CLASSIFICATION & TYPES OF IS
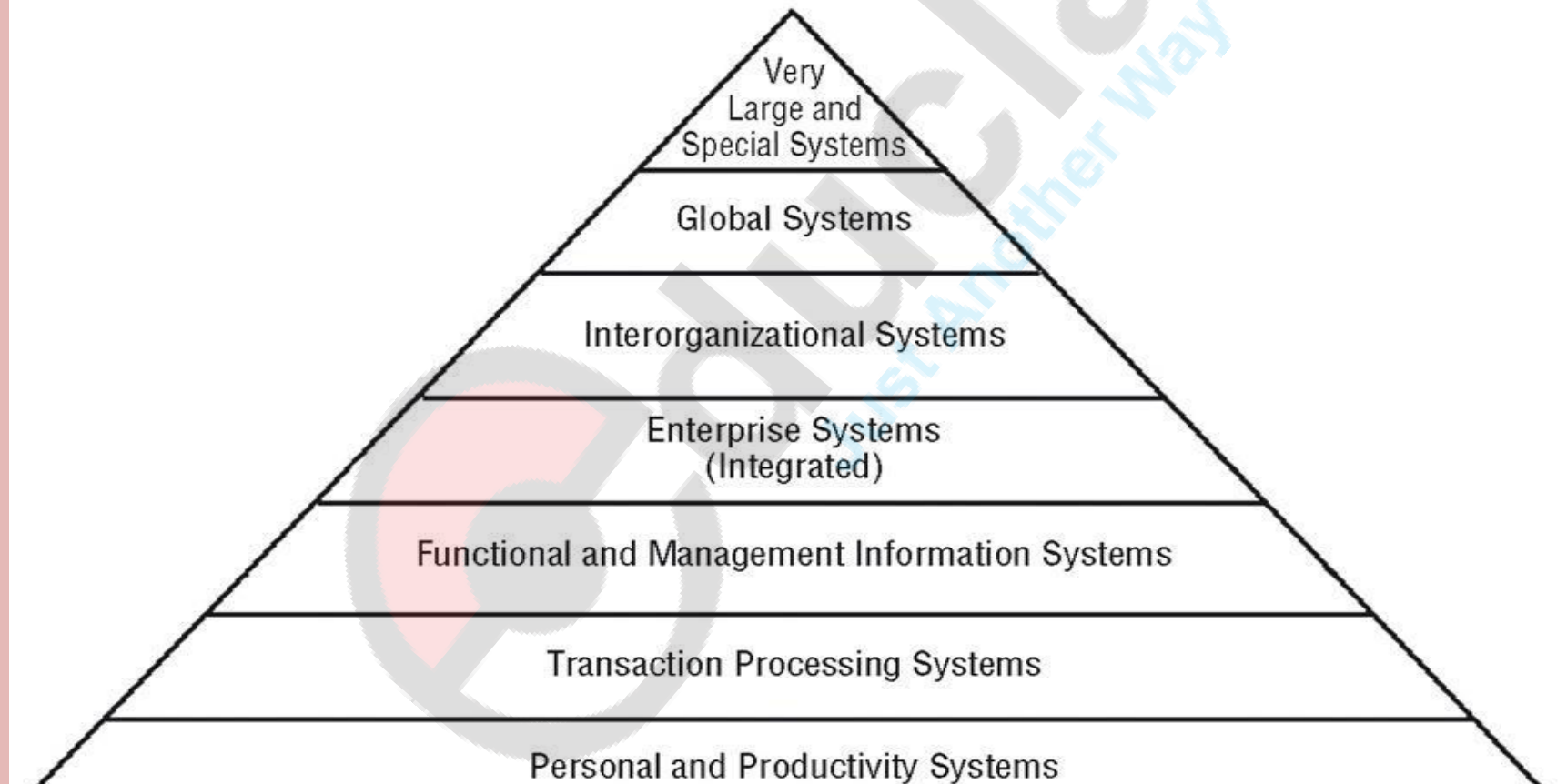
Rydhima Chopra

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[Vipin Dubey]

Classification of IS

- It is useful to classify IS into groups that share similar characteristics.

- Such classification may help in identifying systems, analyzing them, planning new systems, planning integration of systems & making decisions.

- IS is classified by organizational levels & by the type of source provided.

- Organizations are made up of components such as divisions, departments & work units, organized in traditional hierarchical levels.

- Such systems can stand alone, but usually they are interconnected.

[Vipin Dubey]

Levels of IS

Information System
- Classification By Support Function

Pyramid levels from top to bottom:
- Very Large and Special Systems
- Global Systems
- Interorganizational Systems
- Enterprise Systems (Integrated)
- Functional and Management Information Systems
- Transaction Processing Systems
- Personal and Productivity Systems

PERSONAL & PRODUCTIVITY SYSTEMS

- Small systems that are built & intends to support the activities we, as individuals, perform to ease our work or life, through the acquisition, organization, maintenance, retrieval & sharing of information.

- Designed to increase our productivity & satisfaction.

- Abundant, inexpensive & have fairly standard capabilities.

- Also known as **P**ersonal **I**nformation **M**anagement(PIM)

- Eg: **P**ersonal **D**igital **A**ssistant(PDA), with functions such as calendars, calculators, schedulers & computer memory.

Transaction Processing Systems(TPS)

- Supports repetitive information processing tasks that is performed periodically at regular intervals.

- Supports the monitoring, collection, storage, processing & dissemination of the organization's basic business transactions.

- Collects data continuously, frequently on a daily basis, or even in real time(i.e. as soon as they are generated) which is mostly stored in the corporate databases or data warehouse.

- Supports core operations such as Employee's salary, Purchase orders, Financial statements, Tax records, Expense accounts, Sales records, Sales returns, material usage.

- Eg: In Banking where monthly statements for customers are generated for bank services.

Functional Information Systems

- Are put in place to ensure that business strategies come to fruition in an efficient manner.

- A Functional system provides periodic reports as operational efficiency, effectiveness & productivity by extracting information from databases & processing it according to the needs of the user.

- Each task can be divided into subtasks specifically designed to support functional activities.

- Functional areas cover activities in which some of these are repetitive, while others are only occasional such as Accounting, Finance, Production/Operations, Marketing, Sales & Human Resources Management

- Of 2 **types**:
    1. System that support managers referred to as MIS
    2. System that support other employees in the functional areas(Analysts, Schedulers, Staff)

- Support functional managers by providing them with periodic reports that include summaries, comparisons & other statistics which can help the manager make better decisions.
- Used for planning, monitoring & control.
- Eg: Weekly sales volume & comparison of actual expenses to the budget.

- Enterprise systems support business processes that are performed by 2 or more departments.
- Follow processes which will usually integrate tasks done in different departments.
- The activities in the process are frequently done in sequence, but some can be conducted simultaneously.
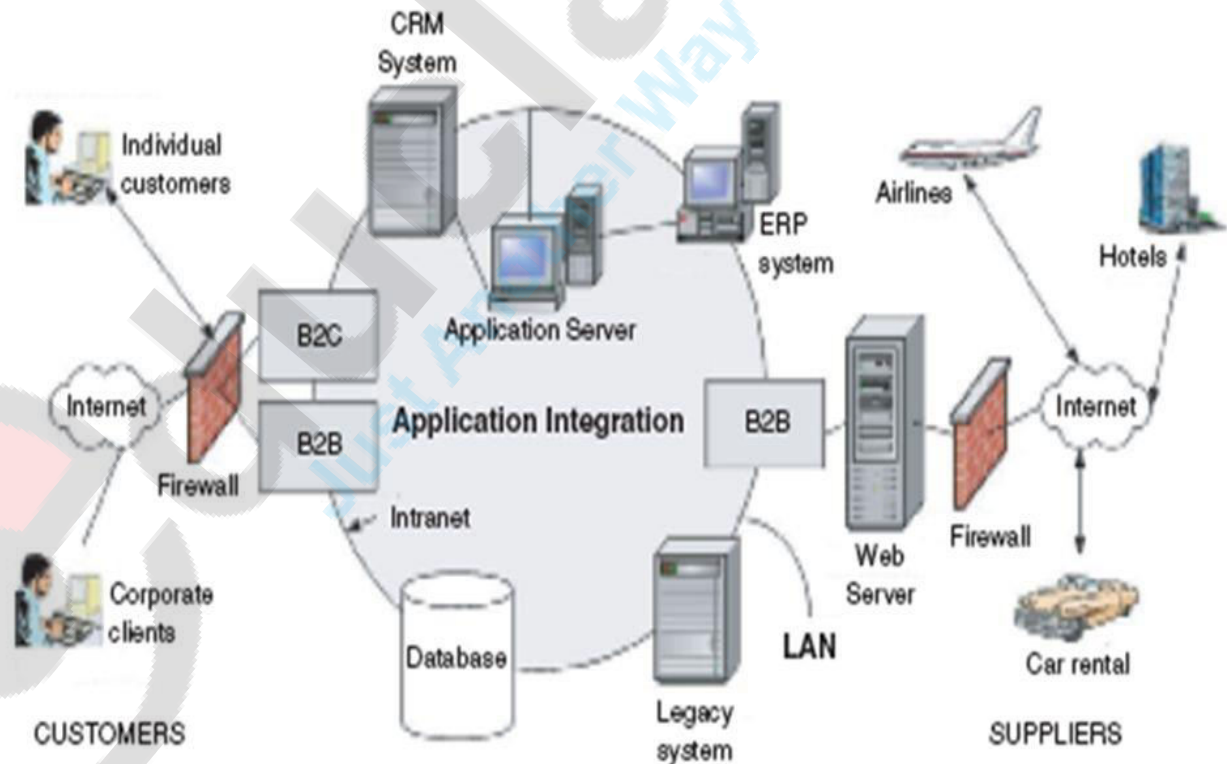
IOS

Connect 2 or more organizations.

