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ScienceDirect

Procedia - Social and Behavioral Sciences 147 (2014) 64 – 69

Procedia
Social and Behavioral Sciences

ICININFO

The Benefit and Cost Factors of CMDB Implementations: An Investigation of three Organizations in Taiwan

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Abstract

With the rapid rise of e-commerce, the implementation of IT service management (ITSM) has become one of the most critical issues facing modern enterprises. Configuration management database (CMDB) is the core of whole ITSM system by providing information to support all ITSM processes. Therefore, sound ITSM depends on a well-built CMDB. But, in practice, many CMDB projects have suffered from poor planning, deficient operation, inadequate maintenance, which seriously hinder the effectiveness of ITSM. Understanding the benefits and cost factors of CMDB can help in not only reaching cost justifications but can also provide helpful guidance for CMDB design. However, there is no research, which systematically examines these factors. This paper presents the results of a comprehensive literature review of cost and benefit factors for implementing CMDBs. Moreover, case studies on three organizations were performed to find how enterprises realize these factors. The outcome of this study is expected to provide a good reference for enterprises to plan a CMDB. Finally, the implications based on the findings are given for the management of CMDB implementation.

Selection and peer-review under responsibility of the 3rd International Conference on Integrated Information.
Keywords: CMDB; ITSM; Benefit; Cost

1. Introduction

With the rise of dependence on information technology (IT), managing well the IT service became the crucial competence to enterprise; accordingly IT service management (ITSM) is getting more and more attention. Since a configuration management database (CMDB) provides information to help with performing IT service processes, its usefulness determines the success of the whole ITSM system. Therefore, building a sound CMDB is an important issue facing modern IT service organization.

However, when implementing a CMDB, practitioners encounter new information requirements and new technology. In fact, they often suffer with problems such as wrong detail level of CIs, inadequate analysis and

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doi:10.1016/j.sbspro.2014.07.104

design (OGC, 2000a). Some part of the problems stem from the excessive expectations on the CMDB. Therefore, understanding the benefits and cost factors of CMDB can help them in not only reaching cost justifications but can also provide them helpful guidance for handling the complex requirements of CMDB design.

Therefore, the purpose of this study is to explore systematically the benefit and cost of a CMDB. Three ISO/IEC 20000 certified organizations in Taiwan were investigated to know how they realize the benefit and cost of CMDB. The paper is structured as follows: section two describes the literature review; section three presents the case study and interviews; section four gives interview analysis and the derived results; section five discusses management implications of the research outcome; section six offers the conclusion.

2. Literature Review

Early in 1990, the term CMDB has been introduced by CCTA (CCTA, 1990). Since then, the definition of CMDB has evolved; three definitions from ITIL version 2, ISO/IEC 20000-1:2005 and ITIL version 3 are compared in table 1. It is obvious that the definition in ITIL version 2 is almost the same as the one in ISO/IEC 20000. However, ITIL version 3 introduces the idea of configuration lifecycle and data stores; it implies that implementing a CMDB is getting more and more sophisticated.

Table 1. Definitions of CMDB.

No.	Resource	Definition
1	ITIL Version 2	A database that contains all the relevant details of configuration items and details of the important relationships between configuration items.
2	ISO/IEC 20000-1:2005	Database containing all the relevant details of each configuration item and details of the important relationships between them
3	ITIL Version 3	A database used to store configuration records throughout their lifecycle. The configuration management system maintains one or more CMDBs, and each CMDB stores attributes of CIs, and relationships with other CIs.

A CMDB stores the instances of configuration items, including incident requests, change requests, customer and staff data, software and hardware configurations, and service levels. Logically, all the elements, which are managed by change process, should be registered in the CMDB. It is expected that CMDB should provide correct and sufficient information to all ITSM processes, such that processes could operate efficiently and effectively. Thus, CMDB is the core of all ITSM processes.

Moreover, several literature gave clear description about CMDB' synergy effects, such as to shorten the incident resolution time and to promote the communication between stakeholders. However, this study focuses on the direct benefit of CMDB i.e. the direct use of the CMDB to support processes. The literature review of direct CMDB benefits is compiled in Table 2.

Table 2. Definitions of CMDB.

Category	Description	Reference
Event Handling	Assisting in providing diagnostic information, prioritizing and matching the category of incident and problem, root cause analysis.	(OGC, 2007b, p.147; OGC, 2007c, p.82; OGC, 2007d, pp.54-66, p.159; OGC, 2007e, p.145)
Impact Analysis	Providing quality information for impact assessment of proposed changes, incidents, problems and resolutions.	(OGC, 2007a, p.82; OGC, 2007a, pp.46-66; OGC, 2007d, pp.54-66)
Interrogation & Relationships	Providing the relationship between CIs, and used to interrogate information	(OGC, 2007b, p.94, p.123, p.181; OGC, 2007c, pp.65-77; OGC, 2007d, pp.54-66)
Reporting	Providing information for management report, service asset and configuration reports	(OGC, 2007c, p.53, p.69, pp.80-81)
Planning & Design	Assisting in proposing change plan, release plan and new services, and helping with capacity planning and resilience design.	(OGC, 2007b, pp.92-115; OGC, 2007c, pp.62-66; OGC, 2007d, p.77; OGC, 2007e, pp.114-121)
Resource management	Offering information to optimize asset utilization and costs, e.g. consolidate data centres, reduce variations and re-use assets.	(OGC, 2007c, p.66)
Verification & Audit	Supporting verification and audit activities such as verifying the configuration, deployment, prerequisites, co-requisites and post-	(OGC, 2007c, p.46, p.81, p.91, p.109)