

Modern Information Systems

Lecture – 03

Lecture 03

- What is a business process.?
- How business processes work
- What are its components



Learning Outcomes

- **LO2:** Evaluate the information systems strategies to achieve organizational goals

Session Objectives

At the end of this session, you will be able to;

- Explain the evolution of Computing world.
- Compare and contrast various modern Information Systems including Enterprise Systems.
- Know what are real world examples for various modern IS.
- Identify advanced technologies used in Modern IS.

Evolution of Computing World

Early computers: Computing in 1945

- Extremely difficult to use
- Large & expensive
- Used by specialists for scientific calculations etc.



Harvard Mark I

ASCC: IBM Automatic Sequence Controlled Calculator

55 feet long, 8 feet high, 5 tons

Computing Paradigms Cont.

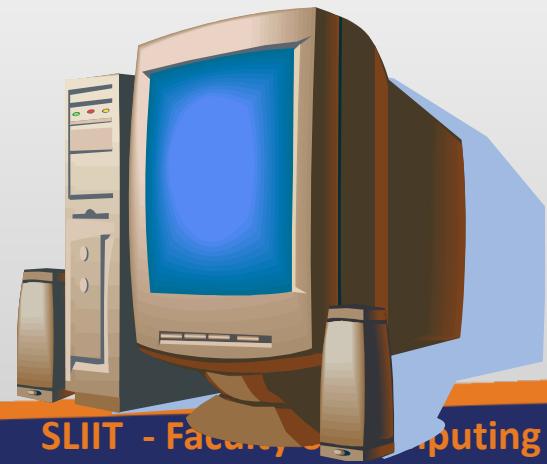
Late 1950s - 1970s, Mainframe computers and dumb terminals

- Batch processing
- Time sharing
- No graphical interfaces



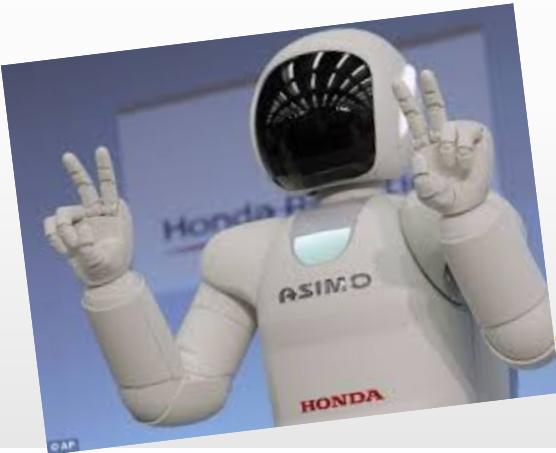
In 1980s

- Invention of a microprocessor
- Development of PC's - major landmark
- Start using computers by people, customers and end users of Business organizations



Computing Paradigms Cont.

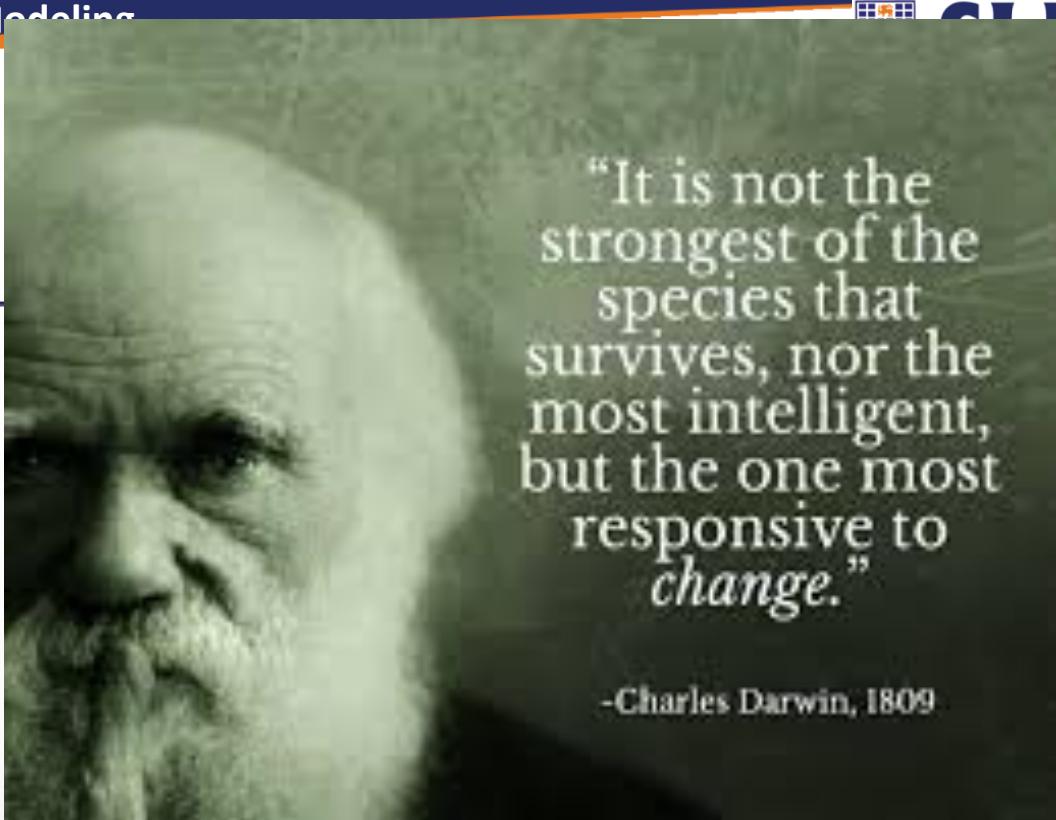
Today (This era)



What made this change?

- Advancement of technology
 - Rapid advances in speed and capacity
- Pervasiveness of Internet
 - E-enabled world
- Wireless, portable devices
 - Any where, Any time work capability

Technology is configured into *Information systems* that help manage *information* to improve *organizational performance*.



"It is not the strongest of the species that survives, nor the most intelligent, but the one most responsive to *change*."

