Unit-4
Managing Information Technology

- Enterprise & global management
- Security & Ethical challenges
- Planning & implementing changes
- Advanced Concepts in Information Systems
    - Enterprise Resource Planning
    - Supply Chain Management
    - Customer Relationship Management and
    - Procurement Management.

Enterprise & global management

- Enterprise is another word for a for-profit business or company, but it is most often associated with entrepreneurial ventures.
- There are many forms of legal enterprises, with the most common being:
    - **Sole proprietorship** – A company run by a single individual, typically for their benefit, with unlimited liability for any damages that occur as a result of the business' operations.
    - **Partnership** – A business run by two or more individuals or entities who share ownership – not necessarily equal ownership, however.
    - **Corporation** – A for-profit entity created to shield the owner(s) from liability should the enterprise become subject to a lawsuit. There are different forms of corporations, depending on how many owners there are.
- Ultimately, the word enterprise is a synonym for business.

Global management of Information technology

- As companies are transformed into global e- businesses it is important for business managers and professionals to understand how to manage this vital function.
- With the use of information technology more global business activities can be integrated between headquarters and its subsidiaries.
- IT helps companies span across geographic, cultural, other boundaries etc.
- It is single function solution with global presence. (e.g., shipping)
- IT products and services that are built in one country and used in another.
- With the use of IT seamless, instantaneous transfer of data and information around the world is possible.
- IT also provides support for dispersed project teams.

Why Develop Global IT?

- Cost reduction
- Increasing customer satisfaction
- Need for integrated information
- Common business processes or products etc.

Security & Ethical challenges

Security challenges of IT

1. Ransomware attack

- Ransomware attacks have become popular in the last few years and pose one of world's most prominent Cyber Security challenge.
- Ransomware attacks involve hacking into a user's data and preventing them from accessing it until a ransom amount is paid.

2. IOT attacks

- According to IoT Analytics, there are about 11.6 billion IoT devices by 2021.
- Examples of IoT devices include desktops, laptops, mobile phones, smart security devices, etc.
- As the adoption of IoT devices is increasing at an unprecedented rate, so are the challenges of Cyber Security.

3. Cloud attacks

- Most of us today use cloud services for personal and professional needs.
- Also, hacking cloud-platforms to steal user data is one of the challenges in Cyber Security for businesses.

4. Phishing attack

- Phishing is a type of social engineering attack often used to steal user data, including login credentials and credit card numbers.
- Phishing attacks remain one of the major challenges of Cyber Security in, as the demographic here isn't well-versed with handling confidential data.

5. Blockchain and cryptocurrency attack

- While blockchain and cryptocurrency might not mean much to the average internet user, these technologies are a huge deal for businesses. Thus, attacks on these frameworks pose considerable challenges in Cyber Security for businesses as it can compromise the customer data and business operations.

6. Software vulnerability

- Even the most advanced software has some vulnerability that might pose significant challenges to Cyber Security.
- An older software version might contain patches for security vulnerabilities that are fixed by the developers in the newer version. Attacks on unpatched software versions are one of the major challenges of Cyber Security.

7. Machine Learning and AI attack

- While Machine Learning and Artificial Intelligence technologies have proven highly beneficial for massive development in various sectors, it has its vulnerabilities as well.
- These technologies can be exploited by unlawful individuals to carry out cyberattacks and pose threats to businesses.

8. BYOD policies

- Most organizations have a Bring-Your-Own-Device policy for their employees.
- Having such systems poses multiple challenges in Cyber Security.
- If the device is running an outdated or pirated version of the software, it is already an excellent medium for hackers to access.

- Since the method is being used for personal and professional reasons, hackers can easily access confidential business data.

9. Insider attack

- While most challenges of Cyber Security are external for businesses, there can be instances of an inside job.
- Employees with malicious intent can leak or export confidential data to competitors or other individuals.
- This can lead to huge financial and reputational losses for the business.

10. Outdated hardware

- Not all challenges of Cyber Security come in the form of software attacks.
- If the hardware isn't advanced enough to run the latest software versions, this leaves such devices on an older version of the software, making them highly susceptible to cyberattacks.

