DOWNLOAD PDF THE INFORMATION SYSTEM

Chapter 1 : information system | Definition, Examples, & Facts | theinnatdunvilla.com

An information system (IS) is an organized system for the collection, organization, storage and communication of theinnatdunvilla.com specifically, it is the study of complementary networks that people and organizations use to collect, filter, process, create and distribute data.

They use information systems to collect data and process it according to the needs of the analyst, manager or business owner. Businesses operate more efficiently by using varied information systems to interact with customers and partners, curtail costs and generate revenues. Transaction Processing Systems Transaction processing systems meet the data collection, storage, processing and outputting functionalities for the core operations of a business. TPS information systems collect data from user inputs and then generate outputs based on the data collected. An example of TPS system could be an online air ticket booking system. In such a system, travelers select their flight schedule and favorite seats the input , and the system updates the seats available list, removing those selected by the traveler the processing. The system then generates a bill and a copy of the ticket the output. TPS information systems can be based on real-time or batch processing, and can help business owners meet demand without acquiring additional personnel. Customer Relationship Management Systems Business owners use customer relationship systems to synchronize sales and marketing efforts. CRM systems accumulate and track customer activities, including purchasing trends, product defects and customer inquiries. The capabilities of typically CRM information systems allow customers to interact with companies for service or product feedback and problem resolutions. Businesses may also use CRM systems internally as a component of their collaboration strategies. As such, CRM information systems allow business partners to interact with each other as they develop ideas and products. Collaboration can occur in real time even when business partners are in remote locations. Business Intelligence Systems Business intelligence systems can be complex as they identify, extract and analyze data for various operational needs, particularly for decision-making purposes. BIS information systems may provide analyses that predict future sales patterns, summarize current costs and forecast sales revenues. Business intelligence systems collect data from the various data warehouses in an organization and provide management with analyses according to lines of business, department or any breakdown that management desires. For example, financial institutions use BIS systems to develop credit risk models that analyze the number and extent of lending or credit given to various sectors. These systems may use various techniques and formulas to determine the probability of loan defaults. Knowledge Management Systems Knowledge management systems organize and dissect knowledge and then redistribute or share it with individuals of an organization. The purpose of these information systems is to bring innovation, improve performance, bring integration and retain knowledge within the organization. Although KMS information systems are typically marketed to larger enterprises, small businesses can also benefit from harvesting knowledge. KMS information systems serve as a central repository and retain information in a standard format. These systems can help business owners maintain consistency and enable speedy responses to customer and partner inquiries.

Chapter 2 : Management Information Systems (MIS) - Encyclopedia - Business Terms | theinnatdunvilla.co

Information system, an integrated set of components for collecting, storing, and processing data and for providing information, knowledge, and digital theinnatdunvilla.comss firms and other organizations rely on information systems to carry out and manage their operations, interact with their customers and suppliers, and compete in the marketplace.

Their Creation, Management and Utilization Data: Creation, Management and Utilization Information systems are the software and hardware systems that support data-intensive applications. The journal Information Systems publishes articles concerning the design and implementation of languages, data models, process models, algorithms, software and The journal Information Systems publishes articles concerning the design and implementation of languages, data models, process models, algorithms, software and hardware for information systems. Subject areas include data management issues as presented in the principal international database conferences e. Implementation papers having to do with massively parallel data management, fault tolerance in practice, and special purpose hardware for data-intensive systems are also welcome. Manuscripts from application domains, such as urban informatics, social and natural science, and Internet of Things, are also welcome. All papers should highlight innovative solutions to data management problems such as new data models, performance enhancements, and show how those innovations contribute to the goals of the application. All papers should motivate the problems they address with compelling examples from real or potential applications. Systems papers must be serious about experimentation either on real systems or simulations based on traces from real systems. Papers from industrial organisations are welcome. Theoretical papers should have a clear motivation from applications. They should either break significant new ground or unify and extend existing algorithms. Such papers should clearly state which ideas have potentially wide applicability. Authors of select accepted Information Systems papers are invited by the EiCs to submit the experiment described in their papers for reproducibility validation. The resulting additional reproducibility paper is co-authored by the reproducibility reviewers and the authors of the original publication. In addition to publishing submitted articles, the Editors-in-Chief will invite retrospective articles that describe significant projects by the principal architects of those projects. Authors of such articles should write in the first person, tracing the social as well as technical history of their projects, describing the evolution of ideas, mistakes made, and reality tests. Technical results should be explained in a uniform notation with the emphasis on clarity and on ideas that may have applications outside of the environment of that research. Particularly complex details may be summarised with reference to previously published papers. We will make every effort to allow authors the right to republish papers appearing in Information Systems in their own books and monographs.

Chapter 3 : Chapter 1: What Is an Information System? â€“ Information Systems for Business and Beyond

Information systems hardware is the part of an information system you can touch - the physical components of the technology. Computers, keyboards, disk drives, iPads, and flash drives are all examples of information systems hardware.

