INTERNATIONAL STANDARD

ISO 21503

Second edition
2022-02

Project, programme and portfolio management — Guidance on programme management

Management de projets, programmes et portefeuilles — Recommandations sur le management de programmes

© ISO 2022

 COPYRIGHT PROTECTED DOCUMENT

Contents

Page

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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.

This document was prepared by Technical Committee ISO/TC 258, *Project, programme and portfolio management*.

This second edition cancels and replaces the first edition (ISO 21503:2017), which has been technically revised. The main changes are as follows:

— terms and definitions, figures and the text have been aligned with ISO 21500:2021 and ISO 21502:2020.

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.

Introduction

This document provides guidance on concepts, prerequisites and practices of programme management that is important for, and has an impact on, the performance of programmes.

This document is intended for use by:

— executive and senior management and those individuals involved in the sponsorship of programmes;

— individuals managing and participating in programmes;

— developers of national or organizational standards;

— developers of programme management methods and processes.

This document can be tailored to meet the needs of any organization or individual, so that they can better apply concepts, prerequisites and practices of programme management.

Project, programme and portfolio management — Guidance on programme management

1   Scope

This document gives guidance on programme management. It is applicable to any type of organization including public or private and any size or sector, as well as any type of programme in terms of complexity.

This document provides high-level descriptions of relevant terms, definitions, concepts, prerequisites and practices, including roles and responsibilities that form good practice in programme management. It does not provide guidance on processes, methods and tools.

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:

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

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

3.1
baseline
reference basis for comparison against which performance is monitored and controlled

[SOURCE: ISO/TR 21506:2018, 3.5]

3.2
benefit
created advantage, value or other positive effect

[SOURCE: ISO/TR 21506:2018, 3.6]

3.3
deliverable
unique and verifiable element that is required to be produced by a *project* (3.14) or *programme* (3.10)

[SOURCE: ISO 21502:2020, 3.9, modified — "or programme" has been added.]

3.4
governance
principles, policies and framework by which an organization is directed and controlled

[SOURCE: ISO/TR 21506:2018, 3.25]

3.5
governing body
person, group or entity accountable for the *governance* ([3.4](#)) of an organization, organizations or a part of an organization

[SOURCE: ISO/TR 21506:2018, 3.26]

3.6
outcome
change resulting from the use of the *output* ([3.7](#)) from a *project* ([3.14](#)) or *programme* ([3.10](#))

[SOURCE: ISO 21502:2020, 3.13, modified — "or programme" has been added.]

3.7
output
aggregated tangible or intangible *deliverables* ([3.3](#)) that form the *project* ([3.14](#)) or *programme* ([3.10](#)) result

[SOURCE: ISO 21502:2020, 3.14, modified — "or programme" has been added.]

3.8
portfolio
collection of *portfolio components* ([3.9](#)) grouped together to facilitate their management to meet strategic objectives

[SOURCE: ISO/TR 21506:2018, 3.42]

3.9
portfolio component
project ([3.14](#)), *programme* ([3.10](#)), *portfolio* ([3.8](#)), or other related work

[SOURCE: ISO/TR 21506:2018, 3.43]

3.10
programme
group of *programme components* ([3.12](#)) managed in a coordinated way to realize *benefits* ([3.2](#))

[SOURCE: ISO/TR 21506:2018, 3.50]

3.11
programme benefit
assessable *outcome* ([3.6](#)) by managing interrelated *programme components* ([3.12](#)) together to achieve strategic and operational objectives

[SOURCE: ISO/TR 21506:2018, 3.51, modified — "by managing interrelated programme components together to achieve strategic and operational objectives" has replaced "viewed as an advantage by programme stakeholders and contributing to the programme objectives".]