Ethical challenges of IT

Security:

- With tools like the internet, hackers have found it very easy to hack into any computer or system as long as it is connected on internet.
- Hackers can easily use an IP (Internet Protocol) address to access a user's computer and collect data for selfish reasons.
- Also, the wide spread of internet cookies which collect information whenever we use the internet, has exposed IT users to high risks of fraud and conflicting interests.
- Many big companies use these cookies to determine which products or service they can advertise to us.
- When it comes to online banking, the transfer of money can easily be interrupted by a hacker and all the money will be transferred to their desired accounts, which affects both the bank and the customers who is using online banking technology.

Privacy Issues:

- As much as information technology has enabled us to share and find relevant information online, it has also exploited our freedom of privacy.
- Their so many ways our privacy is exploited, use of internet webcams, experienced computer users can turn on any webcam of any computer online and they will have access to your private life, many celebrities have been victims of these online stalkers.

Copyright Infringement:

- Information technology has made it easy for users to access any information or artifact at any given time.
- With the increased development of music sharing networks and photo bookmarking sites, many original creators of these works are losing the credibility of their works, because users of IT can easily gain access and share that data with friends.
- Free music and file downloading sites are popping up on internet every day, lots of original work like music albums, books, are being downloaded for free.
- In this case one legitimate user will purchase the book, software, web template or music album, and they will submit it to a free download site where others will simply just download that data for free.
- It is good news for the users because it saves them money, but it harms the original creator of these works.

Increased pressure on IT experts:

- Since information technology systems have to run all the time, pressure is mounted on IT experts to ensure the accuracy and availability of these systems.
- Many big organizations which need to operate 24 hours will require a standby IT team to cater for any issues which might arise during the course of operation.
- This pressure results into stress and work overload which sometimes results into Imperfection.

Planning & implementing changes

- Planning is a discipline within the information technology and information systems domain and is concerned with making the planning process for information technology investments and decision-making a quicker, more flexible, and more thoroughly aligned process.
- According to Architecture & Governance Magazine, (Strategic) IT planning has become an overarching discipline within the Strategic Planning domain in which enterprise architecture is now one of several capabilities.
- Organized planning of IT infrastructure and applications portfolios done at various levels of the organization Important for both planners and end-users. Why important for end-users? They often plan IT in their respective units Participate in corporate IT planning.

IT Planning Approaches

Business-led approach

- IT investment plan is defined based on the business strategy.

Method driven approach

- IT needs are identified with the use of techniques and tools (often used or prescribed by consultants).

Technological approach

- Analytical modeling (e.g., computer-aided software engineering, CASE) and other tools are used to execute the IT plans.

Administrative approach

- IT plan is established by the steering committee or management to implement an approved IS initiative.

Organizational approach

- IT investment plan is derived from a business consensus view of all stakeholders in the organization (management and end-users) of how IT/IS fits organization's overall business objectives.

Four-stage Model of IT Planning

1. Strategic IT Planning

- Establishes the relationship between the overall organizational plan and the IT plan.

2. Information Requirement Analysis

- Identifies broad, organizational information requirements to establish a strategic information architecture that can be used to direct specific application development.

3. Resource Allocation

- Allocates both IT application development resources and operational resources.

4. Project Planning

- Develops a plan that outlines schedules and resource requirements for specific information systems project.

Implementing changes in IT

- Change in IT is "the addition, modification or removal of any authorized, planned, or supported service or service component that could have an effect on IT services." Most often, a change is an event that has been approved by the change authority, is evaluated and implemented while minimizing risk, adjusts the status of a configuration item (CI), and adds value to the business and its customers.
- Changes can be brought about in two ways:

1) Change Request or Request for Change (RFC)

- A change request is a formal proposal that can be submitted by a stakeholder in the organization or by a service user via the service desk, utilizing the request fulfillment process to alter a configuration item.

2) Change Proposal

- A change proposal is a high-level description of a potential service introduction or significant change and includes the business case and implementation schedule. These proposals are normally created by the service portfolio management process in Service Strategy and are passed to the change management process.