What Is an Information System? Dave Bourgeois and David T. Bourgeois Learning Objectives Upon successful completion of this chapter, you will be able to: Introduction If you are reading this, you are most likely taking a course in information systems, but do you even know what the course is going to cover? When you tell your friends or your family that you are taking a course in information systems, can you explain what it is about? For the past several years, I have taught an Introduction to Information Systems course. The first day of class I ask my students to tell me what they think an information system is. The study of information systems goes far beyond understanding some technologies. Defining Information Systems Almost all programs in business require students to take a course in something called information systems. But what exactly does that term mean? The Components of Information Systems As I stated earlier, I spend the first day of my information systems class discussing exactly what the term means. Many students understand that an information system has something to do with databases or spreadsheets. Others mention computers and e-commerce. And they are all right, at least in part: The first way I describe information systems to students is to tell them that they are made up of five components: The first three, fitting under the technology category, are generally what most students think of when asked to define information systems. But the last two, people and process, are really what separate the idea of information systems from more technical fields, such as computer science. In order to fully understand information systems, students must understand how all of these components work together to bring value to an organization. Technology Technology can be thought of as the application of scientific knowledge for practical purposes. From the invention of the wheel to the harnessing of electricity for artificial lighting, technology is a part of our lives in so many ways that we tend to take it for granted. Each of these will get its own chapter and a much lengthier discussion, but we will take a moment here to introduce them so we can get a full understanding of what an information system is. Hardware Information systems hardware is the part of an information system you can touch â€” the physical components of the technology. Computers, keyboards, disk drives, iPads, and flash drives are all examples of information systems hardware. We will spend some time going over these components and how they all work together in chapter 2. Software Software is a set of instructions that tells the hardware what to do. Software is not tangible â€” it cannot be touched. When programmers create software programs, what they are really doing is simply typing out lists of instructions that tell the hardware what to do. There are several categories of software, with the two main categories being operating-system software, which makes the hardware usable, and application software, which does something useful. Examples of application software are Microsoft Excel and Angry Birds. Software will be explored more thoroughly in chapter 3. Data The third component is data. You can think of data as a collection of facts. For example, your street address, the city you live in, and your phone number are all pieces of data. Like software, data is also intangible. By themselves, pieces of data are not really very useful. But aggregated, indexed, and organized together into a database, data can become a powerful tool for businesses. In fact, all of the definitions presented at the beginning of this chapter focused on how information systems manage data. Organizations collect all kinds of data and use it to make decisions. These decisions can then be analyzed as to their effectiveness and the organization can be improved. Chapter 4 will focus on data and databases, and their uses in organizations. A Fourth Technology Piece? Besides the components of hardware, software, and data, which have long been considered the core technology of information systems, it has been suggested that one other component should be added: An information system can exist without the ability to communicate â€” the first personal computers were stand-alone machines that did not access the Internet. We will be covering networking in chapter 5. People When thinking about information systems, it is easy to get focused on the technology components and forget that we must look beyond these tools to fully understand how they integrate into an organization. A focus on the people involved

in information systems is the next step. From the front-line help-desk workers, to systems analysts, to programmers, all the way up to the chief information officer CIO , the people involved with information systems are an essential element that must not be overlooked. The people component will be covered in chapter 9. Process The last component of information systems is process. A process is a series of steps undertaken to achieve a desired outcome or goal. Information systems are becoming more and more integrated with organizational processes, bringing more productivity and better control to those processes. Using technology to manage and improve processes, both within a company and externally with suppliers and customers, is the ultimate goal. Businesses hoping to gain an advantage over their competitors are highly focused on this component of information systems. We will discuss processes in chapter 8. The Role of Information Systems Now that we have explored the different components of information systems, we need to turn our attention to the role that information systems play in an organization. So far we have looked at what the components of an information system are, but what do these components actually do for an organization? From our definitions above, we see that these components collect, store, organize, and distribute data throughout the organization. In fact, we might say that one of the roles of information systems is to take data and turn it into information, and then transform that into organizational knowledge. As technology has developed, this role has evolved into the backbone of the organization. To get a full appreciation of the role information systems play, we will review how they have changed over the years. IBM Mainframe Copyright: Lawrence Livermore National Laboratory The Mainframe Era From the late s through the s, computers were seen as a way to more efficiently do calculations. These first business computers were room-sized monsters, with several refrigerator-sized machines linked together. The primary work of these devices was to organize and store large volumes of information that were tedious to manage by hand. Only large businesses, universities, and government agencies could afford them, and they took a crew of specialized personnel and specialized facilities to maintain. These devices served dozens to hundreds of users at a time through a process called time-sharing. This software, running on a mainframe computer, gave companies the ability to manage the manufacturing process, making it more efficient. From tracking inventory to creating bills of materials to scheduling production, the MRP systems and later the MRP II systems gave more businesses a reason to want to integrate computing into their processes. IBM became the dominant mainframe company. Continued improvement in software and the availability of cheaper hardware eventually brought mainframe computers and their little sibling, the minicomputer into most large businesses. During the s, many new computer companies sprang up, offering less expensive versions of the PC. This drove prices down and spurred innovation. Microsoft developed its Windows operating system and made the PC even easier to use. Common uses for the PC during this period included word processing, spreadsheets, and databases. These early PCs were not connected to any sort of network; for the most part they stood alone as islands of innovation within the larger organization. Client-Server In the mids, businesses began to see the need to connect their computers together as a way to collaborate and share resources. Software companies began developing applications that allowed multiple users to access the same data at the same time. This evolved into software applications for communicating, with the first real popular use of electronic mail appearing at this time. Registered trademark of SAP This networking and data sharing all stayed within the confines of each business, for the most part. While there was sharing of electronic data between companies, this was a very specialized function. Computers were now seen as tools to collaborate internally, within an organization. In fact, these networks of computers were becoming so powerful that they were replacing many of the functions previously performed by the larger mainframe computers at a fraction of the cost. It was during this era that the first Enterprise Resource Planning ERP systems were developed and run on the client-server architecture. We will discuss ERP systems as part of the chapter on process chapter 9. The World Wide Web and E-Commerce First invented in , the Internet was confined to use by universities, government agencies, and researchers for many years. Its rather arcane commands and user applications made it unsuitable for mainstream use in business. One exception to this was the ability to expand electronic mail outside the confines of a single organization. While the first e-mail messages on the Internet were sent in the early s, companies who wanted to expand their LAN-based e-mail started hooking up to the Internet in the s. Companies began connecting their internal

