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Information technology — Continual performance improvement of IT enabled services

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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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This document was prepared by ISO/IEC JTC 1, *Information technology*, Subcommittee SC 40, *IT Service Management and IT Governance*.

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Introduction

A key success criterion of the continual performance improvement process is to add value by reducing performance-based economic risks.

The service management processes described in the ISO/IEC 20000 series and the relationships between the processes can be implemented in different ways by different organizations. This is because the nature of the relationship between each organization and their customers, users and interested parties can influence how the service management processes are implemented.

Service and service component measurement and improvement are important aspects of a service management system (SMS) as described in the ISO/IEC 20000 series.

Service performance improvement is a key to successful deployment of new or changed services. Reasons why service performance improvement is of critical importance include:

a) IT enabled services can have multiple interdependencies;

b) service components can be built, controlled, operated or maintained by external parties;

c) service component reliability improvement can be a challenging and a key aspect of service performance.

Also, from a service performance viewpoint, understanding and predicting successful implementations of new or changed services can be very challenging.

a) Many organizations offer their services to unknown, heterogeneous and inter-networked consumers and external organizations (for instance, supply chain of a telecom operator).

b) Ensuring the service performance of each component to the service delivery requirements by all component providers is essential and should be considered when engaging in improvement activities. In service performance improvement, all of the components should be considered together.

c) Intelligent service component reliability improvement can be considered difficult due to the lack of a generic model. And it is not always linked to wear-out failures. As human and mechanical system controls are being superseded by intelligent service components, reliability improvement of these components can become more important to the trustworthiness and dependability of services.

Problem management findings illustrated here in these statements form the genesis of the approach.

a) Root causes of service incidents can be often linked to lack of a consistent implementation of intelligent service components.

b) The degree of consistent implementations of intelligent service components can be common to all departments within a given organization.

c) Performance risks can strongly impact service value for any organization. Thus, directly or indirectly, they are always a subset of economic risks.

d) The resolution of service performance problems is strongly connected to intelligent service component reliability and service capacity.

e) In an open or cloud environment, due to the complexity of these environments, the analysis of intelligent service component reliability issues can be a heuristic process.

f) Independent of capacity problems, it is possible to predict service performance from reliability evaluation of intelligent service components.

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Previous statements, cited above, reveal a number of benefits to an organization implementing the lifecycle reliability improvement (LCRI) approach as a method supporting the continual performance improvement process. To achieve these benefits:

a) LCRI scores should be viewed as performance-based economic risks;

b) LCRI should be viewed as a way to address intelligent service component reliability challenges;

c) LCRI method and the continual performance improvement repository (CPIR) content are continually updated, but LCRI principles will not change.

This document is intended to support the ISO/IEC 20000 series by providing guidance that enables continual performance improvements of IT enabled services in terms of:

a) introducing a set of service performance criteria, based on recurring operational known errors and costly major incidents (the economic losses can be linked, for instance, with user productivity or with business sales);

b) applying a quantitative method of evaluating intelligent service components by relating their reliability and service performance. This provides predictable service "health checks" before and after deployment and supporting problem resolution processes by verifying service performance criteria and prioritizing actions mitigating performance-based economic risks;

c) introducing a continual performance improvement repository which can be included in the configuration management system. The repository can store known errors, "health check" results and service performance criteria. Thus, it enables the management of this information as configuration items in the SMS to simplify the exchange of information with existing processes;

d) introducing a "step by step refinement" process which provides the means to improve performance without wasting time, investments or quality:

   1) by defining recurrent "health checks" of the services to verify service performance criteria;

   2) by defining simple intermediary steps in order to solve performance problems;

   3) by demonstrating how the previous systematic method, the previous repository and the root-cause analysis (RCA) risk evaluation technique can be combined to provide a heuristically proven strategy for optimizing deployment success of new or changed services with a low economic risk.

The aim of performance continual improvement process is to deal with the following recurrent issues:

a) performance expectations, either implicit or expressed too late, that should be taken into account before the deployment of new or changed service;

b) wasted workload and delay by testing multiple non-deployable releases;

c) inefficient technical disagreements between subject matter experts (SME) of the organization and interested parties;

d) right or wrong decisions, based on opinions, rather than economic risks;

e) lack of common performance-based culture between the organization and interested parties. For example, "agile" methodologies are harder to adopt;

f) lack of predictive evaluation controls that contribute to the services' performance improvement.

This document can also contribute to:

a) capturing relevant information, enabling the ability to qualify the value of incidents and action plans connected to resolution of performance problems;

b) prioritizing service performance improvement opportunities;

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c) determining opportunities to improve the governance of all the parties (and in doing so, the documented information and the communication between the parties);

d) simplifying the decision-making, as part of the change and/or incident management processes;

e) improving the service management plan and particularly the service performance policy;

f) defining service performance criteria during design and service transition of new and changed services, and during maintenance of an existing service;

g) improving and complementing the delivery of services;

h) improving the service monitoring and measurement, based on risk-driven performance information;

i) improving the content of service reports to include evidence of service "good health."

The systematic approach described in this document is not dependent upon the intended goals or the functional architecture of the service components. The automated analysis does not require, as inputs, any non-performance criteria, or any technique, resource, method or organization needed to obtain those criteria.

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TECHNICAL REPORT **ISO/IEC TR 22446:2017(E)**

Information technology — Continual performance improvement of IT enabled services

1 Scope

This document establishes a continual performance improvement (CPI) process that supports service management system (SMS) as defined in the ISO/IEC 20000 series.

This process ensures successful deployment and service performance criteria fulfilment.

This process is based on a predictive performance evaluation method and a related repository.

This document is not intended to be used as a means of certification and does not add any requirements to those specified in ISO/IEC 20000-1.

This document does not provide specific criteria for identifying the need for risk analysis, nor does it specify the types of risk analysis techniques that are used to support a particular technology.

This document does not offer techniques for implementing the continual performance improvement process.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at https://www.iso.org/obp

3.1
continual performance improvement repository
CPIR
repository that contains *service performance criteria* (3.12), *LCRI* (3.6) scores, known performance errors, at a given time, having a performance economic risk for the organization, and known related recommendations to mitigate the risk

Note 1 to entry: It is part of the configuration information system.

3.2
fix
last release that solves, with an acceptable level of performance-based economic risk, a known error

Note 1 to entry: This release modifies at least one service component of a new or changed service.

Note 2 to entry: Depending on the nature of the problem, one or a series of linked requests for change would be associated with a known error to ensure the fix deployment and the decision-making are consistent. The decision to deploy the change in several releases depends on the release policy, on the context (e.g. crisis driven by incident management) and on the request for change content.

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