CHAPTER 1

INTERACTIVE SESSION: MANGEMENT

Running the business from the palm of your hand.

**Q.1** What kinds of applications are described here? What business functions do they support? How do they improve operational efficiency and decision making?

The types of applications being described are productivity apps that included calendar, email, contact management, monitoring and analytical apps, inventory management, and applications for document and presentation customization. Some of the apps that were discussed included the Transformer Monitoring, which helps manage gas turbine inventory and Analytics, which monitored sales and performance.

**2.**  Identify the problems that businesses in this case study solved by using mobile digital devices.

Some of the problems that the businesses in this case study solved by using mobile digital devices included increase communication between employees, increase productivity by monitoring performance and sales, prevent attendance issues with the calendar app and the ability to respond to customer requests.

**3.** What kind of businesses are most like to benefit from equipping their employees with mobile digital devices such as iPhones and iPads?

All business kinds could benefit from equipping their employees with mobile data device. Some include; retail, service , law officials, and financial advising companies 4. One company deploying iPhones has said: The iPhone is not a game changer, it’s an industry changer. It changes the way that you can interact with your customers and with your suppliers. Discuss the implications of this statement Mobile digital devices like the iPhone have changed the way you interact with your customer base. It has made it more convenient to conduct business at any time of the day but has also decreased the face to face business interactions that occurred prior to the deployment of mobile digital devices.

INTERACTIVE SESSION: TECHNOLOGY

UPS competes globally with information technology

1. What are the inputs, processing, and outputs of UPS’ tracking system?

UPS uses a barcode that contains information about the sender and the destination of the package to help with deciding the most efficient route which includes factors like weather, traffic and stops. With this system UPS can track the shipment and so can the customers.

**2**. What technologies are used by UPS? How are these technologies related to UPS’ business model and business objectives?

They use computer centers that monitor activity of packages. They also use barcode scanners, wired and wireless communication networks. . Delivery Information Acquisition Devices or (DIAD) are devices a driver uses to tell them what their route is.

**3.** What strategic business objectives do UPS’s information systems address?

The strategic business objective that UPS information system address were provided best customer services to the customers. Every year UPS spend more than $1 billion to maintain high level of customer services. UPS also focus on improve the efficiency of the performance. UPS invest and use a lot of systems or software to increase the company performance. For example, Package Tracking System, UPS using this system to monitor and re-route package throughout the delivery process. The UPS can always improve operational efficiency. The others strategic business objective is lower cost. UPS was keeping costs low to compete with competitors like FedEx. By using information system in UPS, it can reduce cost of operation.

**4.** What would happen if UPS’s information systems were not available?

If UPS’s information systems were not available, UPS will face some problems. The process of providing information to customer will become slow. The customer cannot receive the information rapidly. The operation of UPS will also become slow. Because UPS is using technology and information to monitor and control the operation when information system does not available, it will effect to the operation of the organization.

CHAPTER 2

INTERACTIVE SESSION: TECHNOLOGY

Schiphol international hub.

**Q1**: How many levels of complexity can you identify in Schiphol’s baggage conveyors network?

Physical complexity – the conveyor network is large and intricate. It must therefore envision specific logic to track, maintain, store and retrieve location of items, people and actions.

Business complexity – there are many companies fixed to operate with the network in its own peculiar way. The conveyor network must be able to cope with the presence of different baggage governance policies. Also, the conveyor network is an effort of three large industrial corporations. Each of these companies has its own agenda in terms of revenue from the conveyor network.

**Q2.** What are the management, organization, and technology components of Schiphol’s baggage conveyors network?

Management components comprise at least the following: governance of people, storage and inventory management, down-time management, priority management, safety management.  
  
Organization components comprise at least the following: scheduling and allocation of movable hardware (e.g. trolleys); scheduling and allocation of flight-unloading units, scheduling and allocation of transit areas to flights, scheduling of trolley traffic, scheduling of robotic units;  
Technology components comprise at least the following: physical conveyor belts; check-in machines, automated check-in units, security scanners, safety screeners, storage capacitors, dynamic cold-baggage buffers, baggage make-up units, motor trolleys, robotic units.