3.12
programme component
project ([3.14](#)), *programme* ([3.10](#)) or other related work

[SOURCE: ISO/TR 21506:2018, 3.52]

3.13
programme management
coordinated activities to direct and control the realisation of identified *benefits* ([3.2](#)) and *deliverables* ([3.3](#))

[SOURCE: ISO/TR 21506:2018, 3.54]

3.14
project
temporary endeavour to achieve one or more defined objectives

[SOURCE: ISO 21502:2020, 3.20]

3.15
project management
coordinated activities to direct and control the accomplishment of agreed objectives

[SOURCE: ISO 21502:2020, 3.24]

3.17
sponsor
person responsible for obtaining the resources and executive decisions to enable success

[SOURCE: ISO/TR 21506:2018, 3.78]

3.18
stakeholder
person, group or organization that has interests in, or can affect, be affected by, or perceive itself to be affected by, any aspect of the *project* (3.14), *programme* (3.10) or *portfolio* (3.8)

[SOURCE: ISO/TR 21506:2018, 3.79]

4   Concepts of programmes and programme management

4.1   General

This clause describes the concepts of programmes and programme management. It provides guidance to executive and senior management on how programme management should be integrated in an organization or organizations.

4.2   Concepts of programmes

4.2.1   General

This subclause describes the concept of programmes, and describes a programme's purpose, establishment, alignment, structure and stakeholders.

4.2.2   Programme characteristics

Programmes can be strategic, transformational or operational, and have one or more of the following characteristics:

— programmes comprise programme components that have interdependent and interrelated relationships to one another;

— programmes provide outcomes and benefits for stakeholders and contribute to strategic, transformational or operational objectives;

— programmes have complexity and uncertainty, which need to be managed and reduced where possible.

Complexity and uncertainty in relation to programmes can include:

— unclear and uncertain objectives to be achieved;

— context and other external factors;

 3

— social, political, economic, sustainability and legal dynamics;

— technological aspects;

— constraints, such as time, cost, quality and risks;

— interdependencies and integration among the programme components;

— logistical issues;

— stakeholders' diverse viewpoints and expectations.

4.2.3   Purpose of the programme

The purpose of the programme should be to deliver outcomes and realize benefits, which are aligned to strategic and operational objectives, that cannot be realized when components are managed individually. The programme can also have objectives, such as improving efficiency, reducing threats and realizing opportunities.

4.2.4   Programme establishment

When establishing a programme, activities that should be considered include:

— developing a common approach to managing programme components;

— managing stakeholders' views and interests (see 6.4.8);

— communicating internal and external aspects of the programme;

— improving benefits realization, particularly in scheduling the early realization of benefits (see 6.6);

— optimizing the use of resources across programme components (see 6.4.5);

— optimizing cost, schedule and quality (see 6.4.6, 6.4.7 and 6.4.4);

— managing the risks and issues of the programme (see 6.4.2);

— steering and aligning the programme components (see 6.4.2);

— supporting a business rationale, which defines the objectives of the programme;

— identifying benefits to be realized by managing the individual components as a programme (see 6.6);

— aligning with one or more of the strategic, transformational and operational objectives.

When establishing a programme, organizational risk or uncertainty can be of concern. The considerations to be addressed include:

— level of complexity (see 4.2.2);

— level of risk associated with the achievement of the programme's objectives and potential changes;

— degree of organizational change required;

— level of risk regarding required resources.

