TECHNICAL SPECIFICATION

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Information technology — IT Enabled Services-Business Process Outsourcing (ITES-BPO) lifecycle processes —

Part 9: Guidelines on extending process capability assessment for digital transformation

Technologies de l'information — Processus du cycle de vie de la délocalisation du processus d'affaires des services activés par IT —

Partie 9: Lignes directrices relatives à l'extension de l'évaluation des capacités des processus pour la transformation numérique

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Contents

Page

Foreword

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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 document 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 or www.iec.ch/members_experts/refdocs).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html. In the IEC, see www.iec.ch/understanding-standards.

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

A list of all parts in the ISO/IEC 30105 series can be found on the ISO and IEC websites.

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

IT Enabled Services-Business Process Outsourcing (ITES-BPO) services encompass the delegation of one or more IT enabled business processes to a service provider who uses appropriate technology to deliver that service. Such a service provider manages, delivers, improves and administers the outsourced business processes in accordance with predefined and measurable performance metrics. This covers diverse business process areas such as human resource management, administration, health care, financial management, supply chain management, travel and hospitality, media, market research, data analytics, telecommunication, manufacturing, etc. ITES-BPO services provide business solutions to customers across the globe and form part of the core service delivery chain for customers.

Today, people are surrounded by digitalized products and services. Organizations are faced with changing expectations, sometimes driven by their competitive environment, and often driven by the opportunities arising from digital technology and customer expectations. In response to this environment, most organizations seek business transformation supported by technology.

A successful service delivery can deliver value both for the service provider and the customers. ITES-BPO customers expect the service provider to have the digital capabilities to support the customers' business transformation goals. ITES-BPO organizations are also faced with increased competition from innovative service providers who use digital technology to provide innovative solutions to customer needs. Managing the dynamic relationship between the service provider and the customers is key for ITES-BPO organizations embracing the challenge that has arisen from digital transformation. ITES-BPO organizations with a strong innovative competence are beginning to think in terms of a “proactive customer experience”: designing customer engagements aligned with personal preferences, based on a service user’s interactions. To meet the challenges of this environment, an ITES-BPO provider also requires a programme of digital transformation that ensures it has the digital tools and capabilities needed to support its customers' transformational strategies.

Digital transformation of ITES-BPO involves reviewing, renewing or substituting the processes involved in delivering outsourced business processes by an ITES-BPO provider. The overall objective is to improve the services given to the customers and, when appropriate, offer new services. In many cases, this will be achieved by using evolving technologies, such as AI (artificial intelligence), IoT (Internet of Things), and cloud computing. The ability to utilize such technology for digital transformation is enabled by higher levels of process capability and maturity. This document outlines the improvements in BPO practices required to achieve such improvements when seeking digital transformation for ITES-BPO.

The transformation of businesses has significant risk, that needs to be managed, for both the ITES-BPO service provider and customer organizations seeking to use outsourcing of business processes as part of their business transformation.

This document provides guidelines for a roadmap that an ITES-BPO organization can adopt to establish and improve their digital capabilities. It is aligned to the requirements defined in the ISO/IEC 30105 series, enabling them to deliver more added value to their service users. It outlines seven essentials (4.2) of digital transformation that ITES-BPO organizations should consider.

— Developing a digital strategy and strategic objectives.

— Establishing effective governance and management of the transformation processes.

— Involving and engaging customers during the digital transformation process.

— Establishing the organizational culture and structuring for digital transformation.

— Transforming operations in a digital way.

— Reinforcing the transforming technology infrastructure.

— Establishing an effective partnership ecosystem, in order to achieve the goal of sustainable business development in the digital era.

In addition, this document gives guidance for ITES-BPO organizations to implement the organization's digital transformation.

— It specifies the essentials of digital transformation that ITES-BPO organizations should take into consideration during the implementation process.

— It describes the key drivers to enhance the digital transformation capabilities of ITES-BPO organizations.

— It provides guidance to support digital transformation and maturity based on the process reference model and process assessment model defined in ISO/IEC 30105-1 and ISO/IEC 30105-2, outlining the outcomes for a digitally transformed ITES-BPO organization's processes and the corresponding base practices to achieve such outcomes along with the inputs and outputs.

Annex A and Annex B provide informative use cases.

Information technology — IT Enabled Services-Business Process Outsourcing (ITES-BPO) lifecycle processes —

Part 9: Guidelines on extending process capability assessment for digital transformation

1 Scope

This document specifies the essentials of digital transformations and illustrates the key drivers for enhancing the digital transformation capabilities of the organization, while taking account of different stakeholders' interests. It describes elements that ITES-BPO organizations can include specifically for digital transformation when implementing the lifecycle processes in the ISO/IEC 30105 series, and which can assist the organization in achieving their desired process capability levels, hereafter "maturity levels", as defined by the stakeholders. It provides guidance on process capability assessment for digital transformation for ITES-BPO organizations. Additionally, this document:

— covers IT enabled business processes that are outsourced;

— is not intended to address the maturity and capability of the IT processes that support ITES-BPO, but identifies the IT capabilities needed to support the achievement of specific ITES-BPO capabilities;

— is applicable to the service provider, not to the customer;

— is applicable to all lifecycle processes of ITES-BPO;

— provides guidelines to supplement the ISO/IEC 30105-2 process assessment model, enabling assessment of process capability of ITES-BPO organizations undergoing digital transformation.

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 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
big data
extensive datasets – primarily in the data characteristics of volume, variety, velocity and variability – that require a scalable technology for efficient storage, manipulation, management, and analysis

Note 1 to entry: Big data are commonly used in many different ways, for example as the name of the scalable technology used to handle big data extensive datasets.

[SOURCE: ISO/IEC 20546:2019, 3.1.2, modified — "primarily in the characteristics of volume, variety, velocity, and/or variability" has been changed to "primarily in the data characteristics of volume, variety, velocity and variability".]