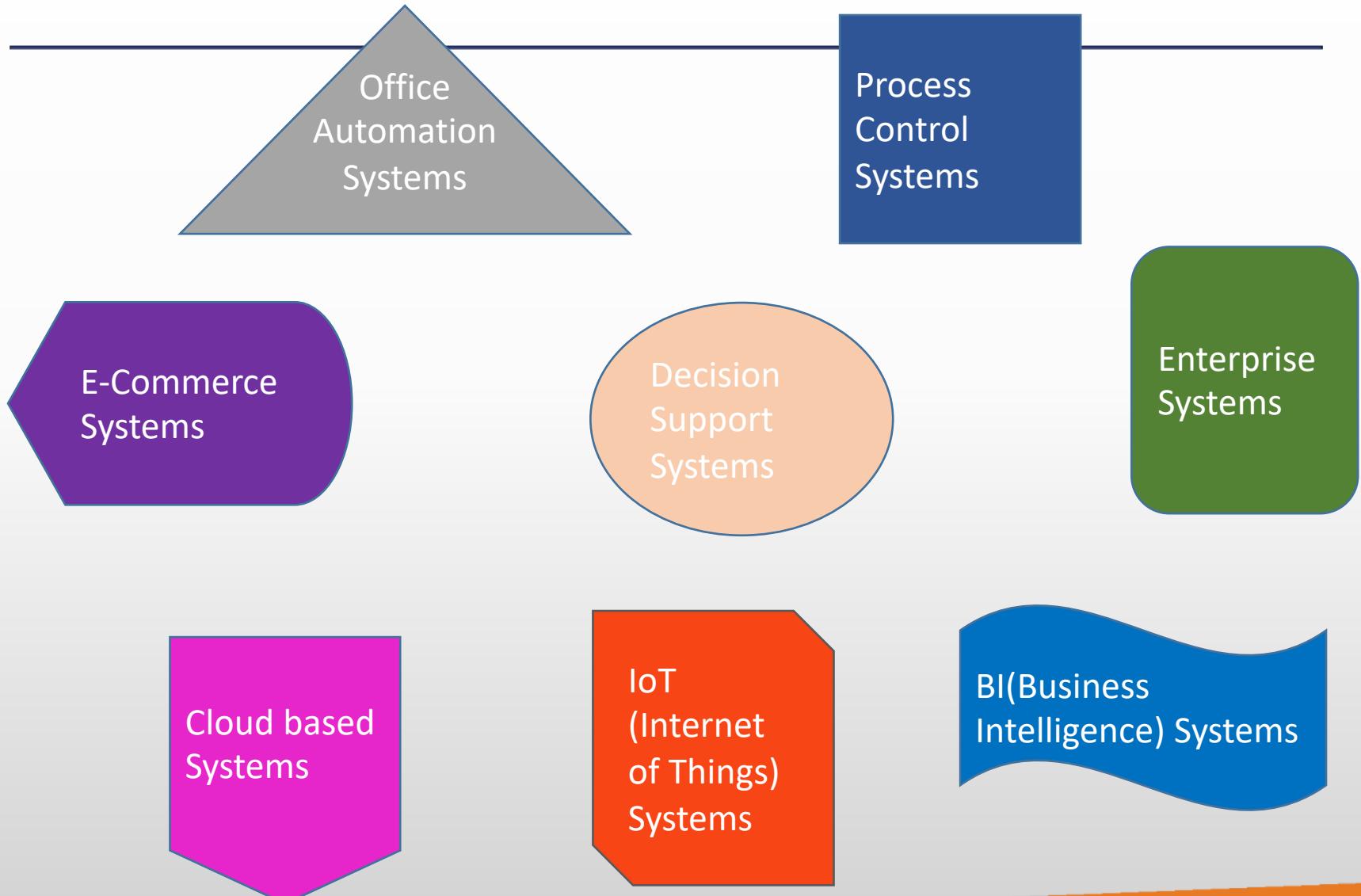
-Charles Darwin, 1809

Key Idea:

Get ready to adopt to the modern world
with modern Information Systems!!!!



Modern Information Systems



Office Automation Systems (OAS)

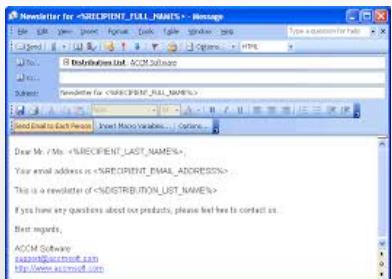
Used to manage the administrative functions in an office environment and are often critical to service-based industries.

OASs intended to increase the productivity of office workers.

Ex:

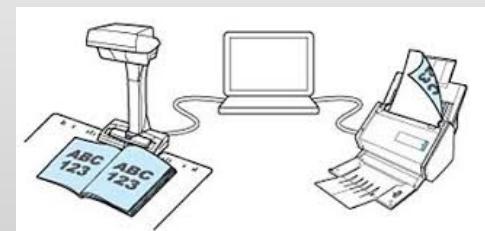
Groupware

Assists teams of people working together through facilities such as email and teleconferencing within or between companies



Document imaging process (DIP)

Converts documents into digital format using a scanner which can then be stored, retrieved and manipulated across a computer network.



Office automation systems Cont.

Workflow management systems (WFMS)

Automate a business process by providing a structured framework to support the process as follows:-

- Assign tasks to people.
- Allow collaboration between people sharing tasks.
- Retrieve information needed to complete a task e.g. customer details.
- Provide an overview of the status of each task.
- Used in conjunction with DIP to provide automated routing of documents.



Process control systems

These systems support and control manufacturing processes.

Ex:

CAD/CAM (Computer Aided Design/Computer Aided Manufacturing)–



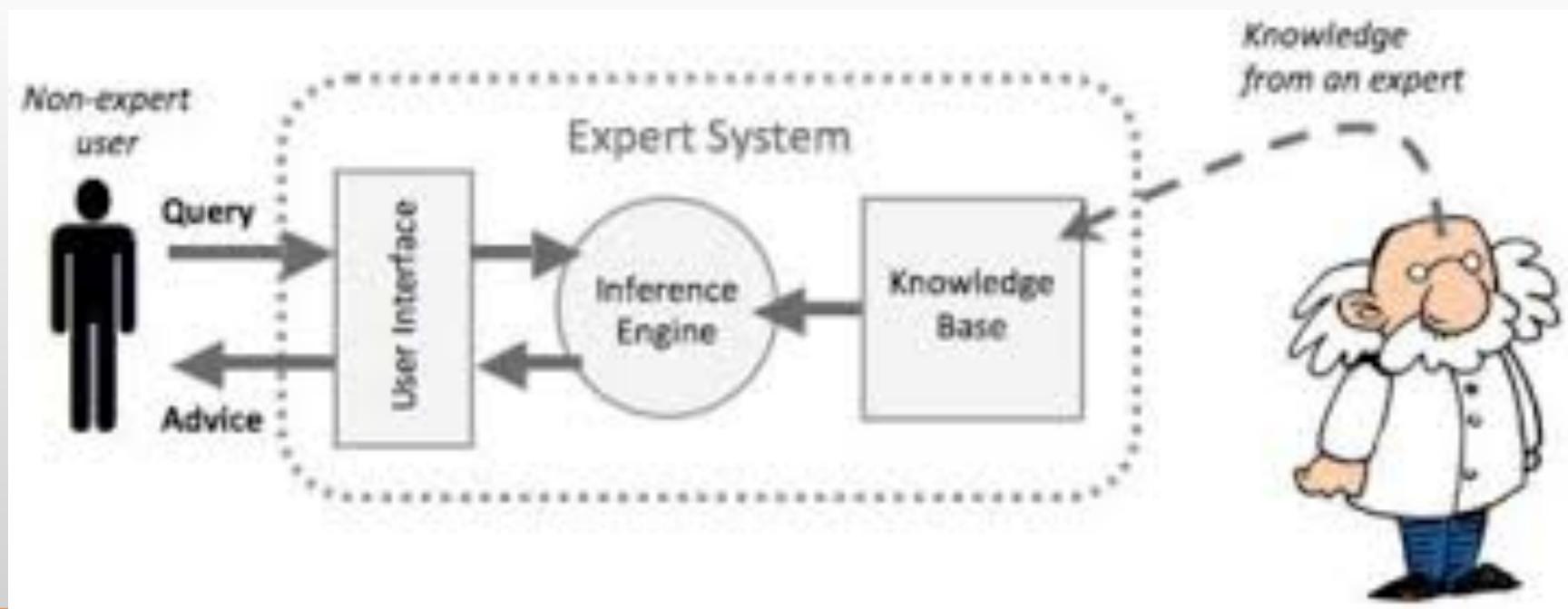
provides a graphics program which allows the design (CAD) and automated manufacture (CAM) of components.