Types of Changes

1) Emergency Change/Urgent Change

- An emergency change is one that must be assessed and implemented as quickly as possible to resolve a major incident.
- Emergency changes tend to be more disruptive and have a high failure rate, so they should be kept to a minimum.

2) Standard Change

- A standard change is one that occurs frequently, is low risk and has a pre-established procedure with documented tasks for completion.
- Standard changes are subject to pre-approval in order to speed up the change management process.

3) Major Change

- A change that may have significant financial implications and/or be high risk.
- Such a change requires an in-depth change proposal with financial justification and appropriate levels of management approval.

4) Normal Change

- A normal change is one that is not standard and not emergency and typically requires an important change to a service or the IT infrastructure.

additional Change Requests may include:

- Application Changes
- Hardware Changes
- Software Changes
- Network Changes
- Documentation Changes
- Environmental Changes

Enterprise Resource Planning

- Resource Planning is a process of identifying, forecasting, and allocating various types of business resources to the projects at the right time and cost.
- Enterprise resource planning (ERP) is defined as the ability to deliver an integrated suite of business applications.
- ERP tools share a common process and data model, covering broad and deep operational end-to-end processes, such as those found in finance, HR, distribution, manufacturing, service and the supply chain.
- Enterprise resource planning (ERP) is a process used by companies to manage and integrate the important parts of their businesses.

- Many ERP software applications are important to companies because they help them implement resource planning by integrating all of the processes needed to run their companies with a single system.
- An ERP software system can also integrate planning, purchasing inventory, sales, marketing, finance, human resources, and more.

Key features of ERP systems

The scale, scope, and functionality of ERP systems vary widely. However, most ERP software features the following characteristics:

- **Enterprise-wide integration.** Business processes are integrated end to end across departments and business units. For example, a new order automatically initiates a credit check, queries product availability, and updates the distribution schedule. Once the order is shipped, the invoice is sent.

- **Real-time (or near real-time) operations.** Since the processes in the example above occur within a few seconds of order receipt, problems are identified quickly, giving the seller more time to correct the situation.
- **A common database.** A common database enables data to be defined once for the enterprise with every department using the same definition. Some ERP systems split the physical database to improve performance.
- **Consistent look and feel.** Early ERP vendors realized that software with a consistent user interface reduces training costs and appears more professional. When other software is acquired by an ERP vendor, common look and feel is sometimes abandoned in favor of speed to market. As new releases enter the market, most ERP vendors restore the consistent user interface.

Benefits of ERP

- Focused IT Costs
- Total Visibility Across the Organization
- Improved Reporting and Planning
- Improved Efficiency
- Customer Service
- Data Security and Quality
- Improved Collaboration and Workflows
- Standardized Business Processes
- Improved Supply Chain Management
- Superior Scalability

Supply Chain Management (SCM)

- The supply chain includes all the activities, people, organizations, information, and resources required to move a product from inception to the customer.
- For example, in the consumer goods space, this likely spans raw materials, production, packaging, shipping, warehousing, delivery, and retailing.
- The end goal is simple: meet the customer's request. "By balancing supply and demand across all members of the supply chain," Frayer says, "organizations and channels work together to move the product."
- Supply chain management may also include an enterprise software to manage and integrate a network of customers, suppliers, business partners, distributors into organizations internal supply network involved in ultimate provision of product and service packages required by end customers.
- Supply chain management is the management of the flow of goods and services .

Why is Supply Chain Management Important?

- Supply chain management is crucial for any organization because doing it well can introduce several benefits to the organization; however, poor supply chain management can result in very expensive delays, quality issues, or reputation.
- In some cases, poor supply chain management can also cause legal issues if suppliers or processes are not compliant.
- Technology advances have unlocked huge potential for supply chain management, enabling supply chain managers to work closely – and in real time – with members of the supply chain.
- With supply chain management, organizations can:
    - Anticipate problems
    - Dynamically adjust prices
    - Improve inventory and fulfillment

Benefits of supply chain management

Effective supply chain management provides three primary benefits to an organization, according to MSU's online Supply Chain Management I course.