networks to the Internet in order to allow communication between their employees and employees at other companies. It was with these early Internet connections that the computer truly began to evolve from a computational device to a communications device. As web browsers and Internet connections became the norm, companies rushed to grab domain names and create websites. Registered trademark of Amazon Technologies, Inc. In , the National Science Foundation, which governed how the Internet was used, lifted restrictions on its commercial use. The year saw the establishment of both eBay and Amazon. A mad rush of investment in Internet-based businesses led to the dot-com boom through the late s, and then the dot-com bust in While much can be learned from the speculation and crazy economic theories espoused during that bubble, one important outcome for businesses was that thousands of miles of Internet connections were laid around the world during that time. As it became more expected for companies to be connected to the Internet, the digital world also became a more dangerous place. Software written for a disconnected world found it very difficult to defend against these sorts of threats. A whole new industry of computer and Internet security arose.

Chapter 4 : Types of Information Systems in an Organization | theinnatdunvilla.com

An information system (IS) refers to a collection of multiple pieces of equipment involved in the dissemination of information. Hardware, software, computer system connections and information, information system users, and the system's housing are all part of an IS.

This article has been cited by other articles in PMC. Almost the entire human creativity today, from the standpoint of its efficiency and expediency, is conditioned with the existence of information systems. Most information systems are oriented to the management and decision-making, including health information system. System of health and health insurance together form one of the most important segments of society and its functioning as a compact unit. Increasing requirements for reducing health care costs while preserving or improving the quality of services provided represent a difficult task for the health system. Using descriptive metods by retreiiving literature we analyzed the latest solutions in information and telecommunications technology is the basis for building an effective and efficient health system. Computerization does not have the primary objective of saving, but the rationalization of spending in health care. Computerization should give the necessary data and indicators for this rationalization. Very important are the goals of this project and the achievement of other uses and benefits, improving overall care for patients and policyholders, increasing the speed and accuracy of diagnosis in determining treatment using electronic diagnostic and therapeutic guidelines. Computerization in dentistry began similarly as in other human activitiesâ€”recording large amounts of data on digital media, and by replacing manual data processing to machine one. But specifics of the dental profession have led to the specifics of the application of information technology IT , and continue to require special development of dental oriented and applied IT. Harmonization of dental software with global standards will enable doctors and dentists to with a few mouse clicks via the internet reach the general medical information about their patients from the central national health database. Standardization will also allow access to general medical and dental history data on citizens of foreign countries who seek help of doctors or dentists during their vacation. Such a method of using IT will provide a higher level of health services and better health care. Also, the identification procedures in mass disasters availability of data can contribute to accelerate the identification of victims. Dental information systems lately are based on Web applications to facilitate data exchange. Electronic patient record contains basic information and entering of this data is automatically created the protocol of patients that can be printed. Besides these general data Electronic patient record also contains history data related to allergies and other diseases which existence can significantly affect the treatment, data on current diagnosis, location of a pathological process in the tooth refers to the following location mesial, distal, vestibular, oral, occlusal , teething, therapy of the tooth , type of material used with location on the tooth. The system may defined also the surgical procedures that were performed on the teeth such as tooth extraction or tooth root resection with the ability to accurately indicate that the root is resected. Implants, upgrades, grinding teeth, and independent crown can be defined for each tooth and its rightful place if a tooth is missing. Specially designed graphical representation of teeth enables to enter data by first clicking on the tooth or place where it is and also on that occasion to open a menu with options. Control of data entry prevents entry of illogical data. The system according to the HL7 standard represents electronic documents which eliminate the need for paper documents and a variety of daily and monthly reports of doctors who are still in use today, and the doctor and nurse are almost completely freed of administrative tasks. Information systems, dentistry, HL7 standard. It deals with the management of information, communication and application of new technologies in clinical practice and research. Information management involves the storage and use of information generated in direct work with patients in a dental office, it includes the organization of work and arranging visits and operation of dental practice. It is therefore an information system in the dental office. Communication involves the use of electronic mail, Internet search, promotion practices with the help of web technologies, database searching for drugs, dosages and interactions, then learning, practicing and practicing procedures in virtual reality, etc. Clinical practice and research involve the use of new technologies such as devices producing digital images based on x-ray or intraoral cameras, as well