4.2.5   Programme alignment

Programmes can be established in a single organization, across multiple organizations or within a portfolio. Programmes should be aligned to the governance framework. An example of programme alignment is shown in Figure 1, which illustrates a context and environment within which a programme can exist. The organizational strategy should be used to identify, document and evaluate opportunities, threats, weaknesses and strengths, which can help inform future action. Selected opportunities and threats can be further examined and justified resulting in a programme being initiated. The outputs from the programme are expected to deliver outcomes, which should realize benefits for the sponsoring organizations, as well as for internal or external stakeholders.
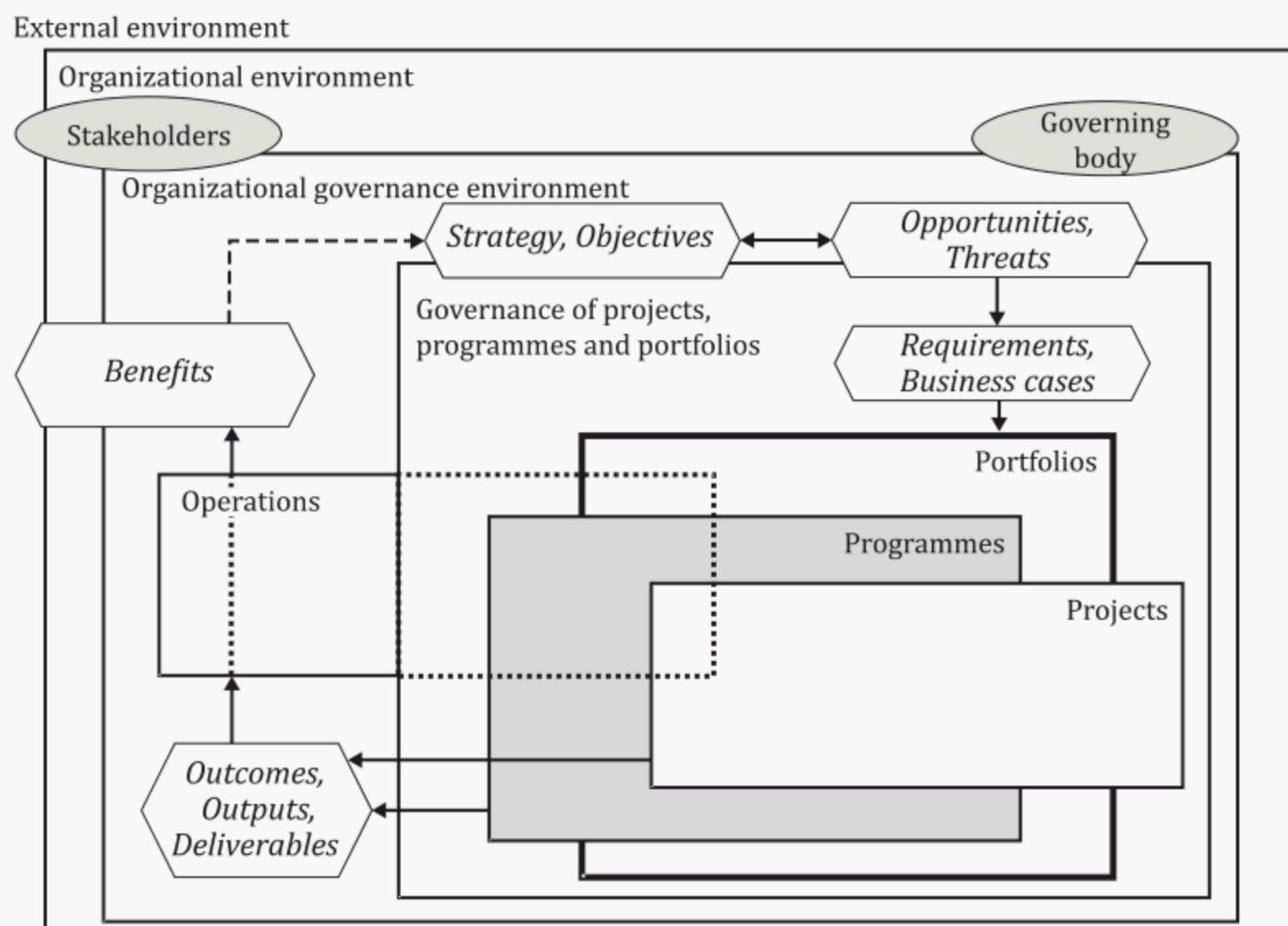
NOTE   The dashed lines of the operations box indicate that operations can stretch into projects, programmes and portfolios (the dashed lines can be referred to as "other related work").

Figure 1 — An example of programme alignment within an organizational context

4.2.6 Programme structure

A programme should consist of at least two programme components. The structure of the programme should be designed to reflect aspects such as the outcomes and outputs required, the nature and complexity of the work, the types of components needed and the characteristics of the organization performing the programme.

Figure 2 shows an example of a structure for a programme including relationships between and among programme components such as projects, a programme and other related work.