Expert systems

Based on Artificial Intelligence technologies.

Computer system that emulates the decision-making ability of a human expert.

Represent the knowledge and decision-making skills of specialists.



Expert systems Cont.

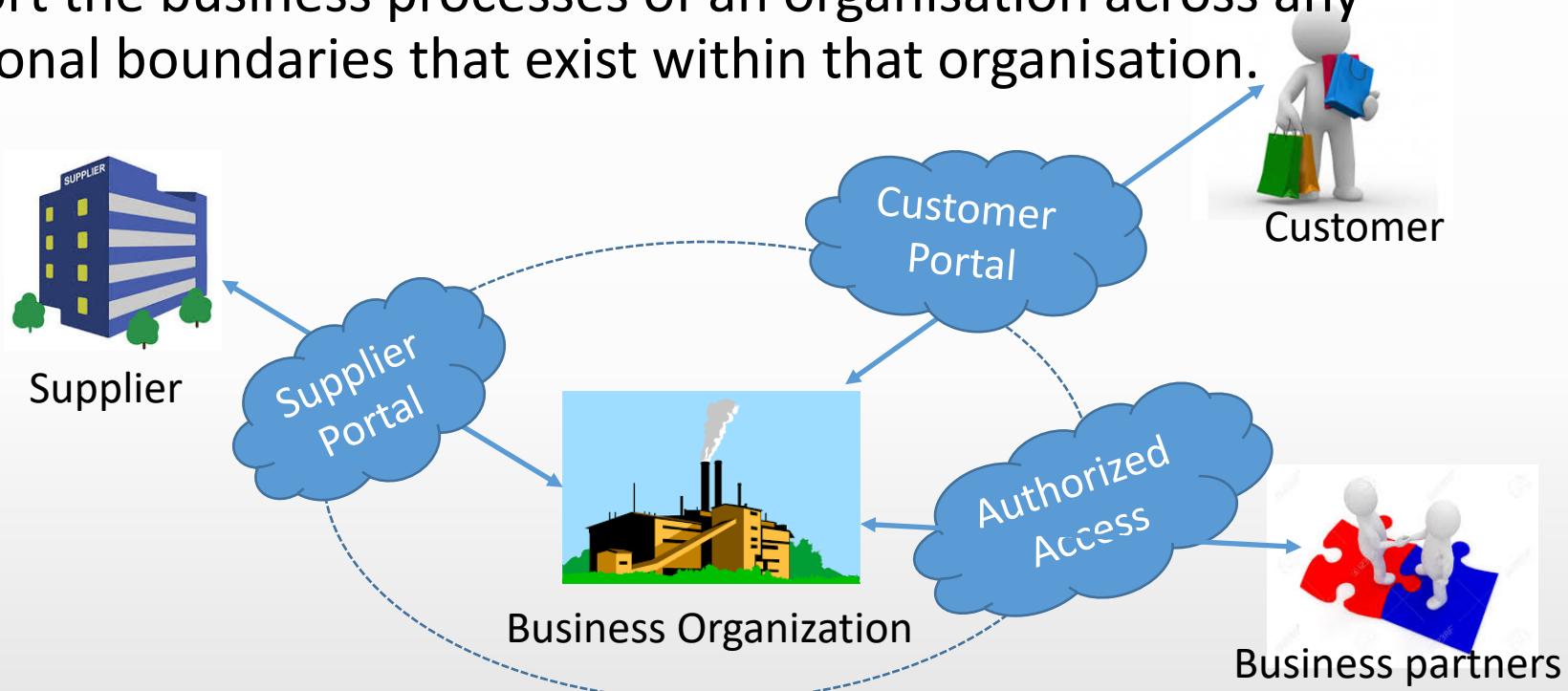


MYCIN: medical diagnosis

The first well known medical expert system to help doctors, who are not expert in antibiotic drugs. It prescribes such drugs for blood infections with the dosage adjusted for patient's body weight.

Enterprise Systems

Support the business processes of an organisation across any functional boundaries that exist within that organisation.

