



GAPPS

Global Alliance for the
Project Professions

A Guiding Framework for Leadership in Complexity

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The Core Elements of Strategic Alliance Best Practices and ISO44001
have been integrated into Management of Complex Projects**

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Foreword

Faced with volatile, uncertain, complex, and ambiguous (VUCA) environments, governments, individuals, and both public and private sector organisations have become interested in frameworks and guidance that describe competencies required for leading in complexity. This complexity can be associated with dealing with interdependencies and delivery of endeavours in many different contexts including projects, programs, contracts, supply chain, and business as usual across all industries.

The *Global Alliance for the Project Professions*, formerly known as the *Global Alliance for Project Performance Standards* (GAPPS) is a volunteer organisation working to create performance based frameworks and other products by providing a forum for stakeholders from differing countries, systems, backgrounds, and operating contexts to work together to address the needs of the global program and project management community.

These frameworks are intended to support the development and recognition of local standards and to provide a sound basis for mutual recognition and transferability of project, program, and other management role-related qualifications.

The GAPPS frameworks are intended to be used by businesses, academic institutions, training providers, professional associations, and government standards and qualifications bodies globally. Frameworks may be used “as is” to speed the development of local standards, or they may be adapted to local needs.

This document is the fifth framework produced by the GAPPS. In 2006 the GAPPS released the first version of *A Framework for Performance Based Competency Standards for Global Level 1 and 2 Project Managers*. In 2011 the GAPPS released the first version of *A Framework for Performance Based Competency Standards for Program Managers*. In 2015 the GAPPS released *A Guiding Framework for Project Sponsors* and in 2019 they produced *A Guiding Framework for Project Controls*.

Future documents may address other roles involved with projects and programs.

Further information or copies of the frameworks can be found at

<https://www.globalpmstandards.org>

Version	Date	Summary of Changes
3.00	4 th February 2020	WIP Draft document
3.01	16 th May 2020	Amendments agreed at TLF#46
3.02	4 th September 2020	Amendments agreed at TLF#47
4.01	1 February 2021	Amendments agreed at TLF#49

A Guiding Framework for Leadership in Complexity

1. Scope

This Guiding Framework is performance based, presented in the form of descriptors of minimum acceptable performance in the workplace. Such descriptors will usually be developed for a specific role. In this case the focus is on the minimum competencies required for anyone endeavouring to get things done in the face of complexity across all types of endeavour and in all roles and contexts. It is intended to complement existing standards, guidelines, and frameworks. The focus is therefore on including only those actions and competencies specifically relevant to leadership in complexity.

The contents of this document may be used “as is” to support your organisation’s development processes or to expedite the process of competency descriptions or standards development. They may be tailored to reflect cultural differences or local practice, and they may be used as a baseline to compare, through a mapping process, with other guidelines.

The GAPPS Framework consists of:

- Five units of performance based competency for Leadership in Complexity.
- Supporting material to aid in the application of the Guiding Framework.

This framework follows the format of performance based competency standards and is intended to be used to assess threshold competency — demonstration of the ability to do something at a standard considered acceptable in the workplace. It is applicable to those responsible for Leadership in Complexity in all fields of endeavour including, but not limited to: aerospace, architecture, automotive, biotechnology, construction, defence, design, education, engineering, environment, financial services, government, government contracting, information systems, law, mining, oil and gas, pharmaceuticals, software development, telecommunications and for-purpose or third sector (not-for-profit).

2. Process

Work on a performance or competency based framework for a Leadership in Complexity began in March 2017 at GAPPS Thought Leadership Forum (TLF) No 37 hosted by the Autónoma University and the Portuguese Association of Project Management (APOGEP) in Lisbon.

In November 2017, at GAPPS TLF No 39, GAPPS signed a Memorandum of Understanding with the International Centre for Complex Project Management (ICCPM) which was beginning a review of the Complex Project Manager Competency Standard (Version 4.1 August 2012) for which the copyright is

held by the Commonwealth of Australia (Department of Defence) and ICCPM is the review, update, and authorisation authority. As part of this review, GAPPS offered its assistance and collaborated with ICCPM using the GAPPS from GAPPS TLF No 40 to GAPPS TLF No 45 to conduct the public consultation phase of the review. In addition to the GAPPS TLF events, ICCPM organised six additional workshops between February 2018 and July 2019 (see Appendix C) to progress the work. The result of this joint process was the production of a Work-in-Progress Guiding Framework for Project Leadership in Complexity V2.0. which both organisations have used as the basis for the development of their own end products.

Development of the framework included a review of relevant resources. A list of references is included in Appendix A.