NOTE   Other related work can include activities performed by functional and operational areas that support the programme and its components.
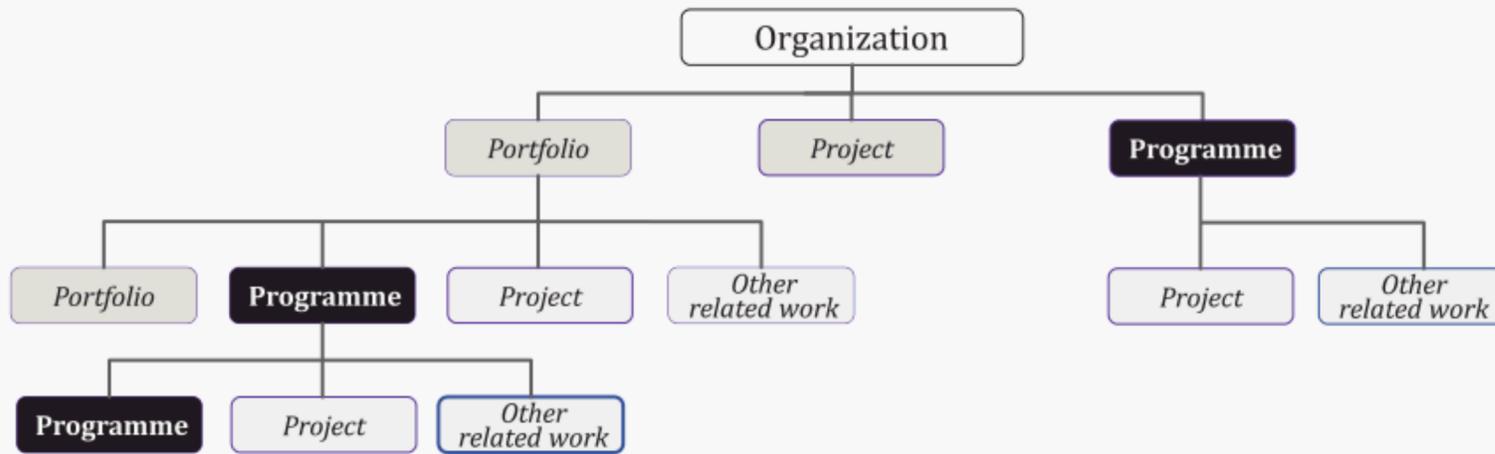
Figure 2 — An example of relationship between projects, programmes and portfolios

4.2.7 Programme stakeholders

The stakeholders of a programme can:

— be affected by the programme, its outcomes, outputs or its deliverables;

— influence the programme, its outcomes, outputs or its deliverables;

— have expectations of the programme, its outcomes, outputs or its deliverables.

Programme stakeholders can include:

— sponsors;

— business owners;

— programme team;

— internal and external partners and organizations;

— core functional teams;

— support teams;

— programme management office;

— users.

4.3 Concepts of programme management

4.3.1 General

This subclause describes programme management, its purpose and its life cycle.

4.3.2 Programme management

Programme management comprises those activities required to meet the programme sponsor's requirements. These activities should provide a consistent approach and should include:

— establishing the organization of the programme;

— developing and implementing the governance and management framework of the programme;

— initiating, steering and aligning programme components;

— managing the programme to achieve objectives, deliver outcomes and realize benefits (see 6.5);

— managing stakeholders' engagement;

— managing the risks and issues of the programme (see 6.4.2);

— controlling changes to the programme baseline (see 6.4.3 and 6.5);

— managing the integration of the performance of programme components;

— managing communication;

— managing scope, cost, schedule, resources and quality;

— managing resources across programme components.

Programme management can enable the realization of two types of benefits:

— internal benefits that are generated by managing the programme components, as an integrated set of activities;

— external benefits that contribute to achieving strategic, transformational or operational objectives.

Benefits, tangible or intangible, can be realized both during the programme life cycle and after the closure of the programme. The programme should be organized and planned in order to deliver outcomes and realize benefits as early as possible.

4.3.3 Programme management purpose

The purpose of programme management is to provide a consistent approach to the following:

— embracing complexity and uncertainty in the context of the programme;

— enabling investment in programme components;

— aligning with the organizational strategy and acceptable level of risk;

— optimizing organizational capability and capacity;

— securing benefits from investment;

— identifying and managing stakeholders' interests.