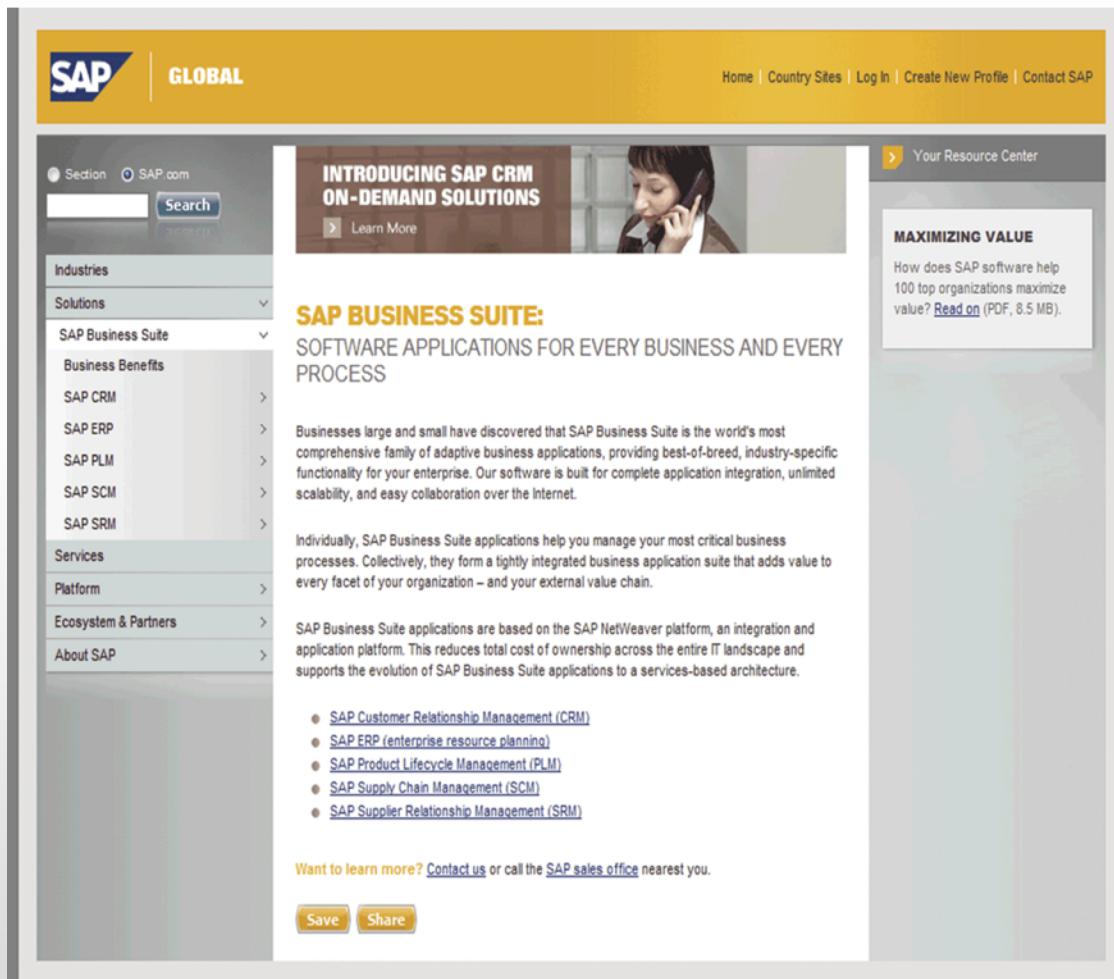


Use internet technology to connect the business with suppliers, customers and partners.

Main elements of Enterprise systems are ERP, CRM, SCM and SRM.

Enterprise Systems Cont.

Enterprise applications from SAP



The screenshot shows the SAP Global website. The left sidebar includes links for Industries, Solutions (with SAP Business Suite selected), Business Benefits, SAP CRM, SAP ERP, SAP PLM, SAP SCM, SAP SRM, Services, Platform, Ecosystem & Partners, and About SAP. The main content area features a banner for "INTRODUCING SAP CRM ON-DEMAND SOLUTIONS" with a "Learn More" button. Below it, a section titled "SAP BUSINESS SUITE: SOFTWARE APPLICATIONS FOR EVERY BUSINESS AND EVERY PROCESS" is displayed. It includes a paragraph about SAP Business Suite's adaptability and integration, followed by a list of its components: SAP Customer Relationship Management (CRM), SAP ERP (enterprise resource planning), SAP Product Lifecycle Management (PLM), SAP Supply Chain Management (SCM), and SAP Supplier Relationship Management (SRM). At the bottom, there are "Save" and "Share" buttons, and a note to contact SAP sales offices.

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Questions or comments about the Web site?
Contact the webmaster@sap.com.

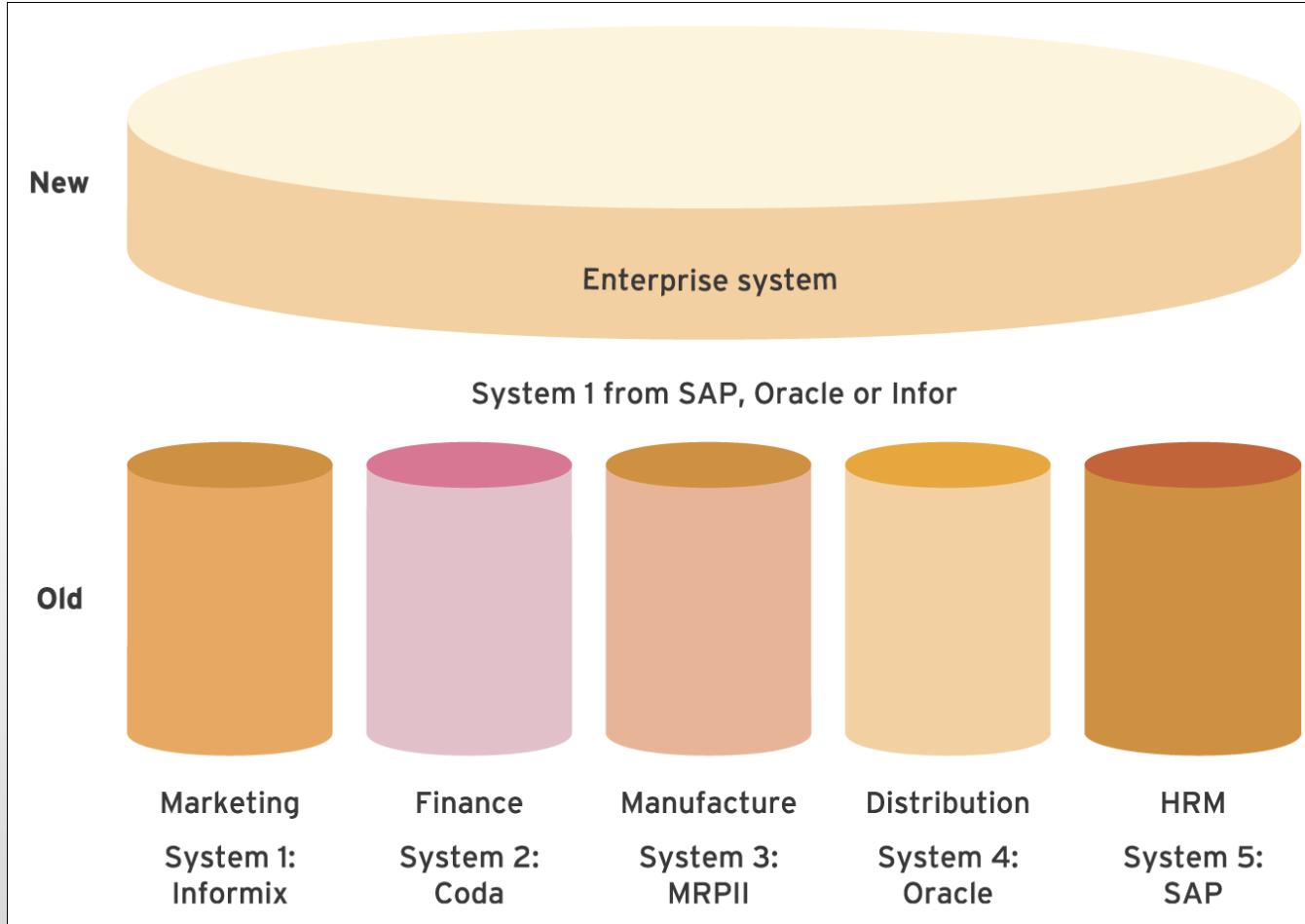
Watch video on
[SAP BUSINESS SUITE 7 RETAIL DEMO](#)

Enterprise Systems Cont.

Enterprise Resource Planning(ERP) Systems:

- ERP provides a single integrated solution from a single supplier for major business functions such as marketing, finance etc.
- Advantage of ERP is it removes ‘information islands’ (separate applications and data in different parts of the company).
- Disadvantages of ERP include high cost, major change required for implementation and need to change working methods to software.

Enterprise Systems Cont.



