

DSS Framework for IT Infrastructure Technical Support

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Abstract— Decision support system is a vital process which eradicates the distance between an actor (human) and a system while making decisions in any kind of area. Each and every DSS is made by handling interactions between human intelligence and computational intelligence. The basic idea behind the implementation of DSS for any field is to improve the business process effectively using the exact decisions. We have focused on the DSS for IT technical support. Aim of this paper is to build a DSS framework for IT technical support. We describe a DSS using the basic components integrated along with the technical DSS components. We use a technical support tool as initial component for the process. Finally, the paper proposed a DSS framework to develop a DSS to make decisions in the area of IT Technical support.

Index Terms—Computational intelligence, Decision support system, DSS components, DSS framework, Handling interactions, Human intelligence, Technical support.



1 INTRODUCTION

The major challenge in IT world is to make appropriate decisions at right time and within the time limit. At these stages, the decision makers depend on the effective decision making system which guides to continue which ever activity they follow. At this point of view, the importance of decision support systems are very high to withstand with the business demands. So, DSS can be defined as a technology or a system provided with various independent models which are domain specific to accompany the decision maker to make decisions as early as possible. Here, the section elaborates the general concepts of DSS and how it has been integrated with technical support activities. Nowadays, the collaboration between DSS technologies and artificial intelligent techniques has produced another type of DSS technologies [7]. Many technologies have been found to assist the DSS. Mainly, data mining is widely used with DSS for many problem specific and domain specific.

Technical support is an important process in the area of IT infrastructure which may be in any type of organization. Technology infrastructure and technical support is an important element which directly or indirectly provides reputation to the organization. Maintaining technical support involves lot of activities like, attending calls, hardware service, software installation and maintenance, product buying, vendor association, technology growth. Most of the problems are unfortunate risks. It is an uncertainty which can happen at any time of a day. So, providing technical support is a huge challenge because improper support can harm the image of the particular organization.

In this paper, we discuss about the DSS and its approaches and finally we explain the proposed

framework. This paper has 6 sections, the second section is a discussion about decision support system, third section is about technical support, fourth section is about the roles of technology and finally the proposed framework and conclusion.

2 DECISION SUPPORT SYSTEM

A decision support system (DSS) has many definitions, but it has largely considered that they are built to assist decision process and help to identify and resolve problems [2]. It's a one among the classification of the information systems which help the decision makers to relay on the knowledgeable decisions. Yes, the DSS provides a variety of knowledge to encounter the decision problem. DSS is related with intelligent system, artificial intelligence, expert system and management information system. These technologies are all together used to create a new DSS technology. Moreover, DSS is said to be a conceptualized it is well defined with its limit and boundary [4]. Development of DSS has a number of generic stages [2] they are, Data gathering, Data storage, access and mining, Data analysis and Data reporting.

A DSS must be convenient, portable, and easy to understand. It should use human intelligence and computational intelligence to make up a valuable decision. Decisions are made based on the input which the user supplies into the system i.e. the information should be most realistic and problem specific.

3 TECHNICAL SUPPORT

Technical support comprises of two types, hardware support and software support. Technical support involves lot of issues which are oriented with technology impact. The scenario is, in an industry or organization an IT infrastructure department exists to install and maintain the software and hardware which are used in the production. Their duty is to monitor the calls requested by the end users of same organization. Separate employees called as service engineers log on with the calls on end users place. The manger or the person in charge minds all the activities regarding calls support, software up gradation, vendor communication, network administration etc. The main focuses of Technical support are:

3.1 Services

As discussed already, the engineers are allocated to the service areas to provide the maximum amount of successful support either for hardware issues or software issues.

3.2 Infrastructure management

Day to day the technology gets updated in all area. In the area of infrastructure management the product development companies shows rapid growth in advancements of servers, mainframes, blades and hardware engineering. So, the decision maker or in charge of these activities follows and supports his organization with updated facilities.

3.3 Vendor Communication

Each and every product is received through a vendor. So it is the duty of the in charge to have the best communication periodically to maintain the warranty and license status.

3.4 Network administration

The major role of IT technical support is to provide a good network facility. Most of the IT projects are developed using the network to communicate and update the repository which may be located at the other side of the world.

Improper management of Infrastructure and technical support will lead to a bad situation for return of investment.

4 ROLES OF TECHNOLOGY

Technology is a key processor in all existing business areas. Mainly, technology plays a major role in information technology [8]. And even it is said to be as a great challenge because it is very difficult to change and adapt as of sudden change in business market. Besides that, today's IT technical support has strong link with

customer service. In this kind of situation the technology and new techniques are adopted to increase more productivity and support. In spite of the support, the technology also collaborates with the DSS to make new type of DSS technology. Technology is always a vital component of the technical support. In his paper, the technology factor is considered as an important component to form a model base to the decision support system. It extends the support activity with good training and exploring.

5 PROPOSED DSS FRAMEWORK

Our proposed DSS has some very important featured components like technical support tool, database of the tool, knowledge discovery and sharing, vendor support, knowledge base, model base, technology, and external models. These components are very basic and important which maximizes the efficient of the system.

5.1 Tool/Application support

According to our system, the tool is used to record the details of the support provided to the end users, end user details, details of the products to be serviced and support. Moreover on software support side, the tool contains the details of the tool like make, version, warranty etc. This tool also records the details of the support engineer and what kind of support he provided to the customer after the request made by the end user. These recordings are viewed by the decision maker to follow the supporting process.

5.2 Database System

As we have used a tool as the initial process for the support, the tool contains default database which holds the data's regarding hardware, software, vendor's, employees, and other data's. The data's which are logged by end users, support engineers are saved in database and the saved data's are considered to be very useful and initiative at the future process of the DSS.

5.3 Knowledge Discovery and sharing

This component is a common base for domain knowledge i.e. it holds the data's regarding the technical support issues, new trends, technologies. It holds vital parameters about the IT technical support. The concerned service engineer or a manger can get some knowledge to adapt with the types of problem by using this component.

5.5 Knowledge base

Knowledge base has some predefined facts and data's regarding the technical support issues either it may be technological perspective or managerial perspective. This predefined data's are extracted from knowledge discovery. Even end users can gain using this knowledge base via the supporting tool.

5.6 Techniques/Technology

This component suggests the exact technique required to solve the problem. If the technology need to be improved at certain points or for certain problems then this exports to the model base for further actions. Moreover, it gives methodology to train the engineers with the existing and required technology to explore themselves technically.

5.7 Model base

This is the final component of our system which showcases the DSS model for the technical support. So, it uses all the components to evaluate the problem and provides a technical DSS to the decision authority. It also refers external model available with the similar problem definition and with exact solution to the problem. This model base provides the decision model to a support system from which the decision authority can view and mingle with the DSS. The Support system is a separate interface loaded in system to showcase the DSS model.

6 CONCLUSION

This paper has described the DSS concepts and issues related with IT technical support. It has also proposed a DSS frame work for effective decision making to provide best technical support throughout the organization. Many problems exist in domain specific due to the lacking of a DSS. So, we conclude that the intelligent decisions are made by applying information's provided by the basic components. The frame work which is proposed in this paper is well illustrated and it is developed towards the focus of applying the technology on the IT technical support. In future, the research will be focused on the future DSS technology which suits for technical support.

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