as retrieval of medical literature or publishing content on electronic media. Complex of interrelated elements that contribute to health in the family, educational institutions and workplaces, public places and communities, as well as physical and psychological environment, health and other sectors. When it comes to the definition of health information systems HIS , it should be noted that the World Health Organization WHO , it is determined as part of the overall information system and includes a mechanism for collecting, processing, analysis and reception of information necessary for the organization and implementation of health care, but also research and organization of health care. Of course, this is not the only definition of HIS. Next tells that the HIS is organization of people, machines and methods which mutually act to security guards the necessary data and information about the health of the population for the purpose of planning and management in health care. Basic components of health information system are: Personnel the organizers, planners, designers, managers, developers, users Database Software support. Information that are generated and transmitted within the healthcare information systems has specific purposes: In the operational management of health and medical records. Provision of medical services is very specific and complex work whose basic feature is the number and variety of data and information. Modern processes of health care are built on the fact that information must be easily accessible in time and place where it is needed. On this set, can be answered only by using computers. In medical diagnosticsâ€”computers in medical diagnostics are used in the processing and analysis of biophysical signals electrocardiography, electroencephalography, electromyography, measurement of blood pressure , then the processing and analysis of medical imaging procedures for computerized tomographyâ€”CT, then the image obtained with MRI, which will be discussed more later. In addition it should be noted that computers play a significant role in the diagnosis, or the processing and analysis of clinical laboratory tests. To set the diagnosis, using the so-called expert systems and, in essence, provide information requested by the user, but can explain how this information may occur. There are many examples of expert systems. Up to now, have been developed as follows: However, it should be noted that more work is in progress on the development of such system or program. Use in therapy and rehabilitationâ€” the beginning of computer applications in medicine is related with software for the planning of radiation of the tumor calculated dose, field size. Today this method is very widely used and practically cannot be imagined without computers. When it comes to therapy, we mean follow up of patients and its medical condition in the intensive care unit. The organization of medical work â€” if we discuss this issue, we will say that the most important areas of information the following methods 6 , 7 , 8 , 9 , 10 , Arranging visits of patients in ambulances Admission to hospital Sick leave Records of medical work, etc. In medical researchâ€”the application of computers in medical research is very broad and still is very difficult impossible to engage in research without a computer or the use of complex processing of information and computer work. In medical educationâ€”now largely used in educational materials that are distributed electronically. They are very suitable type of simulation programs for the patient or general population , where the student learns, guided by a computer to solve a medical or health problem. Electronic dental record is an important part of medical information systems of health care institutions that include a dental office. Computerization in dentistry began similarly to other human activities by recording large amounts of data on digital media and replacing laborious manual data processing. Specifics of the dental profession have led to the specifics of the application of IT, and continue to require special dental development-oriented and applied IT. It is widely accepted and in practice proven that with moving from paper-based administration to computer processing of data is obtained at least a threefold increase in efficiency and huge material savings in any sphere of modern business. The development and purpose of information systems in health care implementation The establishment and development of an information system is set as a tool for earning money and is being implemented with the aim of completely controlling and rationalizing consumption, thereby saving money. The share of investment in information systems is directly proportional to the financial performance of the system 3. IT with big steps came in contemporary life and work of many people. Decline in prices of computers and software enabled that computers in the last ten years become accessible to most households, institutions and offices. Primary health care and dental clinics have also followed this pattern. Since the beginning of the nineties, first individually and later more massive, computers are introduced and become one of the basic tools in their work. Hundreds

of different data on insurers, patients, and work is needed to be written on daily basis in their practices. Some of them will be daily, weekly, monthly or yearly integrating and print the forms that will be regularly submitted to the Ministry of Health, or other institution insured or other claimant. The records shall be conducted through special book that was supposed to enter each event studied, and enrollment had to be recorded in the board to avoid multiple reporting and ensure data quality. However, although slowly and painstakingly, the data were standardized, clearly numbered, controlled and processed. Relief in work is only possible with the introduction of computer technology in collecting and processing data. Ideally, work with each insured, measures and procedures should only enter into a computer which will by the rules and needs generate data and reports. Or, ideally, computers should help to all transactions processes and services quickly implement a reporting data and information should be the result of a routine job and not a separate activity for the teams 5. The project of computerization of the health system involves the implementation of certain technology, communication, organizational and professional standards necessary for the functioning of an integrated health information system 6. Great help which is generously offered by IT refers to quickly finding of the documents and insured, replace the manual writing and typing on the typewriters, printing prescriptions, referral forms, accounts, individual forms and reports. The information system should provide insight into the data and information in real time and prompt intervention in the system. Very important are the goals of this project and the achievement of other uses and benefits, improving overall care for patients and policy-holders, increasing the speed and accuracy of diagnosis in determining treatment using electronic diagnostic and therapeutic guidelines. The system should allow better utilization of capacity, reduce waiting times, and reduce the time spent in health care facilities and clinics, ensuring equality in obtaining prompt and quality care for all patients. Creating reports and automatic delivery in the file format is one of the most important information system functionalities. In the future information system reports will not be created, it will be as a result of routine work and automatically generated, in real time be available to teams and doctors, as well as all the experts who work on the planning and evaluation of results in health care, from level of teams to level of cantons and the state. Computerization of health for the first time means the introduction of electronic smart cards for all doctors in the health care system. So the new information systems to every patient examination will at the same time check the status and rights of both the insured and the doctor. As a result of the project and trial operation of the system imposed are the following requirements: A joint system with more licensed software solutions. The standards of system safety doctors smart cards, digital signatures, data encryption, firewalls, separation of the personal data from health data, data repositories, PKIâ€”Public Key Infrastructure, systemic anti-virus protection, etc. Designation of clinical and other documents circulating in the health care system using barcode. Global registration and database of the insured. Provided access to external databases. E-prescriptions, e-referrals, ecommerce, etc. A standardized and measurable use of diagnostic and therapeutic guidelines. Such a system should enable the cooperation of all public-health institutions, expert groups and individuals, linking and sharing the work, multiplication of the results 3. The introduction of integrated information systems in health care system will achieve particularly good results, because such comprehensive systems provide: More efficient way to create a medical and nonmedical information, i. More successful way to communicate with patients 7. The aforementioned model is called MEDICAS and it is a medical information system for healthcare facilities that cover a very wide range of activities in conjunction with patients, providers and health care system. It contains a comprehensive electronic health record of the patient and is intended to be implemented in all health facilities. In addition, possible is a connection and exchange of data with regional and central structures for the collection and processing of information in health care. Depending on the specifics the health institutions consumers can use different subsystems 8 , 9. The main subsystems that can be implemented are:

Chapter 5 : Information system - Wikipedia

An information system is software that helps you organize and analyze data. This makes it possible to answer questions and solve problems relevant to the mission of an organization.

Bourgeois Learning Objectives Upon successful completion of this chapter, you will be able to: Introduction In the opening chapters of this text, we focused on the technology behind information systems: In the last chapter, we discussed business processes and the key role they can play in the success of a business. In this chapter, we will be discussing the last component of an information system: People are involved in information systems in just about every way you can think of: The Creators of Information Systems The first group of people we are going to look at play a role in designing, developing, and building information systems. These people are generally very technical and have a background in programming and mathematics. We will be looking at the process of creating information systems in more detail in chapter This individual will work with a person, team, or department with business requirements and identify the specific details of a system that needs to be built. Generally, this will require the analyst to have a good understanding of the business itself , the business processes involved, and the ability to document them well. The analyst will identify the different stakeholders in the system and work to involve the appropriate individuals in the process. Once the requirements are determined, the analyst will begin the process of translating these requirements into an information-systems design. Once the solution is selected, the analyst will create a detailed document describing the new system. This new document will require that the analyst understand how to speak in the technical language of systems developers. A systems analyst generally is not the one who does the actual development of the information system. The design document created by the systems analyst provides the detail needed to create the system and is handed off to a programmer or team of programmers to do the actual creation of the system. In some cases, however, a systems analyst may go ahead and create the system that he or she designed. This person is sometimes referred to as a programmer-analyst. In other cases, the system may be assembled from off-the-shelf components by a person called a systems integrator. This is a specific type of systems analyst that understands how to get different software packages to work with each other. To become a systems analyst, you should have a background both in the business and in systems design. Programmer Programmers spend their time writing computer code in a programming language. In the case of systems development, programmers generally attempt to fulfill the design specifications given to them by a systems analyst. Many different styles of programming exist: A programmer needs to be able to understand complex processes and also the intricacies of one or more programming languages. Generally, a programmer is very proficient in mathematics, as mathematical concepts underlie most programming code. Computer Engineer Computer engineers design the computing devices that we use every day. There are many types of computer engineers, who work on a variety of different types of devices and systems. Some of the more prominent engineering jobs are as follows: A hardware engineer designs hardware components, such as microprocessors. Many times, a hardware engineer is at the cutting edge of computing technology, creating something brand new. Software engineers do not actually design devices; instead, they create new programming languages and operating systems, working at the lowest levels of the hardware to develop new kinds of software to run on the hardware. A systems engineer takes the components designed by other engineers and makes them all work together. For example, to build a computer, the mother board, processor, memory, and hard disk all have to work together. There are many different types of computer engineers, and often the job descriptions overlap. In the US, each state has its own set of requirements for the use of this title, as do different countries around the world. Most often, it involves a professional licensing exam. Information-Systems Operations and Administration Another group of information-systems professionals are involved in the day-to-day operations and administration of IT. These people must keep the systems running and up-to-date so that the rest of the organization can make the most effective use of these resources. Computer Operator A computer operator is the person who keeps the large computers running. Some of their duties include keeping the operating systems up to date, ensuring available memory and disk storage, and overseeing the physical environment of the