ERP system in comparison to separate functional applications

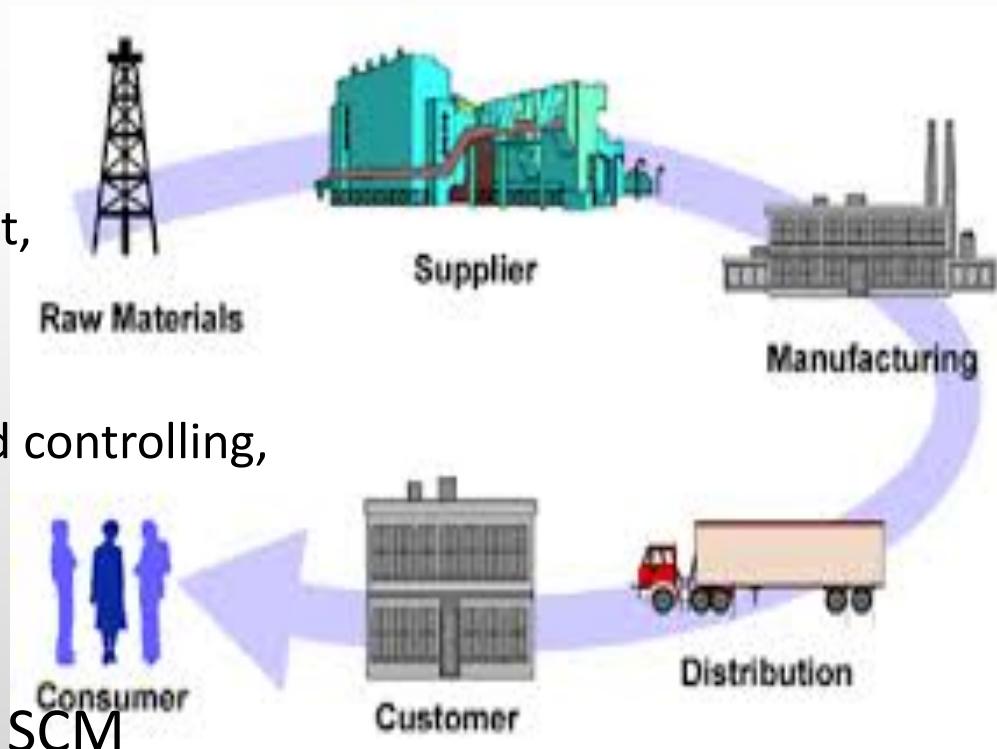
Enterprise Systems Cont.

Supply Chain Management (SCM) Systems:

A supply chain consists of the series of activities that moves materials from suppliers through the organisation to customers.

Activities involves

- Warehouse Management,
- Logistics management,
- Transportation Management,
- Demand Forecasting,
- sales forecasting,
- Manufacturing planning and controlling,
- Marketing,
- Quality Planning,
- Financial Planning,



Ex: QuickBase, SAP SCM, Infor SCM

Enterprise Systems Cont.

Customer Relationship Management (CRM) Systems:

CRM systems analyze customer interactions and data throughout the customer lifecycle, with the goal of improving business relationships with customers, assisting in customer retention and driving sales growth.

Designed to integrate the range of information systems that contain information regarding the customer.



Also, It collects and compile customer data through company's website, telephone, live chat, direct mail, marketing materials and social media.

CRM provides customers' personal information, purchase history, buying preferences and concerns. That enables giving individual attention to the customer.

Helps to know your Customer well and treats individually.



Enterprise Systems Cont.

Supplier Relationship Management (SRM) Systems

These systems refer to all the activities involved with obtaining items from a supplier, including procurement, transportation and warehousing.

Aim to streamline and make more effective the processes between an enterprise and its suppliers

Procurement is an important aspect of SRM as the cost of materials can represent a substantial amount of the total cost of a product or service.

Choosing a supplier is another important aspect of SRM.

SRM is a component of SCM information flow.

Lead to lower production costs and a higher quality, but lower priced end product.

Popular Vendors:

12 Technologies, Manugistics, PeopleSoft, SAP



E-Commerce Systems

What is E-Commerce?

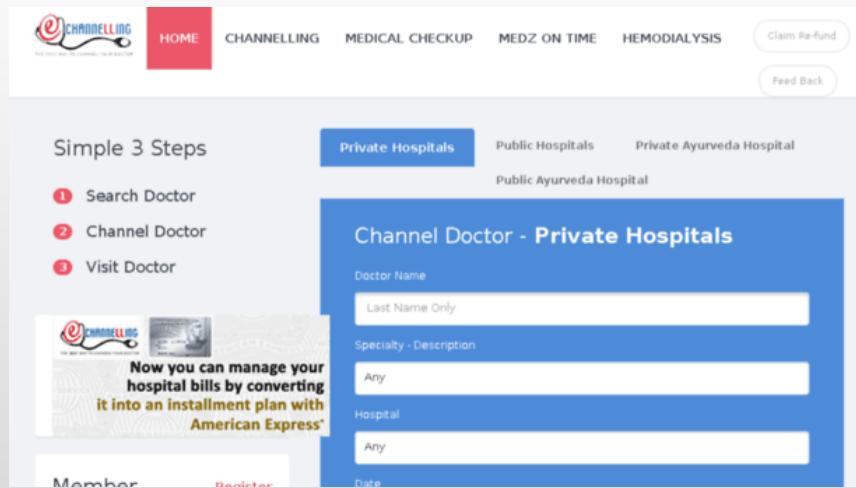
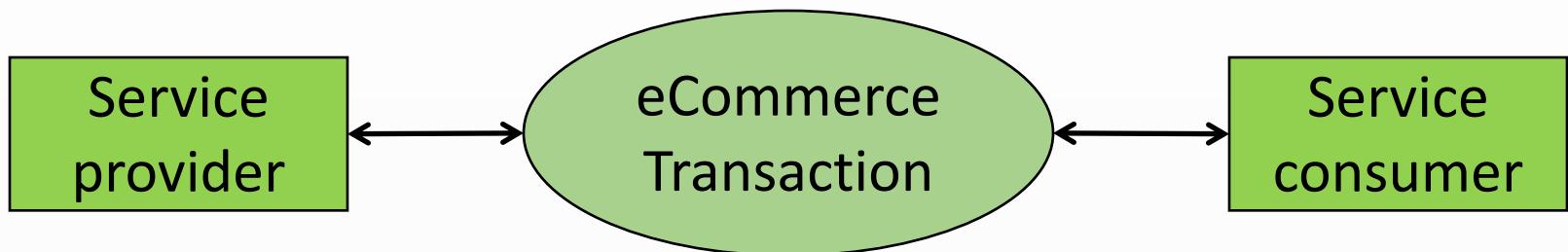
E-commerce is usually associated with buying and selling over the Internet

or

Conducting any transaction involving the transfer of ownership or rights to use goods or services through a computer-mediated network

Thomas L. Mesenbourg, *Measuring Electronic Business: Definitions, Underlying Concepts, and Measurement Plans*