Most common IOSs are systems that connect sellers & buyers.

One can order, bill & pay electronically.

Such transactions can be supported by standardized computer languages.

Inter-Organizational Systems (IOS)

- CRM System
- Individual customers
- ERP system
- Airlines
- Hotels
- B2C
- Application Server
- Internet
- B2B
- Application Integration
- B2B
- Firewall
- Web Server
- Firewall
- Internet
- Intranet
- Corporate clients
- Database
- LAN
- Car rental
- CUSTOMERS
- Legacy system
- SUPPLIERS

Two or more organizations

[Vipin Dubey]

- IOSs that connect companies located in 2 or more countries.

- E Commerce systems are now global

- Suppliers are overseas.

- Systems are very large which include many subsystems.

- Often global in nature.

Types of IS

- Another way to classify IS is according to the type of support they provide, regardless of the functional area.

- Each support system has sufficiently unique characteristics that it can be classified as a special entity.

- Can be used as standalone system.

- 2 or more support systems can be integrated to form a hybrid system which includes some intelligent components like BI-ES combination(**Integrated Support System**). Such integration provides extended functionalities which can provide solutions to complex problems.

[Vipin Dubey]

SYSTEM	EMPLOYEES SUPPORTED	DESCRIPTION
MIS	Middle Managers	Provides routine information for planning, organizing & controlling operations in functional areas
Office Automation System(OAS)	Office workers	Increases productivity of office workers; includes word processing
CAD/CAM	Engineers, Draftspeople	Allows Engineers to design & test prototype; transfers specifications to manufacturing facilities
Communication & collaboration Systems (e-mail & voice mail)	All	Enable employee's partners & customers to interact & work together more efficiently
Desktop Publishing System	Office workers	Comines text, photos, graphics to produce professional quality documents
Document Management System(DMS)	Office workers	Automates flow of electronic documents
Decision Support System(DSS)	Decision makers, Managers	Combines models & data to solve semi-structured problems with extensive user involvement

[Vipin Dubey]

SYSTEM	EMPLOYEES SUPPORTED	DESCRIPTION
Group Support System(GSS)	People working in groups	Supports working processes of groups of people including those in different locations
Expert System(ES)	Knowledge workers, non-experts	Provides stored knowledge of experts to non-experts & decision recommendations based on built-in expertise
Knowledge Work System(KWS)	Managers, Knowledge workers	Supports the gathering, organizing & use of an organization's knowledge
Neural networks, Data mining	Knowledge workers, Professionals	Learn from historical cases, even with vague or incomplete information
Business Intelligence(BI)	Decision makers, Managers, knowledge workers	Gathers & uses large amounts of data for analysis by business analytics & intelligent systems
Mobile Computing Systems	Mobile employees	Support employees who work with customers or business partners outside the physical boundaries of the organization
Automated Decision Support(ADS)	Frontline employees, Middle Managers	Support customer care employees & sales people who need to make quick, real time decisions involving small amounts

[Vipin Dubey]

HARDWARE PLATFORM TO IMPROVE BUSINESS PERFORMANCE

Rydhima Chopra

Asst professor

[Vipin Dubey]

HARDWARE PLATFORM TO IMPROVE BUSINESS PERFORMANCE

- While the cost of computing has fallen, IT infrastructure expenditures have grown due to the rising cost of computing services, software & the increase in intensity & sophistication of computing.

- Telecommunications & computing platforms have converged: at the client level, with the merging of PDAs & cell phones, and at the server & network level, with the rise of Internet telephony.

Grid computing utilizes the idle computational resources of separate, geographically remote computers to create a single virtual supercomputer. In this process, a server computer breaks data & applications into discrete chunks that are parceled out to the grid's machines. Grid computing offers increased cost savings, computational speed & agility.

On-demand computing or **Utility computing** refers to firms off-loading peak demand for computing power to remote, large-scale data processing centers. This allows firms to reduce their investment in IT infrastructure by investing in only as much computing power as needed on average & paying for additional power on an as-needed basis. This arrangement offers firms much greater agility & flexibility in their infrastructure.

[Vipin Dubey]

HARDWARE PLATFORM TO IMPROVE BUSINESS PERFORMANCE

Autonomic computing is an industry-wide effort to develop systems that can configure, optimize, repair & protect themselves against intruders & viruses, in an effort to free system administrators from routine system management, reduce costly system crashes. Eg: Virus software with automatic virus updates.

Edge computing is a multi-tier, load-balancing scheme for Web-based applications in which parts of the Web site content & processing are performed by smaller, less expensive servers located near the computer. In an edge computing platform client requests are initially processed by the edge servers, which may deliver static presentation content, reusable code, while database & business logic components are delivered by the enterprise servers.

Edge Computing Platform

Enterprise Computing Platform
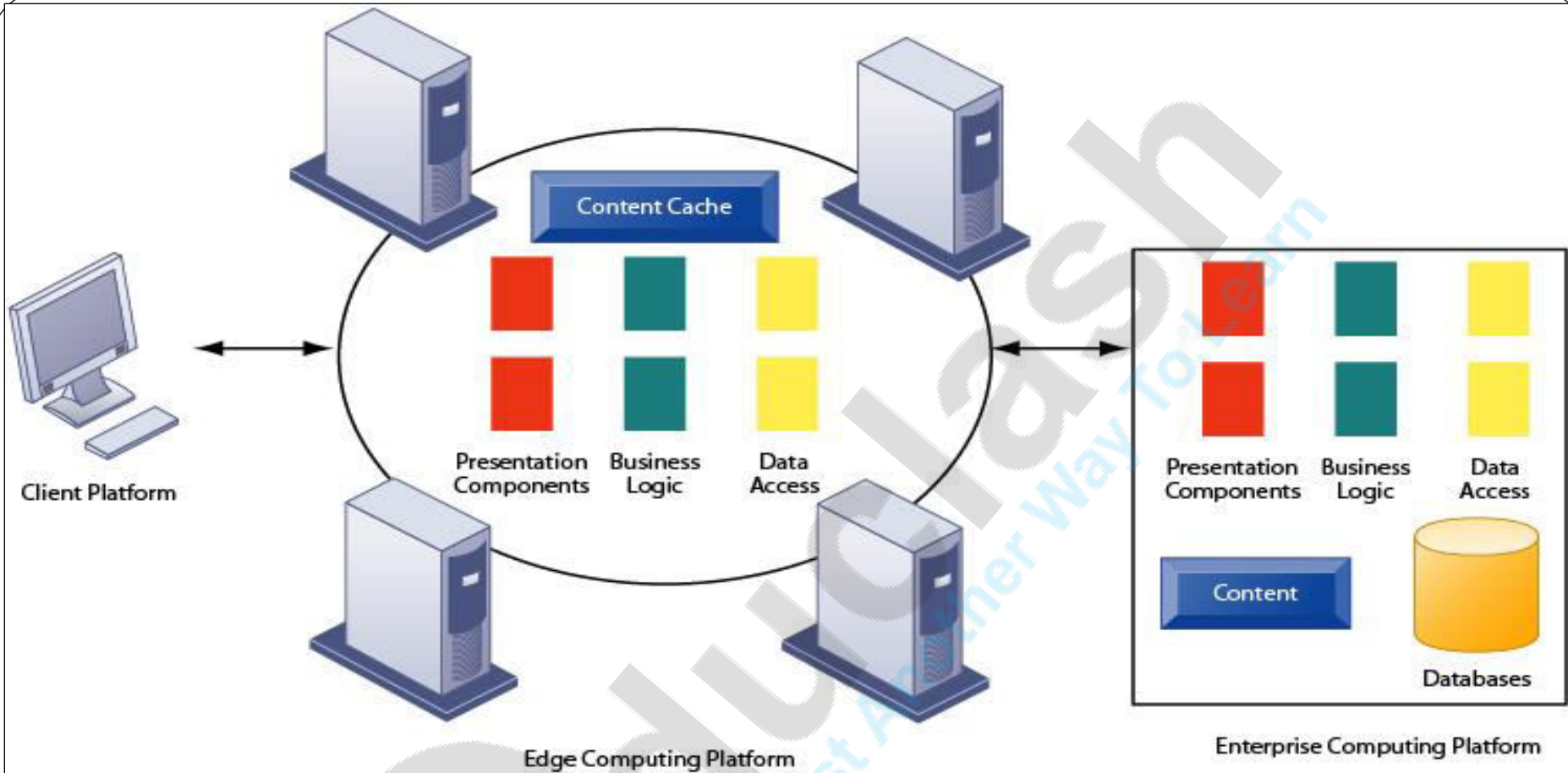
EDGE COMPUTING

Edge computing involves the use of the Internet to balance the processing load of enterprise platforms across the client & edge computing platform.