One example of implementing the organizational strategy and realizing benefits through programmes and related projects is depicted in Figure 3.
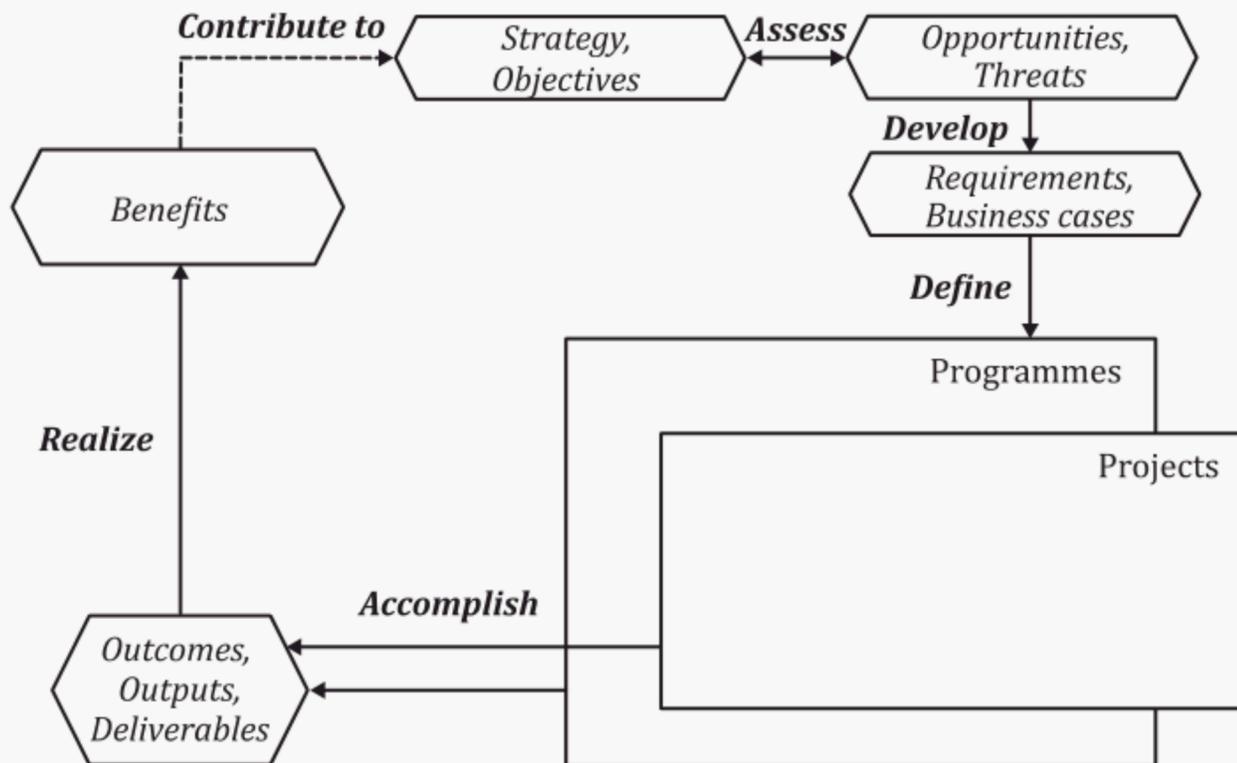
NOTE   Opportunities and threats are seen from a strategic perspective.

Figure 3 — An example of strategy implementation through programmes and related projects

4.3.4   Programme life cycle

The programme should start from the time a decision is made to initiate it or on an agreed start date, whichever is the earliest. The programme should end when a decision is made to close it or a date for closure is formally agreed, whichever is the later.

Reasons to close a programme can include:

— the programme scope has been completed;

— coordination of the interrelated components of the programme is no longer needed;

— achievement of the benefits is no longer possible or necessary.

A programme should be phased in order to organize, manage and integrate the programme components that enable the delivery of the outcomes and realization of benefits.