3.2
cloud computing
paradigm for enabling network access to a scalable and elastic pool of shareable physical or virtual resources with self-service provisioning and administration on-demand

Note 1 to entry: Examples of resources include servers, operating systems, networks, software, applications, and storage equipment.

[SOURCE: ISO/IEC 20546:2019, 3.1.3]

3.3
digital ecosystem
distributed, adaptive, open socio-technical system with properties of self-organization, scalability and sustainability inspired from natural ecosystems

[SOURCE: ISO/TS 18101-1:2019]

3.4
digital transformation
process of profound and radical change through digital technologies (including big data, blockchain, cloud computing, internet of things, artificial intelligence, analytics, cognitive solutions, etc.) that orients an organization in a new direction and takes it to an entirely different level of effectiveness, which is based on analytics of data

3.5
ecosystem
infrastructure and services based on a network of organizations and stakeholders

Note 1 to entry: Organizations can include public bodies.

Note 2 to entry: Stakeholders can include customers, suppliers and partners.

[SOURCE: ISO/IEC TS 27570:2021, modified — Note 2 to entry has been added.]

3.6
robotic process automation
RPA
use of software to perform repetitive, high-volume, rule-based business processes or tasks, emulating human actions

4 Digital transformation essentials

4.1 General

The certainty of digital influence is expected to intensify across all industries. Data explosion, digital disruption and customer experience are the key drivers for digital transformation.

— Data explosion: there has been an explosion in the type and range of data available. The ability to make data-driven and predictive decisions has become the top driver impacting businesses. However, while significant amounts of data are derived from an ITES-BPO organization's daily operations, this is often overlooked, unstructured and inaccessible. This has created opportunities for ITES-BPO organizations to improve the quality and speed of their business decisions.

— Digital disruption: ITES-BPO organizations face competitive disruption from new entrants and concern about this drives the investments in digital technology. However, digital disruption should

not be viewed as a threat. The opportunities which arise from digital transformation outweigh the threat for a high percentage of ITES-BPO organizations.

— Customer experience: recognizing that a service user's experience with technology can significantly impact customer retention, ITES-BPO organizations are seeking to provide solutions that will enable seamless service user engagement across all an organization's functions, such as human resources, finance or supply chain. The need for a comprehensive service user engagement strategy has emerged as the top digital technology investment driver.

4.2 Digital transformation essentials in ITES-BPO industry

To adapt to such digital influence and drivers as described in 4.1, ITES-BPO organizations should investigate and define the implementation path for achieving digital transformation. The following seven key essentials should be considered.

— Developing a digital strategy and strategic objectives: embedded within the overall business strategy, ITES-BPO organizations should identify how technology will be used to transform the business model to increase the organizational competitive advantage. External market environment and competitive capability analysis should be conducted on an ITES-BPO organization’s digital capabilities in order to serve as the basis for developing a sustainable digital strategy.

— Establishing effective governance and management of the transformation processes: to assure the success of digital transformation of ITES-BPO organizations, ensure the objectives of digital transformation remain valid, risks, problems and opportunities are identified.

— Involving and engaging customers during the digital transformation process: engagement during planning should consider customer requirements and dependencies. User-centred design enables collaboration with customers and service users to deliver solutions and services that most effectively meet their needs. It addresses the user experience in order to deliver value to users and consequently to the business itself. An agreed approach to change management should ensure all changes from digital transformation are assessed, approved and implemented in a controlled manner. A planned approach to communications and customer relations management should ensure that customers and service users are kept aware of any changes that impact them. This should also include mechanisms to ensure that reviews and feedback from ITES-BPO organization's customers and service users regarding digital transformation initiatives are collected and analysed for further improvements upon digital initiatives.

— Establishing the organizational culture and structuring for digital transformation: ITES-BPO organizations should define and develop the culture and structure needed to support innovation. This includes innovation objectives, the mechanism for funding, oversight of innovation activities and a work environment that fosters innovation. Innovative talent is the centre of ITES-BPO organizations which are established for digital transformation.

— Transforming operations in a digital way: creating new or modifying existing operational processes and tasks in ITES-BPO organizations, using digital technologies to achieve business efficiency and effectiveness, and to develop new products or services.

— Reinforcing the transforming technology infrastructure: in developing the digital transformation strategy, consideration should be given to the technology trends. This includes a data-driven backbone, applied intelligence and cloud computing. This should be subject to periodic review.

  Data are poised to become the real lifeblood and currency for ITES-BPO organizations. Those that can master the data volume, velocity and variability will be best-positioned for success. Data-driven decision-making leverages data insights and predictions to inform and validate decisions to optimize performance and achievement of business goals.

  Automation, analytics and AI are at the intersection of ITES-BPO business and process transformation in terms of applied intelligence. Expanding over time, other emerging change agents such as block chains and Internet of Things (IoT) will become mature and will be intersected with these three.

Cloud computing is the enabler and foundation tying together all the ingredients of intelligent operations. It facilitates better integration of diverse data and can scale up and down as needed. Cloud-computing-based solutions are helping integrate insights across industry and cloud-based application platforms bring even more power to help companies move toward an as-a-service environment.

— Establish a partnership ecosystem: partner or supplier relationships should be established to strengthen the digital capabilities of ITES-BPO organizations. Such arrangements can bring complementary skillsets and more diverse data that drive innovation and foster continuous evolution, instead of one-time project-focused improvements.

5 ITES-BPO in digital transformation

5.1 General

Disruptive and transformative factors across value chains and outsourcing ecosystems require the business process outsourcing industry to adapt. The focus in the industry is shifting from a cost reduction proposition to a broader value proposition. During such changing business drivers, the interests from different stakeholders should be considered and the dynamics of marketplace drivers in ITES-BPO should be outlined. This serves as the basis for ITES-BPO organizations to improve the digital maturity level.

