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Information technology — Governance of IT — Governance implications of the use of a shared digital service platform among ecosystem organizations

Technologies de l'information — Gouvernance des technologies de l'information — Implications de gouvernance de l'utilisation d'une plateforme mutualisée de services numériques dans les organisations d'un écosystème

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Foreword

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This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 40, *IT service management and IT governance.*

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html and www.iec.ch/national-committees.

Introduction

Organizations are increasingly using plug and play architecture on shared digital service platforms to develop new digital services that can be adapted to meet future needs. This architecture allows organizations to add new applications and features to the platform without disrupting the overall system. Using a shared digital service platform also enables organizations to enhance the value they offer to customers by bundling existing capabilities with new digital capabilities and forming flexible value networks with business partners and suppliers.

The plug and play architecture of a shared digital service platform can easily add the applications of suppliers or other ecosystem organizations. For example, a product manufacturer could monitor product performance data for preventive maintenance by adding applications from their part suppliers and other ecosystem organizations.

The plug and play architecture of a shared digital service platform also enables independently developed applications to be combined and integrated into the platform through a standardized interface, thereby reducing overall adjustment costs incurred in the platform ecosystem. The plug and play architecture of the platform enables ecosystem organizations to focus on their work relatively autonomously, which ultimately helps to lower both application innovation costs and system integration costs borne by the ecosystem organizations.

The plug and play architecture of a shared digital service platform lays the foundation for platform participants to innovate the platform through application development instead of the platform owner being fully responsible for application development and thus platform innovation. The plug and play architecture of the platform and its underlying scalable technologies, with the option of adding additional elements [technology for Internet of Things (IoT), data storage, application development, analytics and security], makes it possible for organizations to dramatically enhance value offered to customers by easily expanding the organizations' existing capabilities with new digital capabilities in cooperation with the ecosystem organizations.

The use of a shared digital service platform creates governance and control issues that the governing body and management have to ensure are addressed. These include ensuring that there is a clear basis for governance and a governance framework that provides policies and accountabilities that meet the organization's requirements.

This document aims to provide guidance to the governing body of organizations that are accountable for their organization's adoption of a digital service platform among an ecosystem organization. Thus, this document focuses on governance and not on the technologies themselves. The technological and managerial aspects of a "digital service platform" are only covered to the extent that is necessary to understand the governance implications of their use.

For information on the technological aspects of digital service platforms and cloud computing, please see ISO/IEC TS 5928 and ISO/IEC 22123-2.

This document is applicable to all organizations, including public and private companies, government entities, and not-for-profit organizations. This document is applicable to organizations of all sizes from the smallest to the largest, regardless of the extent of their dependence on data or information technologies.

Information technology — Governance of IT — Governance implications of the use of a shared digital service platform among ecosystem organizations

1 Scope

This document provides guidance for members of governing bodies of organizations on the effective, efficient and acceptable use of a shared digital service platform among ecosystem organizations by:

— establishing a vocabulary for the governance of a shared digital service platform among ecosystem organizations;

— providing a framework for understanding the implications of the use of a shared digital service platform among ecosystem organizations;

— guiding governing bodies to evaluate, direct and monitor the introduction and use of a digital service platform, applying the governance principles of ISO/IEC 38500;

— assuring stakeholders that, if the guidance proposed by this document is followed, they can have confidence in the organization's use of shared digital service platform among ecosystem organizations.

This document also provides guidance to those advising, informing or assisting governing bodies, including:

— executive managers;

— members of groups monitoring the resources within the organization;

— external businesses or technical specialists, such as legal or accounting specialists, retail or industrial associations, or professional bodies;

— public authorities and policy makers;

— internal and external service providers (including consultants);

— auditors.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 38500, *Information technology — Governance of IT for the organization*

ISO/IEC 38505-1, *Information technology — Governance of IT — Governance of data — Part 1: Application of ISO/IEC 38500 to the governance of data*

ISO 37000, *Governance of organizations — Guidance*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 38500, ISO/IEC 38505-1, ISO 37000 and the following apply.

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

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

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

3.1
alliance
collaborative relationship formed between two or more organizations to pursue common interests or objectives

Note 1 to entry: Alliance can be formally contracted agreements or be entirely informal.

3.2
consortium
cooperative arrangement where several organizations or entities join together to achieve a common goal

Note 1 to entry: A consortium typically involves multiple independent entities, such as companies, pooling their resources, expertise, and interests to work on a specific project or pursue shared objectives.

Note 2 to entry: Consortium members typically retain their individual identities and operate independently outside of the consortium.

Note 3 to entry: Consortium members contribute resources, contribute to decision-making, and share the risks and benefits associated with the project or initiative.

Note 4 to entry: Consortia are often governed by a set of agreements or contracts that outline the terms of collaboration, resource allocation, intellectual property rights, and other relevant aspects.

3.3
core partner
organization that has a significant role in shaping a shared digital service platform's direction and core functionality

3.4
ecosystem organization
community of business partners, suppliers and customers that share a digital service platform for mutual benefits

3.5
plug and play architecture
architecture of a digital service platform which ensures that the dependencies between the platform core and applications are kept to a minimum and that changes in a platform core or an application do not require corresponding adjustments to ensure continued interoperability

Note 1 to entry: Through the plug and play architecture, resilience and capacity to accommodate changes in the future that were not originally planned can be ensured.