HARDWARE PLATFORM TO IMPROVE BUSINESS PERFORMANCE

- As companies deploy hundreds or thousands of servers, many have discovered that they are spending more on electricity to power & cool their systems than they did on acquiring the hardware. Power consumption can be lowered through virtualization and multicore processors.

Virtualization is the process of presenting a set of computing resources (such as computing power or data storage) so that they can all be accessed in ways that are not restricted by physical configuration or geographic location. Server virtualization enables companies to run more than one OS at the same time on a single machine. Most servers run at just 10 to 15% of capacity & virtualization can boost utilization server utilization rates to 70% or higher.

A **Multicore processor** is an integrated circuit that contains 2 or more processors. This technology enables 2 or more processing engines with reduced power requirements & heat dissipation to perform tasks faster than a resource-hungry chip with a single processing core.

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INFORMATION SYSTEMS

[Vipin Dubey]

Information System (IS)

- Collects, stores, processes, analyzes & disseminates information for a specific purpose

- Composition is usually the same: each contains hardware, software, data, procedures & people or; one or more smaller ISs(typically of larger companies. For eg, FedEx's corporate IS contains applications).

- Usually connected by means of electronic networks which can be wireline &/or wireless.

- Can connect an entire organization, or even multiple organizations.

- Is built to attain one or several goals.

- Primary goal is to economically process data into information or knowledge. They can be inputs to an IS as well as outputs.

- Made out of components that can be assembled in many different configurations, resulting in a variety of ISs & applications. Factors being the purpose, availability of money & other constraints.

[Vipin Dubey]

DEFINITIONS

APPLICATION PROGRAM: A computer program designed to support a specific task or   a business process.

* **Departmental ISs**: Collection of application programs in a single department.

* **Human Resource ISs(HRIS):** Collection of application programs in the human resources area.

DATA ITEM: An elementary description of things, events, activities & transactions that are recorded, classified & stored, but not organized. It can be numeric, alphanumeric, figures, sounds or images. A **Database** consists of stored data items.

INFORMATION: Data that have been organized so that they have meaning & value to the recipient which interprets & draws conclusions & implications from it. Data items typically are processed into information by means of an application. Such processing represents a more specific use & a higher added value than simple retrieval & summarization from a database.

KNOWLEDGE: Consists of data &/or information that have been organized & processed to convey understanding, experience, accumulated learning & expertise as they apply to a current problem or activity.

MANAGEMENT OPPORTUNITIES, CHALLENGES & SOLUTIONS

Rydhima Chopra

Asst Professor

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MANAGEMENT CHALLENGES

☐ Many firms obtain extraordinary business value from enterprise applications because of their power to improve process coordination & management decision making.

☐ However, enterprise systems, SCM(**S**upply **C**hain **M**anagement) & CRM(**C**ustomer **R**elationship **M**anagement) systems are very expensive to purchase & implement. Costs run even higher for organizations with global operations, which must manage organizational & technology changes in many different languages, time zones, currencies & regulatory environments.

☐ Enterprise applications require not only deep-seated technological changes but also fundamental changes in the way the business operates, including changes to business processes, employee responsibilities & functions.

☐ Enterprise applications also introduce "switching costs." Once an enterprise application is purchased & implemented, it becomes very costly to switch vendors.

☐ Enterprise applications require defining & implementing standardized definitions of data throughout the organization.

SOLUTIONS

☐ Solutions for gaining more value from enterprise applications include:

Enterprise solutions (enterprise suites or e-business suites): Flexible enterprise software that enables close linking between CRM & SCM & enterprise systems, as well as to customer & supplier systems.

Service platforms: A **service platform** integrates multiple applications from multiple business functions, business units, or business partners to deliver a seamless experience for the customer, employee, manager or business partner. Enterprise-wide service platforms provide a greater degree of cross-functional integration than the traditional enterprise applications. To accomplish this, software tools (such as Web services & XML) use existing applications as building blocks for new cross-enterprise processes. Portal software can integrate information from enterprise applications & disparate in-house legacy systems, presenting it to users through a Web interface so that the information appears to be coming from a single source.

☐ Order-to-cash is a composite process that integrates data from individual enterprise applications & legacy financial applications. The process must be modeled & translated into a software system using application integration tools.

ORDER-TO-CASH SERVICE

[Vipin Dubey]
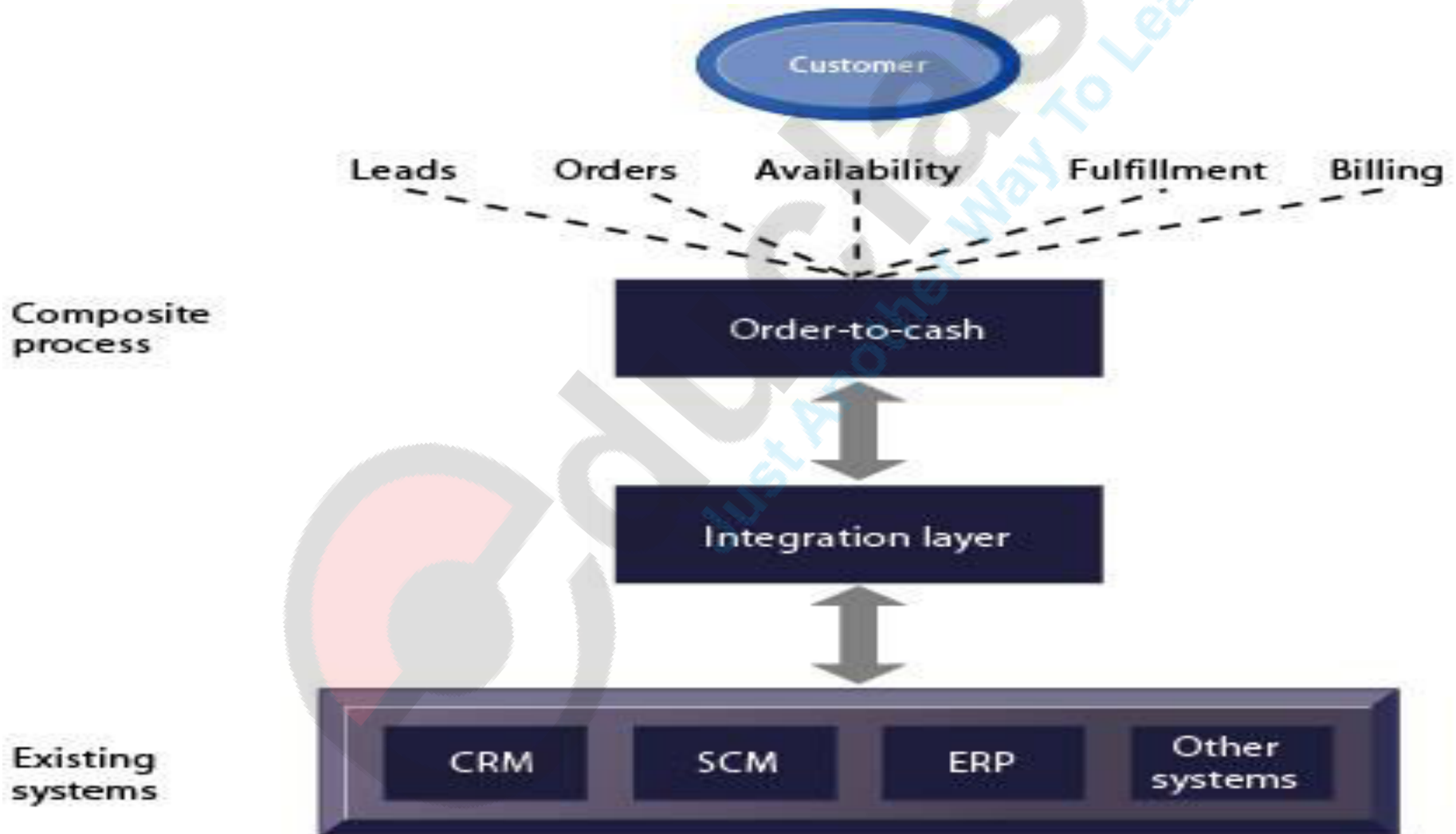
Role of IT in E-Commerce

Rydhima Chopra
Asst Professor

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Role of IT in EC

- The 3 major types of EC are:
  1. **Business-to-consumer (B2C)**: Retailing products & services to individual shoppers
  2. **Business-to-business (B2B)**: Sales of goods & services among businesses
  3. **Consumer-to-consumer (C2C)**: Consumers selling directly to other consumers.
- Another way of classifying EC transactions is in terms of the participants' physical connection to the Web. Conventional EC transactions, which take place over wired networks, can be distinguished from **mobile commerce**(M-Commerce), the purchase of goods & services using handheld wireless devices.
- Marketers can use the interactive features of Web pages to hold consumers' attention or to capture information about their tastes & interests. This information may be obtained by asking visitors to "register" online & provide information about themselves or by using special software such as **clickstream tracking** to track the activities of Web site visitors. Companies can then analyze this information to develop more precise profiles of their customers.

