin, Matthew. (November 5, 2022). Types of Information System: MIS, TPS, DSS, Pyramid Diagram. https://www.guru99.com/mis-types-information-system.html

Mary K.Pratt. (18 June 2021). 7 key benefits of AI for business. https://www.techtarget.com/searchenterpriseai/feature/6-key-benefits-of-AI-for-business

Mr. M.A.Mahant. (Mar 9, 2020). Perspectives on Information Systems. https://paginas.fe.up.pt/~als/mis10e/ch1/chpt1-2bullettext.htm#:~:text=The%20dimensions%20of%20information%20systems,and%20formal%20standard%20operating%20procedures.

OMI Accounts. (19 Dec 2019). ERP vs SCM: What are the key differences between these systems? https://www.omniaccounts.co.za/key-differences-between-erp-and-scm/#:~:text=The%20major%20difference%20between%20SCM,raw%20materials%20from%20external%20suppliers.

pallavirajput2590. (17 Mar, 2021). ERP Components https://www.geeksforgeeks.org/erp-components/

Piper Thomson. (March 26, 2020). Your Guide To The Most Effective Types of ERP Systems. https://www.g2.com/articles/types-of-erp-systems

Mary K.Pratt. (18 June 2021). 7 key benefits of AI for business. https://www.techtarget.com/searchenterpriseai/feature/6-key-benefits-of-AI-for-business

Mr. M.A.Mahant. (Mar 9, 2020). Perspectives on Information Systems. https://paginas.fe.up.pt/~als/mis10e/ch1/chpt1-2bullettext.htm#:~:text=The%20dimensions%20of%20information%20systems,and%20formal%20standard%20operating%20procedures.

References

OMI Accounts. (19 Dec 2019). ERP vs SCM: What are the key differences between these systems? https://www.omniaccounts.co.za/key-differences-between-erp-and-scm/#:~:text=The%20major%20difference%20between%20SCM,raw%20materials%20from%20external%20suppliers.

pallavirajput2590. (17 Mar, 2021). ERP Components https://www.geeksforgeeks.org/erp-components/

Piper Thomson. (March 26, 2020). Your Guide To The Most Effective Types of ERP Systems. https://www.g2.com/articles/types-of-erp-systems

The Wharton School. (2022). How Do Businesses Use Artificial Intelligence? https://online.wharton.upenn.edu/blog/how-do-businesses-use-artificial-intelligence/#:~:text=Through%20the%20use%20of%20AI,to%20identify%20opportunities%20for%20improvement

Visvendra Singh (Match 15.2022). 10 benefits of integrating ERP software with online SCM–Key to success. https://www.noitechnologies.com/10-benefits-integrating-erp-software-with-supply-chain-management/#:~:text=Majorly%2C%20the%20ERP%20and%20SCM,the%20growth%20of%20the%20business

Vitez, Osmand. (December 08, 2022). What Is Logistics Analysis?. https://www.smartcapitalmind.com/what-is-logistics-analysis.htm

Zach Hale and Toby Cox (December 4, 2020). Cloud ERP vs. On-Premise ERP. https://www.softwareadvice.com/resources/cloud-erp-vs-on-premise/

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