A Fuzzy TOPSIS based Approach for ITSM Software Selection

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ABSTRACT

Nowadays a growing interest in Information Technology Service Management (ITSM) proves the trends and needs of their implementation in organizations. In order to implement an ITSM project successfully in an organization, it is essential to select a suitable ITSM software. Evaluation and selection of the ITSM software packages is complicated and time consuming decision making process. This paper presents an approach for dealing with such a problem. This approach introduces functional, non-functional and fuzzy evaluation method for ITSM software selection. The presented ITIL based approach breaks down ITSM software selection criteria into two broad categories namely functional (service strategy, service design, service transition, service operation, continual service improvement according to ITIL V3) and non-functional requirements (quality, technical, vendor, implementation) including totally 46 selection criteria. A facile Fuzzy Technique for Order Preference by Similarity to Ideal Solution (FTOPSIS) was customized for ITSM software selection based on identified criteria. The proposed approach is applied to a local Iranian company in the field of IT services in order to select and acquire an ITSM software and the provided numerical example illustrates the applicability of the approach for ITSM software selection. The approach can help practitioners assess ITSM software more properly and have a better software acquisition decision with growth in customer satisfaction and service time reduction.

Keywords: *Functional Requirements, Fuzzy Technique For Order Preference By Similarity To Ideal Solution (FTOPSIS), Information Technology Service Management (ITSM), ITSM Software Selection*

INTRODUCTION

Today, Information Technology (IT) has become the backbone of businesses to the point where it would be impossible for them to survive and compete in the market without employing IT facilities. As a result of its increasing role of IT in enterprises, its function is transformed from a technology provider and supporter to a strategic partner (Salle and Rosenthal, 2005). The traditional function of IT management (i.e. hardware and software installation, network management, applications management, and etc) now includes business-oriented service support, in which IT services are planned and managed according to their contributions to

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required business processes (McNaughton et al., 2010).

IT service management (ITSM) -as a concept to support this radical transformation- is a strategy by which information systems (ISs) are offered under contract to customers and performance is managed as a service (Pollard and Cater-Steel, 2009). ITSM provides a framework to structure IT operations that enables organizations to deliver quality IT services to meet business needs and adhere to service level agreements (SLAs) (Mesquida et al., 2011). Various ITSM frameworks have been developed to provide guidelines and best practices to help managers improve IT operations. The frameworks have mainly been proprietary in nature and company specific, for example Microsoft's Operations Framework (MOF), the IBM Systems Management Solutions Lifecycle, and the HP ITSM Reference Model. In essence, these frameworks address either the domain of IT Governance (such as Control Objectives for Information and related Technologies (COBIT) and local Australian Standard for Corporate Governance for IT namely AS8015) or the domain of IT Management (such as Information Technology Infrastructure Library (ITIL), HP ITSM, and Microsoft MOF). However, the ITIL has become more popular due to the drivers such as: the pressure to reduce cost or do more for less cost, the push for end-to-end service management, introduction of SLAs for measuring user experience, and requirement of IT to comply with legislations (McNaughton et al., 2010; Pollard and Cater-Steel, 2009). Also, according to the results of an online survey conducted by Forrester, Inc on 92 global IT decision-makers, the ITIL v3 was the most applied methodology for organizational setup or reorganization efforts (as asserted by 38% of respondents) following by Business Process Reengineering (BPR) and ITIL V2 (34% and 33% respectively) (Hubbert, 2010).

ITIL is a collection of defined and published best practice processes for ITSM, developed in 1989 by the British government in their Central Computer Telecommunications Agency (CCTA, now the Office of Government Commerce). It serves as a roadmap for process improvement to help IT professionals build a foundation for ongoing service excellence, while meeting budget and regulatory requirements (OGC, 2012). The IT Service Management Forum (itSMF), a non-profit association, now owns and supports this framework, with chapters in many countries around the world; with no defined international standards for ITSM, it is likely to become the de facto industry standard. The itSMF now boasts over 6000 member companies, blue chip and public sector alike, covering in excess of 40,000 individuals spread over 50+ Chapters (itSMF, 2012).

There are evidences of the growing global interest to ITIL. For example, in a recent global study, Axios Systems (2008) surveyed 255 IT professionals from global organizations at a series of service management events (conferences, seminars and workshops) across the UK, Australia and America. According to the survey results, 64% of IT professionals believe following ITIL is a key issue to improve IT reputation. The study also revealed that 87% of the organizations followed ITIL guidelines. Also, based on the statistics, 33% of organizations, intending to adopt ITIL within a year, and beside 36% considering its adoption (Axios-Systems, 2008).

The key benefits expected from implementing an ITSM framework such as ITIL are: alignment of IT services with current and probable future business needs, more customer-focused and improved quality of IT services, better internal communication and communication with suppliers and customers, Increased IT predictability and efficiency, and a reduction in the long term costs of service provision (Addy, 2007; McNaughton et al., 2010; Peak et al., 2005; Pollard and Cater-Steel, 2009; Van Bon et al., 2007; Yamakawa et al., 2012). As an example, service desk at JPMorgan Chase was able to achieve 75 percent first-call resolution and 93 percent customer satisfaction ratings. 80 percent of the calls coming into the service desk were answered within 20 seconds. The net result of improvement from ITIL implementation was the elimination of 500,000 calls to the