5   Prerequisites for programme management

5.1   General

This clause provides guidance to executive and senior management on the prerequisites that should be considered before implementing programme management within an organization and its sustainment.

5.2   Evaluating the need for programme management

When deciding whether to implement programme management within an organization, the ability to integrate other related work and the capacity to absorb change should be considered. To evaluate the need for programme management, factors can include:

— impact on governance within the organization;

— alignment with strategic and operational objectives;

— organizational structure, maturity and culture;

— ability to work across and within organizational boundaries;

— impact of organizational change, both internally and externally;

— availability of human resources, and their knowledge, skills and abilities;

— budget impacts;

— effort required for implementation.

Justification at the organizational level should address the need, risks, benefits, resources required, and how the proposed implementation of programme management aligns to the strategic and operational objectives of the organization. The implementation of programme management can be evaluated in terms of the following:

— stakeholder engagement and management;

— balanced stakeholder views and interests;

— internal and external communication;

— use of resources;

— organizational efficiencies;

— budget, schedule and quality;

— skills required;

— risk visibility and management;

— management of complexity;

— programme alignment, control and reporting of the programme components and associated elements;

— realization of benefits.

The justification for the implementation of programme management within an organization should be documented in a business case or other similar documented analysis.

5.3   Implementing programme management in organizations

When planning to implement programme management, executive and senior management should address:

— managing the need for the alignment of programmes to organizational strategy;

— investment in the required financial and additional resources;

— the need to negotiate, invest in and balance resources throughout the organization;

— the management effort required to monitor and control the programme and its intended benefits;

— the demand for coordination and communication both internally and externally to support the programme;

— the need for change and complexity management;

— conflicts in project and programme management integration;

— conflicting priorities between organizational and operational functions;

— organizational challenges in relation to culture, skills and geographic location.

5.4 Governance of programmes

Alignment of programme management should consider organizational governance. This alignment should have a strategic rationale and relationship. Strategic alignment of programme management should achieve synergistic outcomes within the organization or across the participating organizations.

At the organizational level, systems, procedures and processes should already be aligned. The organization should define how and which resources will be allocated to the management and control of programmes and their components so that opportunities for efficiencies and alignment can occur.

Programme management should align with the governing organization or portfolio. The alignment should improve the management and delivery of programmes, and their individual components to realize additional benefits.

Sustainability of programmes and their components within an organization should be aligned by balancing and optimizing social, economic and environmental characteristics. The relationship allows the executive and senior management to have oversight of programme management, and enables strategic alignment and the selection of programme components.

Refer to ISO 21505 for further information on this topic.

5.5 Establishing programme roles and responsibilities

5.5.1 General

Executive and senior management should assign and define the programme management roles, responsibilities, accountabilities and limits of authority. These roles should be defined to:

— assist with providing the required resources, capabilities, processes and tools;

— support and enable organizational change and realization of the programme's benefits.

Key roles and responsibilities to be defined include the programme sponsor (see 5.5.2), programme manager (see 5.5.3) and programme management team (see 5.5.4).

5.5.2 Programme sponsor

The programme sponsor should be responsible for the programme overall strategy and for advocacy of the programme including:

— aligning the programme with the organizational strategy;

— aligning the programme with the business case or with similar documentation;

— communicating the objectives of the programme;

— delegating authorities to the programme manager;

— making decisions that impact the programme;

— interfacing with executive management or other organizational management bodies;

— engaging customers and other stakeholders;

— resolving issues and conflicts beyond the programme manager's authority;

— approving or facilitating changes to the programme baseline.

5.5.3   Programme manager

The programme manager should be responsible for the overall performance of the programme and coordinating the programme components including:

— acting on direction from the programme sponsor;

— leading and resourcing the programme and the programme management team;

— making decisions and directing the programme management team;

— achieving the programme objectives and realizing the programme benefits;

— resolving problems and conflicts within the programme;

— providing an interface to organizational management;

— providing an interface with stakeholders;

— monitoring and advising the programme sponsor on the alignment and progress of the programme;

— working with the programme sponsor and organizational management to support the needs of the programme;

— controlling the interrelationship between programme components.