3.6
shared digital service platform
platform that enables partners, suppliers and customers to share resources, processes and capabilities to deliver unique digital services for the ecosystem organizations

4 Overview of shared digital service platform among ecosystem organizations

4.1 The purpose of a shared digital service platform among ecosystem organizations

The purpose of a shared digital service platform is to enable organizations to collaborate with partners and suppliers to create unique digital services for their organizations. Such a platform provides a software tool that allows businesses to rapidly deliver these services by combining products with sensors, data and advanced analytics, thereby creating new value models with significantly improved or unique value

propositions for their organizations.[6] Through effective ecosystem strategies, third-party software and data integration, the shared digital service platform can provide a powerful tool for businesses to create differentiated and more effective digital services that meet the evolving needs of their organizations. Ultimately, the purpose of a shared digital service platform is to facilitate collaboration and innovation among organizations and their partners, leading to the creation of more valuable digital services for organizations.

The shared digital service platform involves an extensible codebase of a software-based system that provides core functionality shared by applications that interoperate with it and the interfaces through which they interoperate.[7] In the shared digital service platform, an application is defined as an add-on software subsystem that is connected to the platform core to add functionality. This allows applications to add functionality to the shared digital service platform and deliver rapid and continuous innovation to organizations that adopt the shared digital service platform.

For more information on the difference between the technical, economic and general uses of the word "platform" in the context of digital services, see ISO/IEC TS 5928.

4.2 Governance arrangement of shared digital service platform among ecosystem organizations

4.2.1 General

Shared digital service platforms among ecosystem organizations involve an alliance between different organizations using the platform to generate value for their organizations. The shared digital service platform among ecosystem organizations can have different governance arrangements based on the specific industry, organization size and goals.

4.2.2 Centralized model

Under this model, one entity is responsible for providing shared services. This central entity has the authority to set policies, define service standards and ensure compliance across different departments or business units involved.

A centralized governing body, consisting of representatives from various departments or business units, makes decisions regarding service offerings, resource allocation and overall strategy for shared services.

The centralized governing body establishes service level agreements (SLAs) with internal stakeholders (e.g. production departments) and external stakeholders (e.g. partners, suppliers and customers), specifying service levels, performance metrics and expectations for shared services.

4.2.3 Consortium model

Under this model, multiple entities, for example manufacturing organizations in the car industry, come together to form a consortium and jointly govern a shared digital service platform (see Annex A for details about roles and responsibilities of the consortium model and Annex B for related use cases). The consortium establishes a governance structure with representatives from participating organizations.

The governing body, consisting of representatives from participating entities, collectively makes decisions regarding service offerings, investment priorities, resource allocation and governance policies for the shared digital service platform.

The consortium establishes SLAs with participating organizations, outlining service levels, responsibilities and financial arrangements for utilizing the shared digital service platform.

4.2.4 Open platform model

Striving to be open, the open platform model encourages collaboration and participation from external stakeholders, such as partners, suppliers or customers. The platform provides a common infrastructure and set of services that can be extended and customized by external parties, fostering innovation and ecosystem

growth. For example, in the financial sector, the platform connects financial institutions and other service providers, enabling seamless integration and interoperability between different financial systems.

In the open platform model, the governance structure includes representatives from the organization operating the platform and external stakeholders, such as partners or developers. The governing body sets rules, standards and policies for platform usage.

The governing body makes decisions related to platform features, integration protocols, data sharing policies, and participation guidelines. It ensures that the platform remains open, secure and aligned with the interests of all stakeholders.

Depending on the nature of the platform, SLAs can be established with external stakeholders, defining service levels, data usage rights and responsibilities.

4.3 Consortium model — exemplar of an alliance

This subclause presents a consortium model as an exemplar of an alliance. Under this model, a shared digital service platform typically involves a consortium of organizations that play different roles (see Annex A for a more detailed description).

The owner of the shared digital service platform is the entity that controls the platform's intellectual property and decides who can participate and in what capacity.[1]

The core partners are the organizations involved in developing the shared digital service platform's core functionality.

Peripheral partners are third-party developers who want to offer their resources, such as applications, sensors, and devices on the shared digital service platform to gain market access.

Organizations can participate in the shared digital service platform ecosystem as either core partners or peripheral partners. Core partners typically have a more significant role in shaping the platform's direction and functionality, while peripheral partners contribute to the platform by adding new applications or devices that can interoperate with the platform's core functionality.

The owner of the shared digital service platform is typically a well-established organization with a large installed base. The owner of the shared digital service platform develops the platform with core partners. The organizations entering the platform ecosystem are attracted to the platform to gain access to the platform owner's installed base, that is, a large customer base. The organizations joining in the ecosystem expect to increase their returns through successful exploitation of the installed base of the platform owner.

Expanding the size of the platform ecosystem is key to the success of the shared digital service platform. In order to do that, the platform owner should incentivize the ecosystem organizations with data, the application programming interface (API) and developer tools to create and monetize services in the platform. To get started, the platform owner needs to actively look for the organizations for collaboration and incentivize them for value cocreation. The platform owner can make a selective decision on integration of the organizations into the ecosystem.

While there are advantages that customers receive through data-based digital services, various problems can occur. Since a large amount of personal data is created, it can be possible to infer the identity of an individual. This in turn can lead to privacy infringement.

Therefore, the governing body of the shared digital service platform needs to establish policies for privacy, security, risk governance and other areas of its digital services.

The governing body ensures that personal data and the fundamental rights of individuals are protected in the case of personal data transfer to third-party processors, especially in third countries. If the platform owner needs to share the sensor data with third-party service providers or make a profit by selling the sensor data, the requirements for the relevant regulations need to be addressed. Guidance should be given on conformance to regulatory requirements for personal data processing.