**Q3**: What is the problem that Schiphol is trying to solve? Discuss the business impact of this problem.

Schiphol is trying to increase the revenue stream by optimizing customer experience while reducing costs-per-baggage. Achieving this goal has a deep impact on Schiphol’s revenue stream for two reasons:

Schiphol is an international transit hub – flight transfers are more likely to take place at Schiphol if its efficiency and customer-experience increase.

Schiphol serves a large user basin – increasing direct customer experience increases traffic of people.

Increase efficiency in baggage handling in the Schiphol International airport, in Amsterdam, the Netherlands. Mishandled baggage is a $2.5 billion problem for industry every year and this problem may annually affect about 51 million passengers traveling through Schiphol airport alone.

With the new system, the manager of Schiphol estimated this system operate 99.9%of times while being able to minimize loss and damage in that 0.01% This system is extremely expensive, but if implemented successfully it can save 0.1% of $2.5 billion.

Q4: Think of the data that the network uses. What kinds of management reports can be generated from that data?

The management reports that can be generated from the

data are:

Ad-hock report  
Periodically report  
Summary report  
Detail report / Transaction Processing System report (TPS)

CHAPTER 3

INTERACTIVE SESSION: ORGANIZATION

Technology helps Starbucks find new ways to compete

1. Analyze Starbucks using the competitive forces and value chain models.

Starbucks uses a product differentiation strategy to set itself apart from others by offering a unique experience of high-end specialty coffees and beverages, friendly and knowledgeable servers, and customer-friendly coffee shops. It uses its information systems and wi-fi networks to enable it to offer new services to customers like the smartphone apps that allow customers to pay with their phones.

The card is coupled with the Starbucks Card system which allows regular customers to pay with a pre- paid and rechargeable card. Customers like paying with the app saying that it’s much faster. The company has made a concerted effort to become more efficient, reduce waste, and use the time saved to provide better customer service.

It improved the way baristas make and serve coffee. The company can make more drinks with the same number of workers or with fewer workers. Baristas can also use the extra time to interact with customers. It has enhanced it core competencies and strategic competitiveness by offering free wi-fi services to customers. It’s also used that same network to improve the way its managers oversee their stores.

**2.** What is Starbucks’ business strategy?

Assess the role played by technology in this business strategy. Starbucks business strategy is product differentiation. It offers a unique experience of high- end specialty coffees and beverages, friendly and knowledgeable servers, and customer- friendly coffee shops.

The company revamped its in store technology and sought to integrate its business processes with wireless technology and the mobile digital platform. Its strategy emphasizes the high quality of its beverages and efficient and helpful customer service. Technology gives the company the edge by allowing it to offer customers free wi-fi service in all its stores. That keeps customers in the store, hopefully purchasing additional products.

**Q. 3**

How much has technology helped Starbucks compete? Explain your answer.

Without the use of technology, Starbucks would have been unable to launch the Starbucks Digital Network and the use of paying via Starbucks apps on smart phones. Besides that, the newer in store technology helped baristas reduce the time of making drinks, improve customer service and speed of service, allow Starbucks to generate higher level of revenue.

CHAPTER 4

**1.** What ethical, social, and political issues are raised by information systems?

Information technology is introducing changes for which laws and rules of acceptable conduct have not yet been developed. Increasing computing power, storage, and networking capabilities—including the Internet—expand the reach of individual and organizational actions and magnify their impacts.

The ease and anonymity with which information is now communicated, copied, and manipulated in online environments pose new challenges to the protection of privacy and intellectual property. The main ethical, social, and political issues raised by information systems center around information rights and obligations, property rights and obligations, accountability and control, system quality, and quality of life.

**2.** What specific principles for conduct can be used to guide ethical decisions?

Six ethical principles for judging conduct include the Golden Rule, Immanuel Kant’s Categorical

Imperative, Descartes’ rule of change, the Utilitarian Principle, the Risk Aversion Principle, and the ethical “no free lunch” rule. These principles should be used in conjunction with an ethical analysis.