5.2 Different stakeholders' interest on digital transformation

At all levels of an ITES-BPO organization, customers and service users are key stakeholders for the process lifecycle. They have different interests and perspectives that should be considered for digital transformation.

— Customer: improved effectiveness in new product and service development; enhanced customer relationships leading to service user's retention, advocacy and growth; business platform's operations better support the organization's strategy. Customers fund the service development and operations. Therefore, as a result of any process update, including digital transformation, they want a more effective (greater value), more efficient (fewer service user actions) and reduced cost service.

— ITES-BPO organization: optimized processes to reduce cost; established value-based relationships; adopted technologies, responsive and adapted processes to respond to changing customer requirements; strengthened capability to find new opportunities.

— Service users: product or service designed in line with identified potential needs; optimized and seamless interaction process to improve the sales conversion rate; creating customized experiences at each touchpoint of a service user's experience journey; ease of use and availability of the service.

5.3 The drivers of digital transformation

The BPO industry will continue to thrive and show an upward trend, which will be driven by cost optimization, competitive advantages and disruptive technologies. The three accumulative drivers shape the path for an ITES-BPO organization to augment its competitiveness in the industry.

— Cost optimization: traditionally, the practice of ITES-BPO has long been adopted by organizations to achieve cost reduction through labour arbitrage and retain focus on core competencies. Customers and vendors cite a focus on core business functions and cost reduction, respectively, as the primary benefits behind outsourcing spending decisions.

— Competitive advantages: in recent years, an achievement of a multitude of strategic objectives has been highly expected from the marketplace beyond just cost. While cost remains a key driver, the ability for organizations to keep up and stay relevant in the modern age of disruption has become equally critical.

— Disruptive technologies: technologies are changing at an accelerated speed. The advent and adoption of new disruptive technologies are now enabling organizations to formulate disruptive BPO solutions to achieve both core cost reduction and new strategic imperatives. Organizations across the industry are recognizing the importance of technology as a means to achieving these benefits. Moreover, a higher percentage of Shared Service Centres and Global Business Service Centres are considering adopting disruptive solutions to drive performance, improve time to marketplace, and increase product and service innovation.

  Cloud computing is, and has been by far, the most transformative to date among all new disruptive technologies observed in the BPO industry. Most notably, business process as a service (BPaaS) enabled BPO is emerging in traditional BPO services, demonstrating an aggressive growth trend that parallels the growth of the BPO marketplace.

  Robotic process automation (RPA) is a widely adopted emerging technology across the BPO industry, alongside cloud computing, which involves automating actions taken based on decision data available.

  AI is a nascent driver in the BPO industry, which includes but is not limited to cognitive computing, machine learning, computer vision, deep learning and natural language processing. Such technologies have the potential to improve productivity, ease decision making and interactions, and enable a new field of innovative services.

  Block chains, IoT and other nascent technologies should be taken into consideration. For instance, digital twins based on IoT, machine learning combined with big data and AI can provide live reports containing key performance indicators.

6 Guidance on process capability assessment for digital transformation

6.1 General

Digital transformation has been significantly impacting the way ITES-BPO organizations operate their business. Therefore, improving the digital maturity of the organization is a fundamental path to sustaining its business and seeing it prosper in a highly competitive and dynamic environment. In order to address such augmented digital dynamics, the following subclauses provide guidance on leveraging the ISO/IEC 30105-2 process assessment model to support the assessment of process capability for digital transformation. This includes the outcomes, which are either additional, different or both, for a digitally transformed or transforming organization, and the corresponding base practices to achieve such outcomes, along with the inputs and outputs. In the meantime, the processes relating to digital transformation are listed according to the ISO/IEC 30105-1 process reference model.

6.2 Digital transformation and guidelines for strategic enabling processes

SEN1: Strategic planning and direction setting

For a digitally transformed ITES-BPO organization, its digital vision and strategy should be outlined, and the role digital vision and strategy is intending to play in the digital ecosystem, within the ITES-BPO organization, should be articulated.

An ITES-BPO organization can implement the following practices, with supporting guidance, to achieve the above outcomes.

— Define the purpose of achieving digital transformations in order to clearly outline a credible digital vision and strategy, and articulate the role digital transformations are intending to play in the digital ecosystem within the ITES-BPO organization. This can be achieved by:

  — communicating internally and externally in order that all stakeholders are able to clearly articulate strategy and roles;

  - aligning the digital vision and strategy with its business vision and objectives, and conveying a distinctive, valuable promise to the stakeholders.

- Pursue new value in order to have a realistic view of the business potential of existing products and services. The organization should plan to shift, where necessary, to new products and services to pursue new value. This can be achieved by:
  - being fully aware of the value of shifting towards a platform or service business model and being able to demonstrate their desire to adopt best practices associated with such an approach;
  - developing a well-defined roadmap to cover both business aspirations and technology adoption;
  - tracking new trends and considering them for evolution of both business and technology strategy or architecture.
- Integrate operations designed for digitally transformed services to embed digital capabilities into the organization's digital strategy. This can be achieved by:
  - making connections with legacy-based (non-cloud computing system) operations through open access via application programming interfaces (APIs), encouraging all areas of the organization to implement digital initiatives by partnering with, and building on, existing non-digital capabilities. In this way, legacy systems can be fully engaged in the digital transformation and can progressively evolve to become digital;
  - having a digital vision and strategy aligned with the overall organization in every department and business unit, making digital strategy an integral part of all areas of the business;
  - monitoring, updating and reporting on the progress of the digital transformation programme to the stakeholders;
  - defining acceptance criteria for each programme phase. This can be articulated as key performance indicators (KPIs), included in a service level agreement on behalf of the key stakeholders.
- Establish leadership skills for digital transformations to encourage and demonstrate the characteristics and behaviours of digital leadership driving digital adoption, including evidence-based decision-making, promotion and adoption of leadership concentrating the needs of all stakeholders, and engaged employee relationship. This can be achieved by:
  - encouraging evidence-based (data) decision-making, within a continuous learning environment, in which quantitative results can be stored and readily available for future reference;
  - promoting leadership that puts the needs of the employees, the ITES-BPO organization’s customers and the service users first. The leaders help to articulate purpose and ingenuity, resulting in engaged employees, ITES-BPO organization customers and service users;
  - having leaders as change agents within the organization. A digital mind-set should be adopted by leaders including associated process and technology adoption.