Globally representative and experienced project professionals (see Appendix B) were asked to focus on what practitioners are required to do when leading in complexity. At each of the sessions where leadership in complexity was addressed, the work of previous groups was reviewed and progressed in an ongoing validation process. A list of GAPPS Thought Leadership Forums and other events at which work on the guideline was done is provided in Appendix C.

In early 2020 a review of the document was undertaken by several experienced practitioners and their comments addressed at GAPPS Thought Leadership Forums No 46. In September 2020 an exposure draft was released for public comment and the comments received were addressed at the GAPPS Thought Leadership Forum No 49 in January 2021 prior to publication.

Accepted practice in development of performance based competencies¹ is to seek input from practitioners on what is considered to be minimum acceptable performance in a particular role. Therefore, the process will usually start with a definition of the role. In this case it was agreed that the focus would be on the minimum competencies required for anyone endeavouring to get things done in the face of complexity across all project types and in all contexts. It was intended to complement existing standards, guidelines and frameworks. The focus was therefore on including only those actions and competencies specifically relevant to leadership in **complexity**.

3. Context

Complexity means different things to different people. It is very much in the eye of the beholder and is not a binary concept. There are degrees of complexity. Uncertainty, ambiguity, and the interactions of multiple stakeholders with differing perspectives are sources of complexity. Other sources may be technological, organisational, structural, temporal, environmental, relational, or

¹ Heywood, L., Gonczi, A., & Hager, P. (1992). A Guide to Development of Competency Standards for Professions. Canberra: Australian Government Publishing Service.

social². Perceptions of complexity are influenced by interactions between people and their context. Individual perceptions of difficulty or complexity will be influenced by past experience, personality and confidence, familiarity, novelty, culture and values and the extent to which there is supportive infrastructure.

Distinctions may be drawn between complicatedness and complexity. Essentially, an endeavour may be considered complicated when there is a large number of interconnected and interdependent parts. It becomes complex when the interdependence and interconnectedness of those parts changes in unpredictable ways.

Snowden's Cynefin Framework³ distinguishes between contexts that may be considered simple, complicated, complex, chaotic, or in a state of disorder. In simple and complicated contexts there may be one or more right answers and it is possible to discern or analyse relationships between cause and effect. In complex contexts there may be no right answers and no clear relationships discernible between cause and effect except perhaps in retrospect. Simple and complicated contexts are amenable to rational, linear and reductionist approaches but complexity is characterised by emergent properties requiring non-linear responses that may include iteration and experimentation. In reality, even endeavours that may be considered simple or complicated may have some level of complexity especially when people are involved and where there are high levels of environmental or technological uncertainty.

A number of tools that can be used for assessing and characterising complexity are provided in Appendix D.

This Guiding Framework has been developed to address the challenges commonly faced when leading in complexity and is not intended or expected to be used in isolation. It may be used in conjunction with other frameworks, guides and standards that address areas such as project management, program management, project controls, change management, risk management, and social responsibility.

A list of frameworks and standards that might be used in conjunction with the Guiding Framework for Leadership in Complexity are included in Appendix E.

² Williams, T. M. (2002). *Modelling complex projects*. Wiley; Remington, K., & Pollack, J. B. (2007). *Tools for complex projects*. Gower.

³ Snowden, D. J., & Boone, M. E. (2007). A Leader's Framework for Decision Making. (Cover story). *Harvard Business Review*, 85(11), 68–76.

4. Performance Based Competency Frameworks

4.1 Overview

This section provides a brief overview of the terminology used when describing performance-based competency for potential users of this document who are not familiar with the topic.

“Competent” comes from the Latin verb *competere* which means “to be suitable.” In today’s workplace, the term “competent” is generally used to describe someone who is sufficiently skilled to perform a specified task or to fill a defined position — a competent physician, a competent salesperson, a competent plumber. Increasingly, organisations are interested in assessing the competency of individuals in order to guide employment and development decisions.

Broadly speaking, there are two major approaches to defining and assessing competency:

- *Attribute* based wherein personal attributes such as knowledge, skills, values, attitudes, and other characteristics are identified and assessed. Competency is inferred based on the presence of the necessary attributes.
- *Performance* based wherein work outcomes and performance levels are identified and assessed. Competency is inferred based on the demonstrated ability to satisfy the performance criteria.

Performance Based Competency Standards (PBCS), also called occupational competency standards, are widely used throughout the world and have been developed within the context of government endorsed standards and qualifications frameworks in Australia (Department of Employment, Department of Education, Australian Skills Quality Authority [ASQA]); New Zealand (New Zealand Qualifications Authority [NZQA]); South Africa (South African Qualifications Authority [SAQA]); and the United Kingdom (Standards and Testing Agency [STA]). Although all of these approaches are focused primarily on performance based competency assessment, some approaches do include aspects of attribute based competency assessment.