**3.** Why do contemporary information systems technology and the Internet pose challenges to the protection of individual privacy and intellectual property?

Contemporary data storage and data analysis technology enables companies to easily gather personal data about individuals from many different sources and analyze these data to create detailed electronic profiles about individuals and their behaviors. Data flowing over the Internet can be monitored at many points. Cookies and other Web monitoring tools closely track the activities of Web site visitors. Not all Web sites have strong privacy protection policies, and they do not always allow for informed consent regarding the use of personal information. Traditional copyright laws are insufficient to protect against software piracy because digital material can be copied so easily and transmitted to many different locations simultaneously over the Internet.

**4.** How have information systems affected everyday life?

Although computer systems have been sources of efficiency and wealth, they have some negative impacts. Computer errors can cause serious harm to individuals and organizations. Poor data quality is also responsible for disruptions and losses for businesses. Jobs can be lost when computers replace workers or tasks become unnecessary in reengineered business processes. The ability to own and use a computer may be exacerbating socioeconomic disparities among different racial groups and social classes. Widespread use of computers increases opportunities for computer crime and computer abuse.

Computers can also create health problems, such as RSI, computer vision syndrome, and techno stress.

CHAPTER 5

**1.** What is IT infrastructure and what are its components?

IT infrastructure is the shared technology resources that provide the platform for the firm’s specific information system applications. IT infrastructure includes hardware, software, and services that are shared across the entire firm. Major IT infrastructure components include computer hardware platforms, operating system platforms, enterprise software platforms, networking and telecommunications platforms, database management software, Internet platforms, and consulting services and systems integrators.

**2.** What are the stages and technology drivers of IT infrastructure evolution?

The five stages of IT infrastructure evolution are: the mainframe era, the personal computer era, the client/server era, the enterprise computing era, and the cloud and mobile computing era. Moore’s Law deals with the exponential increase in processing power and decline in the cost of computer technology, stating that every 18 months the power of microprocessors doubles and the price of computing falls in half. The Law of Mass Digital Storage deals with the exponential decrease in the cost of storing data, stating that the number of kilobytes of data that can be stored on magnetic media for $1 roughly doubles every 15 months. Metcalfe’s Law states that a network’s value to participants grows exponentially as the network takes on more members. The rapid decline in costs of communication and growing agreement in the technology industry to use computing and communications standards is also driving an explosion of computer use.

**3.** What are the current trends in computer hardware platforms?

Increasingly, computing is taking place on a mobile digital platform. Grid computing involves connecting geographically remote computers into a single network to create a computational grid that combines the computing power of all the computers on the network. Virtualization organizes computing resources so that their use is not restricted by physical configuration or geographic location. In cloud computing, firms and individuals obtain computing power and software as services over a network, including the Internet, rather than purchasing and installing the hardware and software on their own computers. A multicore processor is a microprocessor to which two or more processing cores have been attached for enhanced performance. Green computing includes practices and technologies for producing, using, and disposing of information technology hardware to minimize negative impact on the environment. In autonomic computing, computer systems have capabilities for automatically configuring and repairing themselves. Power-saving processors dramatically reduce power consumption in mobile digital devices.

**4.** What are the current trends in software platforms?

Open source software is produced and maintained by a global community of programmers and is often downloadable for free. Linux is a powerful, resilient open source operating system that can run on multiple hardware platforms and is used widely to run Web servers. Java is an operating-system– and hardware-independent programming language that is the leading interactive programming environment for the Web. HTML5 makes it possible to embed images, audio, and video directly into a Web document without add-on programs. Web services are loosely coupled software components based on open Web standards that work with any application software and operating system. They can be used as components of Web-based applications linking the systems of two different organizations or to link disparate systems of a single company. Companies are purchasing their new software applications from outside sources, including software packages, by outsourcing custom application development to an external vendor (that may be offshore), or by renting online software services (SaaS). Mashups combine two different software services to create new software applications and services. Apps are small pieces of software that run on the Internet, on a computer, or on a mobile phone and are generally delivered over the Internet.