1. Lowered Costs

- By integrating suppliers and applying technology, organizations can lower operating costs by responding more dynamically to customer needs.
- For example, managing based on demand keeps organizations from over-producing, which not only reduces labor and raw materials costs, but also cuts down on inventory management costs and transportation costs.

2. Increased Revenue

- When organizations use technology to stay closer to customer demand and respond more quickly more likely products remain available for customers to purchase.
- When manufacturing is streamlined to produce just enough, labor and materials can be devoted to developing new items to offer the customer and expand the product mix.

3. Asset Utilization

- With effective supply chain management, organizations can use capital assets, like production or transportation equipment, most effectively.
- Supply chain management allows organizations to deliver more quickly, ensure products are available, reduce quality issues, and navigate returns with ease, ultimately improving value, both within the organization and for the customers.

Customer Relationship Management (CRM)

- Customer relationship management (CRM) is a process in which a business or other organization administers its interactions with customers, typically using data analysis to study large amounts of information.
- CRM systems compile data from a range of different communication channels, including a company's website, telephone, email, live chat, marketing materials and more recently, social media.
- They allow businesses to learn more about their target audiences and how to best cater for their needs, thus retaining customers and driving sales growth.
- CRM may be used with past, present or potential customers.
- Customer relationship management (CRM) is the combination of practices, strategies and technologies that companies use to manage and analyze customer interactions and data throughout the customer lifecycle.

- The goal is to improve customer service relationships and assist in customer retention and drive sales growth.

Why CRM benefits businesses

The use of CRM systems can benefit organizations ranging from small businesses to large corporations, through:

- Having customer information such as past purchases and interaction history easily accessible can help customer support representatives provide better and faster customer service.
- Collection of and access to customer data can help businesses identify trends and insights about their customers through reporting and visualization features.
- Automation of menial, but necessary, sales funnel and customer support tasks.

Business benefits of CRM

Implementing a customer relationship management (CRM) solution might involve considerable time and expense. However, there are many potential benefits.

- A major benefit can be the development of better relations with your existing customers.
- This can lead to better marketing of your products or services by focusing.
- Enhanced customer satisfaction and retention, ensuring that your good reputation in the marketplace continues to grow.
- Improved profitability by focusing on the most profitable customers and dealing with the unprofitable in more cost-effective ways.

Procurement Management.

- Procurement management is the strategic approach to managing and optimizing organizational spend.
- Procurement management involves acquiring quality goods and services from preferred vendors.
- For companies in any industry, smart procurement practices are essential for ensuring efficient operations and an optimal bottom line.
- Put simply, procurement comprises all activities and processes involved in acquiring needed goods and services from external parties.
- This may include everything from office supplies, furniture, and facilities to heavy equipment, consulting services, and testing and training.
- Properly managing all procurement activities not only keeps business operations running smoothly; it also saves money, time, and resources.
- In short, proper procurement management is imperative for avoiding costly delays and errors.

Key Steps for Successful Procurement Management

- Specification and planning — Before anything, companies must put together a cohesive procurement plan and specify what services and goods will be needed, whether internally and externally.
- Identifying and selecting suppliers — Next, potential suppliers must be researched and identified.
- Proposal Requesting, Negotiating, and Contracting — Once potential suppliers have been narrowed down, you can begin requesting proposals and negotiating as needed.
- Control and Delivery — After you enter into a contract with a supplier, it's up to your purchasing department to properly control all deliveries and payments.
- Measurement and analysis — Finally, the entire procurement process must be analyzed using an established system of key performance indicators.

The Importance of Properly Managing Procurement Processes

- Maintaining good relationships with suppliers and staying organized throughout every step of the procurement process are both crucial to ensure the success of all business operations, allowing you to meet your specific goals while easily meeting all stakeholder expectations.
- In establishing smart procurement processes, companies can avoid costly downtime while boosting their bottom lines.
- As technology continues to advance, digital procurement management techniques are becoming increasingly popular, cutting down on delays and errors while helping skilled buyers do their jobs more efficiently.
- Low-cost computing and data storage systems are reshaping the way companies handle purchasing and procurement, allowing for more advanced cloud and mobile capabilities, while the Internet of Things (IoT) is rapidly changing the way all company operations are conducted.