SEN2: Innovation management

For a digitally transformed ITES-BPO organization, its innovation scope should be defined in the organization’s digital transformation vision and ambition, to drive digital customer relationships and employee engagement. In addition, its ecosystem partners should be engaged in driving innovation.

An ITES-BPO organization can implement the following practices, with supporting guidance, to achieve the above outcomes.

— Define innovation scope clearly. This can be achieved by:

  — deciding the innovation scope pursuant to the organization's digital transformation vision and ambition, and adjusting based on market positioning.

— Define and deploy an innovation strategy to establish a deployment strategy at organization and process level, including innovation themes and teams, and conduct deployment. This can be achieved by:

  — developing a well-defined process for innovation supported by a digital platform and a guaranteed budget;

  — allocating appropriate resources for innovation projects;

  — encouraging digital innovation at every point in service development and on-going support.

— Engage with ecosystem partners to drive innovation. This can be achieved by:

  — constructing the organization's ecosystem landscape with diverse, complementary parties to encourage innovation. A set of clear value propositions should be worked out to help develop ecosystem partnerships;

  — creating an operating model, collaboration platforms and partnership agreements that encourage co-innovation across its ecosystem partners, driven by a clear view of the needs of the customers.

— Adopt new digital services to establish processes to effectively introduce and drive rapid adoption of new digital services. This can be achieved by:

  — driving digital customer intimacy and employee engagement by applying new digital services such as social media.

6.3 Digital transformation and guidelines for relationship processes

RLS1: Customer relations management

For a digitally transformed ITES-BPO organization, its brand value should be promoted, and brand outcomes should be tracked and analysed in order to realize a valuable customer relationship management. Omni-channel should be planned, and cross-organizational interactions should be monitored based on a service user's previous interactions. Service user experience should be evaluated and improved by using digital tools and data.

An ITES-BPO organization can implement the following practices, with supporting guidance, to achieve the above outcomes.

— Promote brand awareness and customer visibility to articulate a well-considered, clear and coherent brand promise, and build brand trust. Digital channels should be built up for the customer's accessibility to services received. This can be achieved by:

  — identifying potential customers for the organization's brand and reviewing the communication plans to promote the organization's brand value to potential and existing customers; tracking and analysing the brand outcomes;

- establishing digital channels that all customer journeys can utilize, where legislation allows. Actively measure the effort involved to drive improvements to the service user interface.

- Manage across channels to deliver services in an omni-channel environment, with user needs, preferences, context and status seamlessly shared and utilized across channels. This can be achieved by:

  - planning the omni-channel with a service user-first lens, rather than a channel-first lens. The service user experience is prioritized and then the channels relevant to that experience can be employed;

  - monitoring engagement rates across channels, and where appropriate, customizing all of the interactions in one channel based on a service user's previous interactions in other channels, including social channels.

- Evaluate service user experience and act upon representative feedback to drive improvement. This can be achieved by:

  - analysing a combination of complaints, surveys, unstructured data, call recordings, social sentiment, web analytics, application metrics and other data in predictive models to determine service user satisfaction and take action accordingly;

  - factoring service user experience into the design of the services and associated journeys during iterative development.

RLS2: Supplier management

For a digitally transformed ITES-BPO organization, its supply chain should be fully integrated, with supplier risks identified and with the service value chain established to improve customer satisfaction.

An ITES-BPO organization can implement the following practices, with supporting guidance, to achieve the above outcomes.

- Establish transparent integrated processes in order to manage the supply chain effectively. This can be achieved by:

  - tightly integrating the organization's supply chain with frictionless information sharing and the agility necessary to respond rapidly as a whole to changing circumstances;

  - migrating all the procurement, collaboration processes or regulations on-line for easy access. Shared information across the supply chain can uncover meaningful insights using advanced analytics;

  - connecting all the supply nodes which can support low-latency responses to change requests. Intelligent optimization capability should be established to enable smart decision-making and offer end-to-end transparency.

- Design and establish an optimal value chain of suppliers to deliver maximum value to customers. This can be achieved by:

  - categorizing the partnership risks concerned with supplier management into performance risks. Analytics and modelling tools to create risk resilience should be employed;

  - analysing the services' total cost or value of ownership (TCO or TVO) for service users and optimizing the value chain accordingly to reduce the TCO or improve the TVO;

  - selecting suppliers with the same customer-centric culture who will collaborate to support the omni-channel environment and achieve the required customer experience.

6.4 Digital transformation and guidelines for solutioning processes

SLN1: Solution development

For a digitally transformed ITES-BPO organization, user-centred design should be leveraged as part of the solutioning process to create highly usable and accessible products and services. The following practice can be implemented to achieve this outcome.

— Design a user-centred solution. This can be achieved by:

  — collaborating with customers and service users from the beginning and throughout the design processes;

  — focusing on putting service users at the centre of product design and development, using a variety of research and design techniques;

  — using an iterative design process with evaluation and feedback loops to evolve and improve the solution, with service user-based decision making.

6.5 Digital transformation and guidelines for transitioning processes

TRN1: People mobilization

For a digitally transformed ITES-BPO organization, cross-functional and multi-skilled teams are created within the organization. Non-traditional staffing resources, i.e. staffing resources with digital expertise, are planned for digital service delivery.