**5.** What are the challenges of managing IT infrastructure and management solutions?

Major challenges include dealing with platform and infrastructure change, infrastructure management and governance, and making wise infrastructure investments

CHAPTER 6

**1**. What are the problems of managing data resources in a traditional file environment and how are they solved by a database management system?

Traditional file management techniques make it difficult for organizations to keep track of all of the pieces of data they use in a systematic way and to organize these data so that they can be easily accessed. Different functional areas and groups were allowed to develop their own files independently. Over time, this traditional file management environment creates problems such as data redundancy and inconsistency, program-data dependence, inflexibility, poor security, and lack of data sharing and availability. A database management system (DBMS) solves these problems with software that permits centralization of data and data management so that businesses have a single consistent source for all their data needs. Using a DBMS minimizes redundant and inconsistent files.

**2.** What are the major capabilities of DBMS and why is a relational DBMS so powerful?

The principal capabilities of a DBMS include a data definition capability, a data dictionary capability, and a data manipulation language. The data definition capability specifies the structure and content of the database. The data dictionary is an automated or manual file that stores information about the data in the database, including names, definitions, formats, and descriptions of data elements.

The data manipulation language, such as SQL, is a specialized language for accessing and manipulating the data in the database.

The relational database has been the primary method for organizing and maintaining data in information systems because it is so flexible and accessible. It organizes data in two-dimensional tables called relations with rows and columns. Each table contains data about an entity and its attributes.

Each row represents a record and each column represents an attribute or field. Each table also contains a key field to uniquely identify each record for retrieval or manipulation. Relational database tables can be combined easily to deliver data required by users, provided that any two tables share a common data element. Non-relational databases are becoming popular for managing types of data that can't be handled easily by the relational data model. Both relational and non-relational database products are available as cloud computing services.

**3.** What are some important database design principles?

Designing a database requires both a logical design and a physical design. The logical design models the database from a business perspective. The organization’s data model should reflect its key business processes and decision-making requirements. The process of creating small, stable, flexible, and adaptive data structures from complex groups of data when designing a relational database is termed normalization. A well-designed relational database will not have

many-to-many relationships, and all attributes for a specific entity will only apply to that entity. It will try to enforce referential integrity rules to ensure that relationships between coupled tables remain consistent. An entity-relationship diagram graphically depicts the relationship between entities (tables) in a relational database.

**4.** What are the principal tools and technologies for accessing information from databases to improve business performance and decision making?

Contemporary data management technology has an array of tools for obtaining useful information from all the different types of data used by businesses today, including semi-structured and unstructured big data in vast quantities. These capabilities include data warehouses and data marts, Hadoop, in-memory computing, and analytical platforms. OLAP represents relationships among data as a multidimensional structure, which can be visualized as cubes of data and cubes within cubes of data, enabling more sophisticated data analysis.

Data mining analyzes large pools of data, including the contents of data warehouses, to find patterns and rules that can be used to predict future behavior and guide decision making. Text mining tools help businesses analyze large unstructured data sets consisting of text. Web mining tools focus on analysis of useful patterns and information from the World Wide

Web, examining the structure of Web sites and activities of Web site users as well as the contents of Web pages. Conventional databases can be linked via middleware to the Web or a Web interface to facilitate user access to an organization’s internal data.

5. Why are information policy, data administration, and data quality assurance essential for managing the firm’s data resources?

Developing a database environment requires policies and procedures for managing organizational data as well as a good data model and database technology. A formal information policy governs the maintenance, distribution, and use of information in the organization. In large corporations, a formal data administration function is responsible for information policy, as well as for data planning, data dictionary development, and monitoring data usage in the firm. Data that are inaccurate, incomplete, or inconsistent create serious operational and financial problems for businesses because they may create inaccuracies in product pricing, customer accounts, and inventory data, and lead to inaccurate decisions about the actions that should be taken by the firm. Firms must take special steps to make sure they have a high level of data quality. These include using enterprise-wide data standards, databases designed to minimize inconsistent and redundant data, data quality audits, and data cleansing software.