

Decision support systems analysis essay



Many businesses are faced with situations that need critical analysis, compilation of raw data, circulation of precise documents and effective utilization of computer systems. Frito Lay is an example of a company who implemented various decision support systems (DSS) into their business model. A DSS is a “ highly flexible and interactive IT system that is designed to support decision making when the problem is not structured. ” (Haag, Cummins p. 162) Managers require information to guide their organization in the right direction.

DSS increases productivity, efficiency, and enhances understanding of business processes. DSS helped carve their business success, facilitate management making qualitative decisions, and turned their raw data into valued information that was needed by employees and management. DSS assist the management and employees of Frito-Lay by delivering statistical and data retrieving systems. Employees of Frito-Lay also used DSS systems in searching information that was germane to their job function. The three main components of a DSS are model management, data management and interface management. The model requests the information from the data management component, analyzes the information, and sends the results to the user interface management component, which in turn passes the results back,” (Haag, Cummins p. 163) to the user. There are many types of DSS systems and hybrid DSS systems. Four DSS systems that could be implemented in a business are communication driven, knowledge driven , data driven , and document driven . Hybrid DSS systems are computerized systems that take advantage of combined DSS systems.

A DSS may present information graphically and may include an expert system or artificial intelligence (AI). Examples of the information a decision support application might gather and present are the following: “(a) Accessing all information assets, including legacy and relational data sources; (b) Comparative data figures; (c) Projected figures based on new data or assumptions; (d) Consequences of different decision alternatives, given past experience in a specific context.” (Power, D. 2009) The communication driven DSS is designed to give internal teams and partners communication capabilities. “ Its purpose are to help conduct a meeting, or for users to collaborate. The most common technology used to deploy the DSS is a web or client server.” (Power, D. 2009) Examples of communication driven DSS include chats and instant messaging software, online collaboration and net-meeting systems. Also, technologies “ including LANs, WANs, Internet, ISDN, and Virtual Private Networks,” (Power, D. 2006) can be employed within an organization. Knowledge based DSS is specially designed to create a ‘ knowledgebase’ for employees or external partners. The knowledge component consists of one or more expert (or other intelligent) systems or it draws expertise from the organizational knowledge base. ” (Turban et al, 486) Unlike communication driven DSS, knowledge based DSS is not created exclusively for communication purposes. However, this complex DSS system provides technical and complex answers to real life business problems. Data-driven DSS is dissimilar to a knowledge based DSS, but emphasizes access and manipulation of integral internal company data and external data.

Data is used to query a data base or data warehouse, and is “ deployed via a main frame system, client/server link, or via the web. ” (Power, D. 2006) An example of data-driven DSS is Geographic Information System (GIS). A Graphical Information System “ is a decision support system designed specifically to analyze spatial information. ” (Haag, Cummings. P. 166) The graphical data demonstrated by the GIS is used to analyze roads, sewer systems, paths of hurricanes, free ways, traffic, or any graphical data that can be statistically represented.

Document-driven DSS is also dissimilar to the other 3 decision support systems mentioned earlier. Document-Driven DSS is focused on the retrieval and management of documents. Document-driven DSS is targeted at a broad base of user groups, and the purpose of such a DSS is to explore web pages and locate documents. The user types in key words and search the DSS for answers, and the DSS gives information that the user has requested. DSS systems are beyond doubt helpful in assisting management and providing solutions while confronting complex issues. However, artificial intelligence can be included to enhance DSS capabilities.

An Information Technology department “ can further expand business brainpower by means of artificial intelligence (AI)-the science of making machines imitate human thinking and behavior. ” (Haag, Cummins p. 167) The AI systems that are utilized in the business world include expert systems, neural networks, genetic algorithms, and intelligent agents. Expert systems are an excellent source of elucidation. The expert system has the ability to diagnose problems and give answers. When querying a DSS system, the user “ must know how to reason through the problem. ” (Haag, <https://assignbuster.com/decision-support-systems-analysis-essay/>

Cummins p. 69) On the other hand, when you use an expert system the intelligence is in the system. The user only needs to provide “ the expert system with the facts and symptoms of the problem for which you need the answer. ” (Haag, Cummins p. 169) Neural Networks, often called artificial neural networks (ANN) are used in finding patterns. “ A neural network can learn by example and can adapt to new concepts and knowledge. ” (Haag, Cummins p. 171) Neural networks are especially effective in business because these neural networks can predict patterns, identify fraud patterns, and find business opportunities.

Neural networks are also used in U. S. airports in bomb detection. A Genetic Algorithm is an artificial intelligence system that engenders random choice selection and combinations. The intelligent algorithm “ mimics the evolutionary, survival of the fittest process to generate increasingly better solutions to the problem. ” (Haag, Cummins p. 174) The algorithm repeats to find the correct combination of results to the problem at hand. Intelligent agents are intelligent systems because they perform task on the behalf of humans repeatedly.

Intelligent agents are small programs that reside on computers and perform repetitive computer-related tasks. ” (Haag, Cummins p. 175) A virus software program is a good example of an intelligent agent. “ It resides on your computer, scans all incoming data and removes found viruses automatically that assist you, or acts on your behalf. ” (Turban, et al p. 495) The virus protection program can detect a virus by scanning, delete the virus, and then prompt the user of the threat on their machine. The three types of DSS

systems that were implemented by Frito-Lay are data support systems, document driven DSS, and knowledge based dss.

Data-driven DSS was implemented by Frito-Lay's management in 1989. The DSS produced a " flexible, dynamic, integrated information infrastructure, which would enable line employees and managers throughout the company to obtain access to timely and relevant information to support the micromarketing strategy. " (Lynda, M. p. 2) Data dss was also used to improve quality in the 10 poorest performing sectors of Frito-Lay. The Data driven Dss also helped management redesign and restructure these failing areas. Frito-Lay also utilized document driven dss into their corporation.

The handheld computers (HHC) when implemented provided " information and reports that the sales force and its supervisors" (Lynda, M. , p. 2) needed to complete their jobs. Valuable reports and documents were now immediately accessible, and the time gained increased proficiency, productivity, and profitability. A knowledge based DSS systems was also implemented by Frito-lay. Frito-Lay developed a " corporate database" (Lynda, M. , p. 8) which was sophisticated. The complexity of information was creating a " source of continual frustration. " (Lynda, M. p.) Information was thus pre-formatted in the corporate database, and IT assisted in segmenting and making information accessible in the corporate database. This DSS system assists employees by storing valid information. The corporate database can be also use to provide limited access to outside clients to obtain minimal information about the company. DSS systems were the catalyst and instrumentation that automated the changes of Frito-Lay's upper management's policies. The DSS systems were used by IT to help

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streamline, train, implement, and position the new managerial policies. An example of this instrumentation is the usage of Data

DSS when restructuring occurred in 1989. Management and employee were being assimilated into “ the new micromarketing strategy. ”(Lynda, M. p. 2) Since the IT strategies always followed the restructuring of management, the institution of the hand held computers (HHC), and the development of the company wide database are DSS systems changes that chartered the company’s direction. DSS systems were used to execute the IT strategy at Frito-Lay. The new direction of the company will invite many changes within Frito-Lay. Rodger Enrico became the new CEO of Frito-Lay, and immediately the company took on a new direction.