Role of IT in EC

- EC Web sites have tools to track a shopper's every step through an online store. Close examination of customer behavior at a Web site selling women's clothing shows what the store might learn at each step & what actions it could take to increase sales.

- Communications & product offerings can also be tailored precisely to individual customers. By using Web personalization technology to modify Web pages presented to each customer, marketers can achieve the benefits of using individual salespeople at dramatically lower costs. Personalization can help firms form lasting relationships with customers by providing individualized content, information & services.

Collaborative filtering compares a customer's behavior with data about similar customers to predict what the customer would like to see next & makes recommendations to users.

Firms can create unique personalized Web pages that display content or ads for products or services of special interest to individual users, improving the customer experience & creating additional value.

User → Web site

Based on your portfolio and recent market trends, here are some recommendations.

Welcome back, Steve P. Munson.
Check out these recommended titles: One Minute Manager
Leading Change
Results-Based Leadership

Sarah,
Here are the items you want to bid on: Iron Scroll Lamp
Sparkle Beach Barbie
Beatles Silk Tie

Role of IT in EC

Blogs or Weblogs, informal web sites where individuals or corporate representatives & groups can publish views & options have emerged as a promising Web marketing tool. New third-party services monitor customer discussions in online communities or research online behavior of large numbers of customers at many different web sites.

- Learning what customers feel about one's products or services through electronic visits to Web sites is much less costly than using focus groups. The Web shifts more marketing & selling activities to the customer, as customers fill out their own on-line order forms. M-Commerce will provide businesses with additional channels for reaching customers & new opportunities for personalization.

- The Web & other network technologies are inspiring new approaches to customer service & support. Companies can reduce costs & improve customer service by using Web sites to provide helpful information as well as customer support via e-mail. Companies are realizing substantial cost savings from Web-based customer self-service applications. New products are even integrating the Web with customer **call centers**.

- Much of B2B EC is still based on proprietary systems for **Electronic Data Interchange**(EDI) which enables automated computer-to-computer exchange between 2 organizations of standard transactions such as invoices, bills of lading, shipment schedules or purchase orders.

Companies use EDI to automate transactions for B2B e-commerce & continuous inventory replenishment. Suppliers can automatically send data about shipments to purchasing firms. The purchasing firms can use EDI to provide production & inventory requirements & payment data to suppliers.

Supplier Systems

Firm Systems

Shipping data

Payment data

Production/inventory requirements

Continuous replenishment

EDI

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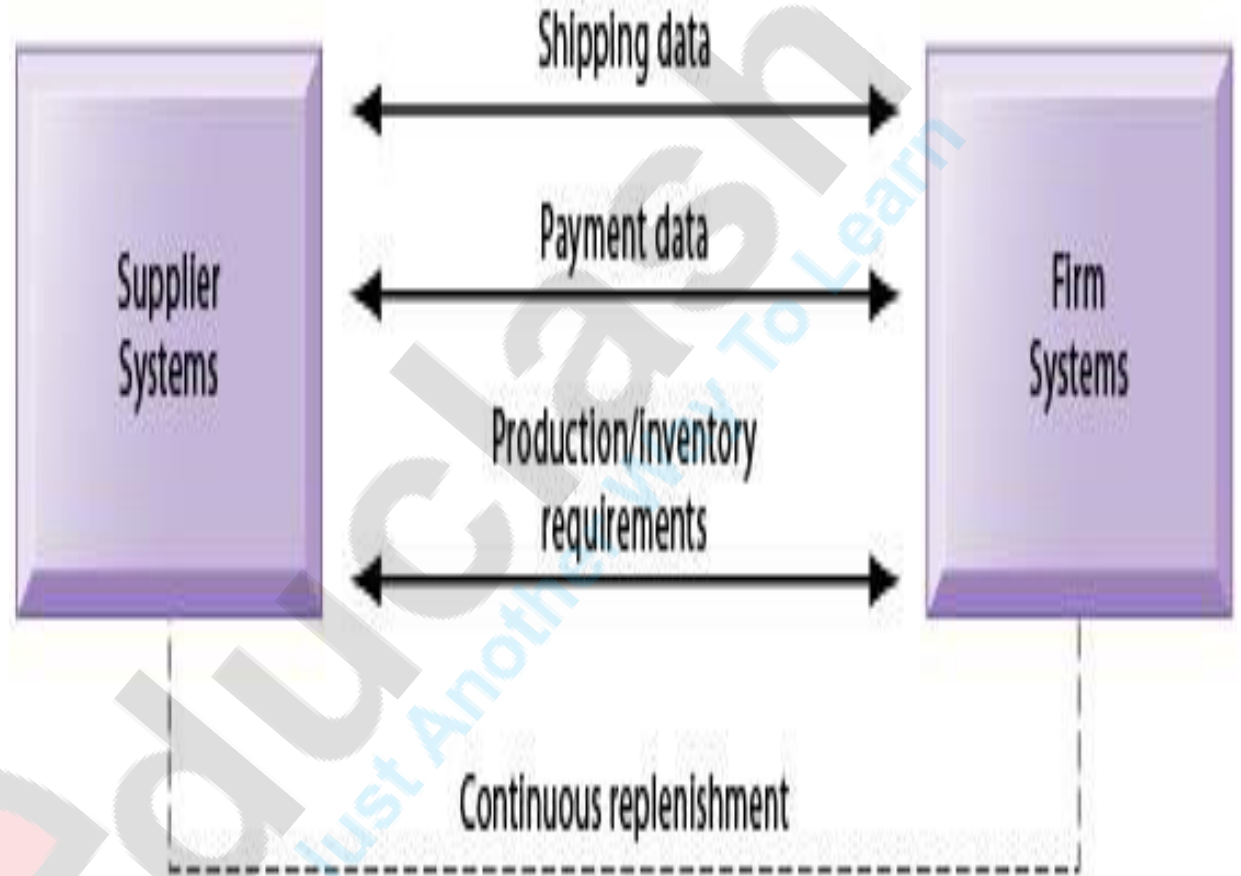
Role of IT in EC

- Today companies are increasingly turning to the Internet for this purpose because it provides a much more flexible & low-cost platform for linking to other firms. For procurement (purchasing source goods & negotiation with suppliers), businesses can use the Internet to locate low-cost goods, place orders, make payments, etc. Businesses can create Web storefronts to sell goods & Internet technology to create extranets or link to other businesses for transactions.

- B2B EC environments include:

Private industrial networks or **private exchanges**: Typically consisting of a large firm using an extranet to link to its suppliers, distributors & other key business partners for efficient SCM & other collaborative commerce activities.