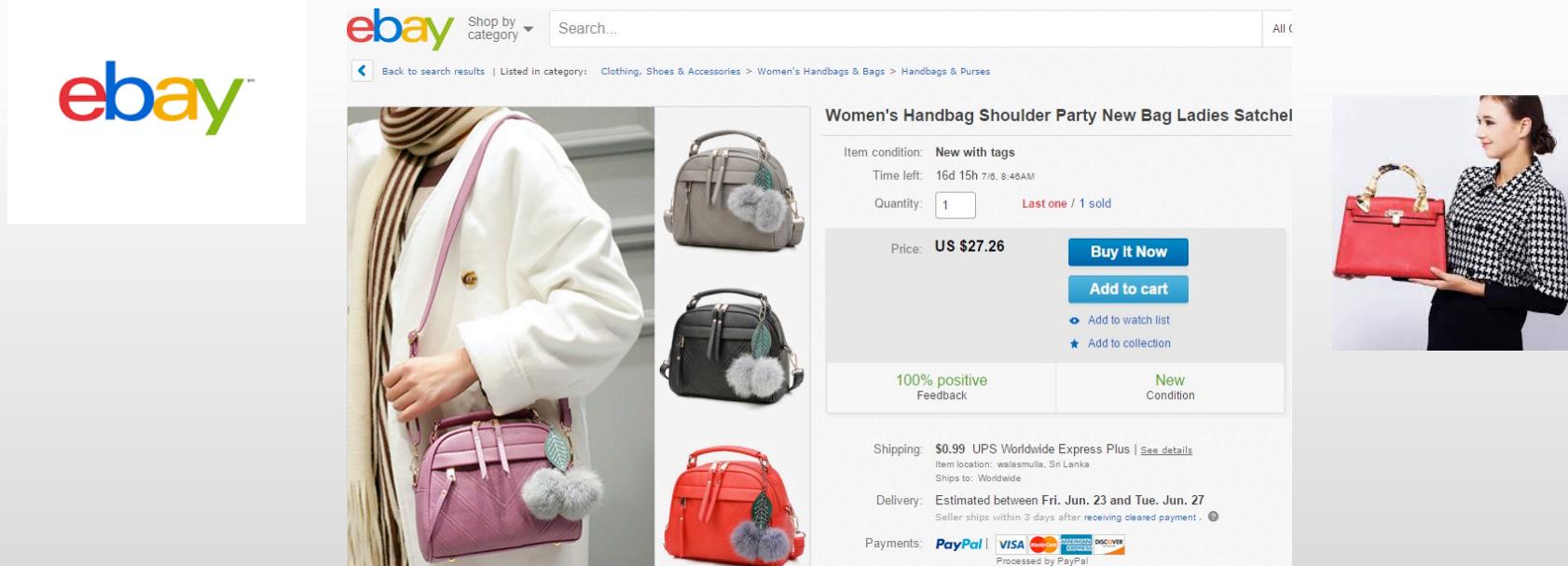
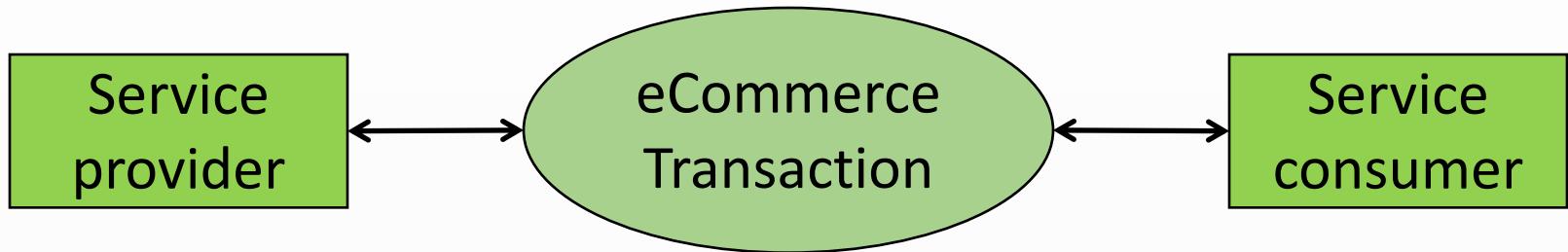
E-Commerce Systems Cont.



The screenshot shows the eCHANNELLING website. At the top, there's a navigation bar with links for HOME, CHANNELLING, MEDICAL CHECKUP, MEDZ ON TIME, HEMODIALYSIS, Claim Re-fund, and Feed Back. Below the navigation is a section titled "Simple 3 Steps" with three steps: 1. Search Doctor, 2. Channel Doctor, 3. Visit Doctor. To the right, there are tabs for Private Hospitals, Public Hospitals, and Private Ayurveda Hospital. A sub-section titled "Channel Doctor - Private Hospitals" contains fields for Doctor Name (Last Name Only), Specialty - Description (Any), Hospital (Any), and Date. A promotional banner for American Express offers to convert hospital bills into an installment plan. At the bottom, there are "Member" and "Doctor" buttons.



E-Commerce Systems Cont.



The screenshot shows a product listing on eBay. The item is a "Women's Handbag Shoulder Party New Bag Ladies Satchel" listed at US \$27.26. It is described as "New with tags" and has 1 quantity available. The listing includes options to "Buy It Now" or "Add to cart", and links to "Add to watch list" and "Add to collection". The seller has a "100% positive Feedback" rating and offers "New Condition". Shipping is \$0.99 UPS Worldwide Express Plus. The item is located in walasmulla, Sri Lanka and ships worldwide. Delivery is estimated between Fri, Jun. 23 and Tue, Jun. 27. The seller ships within 3 days after receiving cleared payment. Payments accepted include PayPal, VISA, MasterCard, American Express, and Discover. The listing is processed by PayPal.

Cloud based Systems

Cloud computing –

Provides availability of entire computing infrastructure (HW/SW) over the Internet.

Users purchase computing capacity **on-demand (as need arises or decreases)**.

Free of Capital Expenditure, Staff and maintenance cost
Work from anywhere.

Cloud based backup and recovery solutions.

Any Information System can be converted in to a cloud based system.

Cloud based Systems Cont.

Cloud Service Providers:



ORACLE CLOUD
Social. Mobile. Complete.



Saleforce.com
Google Cloud Platform (GCP)
Oracle Cloud,
Amazon Cloud Drive
Microsoft Azure



Cloud based Systems Cont.

Popular Cloud based systems:

Systems that store, access data and programs (Infrastructure) over the cloud/internet.

Ex:

- **Oracle NetSuite** - a complete cloud-based ERP solution on Oracle Cloud.
- **Office 365** – provides group of software and related services to subscribers such as email, OneDrive (Cloud storage) on MS Azure

IoT (Internet of Things) Systems



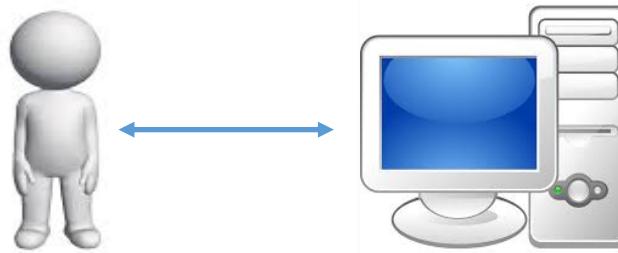
IOT Concept:

The Internet of Things (IoT) is a network of objects each embedded with sensors(things) which are connected to the Internet.