5.5.4   Programme management team

The programme management team should be responsible for the performance and implementation of one or more programme components or functions.

The programme management team can include the following roles:

— programme sponsor;

— programme manager;

— change manager, when appropriate;

— programme component managers;

— administrative support;

— other technical functions required by the programme.

The programme management team can be supported with reporting, training, consulting, contract management, performance management, assurance, audit and other functions as required. Individuals on the programme management team can have specific or additional roles and responsibilities as part of a programme. Those working on the programme components can be considered part of the broader programme team.

6   Managing a programme

6.1   General

This clause describes the practices for the establishment, integration, control, benefits management and closure of a programme.

6.2 Establishing a programme

6.2.1 General

Establishing a programme should include defining and establishing a framework for programme management, consistent with the management context, and a programme design and plan.

6.2.2 Framework for programme management

The framework for programme management should enhance the performance of the programme including identification and realization of benefits. The development of the framework should include:

— establishing responsibility and accountability for programme planning, implementation and control;

— facilitating supporting roles and providing necessary resources.

6.2.3 Programme design and planning

Programme design and planning activities should include:

— identifying the vision and objectives of the programme;

— identifying the needs and expectations of the stakeholders;

— identifying a strategy and activities associated with change;

— developing a strategy for stakeholder engagement;

— identifying the possible programme components;

— identifying interdependencies between programme components;

— developing the programme plan, priorities and integrated schedule;

— identifying the resources required for the programme;

— identifying and securing funds;

— planning for benefits realization;

— identifying the reporting framework of the programme;

— identifying roles and responsibilities.

6.3 Programme integration

6.3.1 General

Programme integration should include the integration of strategy, requirements, components and functions. Programme integration can also include taking advantage of the synergy created by managing components together.

6.3.2 Strategic integration

By balancing the programme's deliverables, outputs and outcomes against organizational strategy and objectives, the organization should be able to improve sustainability and benefits realization.

6.3.3   Requirements integration

Requirements integration should support, but may not be limited to, the following:

— mapping of the programme benefits to the stakeholders' expectations;

— aligning requirements of the programme and its components;

— coordinating requirements among the programme components.

6.3.4   Component integration

Integration of programme components should consider interdependencies, which can include:

— similar or interrelated programme components;

— awareness and control of the larger investment;

— efficiencies in shared resources;

— programme-level approach to threats and opportunities;

— cost reductions through shared activities;

— environmental controls and impact;

— management and control of programme components.

Programme component integration should be established and may include:

— oversight of the interactions among programme components;

— compatibility between the processes and systems;

— coordination of outputs to meet objectives;

— integration of the inputs and outputs of the programme components;

— integration of the outcomes to enable the realization of programme benefits.

6.3.5   Functional integration

Functional integration can require the alignment of engineering, quality, legal, finance, operations, information technology, human resources, programme processes, systems and change activities. This integration should be performed to realize expected benefits and achieve programme objectives.

6.4   Programme management practices

6.4.1   General

A common application of practices across programme components should be applied to enable programme integration, control and management. A programme may require the component managers to select and implement specific programme practices and systems. Also, there are practices that are unique in their application within the programme to enable integration control and oversight. The practices described in 6.4.2 to 6.4.8 can be used throughout the programme life cycle.

6.4.2   Risk and issue management

A risk and issue management approach should be defined and established to capture relevant issues, threats and opportunities, which can include:

— using a consistent risk management practice for both programme and component level that integrates with the organizational risk plan;

— aligning the acceptable level of risk for the organization and the programme;

— performing ongoing identification, definition and escalation of programme level issues, threats and opportunities throughout the programme life cycle;

— recording issues at component level, threats and opportunities that can impact the programme's objectives;

— analysing the programme's issues, threats and opportunities;

— developing and deploying response plans for the programme's issues, threats and opportunities;

— assigning and monitoring ownership of each risk and issue.

6.4.3   Change control

A change control approach should be defined and established to address changes that affect the programme baseline and the achievement of the objectives of the programme. Change control includes:

— establishing a programme change structure;

— implementing an approval process for the programme;

— establishing a change control process aligned with the programme's baseline;

— analysing, tracking and assessing the impact of changes across programme components;

— implementing approved changes.