computer. Database Administrator A database administrator DBA is the person who manages the databases for an organization. This person creates and maintains databases that are used as part of applications or the data warehouse. The DBA also consults with systems analysts and programmers on projects that require access to or the creation of databases. The help desk is the first line of support for computer users in the company. Computer users who are having problems or need information can contact the help desk for assistance. Many times, a help-desk worker is a junior-level employee who does not necessarily know how to answer all of the questions that come his or her way. In these cases, help-desk analysts work with senior-level support analysts or have a computer knowledgebase at their disposal to help them investigate the problem at hand. The help desk is a great place to break into working in IT because it exposes you to all of the different technologies within the company. A successful help-desk analyst should have good people and communications skills, as well as at least junior-level IT skills. Trainer A computer trainer conducts classes to teach people specific computer skills. For example, if a new ERP system is being installed in an organization, one part of the implementation process is to teach all of the users how to use the new system. A trainer may work for a software company and be contracted to come in to conduct classes when needed; a trainer may work for a company that offers regular training sessions; or a trainer may be employed full time for an organization to handle all of their computer instruction needs. To be successful as a trainer, you need to be able to communicate technical concepts well and also have a lot of patience! Managing Information Systems The management of information-systems functions is critical to the success of information systems within the organization. Here are some of the jobs associated with the management of information systems. This person aligns the plans and operations of the information systems with the strategic goals of the organization. This includes tasks such as budgeting, strategic planning, and personnel decisions for the information-systems function. This involves working with senior leaders in all parts of the organization to ensure good communication and planning. Interestingly, the CIO position does not necessarily require a lot of technical expertise. While helpful, it is more important for this person to have good management skills and understand the business. Many organizations do not have someone with the title of CIO; instead, the head of the information-systems function is called vice president of information systems or director of information systems. Functional Manager As an information-systems organization becomes larger, many of the different functions are grouped together and led by a manager. These functional managers report to the CIO and manage the employees specific to their function. For example, in a large organization, there is a group of systems analysts who report to a manager of the systems-analysis function. These people make sure that the ERP system is completely up to date, work to implement any changes to the ERP that are needed, and consult with various user departments on needed reports or data extracts. Project Managers Information-systems projects are notorious for going over budget and being delivered late. In many cases, a failed IT project can spell doom for a company. A project manager is responsible for keeping projects on time and on budget. This person works with the stakeholders of the project to keep the team organized and communicates the status of the project to management. A project manager does not have authority over the project team; instead, the project manager coordinates schedules and resources in order to maximize the project outcomes. A project manager must be a good communicator and an extremely organized person. A project manager should also have good people skills. Many organizations require each of their project managers to become certified as a project management professional PMP. Information-Security Officer An information-security officer is in charge of setting information-security policies for an organization, and then overseeing the implementation of those policies. This person may have one or more people reporting to them as part of the information-security team. As information has become a critical asset, this position has become highly valued. Emerging Roles As technology evolves, many new roles are becoming more common as other roles fade. Many companies are now hiring social-media experts and mobile-technology specialists. The increased use of cloud computing and virtual-machine technologies also is breeding demand for expertise in those areas. Career Paths in Information Systems These job descriptions do not represent all possible jobs within an information-systems organization. Larger organizations will have more specialized roles; smaller organizations may combine some of these roles. Many of these roles may exist outside of a traditional information-systems organization, as we will discuss

below. Working with information systems can be a rewarding career choice. Whether you want to be involved in very technical jobs programmer, database administrator , or you want to be involved in working with people systems analyst, trainer , there are many different career paths available. Many times, those in technical jobs who want career advancement find themselves in a dilemma: In many cases, those proficient in technical skills are not gifted with managerial skills. Some organizations, especially those that highly value their technically skilled employees, will create a technical track that exists in parallel to the management track so that they can retain employees who are contributing to the organization with their technical skills. Are Certifications Worth Pursuing? As technology is becoming more and more important to businesses, hiring employees with technical skills is becoming critical. But how can an organization ensure that the person they are hiring has the necessary skills? These days, many organizations are including technical certifications as a prerequisite for getting hired. Certifications are designations given by a certifying body that someone has a specific level of knowledge in a specific technology. This certifying body is often the vendor of the product itself, though independent certifying organizations, such as CompTIA , also exist. Many of these organizations offer certification tracks, allowing a beginning certificate as a prerequisite to getting more advanced certificates. To get a certificate, you generally attend one or more training classes and then take one or more certification exams. Passing the exams with a certain score will qualify you for a certificate. In most cases, these classes and certificates are not free and, in fact, can run into the thousands of dollars. For many working in IT or thinking about an IT career , determining whether to pursue one or more of these certifications is an important question.

Chapter 6 : Different Types of Information System and the Pyramid Model

Information systems are the software and hardware systems that support data-intensive applications. The journal Information Systems publishes articles concerning the design and implementation of languages, data models, process models, algorithms, software and.

However, it soon became apparent that many of the problems information systems set out to solve shared certain characteristics. Consequently, people attempted to try to build a single system that would solve a whole range of similar problems. However, they soon realized that in order to do this, it was first necessary to be able to define how and where the information system would be used and why it was needed. It was then that the search for a way to classify information systems accurately began. How do you identify the different types of information system in an organization? The different types of information system that can be found are identified through a process of classification. Classification is simply a method by which things can be categorized or classified together so that they can be treated as if they were a single unit. The classification of information systems into different types is a useful technique for designing systems and discussing their application; it not however a fixed definition governed by some natural law. One of the oldest and most widely used systems for classifying information systems is known as the pyramid model; this is described in more detail below. How many different kinds of Information System are there? As can be seen above, there is not a simple answer to this. Depending on how you create your classification, you can find almost any number of different types of information system. However, it is important to remember that different kinds of systems found in organizations exist to deal with the particular problems and tasks that are found in organizations. Consequently, most attempts to classify Information systems into different types rely on the way in which task and responsibilities are divided within an organization. As most organizations are hierarchical, the way in which the different classes of information systems are categorized tends to follow the hierarchy. This is often described as "the pyramid model" because the way in which the systems are arranged mirrors the nature of the tasks found at various different levels in the organization. For example, this is a three level pyramid model based on the type of decisions taken at different levels in the organization. Five level pyramid model based on the processing requirement of different levels in the organization What are the most common types of information system in an organization? While there are several different versions of the pyramid model, the most common is probably a four level model based on the people who use the systems. Basing the classification on the people who use the information system means that many of the other characteristics such as the nature of the task and informational requirements, are taken into account more or less automatically. Four level pyramid model based on the different levels of hierarchy in the organization A comparison of different kinds of Information Systems Using the four level pyramid model above, we can now compare how the information systems in our model differ from each other. Transaction Processing System are operational-level systems at the bottom of the pyramid. They are usually operated directly by shop floor workers or front line staff, which provide the key data required to support the management of operations. This data is usually obtained through the automated or semi-automated tracking of low-level activities and basic transactions. Functions of a TPS in terms of data processing requirements Inputs.