4.2 Design of the GAPPS Framework

GAPPS uses a PBCS approach which typically addresses at least the following two questions:

- What is usually done in this occupation, profession, role or context by competent performers?
- What standard of performance is usually considered acceptable to infer competency?

In the GAPPS frameworks, these questions are answered by defining:

- **Units of Competency**

A Unit of Competency defines a broad area of professional or occupational performance that is meaningful to practitioners and which is demonstrated by

individuals in the workplace. This GAPPS framework includes 5 Units of Competency.

- **Elements of Competency**

Elements of Competency describe the key components of work performance within a Unit. They describe what is done by individuals in the workplace but do not prescribe how the work is done. For example, project sponsors must “cultivate stakeholder commitment,” but they can do this using approaches and tools of their own choice. This GAPPS framework includes a total of 22 Elements of Competency.

- **Performance Criteria**

Performance Criteria set out the type and/or level of performance required to demonstrate competency in each element. They describe observable results and/or actions in the workplace from which competent performance can be inferred. In the GAPPS framework, Performance Criteria can be satisfied in many different ways; there are no mandatory approaches, tools, or methodologies. This GAPPS framework includes a total of 81 Performance Criteria.

- **Explanatory Statements**

Explanatory Statements help to ensure consistent interpretation of the Elements and the Performance Criteria by expanding on critical or significant aspects of them to enable consistent application in different contexts. They also may include a description of a range that may apply to the context of the experience. Where the Explanatory Statements contain lists, the lists are generally illustrative and not exhaustive.

Key terms and definitions used in the descriptions are included in the Explanatory Statements in the Units. Terms are explained the first time they occur within each Unit and are displayed in bold type in subsequent uses. When the context of the use requires further explanation, a term may be repeated.

The Explanatory Statements are fundamental to understanding the described competence as they provide context and clarification for terms and concepts that often lack consistent, accepted definitions.

Although some of the terms and definitions of the GAPPS framework described above differ in some respects from those used for PBCS, the overall approach is consistent and compatible with generally accepted practice within the field of competency development and assessment.

The Performance Criteria in this document focus on threshold performance — demonstration of the ability to do something at a standard considered acceptable in the workplace. They do not measure superior performance — what the best leaders in complexity do. Superior performers should be able to satisfy the threshold criteria without difficulty.

The GAPPS frameworks include the minimum number of Performance Criteria needed to infer competency. As a result, a candidate must satisfy all of the Performance Criteria in the applicable Units in order to be viewed as competent. In addition, the Performance Criteria represent different levels of effort. The number of Performance Criteria in a Unit or Element is not proportional to the

amount of time or effort that an individual must spend in that area to be viewed as competent.

The material in this document can also be used to support learning and development when applied by qualified educators and trainers. In order to provide such support, the GAPPS framework would need to be expanded to address questions such as:

- What skills and knowledge are needed to demonstrate this standard of performance?
- What are the parameters for collecting evidence and assessing performance?

5. Application

5.1 Relationship to Existing Frameworks

This document is intended to complement existing competency standards, not to replace them. For example:

- Organisations that have performance based competency standards (e.g., the South African Qualifications Authority [SAQA] in South Africa) may compare (map) their existing standards to the GAPPS framework in order to facilitate comparison.
- Organisations that use attribute based competency assessments (e.g., IPMA - International Project Management Association) may choose to supplement their assessments with performance based criteria.

Standards, guides and frameworks that could be used in conjunction with the Guiding Framework for Leadership in Complexity are identified in Appendix D.

5.2 Adoption of this Guiding Framework

GAPPS encourages other organisations to adopt this framework as their own. For example:

- Professional associations that do not currently have assessment frameworks can use it to expedite their ability to serve their members.
- Standards and qualifications bodies can use it to facilitate transferability and mutual recognition of qualifications.
- Public and private organisations can use it to facilitate staff development programs and to help ensure better results from their projects.
- Organisations can use it as a framework from which to develop their own tailored expression of the required competence.

Any entity that adopts the GAPPS framework should use all of the Units, Elements, and Performance Criteria defined here in order to help ensure consistency of application and reciprocity. Additions and modifications, as permitted under the license terms in this document, can be made as appropriate to suit local and regulatory requirements. For example:

- A standards or qualification body may need to modify the structure or terminology to conform to its own conventions or to local culture.
- A private sector organisation may decide to add Elements or Performance Criteria, or to provide further detail in the Explanatory Statements, or specific Evidence Guides, to reflect aspects of performance specific to that organisation.
- Any of the above entities may translate these materials to make them more accessible.