PRIVATE INDUSTRIAL NETWORKS

[Vipin Dubey]
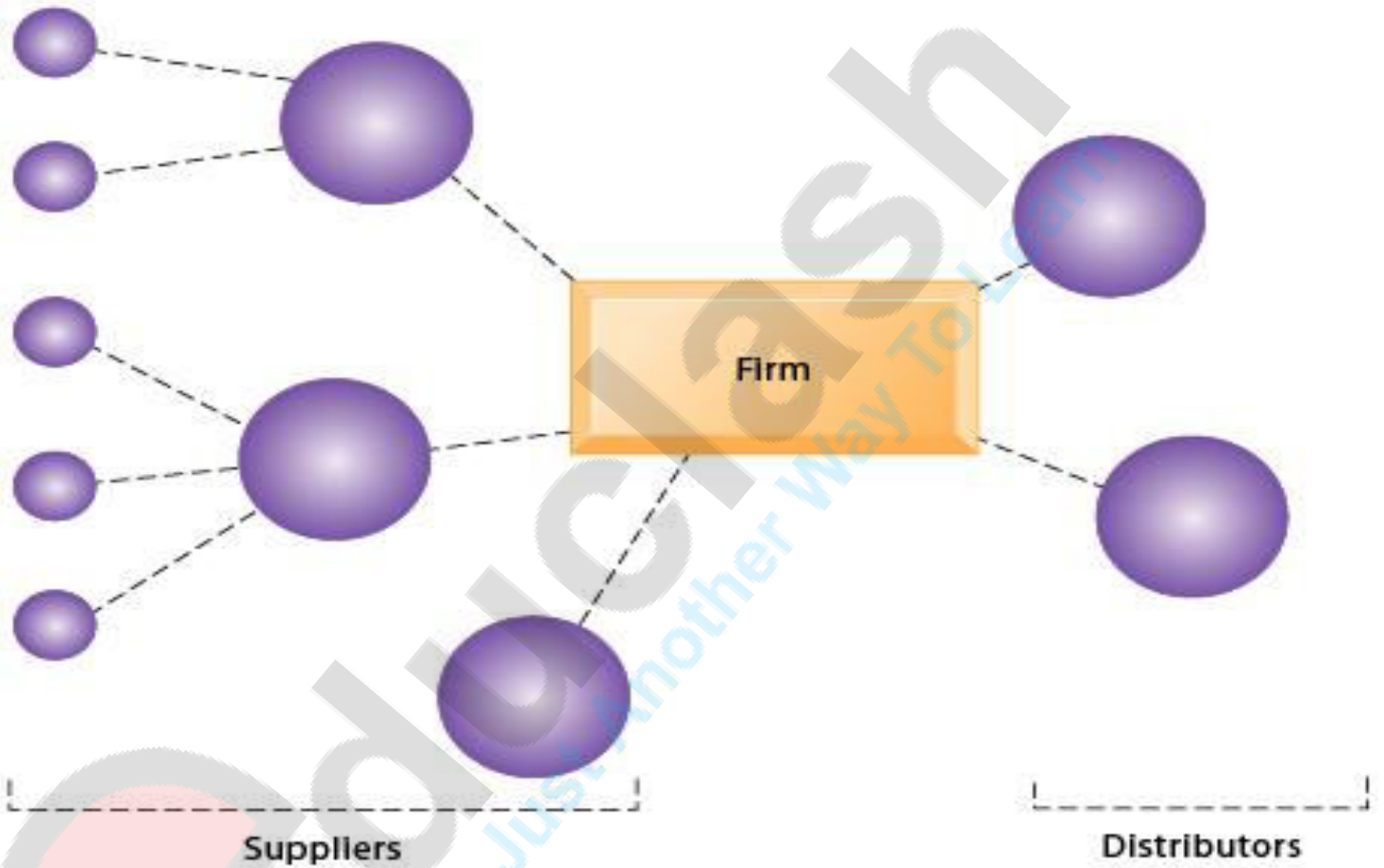
Role of IT in EC

Net marketplaces or **e-hubs**: Internet-based marketplaces or online marketplaces where multiple buyers can purchase from multiple sellers. Net marketplaces are industry owned or operate as independent intermediaries between buyers & sellers, generating revenue from transaction fees or services to clients. Net marketplaces may sell direct goods (used in a production process) & some sell indirect goods. They may support contractual purchasing based on long-term relationships with designated suppliers & others support short-term spot purchasing, where goods are purchased based on immediate needs, often from many different suppliers. Some net marketplaces may serve vertical markets for specific industries or horizontal markets, with goods & services for many industries.

Exchanges: Independently owned third-party Net marketplaces that can connect thousands of suppliers & buyers for spot purchasing. Many exchanges provide vertical markets for a single industry. However, many exchanges have failed because they encourage competitive bidding that drove prices down without offering long-term relationships.

NET MARKETPLACE

[Vipin Dubey]
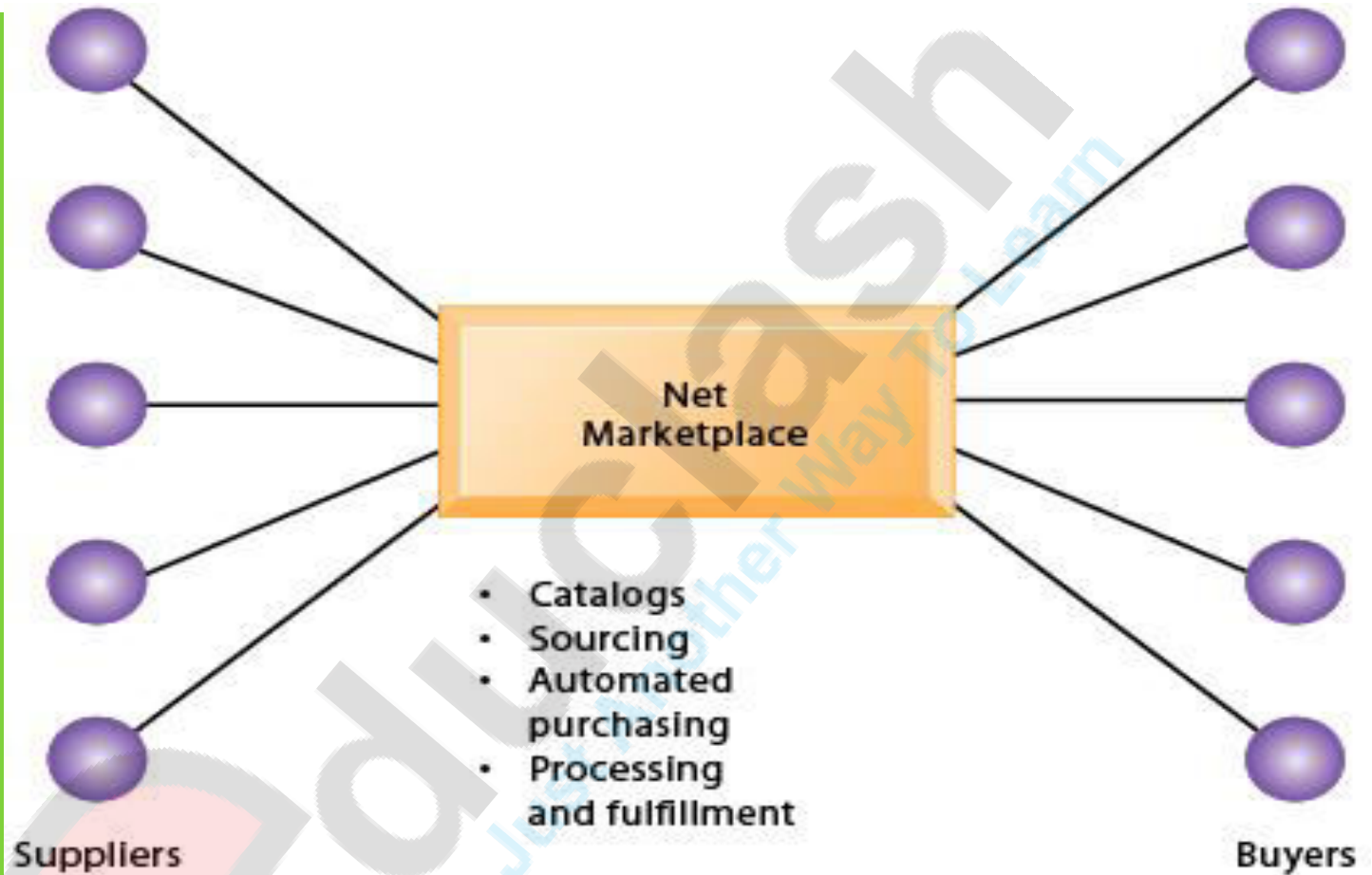
Role of IT in M-Commerce

Rydhima Gupta
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[Vipin Dubey]

- M-commerce applications have taken off for services that are time-critical, that appeal to people on the move, or that accomplish a task more efficiently than other methods. Popular m-commerce applications include:

Content & location-based services: For checking travel information, schedules, news, movie times, weather forecasts, etc

Banking & financial services: For checking account balances, transferring funds, paying bills

Wireless advertising: Selling of advertising space in m-commerce applications, such as sponsored search results from the go2Directory search site

Games and entertainment: Downloadable digital games, movies, music & ringtones

- Because handheld mobile devices can only display small amounts of information at a time, m-commerce enabled Web sites are being designed as special **wireless portals** (mobile portals) with content optimized for smaller screens.