Chapter 7 : Information system - Information system infrastructure and architecture | theinnatdunvilla.com

TPS information systems collect data from user inputs and then generate outputs based on the data collected. An example of TPS system could be an online air ticket booking system.

Bring fact-checked results to the top of your browser search. Known as the information system infrastructure , the foundation consists of core telecommunications networks , databases and data warehouses, software , hardware , and procedures managed by various specialists. Establishing and maintaining such a complex infrastructure requires extensive planning and consistent implementation to handle strategic corporate initiatives, transformations, mergers, and acquisitions. Information system infrastructure should be established in order to create meaningful options for future corporate development. When organized into a coherent whole, the specific information systems that support operations, management, and knowledge work constitute the system architecture of an organization. Organization of information services Information services of an organization are delivered by an outside firm, by an internal unit, or by a combination of the two. Outsourcing of information services helps with such objectives as cost savings, access to superior personnel, and focusing on core competencies. When information services are provided in-house and centralized, this unit is responsible for planning, acquiring, operating, and maintaining information systems for the entire organization. In decentralized structures, however, the central unit is responsible only for planning and maintaining the infrastructure, while business and administrative specialists supervise systems and services for their own units. A variety of intermediate organizational forms are possible. In many organizations, information systems are headed by a chief information officer CIO or a chief technology officer CTO. The activities of information services are usually supervised by a steering committee consisting of the executives representing various functional units of the organization. Steering committees set the priorities for the development of future systems. In the organizations where information systems play a strategic role, boards of directors need to be involved in their governance. As described below, a vital responsibility of an information services unit is to ensure uninterrupted service and integrity of the systems and information in the face of many security threats. Information systems security and control With the opening of information systems to the global Internet and with their thorough infusion into the operation and management of business and government organizations and into the infrastructure of daily life across the world, information security issues have moved to the forefront of concerns about global well-being. Information systems security Information systems security is responsible for the integrity and safety of system resources and activities. Most organizations in developed countries are dependent on the secure operation of their information systems. In fact, the very fabric of societies often depends on this security. Multiple infrastructural gridsâ€”including power, water supply , and health careâ€”rely on it. Information systems are at the heart of intensive care units and air traffic control systems. Financial institutions could not survive a total failure of their information systems for longer than a day or two. Electronic funds transfer systems EFTS handle immense amounts of money that exist only as electronic signals sent over the networks or as spots on storage disks. Information systems are vulnerable to a number of threats and require strict controls, such as continuing countermeasures and regular audits to ensure that the system remains secure. The relationship among security measures is shown in the figure. Information systems security measuresThe first step in creating a secure information system is to identify threats. Once potential problems are known, the second step, establishing controls, can be taken. Finally, the third step consists of audits to discover any breach of security. Although instances of computer crime and abuse receive extensive media attention, human error is estimated to cause greater losses in information systems operation. Disasters such as earthquakes, floods, and fires are the particular concern of disaster recovery planning, which is a part of a corporate business continuity plan. A contingency scheme is also necessary to cover the failure of servers, telecommunications networks , or software.

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a computer system or set of components for collecting, creating, storing, processing, and distributing information, typically including hardware and software, system users, and the data itself: the use of information systems to solve business problems. an integrated set of informational components.

The hardware, software, and telecommunications constitute information technology IT , which is now ingrained in the operations and management of organizations. Computer hardware Today throughout the world even the smallest firms, as well as many households, own or lease computers. Individuals may own multiple computers in the form of smartphones , tablets , and other wearable devices. Large organizations typically employ distributed computer systems, from powerful parallel-processing servers located in data centres to widely dispersed personal computers and mobile devices, integrated into the organizational information systems. Sensors are becoming ever more widely distributed throughout the physical and biological environment to gather data and, in many cases, to effect control via devices known as actuators. Together with the peripheral equipmentâ€”such as magnetic or solid-state storage disks, input-output devices , and telecommunications gearâ€”these constitute the hardware of information systems. The cost of hardware has steadily and rapidly decreased, while processing speed and storage capacity have increased vastly. Increasingly, computer and storage services are delivered from the cloudâ€”from shared facilities accessed over telecommunications networks. Computer software Computer software falls into two broad classes: The principal system software is the operating system. It manages the hardware, data and program files, and other system resources and provides means for the user to control the computer, generally via a graphical user interface GUI. Application software is programs designed to handle specific tasks for users. Smartphone apps became a common way for individuals to access information systems. Larger firms use licensed applications developed and maintained by specialized software companies, customizing them to meet their specific needs, and develop other applications in-house or on an outsourced basis. Companies may also use applications delivered as software-as-a-service SaaS from the cloud over the Web. Proprietary software, available from and supported by its vendors, is being challenged by open-source software available on the Web for free use and modification under a license that protects its future availability. Telecommunications Telecommunications are used to connect, or network, computer systems and portable and wearable devices and to transmit information. Connections are established via wired or wireless media. Wired technologies include coaxial cable and fibre optics. Wireless technologies, predominantly based on the transmission of microwaves and radio waves , support mobile computing. Pervasive information systems have arisen with the computing devices embedded in many different physical objects. For example, sensors such as radio frequency identification devices RFIDs can be attached to products moving through the supply chain to enable the tracking of their location and the monitoring of their condition. Wireless sensor networks that are integrated into the Internet can produce massive amounts of data that can be used in seeking higher productivity or in monitoring the environment. Various computer network configurations are possible, depending on the needs of an organization. Local area networks LANs join computers at a particular site, such as an office building or an academic campus. Peer-to-peer networks, without a centralized control, enable broad sharing of content. The Internet is a network of networks, connecting billions of computers located on every continent. Through networking, users gain access to information resources, such as large databases, and to other individuals, such as coworkers, clients, friends, or people who share their professional or private interests. Internet-type services can be provided within an organization and for its exclusive use by various intranets that are accessible through a browser ; for example, an intranet may be deployed as an access portal to a shared corporate document base. To connect with business partners over the Internet in a private and secure manner, extranets are established as so-called virtual private networks VPNs by encrypting the messages. The availability of such information enables a rapid reaction when necessary as well as sustained decision making based on processing of the massive accumulated data. Extensive networking infrastructure supports the growing move to cloud computing, with the information-system resources shared among multiple companies, leading to utilization