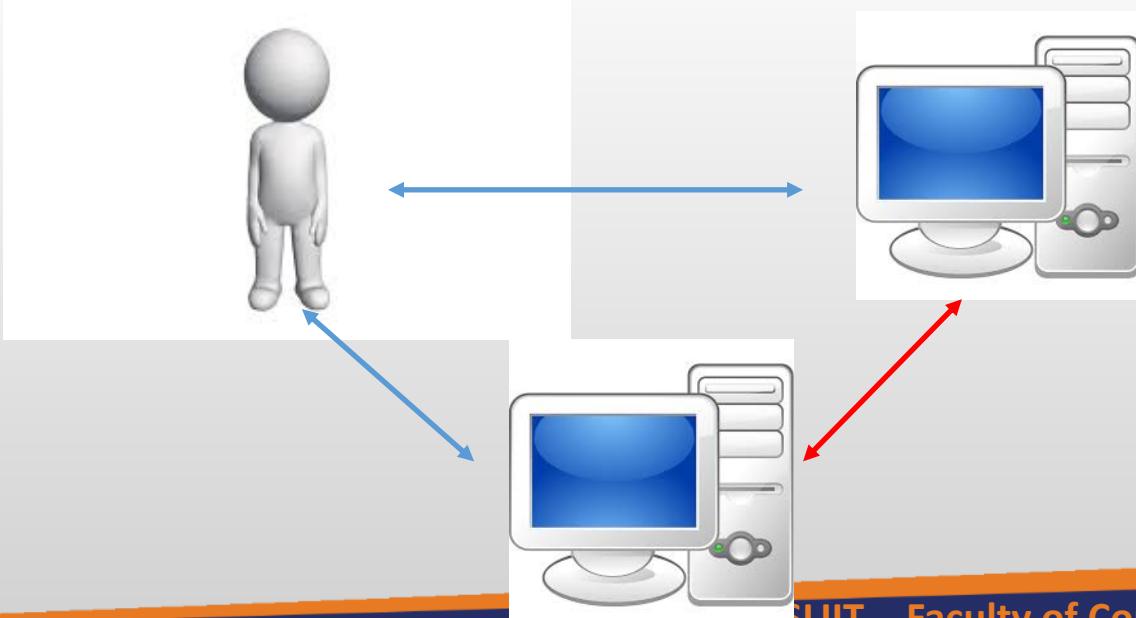
This concept is connecting any device with an on and off switch to the Internet. This includes everything from mobiles, air conditioners, headphones, wearable devices and almost anything.

IoT (Internet of Things) Systems Cont.

Without IoT...



With IoT...



IoT (Internet of Things) Systems Cont.

IoT makes anything “**SMART**” enhancing every aspect of life with the power of data collection (through sensors), AI algorithms and networks.

Ex:

Sensors connected to your refrigerator and cabinets detect when milk and your favorite cereal run low, then automatically place an order with your preferred grocer.



Sensors such as heart rate monitors, blood pressure monitors, implant in your body, track you and when it detects the risk level analyze and diagnose the critical condition and automatically send details to your doctor and then immediately send an alert to the hospital.

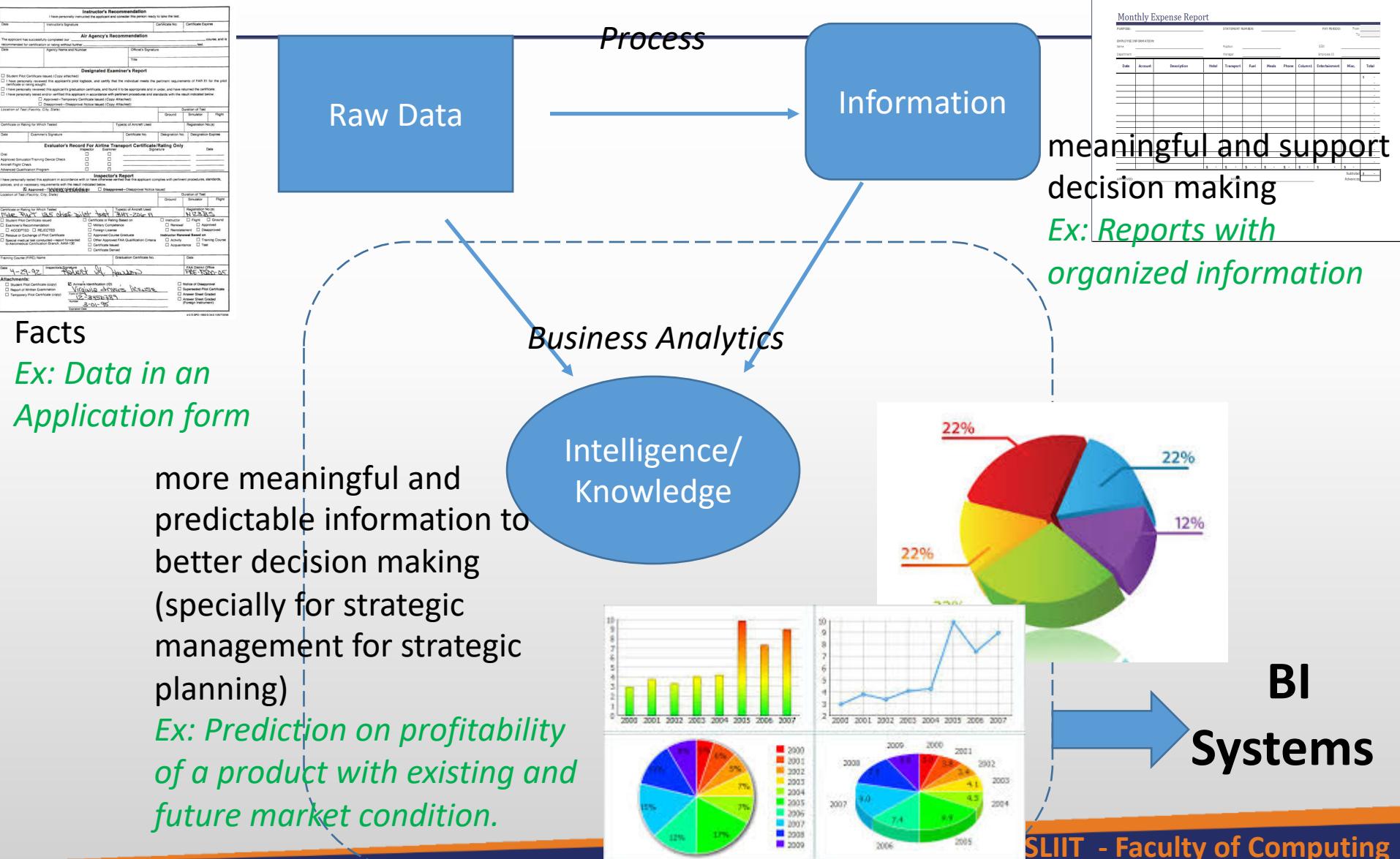
the

IoT systems have applications across industries through their unique flexibility and ability to be suitable in any environment.