An ITES-BPO organization can implement the following practices, with supporting guidance, to achieve the above outcomes.

— Plan for team agility and provide a diversity of teams comprised of different skill-sets, functions and geographies to respond business changes. This can be achieved by:

  — creating cross-functional and multi-skilled virtual teams;

  — ensuring that a virtual team can be formed swiftly to address business demand. Technological measures such as augmented reality can be used to connect remote staff to collaborate in real-time;

  — empowering the virtual teams adequately to make decisions at appropriate level.

— Plan for an extended workforce, and plan for the readiness of non-traditional staffing resources, including crowdsourcing and temporary and short-term resourcing solutions. This can be achieved by:

  — adopting on-demand resources management, in which the organization should treat temporary workers similarly to permanent staff, including selection, development, motivation, assessment and retention;

  — continually improving the organization's capability for crowdsourcing, including resources and ideas.

TRN2: Infrastructure setup — technology

For a digitally transformed ITES-BPO organization, emerging technology should be evaluated and appropriately applied to meet service delivery needs. An ITES-BPO organization can implement the following practice, with supporting guidance, to achieve the above outcome.

— Create cross-functional and multi-skilled teams to fulfil such technology adoption. This can be achieved by:

  — evaluating the value of emerging technologies to the business and actively deploying some aspects to support appropriate use cases more effectively and efficiently.

6.6 Digital transformation and guidelines for service delivery processes

SDL2: Service delivery reporting

For a digitally transformed ITES-BPO organization, business decisions are made upon quantifiable and accurate performance data during the service delivery reporting process. Data analytic capability can be established to communicate needs and actions to improve business performance.

An ITES-BPO organization can implement the following practices, with supporting guidance, to achieve the above outcomes.

— Make decisions based on relevant data with resulting quantifiable improvements in operational performance. This can be achieved by:

  — methodical statistical analysis, back testing, T-testing, market simulations and A or B testing. All management decisions are validated by quantitative measures for performance and risk. Tactical decisions such as next best action for customer care are based on real-time data;

  — driving for data accuracy, leading to actual results that should be consistently falling within the model's predicted range of future performance.

— Establish data analytics capability of providing access to a strong analytics (machine learning or data science) capability, that is able to describe, predict and improve business performance. This can be achieved by:

  — adopting analytics to support automation across the organization's business. For example, predictive analytics can be used in the operational support systems to identify and predict faults. It can create alerts or tickets automatically, often including root-cause information and recommended next action.

— Utilize data visualization to communicate the concepts, ideas and facts derived from data. This can be achieved by various approaches including the use of pictures or graphical representations to highlight the salient points for value enhancement. This can be achieved by:

  — scanning the market to determine and select the most appropriate visualization tools such as process intelligence board for business needs. These are tailored to the needs and sophistication of each user and role.

6.7 Digital transformation and guidelines for tactical enablement processes

TEN2: Financial management

For a digitally transformed ITES-BPO organization, a digital investment strategy is established to support the organization's digital transformation objectives. The investment performance is managed, and financial risk for digital initiatives is identified.

An ITES-BPO organization can implement the following practices, with supporting guidance, to achieve the above outcomes.

— Establish a financial strategy for digital investment to support long-term strategic investments on digital transformation. This can be achieved by:

  — convincing the organization's investors or stakeholders of the necessity to seize a sustainable model (merger, acquisition, partnership, incubation) to develop its digital capabilities, ensuring that they have sufficient confidence in the modelling of long-term business value to make the required funding available.

— Manage investment performance and risk, operate a flexible budgeting process which allows digital initiatives to be evaluated and funded in a timely manner. This can be achieved by:

  — evaluating the digital investments at defined milestones using clear evidence (e.g. consumption analytics), and be able to easily secure additional funding if required;

  — crafting the benefit model to have a set of well-constructed operational and financial performance indicators that measure digital business value. These link to, and are aligned with, the organization's vision and strategies and are continuously improved;

  — making effective use of digital techniques to thoroughly evaluate the financial and operational risks associated with potential and ongoing investments.

TEN4: Knowledge management

For a digitally transformed ITES-BPO organization, the knowledge sharing process and system is established to continuously develop the organization's digital talent. Knowledge sharing is institutionalized. An ITES-BPO organization can implement the following practice, with supporting guidance, to achieve the above outcome.

— Capture and share institutional knowledge effectively across the organization. This can be achieved by:

  — establishing a formal knowledge sharing process and system that offers output tailored to employee needs and current expertise level. Incentives should be planned to encourage employees and teams to share knowledge;

  — managing all information online with security and privacy controls. Knowledge portals and "wikis" (online knowledge base) can be used by the majority of teams within the organization. These online resources are well-curated and up to date. The data should be converted to knowledge in a formal knowledge management system. Online tools should be applied for training to share the knowledge.

6.8 Digital transformation and guidelines in operational enablement processes

OEN2: Information security management

For a digitally transformed ITES-BPO organization, information security controls should be defined and implemented.

An ITES-BPO organization can implement the following practice, with supporting guidance, to achieve the above outcomes.

— Deploy information security controls to manage the authentication, authorization, access and auditing of data and information assets. This can be achieved by:

  — developing clear and comprehensive information security policies and ensuring their implementation. Accountability should be clear and staff awareness should be high through regular communication and risk assessments. All the organization's computers have the most recent security patches and anti-malware software in place;

— complying with all relevant government regulations and industry standards, such as the SOX (Sarbanes-Oxley) Act, GDPR (General Data Protection Regulation) and PCI-DSS (Payment Card Industry - Data Security Standard). Trade secrets and non-disclosure agreements with vendors and partners should be observed. The sensitivity of all data types should be determined and documented, and the associated risks should be quantified and mitigated to minimize risks to the business and its reputation.

