Ict support in business: cisco case study

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Topic: How do you think ICT / Information System infrastructure and IT strategy at Cisco is supporting the business? (1451words)

A) A short summary of Nolan's (1973) stages of growth model

Nolan describes a learning curve in the development of data processing in 1974 Harvard Business Review. Nolan believes that organizations need to understand the growth characteristics associated with each stage of development. Understanding this curve is conducive to help organizations effective implementation of information technology. The first version consisted the stages of initiation, Contagion, Control, Integration. It eventually expanded to six stages in 1979, which include " Data administration" and " Maturity".

Nolan's main content of the stage model:

Stage I, Initiation

The organisation introduces computer system to increase its competitiveness. Data processing costs are lack of control, the establishment of information systems often do not pay attention to economic efficiency in this stage.

Stage II, Contagion

Information technology applications began to spread in the organisation. The organisation managers began to pay attention to the economic benefits of information systems investment, but the real control does not exist.

Stage III, Control

The management information system became a formal department to control its internal activities and launched a project management plan and a system development methodology. The current application began to formal, and lay the foundation for the future development of information systems.

Stage IV, Integration

Organizations began to use databases and telematics technologies to consolidate existing information systems. Which is the stage that previous systems are integrated with the newer systems.

Stage V, Data administration

The organization begins to examine and evaluate the various costs and benefits of information system construction, and analyzes and resolves issues of balance and coordination in all areas of information systems investment.

Stage VI, Maturity

At this stage, the information system can meet the needs of enterprises at all levels. the enterprise will integrate the management process together with the internal and external resources, thus enhancing the competitiveness and development potential of the enterprise.

B) Apply Nolan's Stage of Growth Model (1973) in Cisco case

In this essay, I will discuss the Cisco case by using Nolan model stage by stage and show how Cisco was following the Nolan model during the system develop process. Moreover, discuss about the problem when Cisco tried to process to the next stage. For the Cisco case, I will focus on the first version of Nolan's Stage of Growth Model (1973) as the essay question require, which is only consider four stages, " Initiation", " Contagion", " Control" and " Integration" stages. Moreover, the fifth stage will be discussed which because it may appropriate in the Cisco case, which is " Data administration" stage. I will not discuss about the sixth stage. In my view, Cisco had not process to the sixth stage form the case study(2004).

Cisco is one of the example can be explain by Nolan's Stages of Growth Model. Nolan's (1973) stages of growth model framework is appropriate in the Cisco development process because they are similar which Cisco development process is also following the stage that mention in Nolan's model. The model summarises the experiences and law of development of management information systems. It is generally assumed that the phases in the model are not jumpable, because the organization needs some experience before preparing for the next phase of work. The development process in Cisco is almost same as the Nolan's model. its basic idea for the construction of management information system is instructive. In-depth understanding of Nolan model may help organisations more effectively manage the process. Although these phases contain some natural growth processes, these growth processes can be effectively coordinated and managed, so that each stage represents a change in the order of planning and management. The first two stages: Initiation and Contagion

Cisco was already experience first two stage before Peter Solvik joined Cisco as its CIO in 1993. 1984, Cisco Systems was founded in the United States, the founders are two computer scientists from Stanford University. Computer was introduced when the company was founded. Computer is a necessary equipment for the company because the products and computer are complement in the production line. However, there were only a few individuals can use the computer, for example, the two computer scientist founders. After the expansion of Cisco, Enterprises had a certain understanding of the computer. They would like to use computers to solve problems at work, such as more data processing, management and business to bring convenience. Thus, the application began to increase demand, IT applications began to generate interest in enterprises, and the development of software enthusiasm, investment began to increase significantly. It is easy to blindly purchase, blind development of custom software phenomenon, the lack of planning and planning, so the application level is not high, the overall effectiveness of IT cannot be highlighted as Nolan (1974) has been discussed on his paper.

Until Peter Solvik joined Cisco, he recognized the problem from the second stage(Contagion), such as data redundancy, data inconsistency, and the date was hard to share. Business managers realized that the use of computers applications was out of control, IT investment growth was fast, but the benefits were not satisfactory. He tried to begin to control the overall development of computer systems, such as the reorganize the IT budget planning, replaced committee and change the reporting relationship. However, Cisco was still stunning in the beginning of the third stage.

The third stage: Control

Boston joined Cisco as a new CIO after Solvik left in 2001. He finds that there is an ineffectiveness investment on the customized tools. There were nine different tools to access the customer order which create multiple data and different definition on explanation with the order. He thought the conflicts and redundancies is occur because there were not centralized team checking for the company systems which lead to a rise of unnecessary tools. As Nolan (1974) discuss, for the need to control the cost of data processing, managers began to convene users from different sectors of the Committee, to jointly plan the development of information systems. The management information system became a formal department to control its internal activities and launched a project management plan and a system development methodology. The current application began to formal, and lay the foundation for the future development of information systems. In the Cisco case, Boston stopped the investment of the new tools applications and upgraded its ERP (Enterprise Resource Planning) system, solving the reporting and intelligence problem and developing its customer database.

The fourth stage: Integration

Boston also focused on funding IT project. It makes the company process to the fourth stage, which is Integration stage. Organizations from the management of computer management information resources. From the first stage to the third stage, usually a lot of independent entities. Based on control, enterprises began to re-planning and design, the establishment of basic database, and build a unified information management system.

Enterprise IT construction began by the scattered and single-point development into a system. At this point, corporate executives began unified different enterprise IT organizations systems into a single system for management. People, financial, material and other resources can be integrated in the enterprise sharing, lead to more effective use of existing IT systems and resources. Nolan recognized such integration costs will be higher, longer, and the system is more unstable. However, Cisco did not in the case. Boston encouraged his team being carefully in the enterprise project, tried to reduce the multiple data and different definitions of the order problem to avoid the future large scale of cleanups. It was because it will increase the unnecessary spending if it is useless.

The fifth stage: Data administration

In this stage, the organization began a comprehensive study and evaluation of the various costs and benefits of information system construction. The challenges had occurred in Cisco, the process of funding budget in a pool from different groups across the world is complex. It is hard to show the benefit of the new enterprise project to every group. Boston started to consider about the communication between the group on order to increase efficacy when starting a new project. This stage, enterprises began to select a unified database platform, data management system and information management platform, unified data management and use of various departments, the basic realization of the system integration of resources, information sharing. IT system planning and resource utilization more efficient.

Conclusion

Nolan stage model summarizes the experiences and rules of management information system development, and its basic idea has guiding significance for the construction of management information system. it can be apply in the Cisco case. Nolan's (1973) stages of growth model framework is appropriate in the Cisco development process because they are similar which Cisco development process is also following the stage that mention in Nolan's model. Cisco was experience from the first stage when it has been founded in 1984 and continue to the fifth stage in 2004. (1451 words)

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