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A Continuous Approach to Improve IT Management

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Abstract

This paper proposes an exhaustive check items for IT service management operation and a pCAPD (prepare-Check-Analyze-Plan-Do) method based on the check items. We also describe a case study on an actual service management operation to evaluate pCAPD. The 1884 check items are extracted from full life cycle of ITIL document. We define an evidence based quantitative maturity level. The maturity level is used to clarify the achievement status of target service management activities.

The pCAPD method is able to

1) Customize check items to choose appropriate items for continuous improvement of the service management operation
2) Assess the conformance level of the service management operation based on the check items
3) Identify critical problems by comparing the current and expected maturity level of activity
4) Develop a plan to resolve problems based on the quantitative assessment

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1. Introduction

As IT spreads into society, the importance of IT service management increases. Therefore, the IT service management forum developed the IT service management knowledge framework named as ITIL (IT Infrastructure Library) [1, 2, 3, 4, 5]. In the course of generic knowledge deployment, there are problems such as, 1) various different interpretations of standard documents may be possible, 2) quantitative evaluation index for conformance is missing, and 3) action planning in traditional improvement process of PDCA (Plan-Do-Check-Action) is difficult if we did not know the current situation.

In this paper, a continuous method to improve service management operation is proposed and a case study on the proposed method is shown to clarify the effectiveness of the method.

Section 2 describes related work on the capability assessment approach. Section 3 proposes a repetitive method to improve service management operation by using check items. Section 4 describes a case study. Section 5 discusses the effectiveness of the proposed method. Our conclusions are presented in section 6.

2. Related work

Software Engineering Institute (SEI) [6] developed SW-CMM (Software Capability Maturity Model) for assessing software process capability aspects of organization. SEI then integrates multiple aspects of CMM into CMMI (Capability Maturity Model Integration).

DoC (Department of Commerce) [7] developed the ACMM (Architecture Capability Maturity Model) for supporting internal assessment to provide a framework which represents important elements of enterprise architecture process. The goal of ACMM is to succeed enterprise architecture development by providing an evolutional path to improve the architecture process.

TOG (The Open Group) [8, 9] developed an enterprise architecture skill framework to define roles, skills and experience of enterprise architects.

IVI (Innovation Value Institute) provides IT-CMF (IT Capability Maturity Framework) [10, 11] consists of four macro capabilities, 35 critical capabilities and 256 capability building blocks. The capability maturity is assessed by five stages. The four macro capabilities are 1) managing IT like a business, 2) managing the IT budget, 3) managing the IT capability, and 4) managing IT for business value. IT-CMF focusses on managing business of IT organization.

Yamamoto[12] proposed an Assurance Case Capability Index as a guideline of O-DA (Open Dependability through Assuredness) standard[13]. The Assurance Case Capability Index (ACCI) defines evaluation indexes to introduce assurance case into enterprises from the points of technical and management. The index was used to clarify practical needs of assurance case introduction by trial applications. The ACCI consists of 7 aspects. The aspects are assurance case construction, assurance case vison development, assurance case communication, product design, process design, assurance case investment optimization, and system assurance human resource development.

Masumoto and others [14] described a result of conducting a study on how to define the reliability index of the portal services of Nagoya University by using the Non-Functional Requirements Grades Sheet promoted by IPA (Information-Technology Promotion Agency Japan) [15].

Nagoya University defined 67 indices to evaluate service continuity of IT operation projects based on IT service continuity management description of ITIL (IT Infrastructure Library)[16]. Activity analysis method [17] was used to define the 67 indices of IT operation by extracting primitive activities from ITIL descriptions. The activity analysis method was originally proposed as an operational knowledge elicitation method from the viewpoint of actor relationship[18]. The method is able to define operational knowledge by subjects, pre-conditions, post-conditions, operation objects, events, responses, operational procedures, inputs, outputs, operational rules, stakeholders, and operational roles. A case study to introduce the 67 indices and evaluate the continuity of 13 services was also described. This paper extends the indices to full range of IT service operation management by analyzing documents of all phases of ITIL.

ITIL provides the practical service management knowledge to build IT operation services for customer's business goals. ITIL consists of 5 phases, i.e., service strategy (SS), service design (SD), service transition (ST), service operation (SO), and Continuous Service Improvement (CSI) to cover total service life cycle. ITIL describes objectives,