6.4.4   Quality management

The approach to quality management should be defined and established including:

— identifying and communicating relevant standards;

— applying quality assurance;

— performing quality control as planned;

— deploying usable metrics that provide qualitative measures.

6.4.5   Resource management

Resource management optimizes the use of resources. Resources may include human resources, funds, equipment, real estate, facilities and tools. The programme manager should monitor and facilitate the use of resources across the programme components.

6.4.6   Schedule management

The programme schedule should include the integration of programme component schedules. The programme schedule should incorporate the timing for programme component deliveries and benefits realization. Schedule management should include the monitoring of component schedules to enable negative schedule variances in components to be mitigated with a view to reduce their impact on the programme overall schedule.

6.4.7 Budget and financial management

The programme's budget and financial management integrates the cost estimates and budgets of the components. This management should include:

— securing funding;

— allocating budget to programme components;

— monitoring each programme component budget spent to keep within the allocated budget;

— applying organizational policies for management reserve and contingency;

— determining and using management reserve and contingency funds;

— analysing and verifying financial performance.

6.4.8 Stakeholder engagement and reporting

Stakeholder engagement should be coordinated with each programme component manager to identify the stakeholders' relevant interests, needs, expectations and perspectives. Stakeholder engagement at the programme level can differ from component level in communication style, media, frequency and information communicated, while reducing duplication.

Programme reporting should enable stakeholders to continuously monitor activities that can include:

— programme and programme component progress;

— issues, threats and opportunities;

— programme component deliverables;

— progress towards achieving outcomes and realizing benefits.

6.5 Programme control

Programme control should include:

— managing the impact of programme level decisions across programme components;

— maintaining and adjusting component boundaries and interfaces and taking advantage of synergies among components;

— changing priorities between components as required;

— understanding the interrelationships and potential impacts on the programme baseline and the baselines of the individual components;

— confirming the realization of benefits within the duration of the programme;

— monitoring overall budget and variation by programme component.

6.6 Benefit management

6.6.1 General

This subclause 6.6 describes benefit identification, analysis and control.

6.6.2 Benefit identification and analysis

Benefit identification and analysis should begin when the programme is being considered. After the programme has been established, a more detailed set of benefits to be realized should be identified, analysed and prioritized. Benefit identification and analysis include:

— identifying expected benefits;

— identifying owners for each benefit to be realized;

— aligning benefits with strategic and other objectives;

— defining performance metrics and reporting for each benefit;

— determining time frames for benefits realization.

6.6.3 Benefit control

The control of benefits should include:

— measuring and controlling progress towards the realization of expected benefits throughout the programme life cycle;

— collecting performance measurements for each benefit;

— reporting and communicating the status of benefits to the stakeholders;

— identifying additional benefits throughout the programme life cycle.

Benefits may be realized during the programme, at the end of the programme or after the programme has closed. Before the end of the programme, the responsibility for the future realization of benefits may be transferred to a new owner.

6.7 Programme closure

Programme closure should include:

— verifying the acceptance of the deliverables of the programme components;

— verifying the programme benefits have been realized or transferred;

— closing or transferring the programme components;

— completing the final report of the programme;

— capturing, documenting, communicating and archiving lessons learned;

— releasing the programme's resources;

— ending contracts and financial accounts;

— archiving the programme's records.

Bibliography

[1]   ISO 21500:2021, *Project, programme and portfolio management — Context and concepts*

[2]   ISO 21502:2020, *Project, programme and portfolio management — Guidance on project management*

[3]   ISO 21504, *Project, programme and portfolio management — Guidance on portfolio management*

[4]   ISO 21505, *Project, programme and portfolio management — Guidance on governance*

[5]   ISO/TR 21506:2018, *Project, programme and portfolio management — Vocabulary*

[6]   ISO 21508, *Earned value management in project and programme management*

[7]   ISO 21511, *Work breakdown structures for project and programme management*

ICS 03.100.01

Price based on 17 pages