OEN4: Human resource management

For a digitally transformed ITES-BPO organization, virtual teams are managed and encouraged to drive the digital strategy.

An ITES-BPO organization can implement the following practices, with supporting guidance, to achieve the above outcomes.

— Develop and implement a long-term digital skills strategy based on an assessment of needs. This can be achieved by:

  — defining relevant objectives and a managerial process for achieving these objectives. This should be subject to regular review to ensure that it is current and the strategy is effective.

— Create and implement a mechanism to reward and recognize the workforce and ensure implementation by using a digital scoreboard. This can be achieved by:

  — designing a digital scoreboard of the lagging or leading performance indicators for the workforce to serve as the basis for incentive and motivation.

— Design the work and policies in a digital way to establish a flexible and engaged digital atmosphere to improve the employee experience. This can be achieved by:

  — quantitatively assessing employee engagement, at least annually, using an independent assessor. The findings should be reviewed at C-level and action plans should be developed, communicated and tracked;

  — actively measuring ‘toil’ i.e. activities that are manual, repetitive, automatable, tactical and devoid of enduring value across the organization, and have an ongoing objective to minimize "toil" through the use of process redesign and automation, using third party and open-source solutions where possible;

  — developing a flexible HR policy that focuses on work commitments and effective collaboration instead of time keeping or work location.

— Manage a continuous training process to plan, deliver and track individual training and development needs through optimal use of digital methods. The organization should manage digital qualification and certification to develop and improve the overall digital skills of employees. This can be achieved by:

  — developing a continuous and measurable digital learning process based on relevant, contemporary digital-centric methodologies. Training development is regularly tracked and is part of senior executives’ performance target;

  — developing a flexible, user friendly, integrated and real-time accessible learning platform in the organization;

  — establishing a rich inventory of blended training programmes, online courses and dedicated in-house faculties;

  — instituting an ecosystem of internal learning to encourage employees to learn from each other.

OEN5: Infrastructure and technology management

For a digitally transformed ITES-BPO organization, the technology strategy, architecture and roadmap are clearly defined and implemented to ensure the effective use of technology across the organization.

An ITES-BPO organization can implement the following practices, with supporting guidance, to achieve the above outcomes.

— Define and implement a technology strategy, governance, architecture and roadmap to ensure agility and co-ordination at scale. This can be achieved by:

  — establishing an effective technology governance, structure and practice to ensure consistency across all technology decisions;

  — defining a well-defined technology strategy, architecture and roadmap to drive all technology investments. All teams understand the organization's technology strategy and make decisions to support it;

  — developing a comprehensive set of technology policies covering areas such as IT standards, information security, privacy, data management and business continuity. IT system roles and responsibilities are clearly defined and well understood.

OEN6: Work environment management

For a digitally transformed ITES-BPO organization, innovative work environments are established.

An ITES-BPO organization can implement the following practice, with supporting guidance, to achieve the above outcome.

— Design work environments to enhance employee well-being, including consideration for the physical environment, cultural attributes and employee needs, using emerging technology as appropriate. This can be achieved by:

  — using innovative and experimental approaches to encourage and engage with employees. New ideas are welcomed from all levels and functions, facilitated by internal digital forums or platforms;

  — making necessary facilities, usage scenarios and processes available where employees can imagine, brainstorm and practice new ideas related or unrelated to their scope of work within a digital culture of experimentation and fast fail.

Annex A
(informative)

Use cases — digital transformation in ITES-BPO organization

A.1 Customer service channel powered by mobile application

A.1.1 Abstract

Develop a mobile access for service users of medical equipment (e.g. hospitals), in addition to the customer service hotline, and provide engineers with a mobile work order processing platform.

A.1.2 Description - Status before digital transformation

Service users can only report repairs required by calling the customer service hotline. Progress tracking and customer satisfaction surveys both rely on the hotline, which is not sufficiently convenient. Service users completely rely on the customer service hotline, and lack online or mobile systems that can provide self-service entries, such as entries for fault inspections and satisfaction surveys. There are three ways to notify service users (call, email and SMS), so it is necessary to develop information notification for a social media platform official account.

Equipment management depends on the equipment number. Engineers need to call the customer service hotline or search on the equipment management system to check equipment information, resulting in low work efficiency.

Third-party engineers completely rely on telephone calls or workgroup notifications of regional managers and customers to receive the assigned work orders, and there is no platform for them to check the assigned work orders by themselves. Work orders are recorded by customer service.

Business units need to access multiple systems to obtain data, and data synchronization between systems relies on manual export and offline matching. Data are not fully utilized, so reports cannot be formed in a timely and comprehensive manner.

Data reports rely on downloading the data from the system, generating a pivot table in Excel, and then making reports and charts, which is time-consuming and laborious and the data display cannot be updated in real time.

A.1.3 Description – Status after digital transformation

The management method of equipment QR codes is transformed. Customers can scan the code to report for repairs, and engineers can scan the code to obtain detailed information about the equipment, which is convenient for maintenance and repair of the equipment.

Through the programme to develop a mini internal social media platform, service users can scan the QR code of the equipment to apply for repairs through BU (business unit) work orders. Service users can submit photos, short videos or audio recordings to describe the problems. The repair request process can be completed in 1 minute by selecting and uploading evidence, then service users can receive reminders of work order status changes on the social media platform, and check the progress of work orders at any time. Service users can also query historical work orders on the social media platform. The FAQ module provides related articles and videos for users to solve some common problems by themselves. The social media platform channel can reduce pressure for the customer service hotline, improving convenience and customer satisfaction.

At the same time, the social media platform also provides a work order processing platform for third-party engineers. Engineers can create equipment QR codes to help customers apply for work orders,

and can receive work orders assigned to them. After processing the work order on site, engineers can submit the photo of the document (including the service user's signature), location information and processing time through the platform, and apply to close the work order.

The development of the social media platform official account channel expands the scope of services, making the services process transparent, and improving the efficiency of customer service and engineers.