efficiencies and freedom in localization of the data centres. Software-defined networking affords flexible control of telecommunications networks with algorithms that are responsive to real-time demands and resource availabilities. Databases and data warehouses Many information systems are primarily delivery vehicles for data stored in databases. A database is a collection of interrelated data organized so that individual records or groups of records can be retrieved to satisfy various criteria. Typical examples of databases include employee records and product catalogs. Databases support the operations and management functions of an enterprise. Data warehouses contain the archival data, collected over time, that can be mined for information in order to develop and market new products, serve the existing customers better, or reach out to potential new customers. Anyone who has ever purchased something with a credit cardâ€”in person, by mail order, or over the Webâ€”is included within such data collections. Big data enables innovative business models. For example, a commercial firm collects the prices of goods by crowdsourcing collecting from numerous independent individuals via smartphones around the world. The aggregated data supplies early information on price movements, enabling more responsive decision making than was previously possible. The processing of textual dataâ€”such as reviews and opinions articulated by individuals on social networks, blogs, and discussion boardsâ€”permits automated sentiment analysis for marketing, competitive intelligence, new product development, and other decision-making purposes. Human resources and procedures Qualified people are a vital component of any information system. Technical personnel include development and operations managers, business analysts, systems analysts and designers, database administrators, programmers, computer security specialists, and computer operators. In addition, all workers in an organization must be trained to utilize the capabilities of information systems as fully as possible. Billions of people around the world are learning about information systems as they use the Web. Procedures for using, operating, and maintaining an information system are part of its documentation. For example, procedures need to be established to run a payroll program, including when to run it, who is authorized to run it, and who has access to the output. In the autonomous computing initiative, data centres are increasingly run automatically, with the procedures embedded in the software that controls those centres. Types of information systems Information systems support operations, knowledge work, and management in organizations. The overall structure of organizational information systems is shown in the figure. Functional information systems that support a specific organizational function, such as marketing or production, have been supplanted in many cases by cross-functional systems built to support complete business processes, such as order processing or employee management. The information-system categories described here may be implemented with a great variety of application programs. Page 1 of 7.

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Definition of information system: A combination of hardware, software, infrastructure and trained personnel organized to facilitate planning, control, coordination, and decision making in an organization.

Decision support systems Figure 1. The information needs are different at different organizational levels. Accordingly the information can be categorized as: Strategic information is the information needed by top most management for decision making. For example the trends in revenues earned by the organization are required by the top management for setting the policies of the organization. This information is not required by the lower levels in the organization. The information systems that provide these kinds of information are known as Decision Support Systems. The information required at this level is used for making short term decisions and plans for the organization. Information like sales analysis for the past quarter or yearly production details etc. Management information system MIS caters to such information needs of the organization. Due to its capabilities to fulfill the managerial information needs of the organization, Management Information Systems have become a necessity for all big organizations. And due to its vastness, most of the big organizations have separate MIS departments to look into the related issues and proper functioning of the system. The third category of information is relating to the daily or short term information needs of the organization such as attendance records of the employees. This kind of information is required at the operational level for carrying out the day-to-day operational activities. Due to its capabilities to provide information for processing transaction of the organization, the information system is known as Transaction Processing System or Data Processing System. Some examples of information provided by such systems areprocessing of orders, posting of entries in bank, evaluating overdue purchaser orders etc. Transaction can be any activity of the organization. Transactions differ from organization to organization. For example, take a railway reservation system. Booking, canceling, etc are all transactions. Any query made to it is a transaction. However, there are some transactions, which are common to almost all organizations. Like employee new employee, maintaining their leave status, maintaining employees accounts, etc. This provides high speed and accurate processing of record keeping of basic operational processes. These include calculation, storage and retrieval. Transaction processing systems provide speed and accuracy, and can be programmed to follow routines functions of the organization. Management Information Systems These systems assist lower management in problem solving and making decisions. They use the results of transaction processing and some other information also. It is a set of information processing functions. It should handle queries as quickly as they arrive. An important element of MIS is database. A database is a non-redundant collection of interrelated data items that can be processed through application programs and available to many users. Decision Support Systems These systems assist higher management to make long term decisions. These type of systems handle unstructured or semi structured decisions. A decision is considered unstructured if there are no clear procedures for making the decision and if not all the factors to be considered in the decision can be readily identified in advance. These are not of recurring nature. Some recur infrequently or occur only once. A decision support system must very flexible. The user should be able to produce customized reports by giving particular data and format specific to particular situations. Summary of Information Systems.