M-Commerce
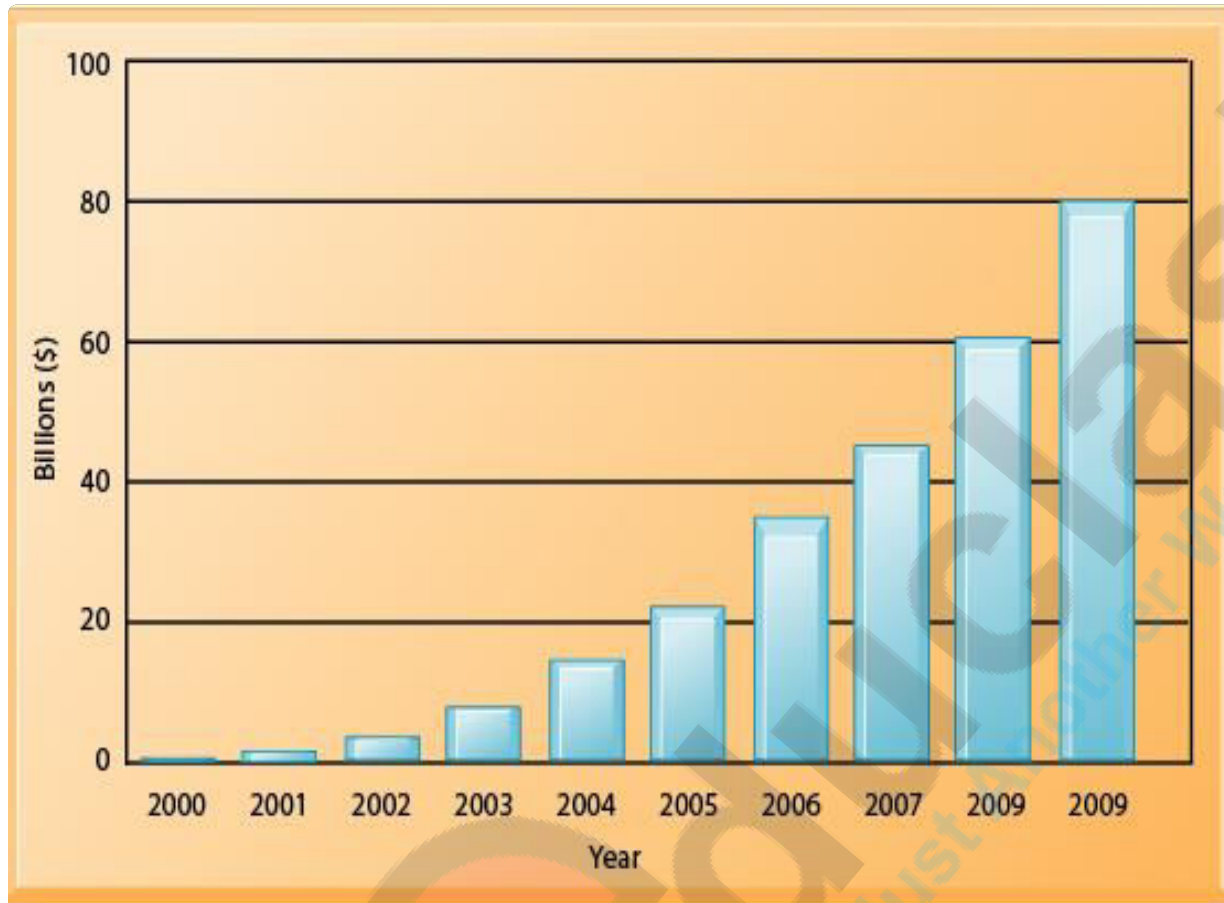
Although m-commerce represents a small fraction of total e-commerce transactions, revenue has been steadily growing.

M-Commerce

[Vipin Dubey]

SOFTWARE PLATFORM TO IMPROVE BUSINESS PERFORMANCE

Rydhima Chopra

Asst professor

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SOFTWARE PLATFORM TO IMPROVE BUSINESS PERFORMANCE

There are 5 major themes in contemporary software platform evolution:

1. Linux & Open-source software(OSS)

2. Java

3. Enterprise software

4. Web services & service-oriented architecture

5. Software outsourcing

Linux:

☐ World's fastest growing client & server OS.

☐ The rise of OSS & the applications it supports has profound implications for corporate software platforms: cost reduction, reliability, resilience & integration, because Linux works on all the major hardware platforms from mainframes to servers to clients. Linux has the potential to break Microsoft's monopoly of the desktop.

OSS

- A computer program or software with its source code made available with a license in which the copyright holder provides the rights to study, change & distribute the software to anyone & for any purpose.

- Can be freely used & shared(in modified or unmodified form).

- Design is publically accessible.

- Programmers who have access can improve the program by adding features to it & fixing or correcting errors or omissions that a program's original authors might have missed.

- Many people prefer OSS because they have control over it. They can examine the code to make sure it is not doing anything they don't want it to do & they can change parts of it they don't like. They can use this software for any purpose they wish- not merely the way someone else thinks they should.

- A good tool for business to achieve greater penetration of the market.

- Companies that offer OSS are able to establish an industry standard & thus gain competitive edge . Eg: Mozilla Firefox, Linux, Android(an operating system(OS) for mobile devices), etc.

- Offers potential for a more flexible technology & quicker innovation.

JAVA

- An OS-independent, object-oriented programming language.

- Has become the leading programming environment for the Web.

- Its use has migrated into cellular phones, cars, music players & more.

- For each of the computing environments in which Java is used, Sun has created a Java Virtual Machine(JVM) that interprets Java programming code for that machine. In this manner, the code is written once & can be used on any machine for which there exists a JVM. A Macintosh PC, an IBM PC running Windows, a Sun server running Unix & even a smart cellular phone or personal digital assistant can share the same Java application.

- Typically used to create small Web programs called Applets, but is also a very robust language designed to handle text, data, graphics, sound & video.

- Enables PC users to manipulate data on networked systems using Web browsers, reducing the need to write specialized software.

[Vipin Dubey]

ENTERPRISE SOFTWARE

□ Software for enterprise integration is one of the most urgent software priorities today for U.S. firms who need to integrate existing legacy software with newer technology.

□ Replacing isolated systems that cannot communicate with enterprise software is one solution; however, many companies cannot simply jettison essential legacy mainframe applications. Some integration can be achieved by **Middleware**(software that creates an interface or bridge between 2 different systems). Firms increasingly purchase **Enterprise Application Integration(EAI) software** that enables multiple systems to exchange data through a single software hub.

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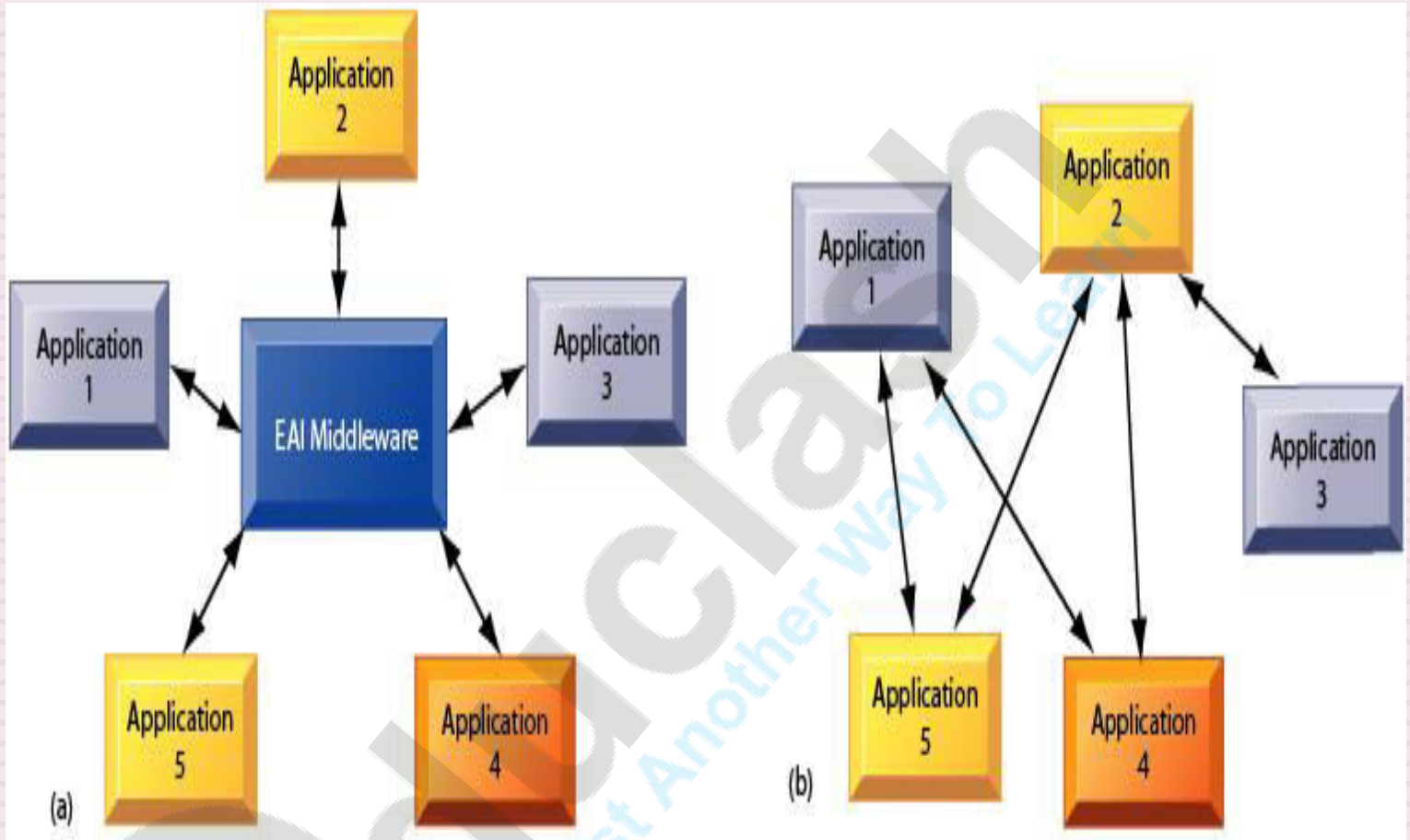
ENTERPRISE SOFTWARE

EAI software (a) uses special middleware that creates a common platform with which all applications can freely communicate with each other. EAI requires much less programming than traditional point-to-point integration (b).

[Vipin Dubey]

WEB SERVICES

- Loosely coupled software components that use Web communication standards, can exchange information between different systems regardless of OS of programming language.

- Technology is founded on **Extensible Markup Language(XML)** which was developed as a more powerful language than HTML. By marking data with XML tags, computers can interpret, manipulate & exchange data from different systems.