Customer service agents can check the work orders for the social media platform through the work order processing platform, assign engineers, and change the statuses of work orders.

The background data of the system can be interconnected through interfaces and RPA technology to realize real-time data synchronization.

After digitally integrating the information of the work orders, customer service and management personnel can check the statuses of work orders at any time, and generate reports and charts. The data platform can also be connected to Power BI tools for data analysis to better support the improvement and promotion of business departments.

A.1.4 Applied technology

Applied technologies are Java, social media platform, Redis, mySQL, SpringCloud and cloud computing.

Agile development mode enables the IT team and PO (Business team) to work seamlessly.

A.1.5 Business problem solved or opportunity

In the past, users were only able to report for repairs by calling the customer service hotline, but now they can report for repairs by scanning the QR code of the equipment, which is quick and convenient.

The problem that third-party engineers do not have a system to receive and process work orders has been solved.

Service user satisfaction has been improved.

A.1.6 Predicted outcomes

Building a unified service platform will provide users with mobile service portals and provide third-party engineers with a mobile work order processing platform.

The data are integrated to provide multi-dimensional data display and operation analysis.

Annex B
(informative)

Use cases — digital transformation in ITES-BPO business processes

B.1 General

The aim of this annex is to provide further illustration and use cases showing how the processes relating to CRM, Finance, HR and Procurement, in every ITES-BPO organization, can potentially be re-structured using digital capabilities to address existing business challenges.

B.2 CRM digital transformation

A differentiated customer experience is the strategic priority of CRM transformation, where digital transformation makes it possible to attribute all factors on a customer's purchase journey.

— **Recognition and information search**

Using AI and machine learning technology to profile the service user's need can optimize the content sent to the service user, and streamline the planning, creation and delivery of that content. It can help in transmitting the right content at the appropriate time via the right channels. Data and analytics can enable an in-depth understanding of every service user interaction. This can be used to enhance the intimacy with the service user in a cost-effective way, in order to address the challenges of a complicated and segmented infrastructure. Digital tools such as IoT, AI, big data, analytics, integrated marketing, mobile, GPS (global positioning system) and in-store systems can smoothen the movement between digital and offline interactions that provide continuity of customer experience for online to offline (O2O) commerce.

— **Pre-purchase evaluation, purchase and consumption**

A personalized and seamless experience across the customer journey, and mobile, IoT, and multi-screen or multi-app content distribution technologies improve the efficiency of interactions. Digital trading to establish e-stores that adopt wide ranges of engagement channels can enhance the flexibility and efficiency of customer engagement. Real-time and store-keep unit (SKU) level receiving and selling data can empower digital supply-chain management, in which inventory distribution planning and execution are optimized, further improving customer order fulfilment and store inventory service level.

— **Post-consumption evaluation**

AI or chatbot, analytics to construct the predictive models, and omni-channel interaction are the key digital capabilities that can provide service for the service users in a timely, contextual and predictive manner to deliver personalized service and support. Additionally, with the application of AI, analytics, mobile and multi-screen or multi-application content distribution technologies, digital customer awareness can be realized in a more efficient way driving digital self-service to become a trend. AI, big data, analytics and customer intelligence platforms can enable real-time customer satisfaction analysis and make corresponding adjustments on time based on the analysis results.

— **Loyalty and branding building**

AI, IoT, big data, collaboration platforms, social media management platforms and web analytics are the digital enablers for organizations to improve the customer reward and recognition capabilities, to establish trackable and measurable brands. They can also enable the organization to identify the improvement opportunities of consumer trust programme that drive loyalty enhancement.

B.3 Finance digital transformation

Finance functions are transforming across many processes, ranging from the fundamental level (transaction processing, bookkeeping), through the operational level (financial reporting, financial control), to the strategic level (decision support, risk management activities). Many organizations are progressing toward the implementation of intelligent finance concepts and functions, and the ultimate objective of financial digital transformation is operational efficiency, business support effectiveness and ability to add real value to business.

— **Transaction process and bookkeeping**

RPA can automate tasks that are of a repetitive nature and require tedious manual effort. Many finance functions (organizations) are using this technology to reduce high-volume, low-value finance activities in the "order to cash" and bookkeeping processes.

— **Reporting and control activities**

Finance functions are poised to leverage the digital capabilities of cloud computing, machine learning and RPA to ensure compliance with rapidly changing financial reporting standards, corporate governance requirements and cost reduction initiatives. For example, through robotic regular reporting, reporting requirements are filed automatically based on required due dates.

Sensor-based technologies, video cameras and tailored advanced security platforms enable loss prevention on business property through real-time monitoring and tracking, and offering timely advice to prevent loss.

— **Decision support and risk management process**

Machine learning tools around the financial processes and KPIs are intended to measure and improve KPIs that are relevant to the business. Use of the business AI tools, combined with big data, analytics techniques and block-chain-empowered finance functions, can help the business to make better and more informed decisions, based on the right information delivered at the right time at a holistic level.

B.4 HR digital transformation

A strategically-aligned workforce is the strategic priority of HR transformation programmes, including digital talent acquisition, real-time planning, workforce establishment, aligned performance management, differentiated workforce compensation, optimized HR operations and improved organizational agility.

— **Talent acquisition**

Big data, omni-channel and recruitment marketing platforms can be leveraged to develop a resilient employer brand to achieve the HR marketing strategy. By adopting an integrated applicant tracking and candidate relationship management system (including machine learning and analysis), organizations can optimize evaluations, interviews, and on-boarding, and continue to provide quality staff. Leveraging analytics, machine learning and intelligent automation, organizations can optimize the application tracking system to trigger requests and effectively source for the right candidates.