Ex:

Transportation and logistics , Healthcare, Agriculture,
Smart environment (home, office, plant), Personal and social,
Energy and power

BI(Business Intelligence) Systems



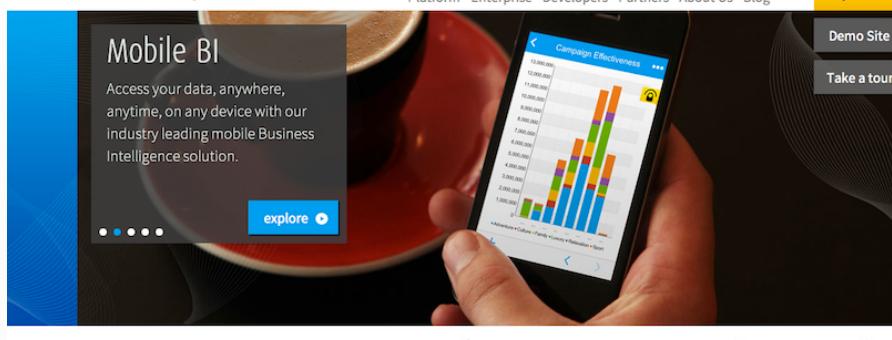
BI(Business Intelligence) Systems Cont.

- BI systems analyze/mine organizations raw data and Information to reveal insights of the business and build intelligence to help a business make faster and more accurate decisions.
- BI systems uses techniques such as data mining, statistics, online analytical processing, querying and reporting.
- Integrate data/information from across the enterprise. (Big Data).
- Illustrates business intelligence in the areas of customer profiling, customer support, market research, market segmentation, product profitability, statistical analysis, inventory and distribution analysis, . . .

BI(Business Intelligence) Systems Cont.

Existing systems:

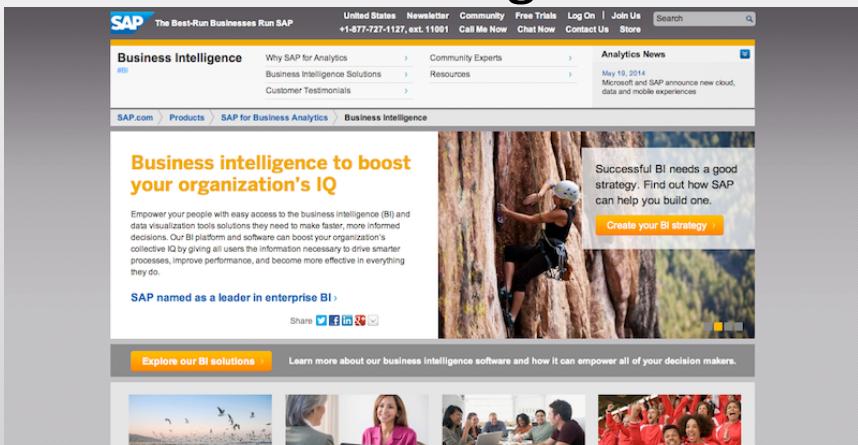
Yellowfin



The homepage features a large image of a hand holding a smartphone displaying a colorful bar chart titled "Campaign Effectiveness". To the left, there's a box with the text "Mobile BI" and "Access your data, anywhere, anytime, on any device with our industry leading mobile Business Intelligence solution." Below the phone is a "explore" button. At the top, there's a navigation bar with links like "Try It", "Buy It", "Support", "Contact Us", and "Login". Below the navigation is a menu with "Platform", "Enterprise", "Developers", "Partners", "About Us", and "Blog". On the right side, there are buttons for "Try it Free", "Demo Site", and "Take a tour".

<https://www.yellowfinbi.com/>

SAP Business Intelligence



The homepage has a header with "United States", "Newsletter", "Community", "Free Trial", "Log On", "Join Us", and "Search". Below the header, there's a main navigation with "Business Intelligence", "Why SAP for Analytics", "Community Experts", "Analytics News", "Business Intelligence Solutions", "Resources", and "Customer Testimonials". A central banner features a climber on a rock face with the text "Successful BI needs a good strategy. Find out how SAP can help you build one." and a "Create your BI strategy" button. Another banner below says "Explore our BI solutions" and "Learn more about our business intelligence software and how it can empower all of your decision makers." At the bottom, there are several small images showing people working with data.

<http://www.sap.com/pc/analytics/business-intelligence.html>

Oracle Business Intelligence Enterprise Edition OBIEE



This screenshot shows the Oracle Business Intelligence Enterprise Edition Plus overview page. The page includes a sidebar with links to various Oracle products like Business Intelligence, Coherence, and Database. The main content area describes OBIEE as a comprehensive business intelligence platform. It highlights features such as interactive dashboards, ad-hoc queries, notifications, alerts, enterprise and financial reporting, scorecard and strategy management, and more. The page also mentions that OBIEE 11g is based on a proven web-service-oriented unified architecture that provides the lowest total cost of ownership (TCO) and highest return on investment (ROI). A sidebar on the right lists "Popular Downloads" including Oracle BI, Oracle Database, and Oracle Java.

<http://www.oracle.com/technetwork/middleware/bi-enterprise-edition/overview/index.html?ssSourceSiteId=opn>

SISENSE



The Sisense homepage has a yellow header with the company logo and links for "WHYSIS", "PRODUCT", "DEMO", "PRICING", "COMPANY", and "FREE TRIAL". The main section features a large image of a globe with data points and the text "SIMPLIFYING BUSINESS INTELLIGENCE FOR COMPLEX DATA". Below this, it says "The only business intelligence software that lets you easily prepare and analyze both big and disparate datasets." There are two prominent buttons: "START FREE TRIAL" and "TEST DRIVE ON YOUR DATA".

<https://www.sisense.com/>

SLIIT - Faculty of Computing

Technologies behind Modern Information Systems

- Internet (WWW)
- Mobile Technology
- Sensor networks
- Global Positioning Systems (GPS)
- Cloud Computing and Virtual environments
- Object tracking technologies Ex. RFID(Radio Frequency IDentification) , NFC (Near Field Communication)
- Wireless communication
- Artificial Intelligence (AI)
- Distributed storage – Ex. Hadoop
- Payment gateways (Credit card payment)
- Web Services

Data Management within Information Systems Context

Data is one of the important aspects of any kind of Information System.

Modeling and managing data is a fundamental requirement for a successful Information System.

Reference

- K. C. Laudon and J.P. Laudon, “Management Information Systems: Managing the digital Firm”, INFORMATION SYSTEMS IN BUSINESS TODAY, 13th Ed, 2014



Learning Outcomes

- **LO2:** Evaluate the **information systems strategies** to achieve organizational goals

Next Lecture

- Data Modeling
- (Introduction to Database and DBMS)



End of Lecture 03