- Communicate through XML messages over standard Web protocols, such as **SOAP(Simple Object Access Protocol)** is a set of rules for structuring messages that enables applications to pass data & instructions to one another.

- **WSDL(Web Services Description Language)** is a common framework for describing the tasks performed by a Web service & the commands data it will accept so that it can be used by other applications.

- **UDDI (Universal Description, Discovery & Integration)** enables a Web service to be listed in a directory of Web services so that it can be easily located.

- Using these protocols, a software application can connect freely to other applications without custom programming for each different application with which it wants to communicate.
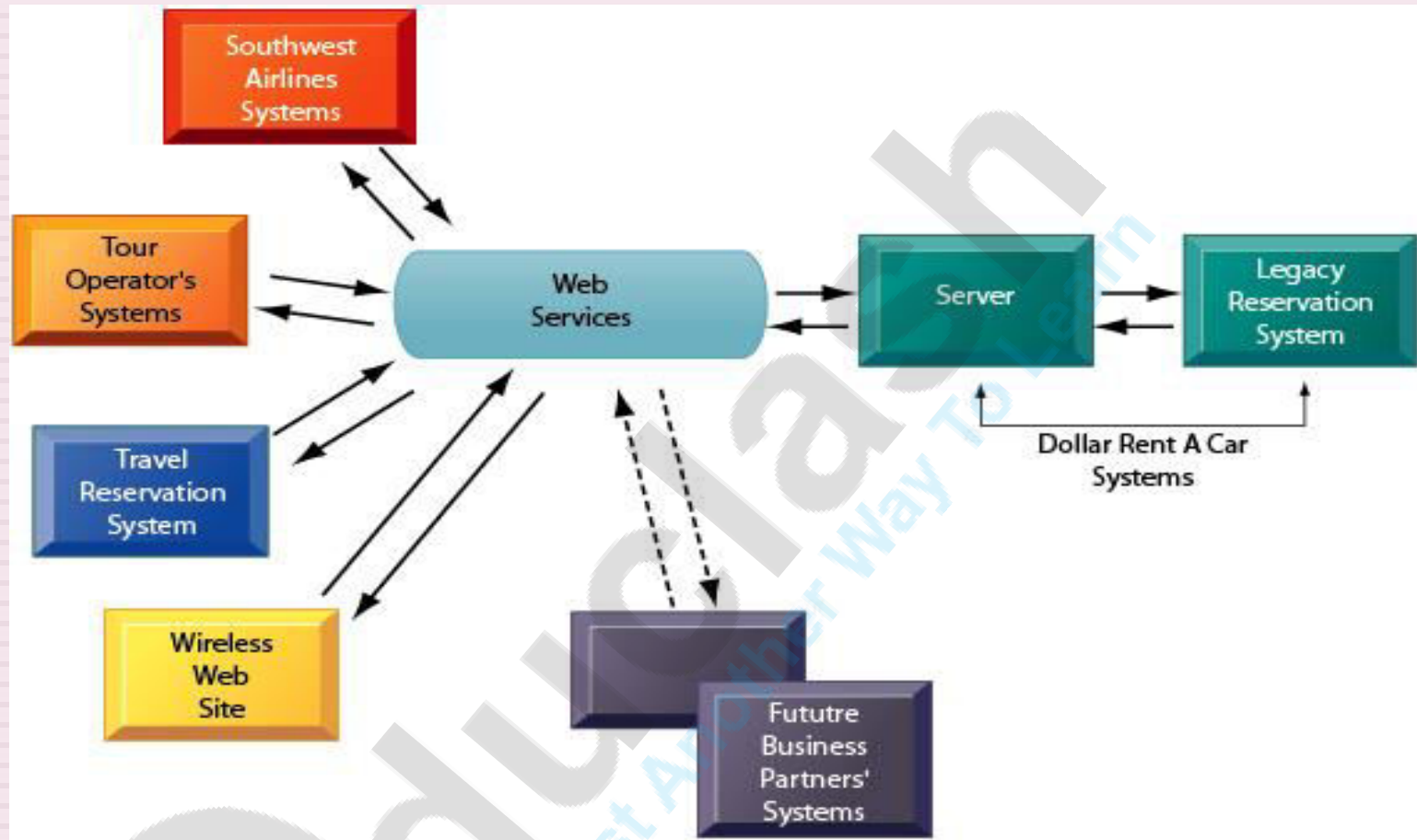
WEB SERVICES

Dollar Rent A Car uses Web services to provide a standard intermediate layer of software to "talk" to other companies' ISs. Dollar Rent A Car can use this set of Web services to link to other companies' ISs without having to build a separate link to each firm's systems.

[Vipin Dubey]

Service-Oriented Architecture(SOA)

- The collection of Web services used to build a firm's software systems.

- In an SOA environment, a single application can be used & reused as a "service" that can be used by other services.

- For eg, an "invoice service" can be written which is the only program in the firm responsible to calculate invoice information & reports.

- Virtually all major software vendors provide tools & entire platforms for building & integrating software applications using Web services.
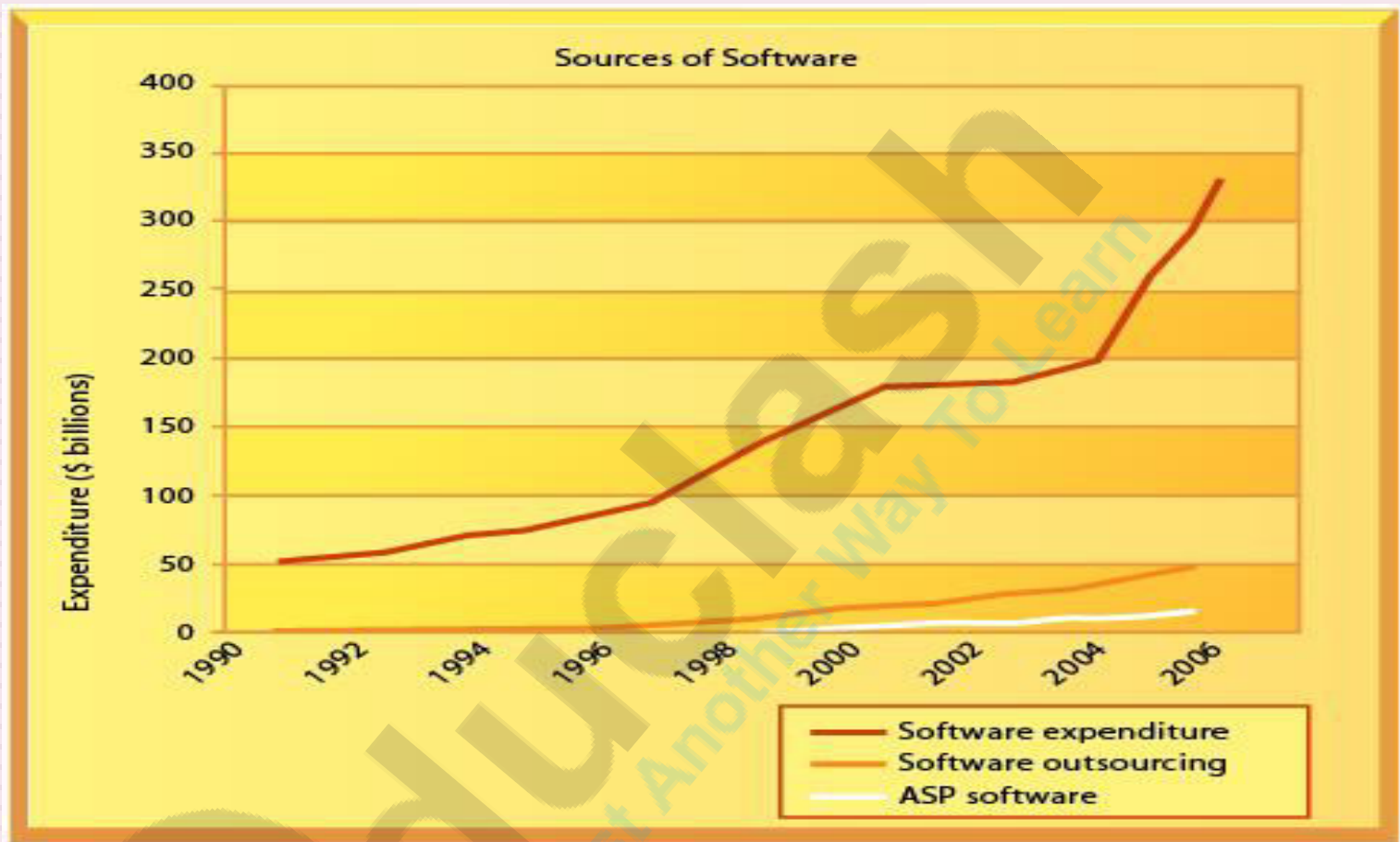
SOFTWARE OUTSOURCING

Although traditionally businesses developed unique software themselves, today most new software is purchased from external sources. There are 3 external sources for software:

1. Commercial software packages
2. Software services from an Application Service Provider(ASP)
3. Outsourcing application development to an outside software firm

A **Commercial Software package** is a prewritten set of software programs for certain functions, eliminating the need for a firm to write its own software program. Enterprise systems are so complex that few corporations have the expertise to develop these in house & instead rely on enterprise software packages from vendors such as SAP & PeopleSoft.