— **Planning and establishing the workforce**

An intelligent workforce planning tool, including analytical and cognitive abilities to predict workforce needs, can form an adaptive workforce system to continuously monitor internal and external trends to identify talent risks and opportunities. Wasted face-to-face training for new employees create bottlenecks that can be transformed by workforce planning and integrated benefits or employee information systems, analytical tools and cognitive capabilities. Learning management systems, artificial intelligence, analysis and cognitive solutions can improve the identification of individual strengths or developmental needs, or leadership development. These can identify opportunities for

improvement and prioritize development proposals based on each leader's role, business and career goals.

— **Performance management**

AI software is goal-based, linking performance criteria from top to bottom, automatically measuring performance gaps, and supporting continuous interaction and improvement. Integrated performance management provides an easy way for all stakeholders to measure progress on a continuous basis.

— **Employee experience**

Smart software can intelligently collect and interpret employee emotional data and provide management advice for remediation. Measuring employee engagement on a regular basis allows the company to adapt to changes in employee mood. Engaged employees are the key to high productivity and customer satisfaction. Intelligent career development can be enabled through intelligent software that can parse and match the required job skills and the skills possessed by employees. This can be improved by repeated matching of machine learning.

— **Workforce compensation**

Intelligent compensation management systems powered by analysis technology can minimize inconsistencies in pay, simplify, identify and correct unfair compensation cases to ensure employee satisfaction, and enhance the employer's reputation with potential job seekers. Benchmark compensation data analysis and a compensation management software system can be implemented to attract new employees and retain key members. Comprehensive incentives, behaviour or reward-matching recognition software can be adopted to effectively reward and recognize the incentive needs.

— **HR operations**

By leveraging learning management systems, artificial intelligence, analysis and cognitive solutions, human resource service delivery can be reformed to involve business partners and human resource experts in an ecosystem that enables HR delivery to stay in close touch with business issues, complex domain expertise and service efficiency. By adopting analytical techniques and machine learning capabilities, as well as intelligent recording systems, it enables better monitoring of performance at all points in the workflow.

B.5 Procurement digital transformation

Digital technologies, such as cognitive computing and artificial intelligence, advanced analytics, visualization, blockchain, IoT and virtual reality, are transforming procurement with shorter implementation cycles. They have become the strategic priority of procurement transformation, including planning, source-to-contract, procure-to-pay and supplier relationship management.

— **Procurement planning**

By combining modelling, statistics, machine learning and artificial intelligence, forward-looking decisions can be made to achieve increased predictability of supplier information, prices and costs. This can optimize sourcing strategies and provide forecasting and insight into future supplier sources for decision-making, and forecast procurement needs. By applying cloud computing, big data or analytics, mobile, IoT, cognition, AR (augmented reality) or VR (virtual reality), 3D printing and robotics, as well as using identification software and iterative machine learning algorithms, unstructured overhead, cost, contract, and vendor data can be rapidly classified to effectively and accurately forecast procurement needs, locate key expenditures, and manage expenditures in real time.

— **Source to contract**

Cloud computing, big data or analytics, mobile applications, connectivity services, cognition and next generation security can reform the sourcing process to achieve the intelligent procurement solutions and recommendations for complex activities to be completed in real time. Digital contracts can

avoid complicated contract signing, massive manual workload and unnecessary mistakes during the contracting process, and procurement operations will be more predictable and reliable.

— **Procure-to-pay**

Inventory management is the key facet of the procure-to-pay process. By leveraging cloud computing, big data or analytics, mobile, IoT, cognition, AR, VR, 3D printing and blockchain, organizations can enable devices' physical data to be detected, captured and recorded, the movement of goods and inventory levels for reordering to be monitored and actioned, and support ongoing audit trails. In addition, real-time invoice matching and digital contract disputes can be realized through the same capabilities.

— **Supplier relationship management**

Business reviews with suppliers can be more intelligent using digital technologies, big data or analytics to facilitate real-time reviews of suppliers' business, performance and expectations, alongside projections of future business needs. Digital transformations enabled by cloud computing, big data or analytics, mobile and cognition can strengthen the depth of supplier analysis to increase the visibility of all suppliers in the supply chain network, with the ability to monitor and take timely remedial actions.

Bibliography

[1] ISO/TS 18101-1:2019, *Automation systems and integration — Oil and gas interoperability — Part 1: Overview and fundamental principles*

[2] ISO/IEC 20546:2019, *Information technology — Big data — Overview and vocabulary*

[3] ISO/IEC TS 27570:2021, *Privacy protection — Privacy guidelines for smart cities*

[4] ISO/IEC 30105-1, *Information technology — IT Enabled Services-Business Process Outsourcing (ITES-BPO) lifecycle processes — Part 1: Process reference model (PRM)*

[5] ISO/IEC 30105-2, *Information technology — IT Enabled Services-Business Process Outsourcing (ITES-BPO) lifecycle processes — Part 2: Process assessment model (PAM)*

[6] ISO/IEC 30105-3, *Information technology — IT Enabled Services-Business Process Outsourcing (ITES-BPO) lifecycle processes — Part 3: Measurement framework (MF) and organization maturity model (OMM)*

[7] ISO/IEC 30105-3/Amd 1:2020, *Information technology – IT Enabled Services-Business Process Outsourcing (ITES-BPO) lifecycle processes – Part 3 Measurement framework (MF) and organization maturity model (OMM) – Amendment 1*

[8] ISO/IEC 30105-4, *Information technology – IT Enabled Services-Business Process Outsourcing (ITES-BPO) lifecycle processes – Part 4 Terms and concepts*

[9] ISO/IEC 30105-5, *Information technology — IT Enabled Services-Business Process Outsourcing (ITES-BPO) lifecycle processes — Part 5: Guidelines*

[10] ISO/IEC/TR 30105-7, *Information technology — IT Enabled Services-Business Process Outsourcing (ITES-BPO) lifecycle processes — Part 7: Exemplar for maturity assessment*

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