Information systems vs. information technology

Technology, Information Technology

Introduction

The interaction between people, processes, data, andtechnologywithin an organisation is conceptualised as an information system (Kroenke, 2008). Information systems are ubiquitous in businesses. From speeding up visits to the GP, to enabling online-banking, they enhance performance and efficiency in areas from decision-making to management and enable the formation of strong knowledge bases (Tutor2u). Information systems ensure that data is appropriately processed, stored, and distributed to the relevant individuals. These operations, comprised of inputs, processes and outputs, are accessed by not only employees, but also other individuals in the businessenvironmentsuch as customers, suppliers, stockholders, regulators and competitors.

A crucial foundation component of an information system is information technology. Information technology (IT) refers to the development, implementation, and maintenance of computer hardware, software, networks and communications that are used to manage electronic information (Dictionary. com). Examples of IT in the workplace range from operating systems such as Windows and Linux, to storage devices, CDs, and DVDs. These technological tools are essential for the facilitation of information systems, and provide the infrastructure with which the organisation and people can interact to produce meaningful output.

The overarching component of each information system is the organisation within which it is implemented. Each company has its own businessculture, the aspirations and concerns that it has, for example UPS's onus on placing

the customer first, and the protocols that must be followed, such as adherence to the Advertising Standards Agency by any business wishing to promote their profile. Organisations pass information through hierarchies, with each of these contributing to certain aspects of business processes. It is therefore important that information systems reflect these specific tasks at each level and enable relevant processes to be carried out. For example, a medical organisation such as Egton Medical Information Systems Limited (EMIS) provides fast information transfer between different services, integrating data from a variety of sources, online booking facilities to relieve heavy staff workloads, and intuitive interfacing for a variety of user skill sets, suited to large organisations such as the NationalHealthService.

An information system would be redundant without it's individual input and interpretation and use of the output. People are integral these systems, building, maintaining and using them to set up organisational strategies, allocate resources, and be creative (Launden & Launden, 2011). The efficacy of an information system is largely dependent on the training of those using the system and usability of the system for each user. For example, each individual must be competent at operating their aspect of the technology and must receive a relevant and interpretable information output.

Whilst information technology is a crucial component of an information system, and effectively its defining aspect, an information system is incomplete without implementation and use by people, in an organisational culture.

A classic information system takes raw data, processes it, and provides an interpretable, meaningful, output that can then be evaluated. One of the first developed information systems is the Transaction Processing System, used to monitor the transactions of an organisation including sales, deposits, payroll, receipts, and materials. These are essential for providing efficient responses to consumer transactions, archiving transaction data, and consolidating data from different sources including the internet, ATMs, cheques, and POS transactions.

Information systems have developed to enable businesses to advantage themselves in relation to six important business objectives. Operational excellence refers to improved efficiency, where organisations gain competitive advantage, becoming more profitable. A case example of operational excellence is the implementation of Enterprise Resource Planning (ERP) systems, which integrate information into a comprehensive source available to the whole organisation, allowing information to propagate easily (Williams, 2004) and facilitating transfer of information to all business functions. Walmart makes use of ERP within their supply chain management, enabling the combination of company and management functions including inventory management, human resources, accounts, and customer relationship management (Walmart). ERP systems' inventory management allows Walmart to immediately replace stock from their suppliers when products are bought in store, and have contributed to the chain being one of the most successful in the industry.

Information systems also allow intuitive new design of products, services and models. The combination of human creativity and technological development has lead to innovations such as ATMs, online shopping, and digital technologies that now generate vast revenue and are accessible to mass consumer markets. The applications of information systems to innovation have revolutionised the retail industries.

Information systems are particularly advantageous for engaging customers and fostering customer relations. Examples of this include database storage of customer details, previous purchases and preferences. This information allows tailored mailings and offers based on personal information (eg. Birthdays), as well as recommendations based on previous buys when a customer logs in to the retailer website such as with online book retailer Amazon. These techniques target and attract clients, encourage brandloyalty, and increase investment and spending. Customer Relationship Management (CRM) is a form of information system that uses technology to enhance a business's customer interaction by organising and synchronising sales, marketing, and customer support. An example of CRM for customer support is automated call centre software that directs people to the appropriate department (Bolte & Fleischman, 2007), lowering staff costs, tailoring to the customers specific needs, and helping them in the most effective way.

From a managerial perspective, information systems are crucial in decision-making. Enabling real-time data to be transferred into information enable better problem solving and allocation of resources. Management information

systems are used to monitor performance and predict future outcomes (Launden & Launden, 2011). Particularly efficient decision support systems such as Executive Dashboard allow management to measure each area of the organisation and its contribution to success orfailure. This allows businesses to compare performance indicators againstgoals(Executive Dashboard) in real-time. For example Verizon provides a dashboard that delivers to-the-minute information to network providers regarding network alarms, trouble updates and network availability trends, meaning that problems can be flagged and rectified quickly.

All of the aforementioned capabilities that information systems offer infer a competitive advantage for the organisations employing them. The increased efficiency, lowered costs, and improved responsiveness enabled by certain information systems are illustrated by Toyota's Toyota-Production System (TPS). The TPS coordinates manufacturing and product delivery including supplier and customer contact, with the philosophies of reducing overburden, inconsistency, and waste, to produce just what is needed, just-in-time (Hampson, 1999). The implementation of TPS lead to improved product quality combined with a reduced production cost and has therefore been hailed as the source of Toyota's outstanding manufacture performance (Spear & Bowen, 1999).

In times of rapid information technology development, many businesses require information systems to keep up with competitors and survive in their industry. For example, competitors offering online banking facilities and added security will be able to provide for customers more efficiently,

frequently and cheaply as well as attracting a greater client base than their competitors. Additionally, legislations and company transparency means that organisations are required to produce vast amounts of information for audits and inspections, meaning that efficient and intuitive data storage information systems are invaluable.

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AIChE annual meeting.