An **ASP** is a business that delivers & manages applications & computer services from remote computer centers to multiple users using the Internet or a private network. The software is paid for typically on a per-user, subscription, or per-transaction basis. Renting enterprise software avoids the expense & difficulty of installing, operating & maintaining the hardware & software needed for complex systems. Large & medium-sized businesses are using ASPs for enterprise systems, sales force automation or financial management & small businesses are using them for functions such as invoicing, tax calculations, electronic calendars & accounting. ASPs also enable small & medium-sized companies to use applications that they otherwise could not afford.

In **outsourcing**, a firm contracts custom software development or maintenance to outside firms, frequently firms operating in low-wage areas of the world. With the growing sophistication & experience of offshore firms, more & more new program development is outsourced.

SOFTWARE OUTSOURCING

U.S. firms spent nearly $340 billion on software in 2006. Over 30% of that software came from outsourcing its development & operation to outside firms & another 15% will come from purchasing the service from ASPs either on the Web or through traditional channels.

[Vipin Dubey]

SOFTWARE PLATFORM TO IMPROVE BUSINESS PERFORMANCE(Contd…)

Other software trends include:

- **Ajax(Asynchronous JavaScript and XML):** Ajax & a related set of techniques called **RIA**(Rich Internet Applications) use JavaScript or Macromedia Flash programs downloaded to your client to maintain a near continuous conversation with the server you are using. While making the life of consumers much easier, Ajax & RIA are even more important for another new software development.

- **Web-based applications:** Software firms are delivering software services over the Web to client computers & their customer's sites. Google's Google Apps for Your Domain is a Web-based suite of productivity tools, including online spreadsheet, word processing & calendars, aimed at small businesses.

- **Mashups:** Part of a movement called Web 2.0 & in the spirit of musical mashups, Web **mashups** combine the capabilities of two or more online applications to create a kind of hybrid that provides more customer value than the original sources alone. For example, housingmaps.com can display real estate listings in local areas from Craigslist.com overlaid on Google Maps, with pushpins showing the location of each listing. The result of these techniques is that instead of the Web being a collection of pages, it becomes a collection of capabilities, a platform where thousands of programmers can create new services quickly & inexpensively.

- **Web 2.0** refers to "the new Web applications" like those above & is also the name of an annual conference. Web 2.0 can be described also as an expression of all the changes above, plus changes in the way people & business use the Web & think about human interaction on the Web. These changes include seeing the Web applications as services, not packaged software, seeing users as co-developers, harnessing collective intelligence & lightweight user interfaces, development models & business models.

The role of IS in business today

Rydhima Chopra
Asst Professor

[Vipin Dubey]

The role of IS in business today

- IT & systems have revolutionized firms & industries, becoming the largest component of capital investment. Investment in IT accounts for approximately 50% of all capital invested in the US.

- ISs are Transforming business & the visible results of this include the increased use of cell phones & wireless telecommunication devices, a massive shift toward online news & information, booming EC & internet advertising.

- The Internet has also drastically reduced the costs of businesses operating on a global scale.

- ISs are essential for conducting day-to-day business in most advanced countries as well as achieving strategic business objectives. For eg, Amazon.

- Some service industries, such as finance, insurance & real estate industries, could not operate without ISs.

[Vipin Dubey]

The role of IS in business today

✓ This changes have led to the emergence of the **digital firm**, a firm in which:

1. Most of the firm's significant business relationships with customers, suppliers & employees are digitally enabled.

2. Core business processes or logically-related business tasks are accomplished through digital networks.

3. Key corporate assets(intellectual property, finance & human) are managed through digital means.

4. Allowing for time shifting i.e. business being conducted 24*7.

5. Space shifting i.e. business being conducted globally.

[Vipin Dubey]

The Interdependence between organizations & ISs
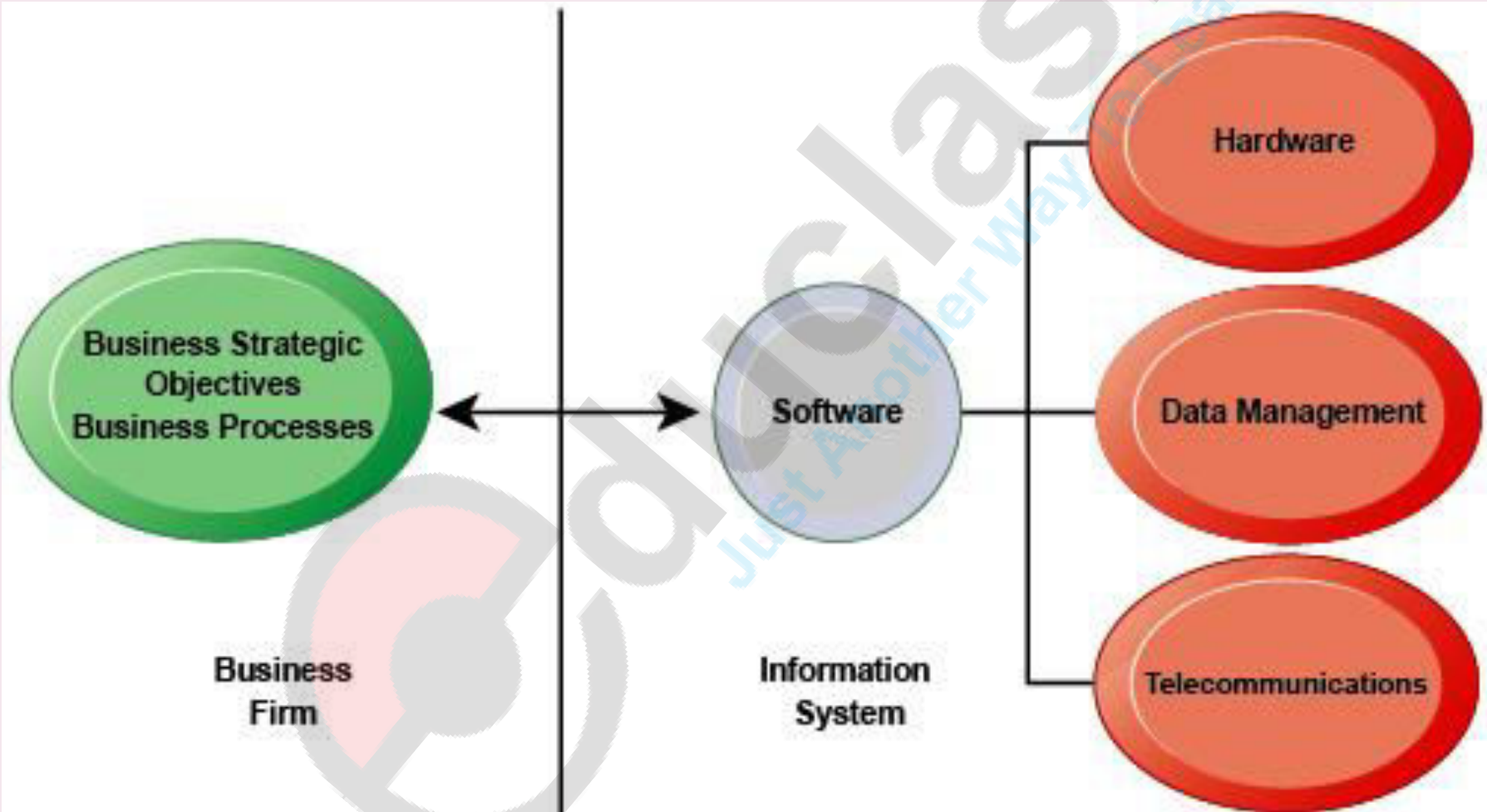
The Interdependence between organizations & ISs

- There is a growing interdependence between a firm's ISs & its business capabilities.
- Changes in strategy, rules & business processes increasingly require changes in hardware, software, databases & telecommunications. Often, what the organization would like to do depends on what its systems will permit it to do.
- Business firms invest heavily in ISs to achieve **6 strategic business objectives**:
  1. **Operational excellence:** Efficiency, productivity & improved changes in business practices & management behavior.
  2. **New products, services & business models:** A **business model** describes how a company produces, delivers & sells a product or service to create wealth. ISs & technologies create opportunities for products, services & new ways to engage in business.

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3. **Customer & supplier intimacy:** Improved communication with & service to customers raises revenues & improved communication with suppliers lowers costs.

4. **Improved decision making:** Without accurate & timely information, business managers must make decisions based on forecasts, best guesses & luck.

5. **Competitive advantage:** Implementing effective & efficient ISs can allow a company to charge less for superior products, adding up to higher sales & profits than their competitors.

6. **Survival:** ISs can also be a necessity of doing business. A necessity may be driven by industry-level changes, as in the implementation of ATMs in the retail banking industry. A necessity may also be driven by governmental regulations, such as federal or state statutes requiring a business to retain data and report specific information.