6. Overview of Units, Elements, and Performance Criteria

The table below provides a summary of the Units of Competency while the table on the following page provides an overview of the Units, Elements, and Performance Criteria. Details for all are provided in Section 7.

6.1 Summary of Units of Competency

Unit	Title	Description
Core Units		
PLC01	Think Holistically	This unit defines the Elements required to think holistically. It includes the Performance Criteria required to demonstrate competency in applying systems thinking approaches when responding to emergence and systemic opportunities and threats.
PLC02	Exercise Personal Mastery	This unit defines the Elements required to exercise personal mastery. It includes the Performance Criteria required to demonstrate competency in self-awareness, resilience, openness to new ideas and ways of thinking and ability to act, that are required to provide leadership in complexity.
PLC03	Provide Conditions to Enable Decisions and Action	This unit defines the Elements required to provide conditions that enable decisions and action in complexity. It includes the Performance Criteria required to demonstrate competency in maintaining strategic direction, acting sustainably, setting minimal rules, and establishing a data management framework and control systems that leverage knowledge and acknowledge and enable action in complexity.
PLC04	Respond to the Environment	This unit defines the Elements required to respond to evolving internal and external environments. It includes the Performance Criteria required to demonstrate competency in sensing and responding to volatile, uncertain, complex, and ambiguous (VUCA) environments.
PLC05	Engage Collaboratively	This unit defines the Elements required for collaborative engagement. It includes the Performance Criteria required to demonstrate competency in fostering collaborative communication, working towards shared vision and meaning, and developing a collaborative and engaged culture.

Figure 6.1: Summary of Units of Competency

6.2 Summary of Units, Elements, and Performance Criteria

Units	Elements	Performance Criteria
LC01 Think Holistically	1.1 Apply systems thinking approaches.	1.1.1 Contextual sensitivity is applied in all aspects of the endeavour.
		1.1.2 Appreciation that issues and endeavours can be seen from multiple different perspectives is demonstrated.
		1.1.3 Systems thinking approaches are selected and applied to fit the problem context.
		1.1.4 System contexts, boundaries, and interfaces are considered throughout the lifecycle of the endeavour.
		1.1.5 Systems approaches are used to analyse and manage impact and implications of proposed changes .
	1.2 Understand and plan for emergence.	1.2.1 Appreciation of the consequences of dynamic interdependence between systems informs understanding and decision-making.
		1.2.2 Attention is given to weak signals .
		1.2.3 Capacity and capability are built to respond to emergence .
	1.3 Manage systemic opportunities and threats.	1.3.1 Uncertainty, opportunities and threats are assessed from multiple perspectives .
		1.3.2 Emergent opportunities are evaluated and prioritised relative to resource availability and capability.
		1.3.3 Systemic interaction of opportunities and threats is analysed for potential impact.
		1.3.4 Potential for low probability, high impact events is investigated .
		1.3.5 Decision-making and action are driven by a systemic vision of the proposed outcomes of the endeavour.
LC02 Exercise Personal Mastery	1.2 Maintain a resilient and open attitude.	2.1.1 A positive outlook is maintained.
		2.1.2 Resilience is demonstrated.
		2.1.3 Discovery and insight are driven by curiosity .
	2.2 Apply cognitive flexibility.	2.2.1 Openness to different and conflicting views is exhibited.
		2.2.2 Self-awareness and reflective ability are demonstrated.
		2.2.3 Personal behaviour is modified based on awareness of the impact on others.
	2.3 Lead with sensitivity.	2.3.1 Authentic appreciation is expressed.
		2.3.2 Trust is cultivated and employed responsibly and proactively.
		2.3.3 Support is offered.
		2.3.4 Leadership behaviours are tailored to the situation.
	2.4 Take informed action.	2.4.1 Experience and judgement are deployed to determine when action or inaction are appropriate.
		2.4.2 Problems and issues are dealt with or retired.
		2.4.3 Persuasion is used effectively to advance the endeavour.

Figure 6.2. Summary of Units, Elements, and Performance Criteria (continued next page)

Units	Elements	Performance Criteria
<p style="text-align: center;">LC03 Provide Conditions to Enable Decisions and Action</p>	<p>3.1 Maintain strategic direction.</p>	3.1.1 Influence and persuasion are used strategically and with integrity for the benefit of the endeavour.
		3.1.2 Validity of the business case is monitored and maintained throughout the life cycle.
		3.1.3 Decision-making and action are driven by a systemic vision of the proposed outcomes of the endeavour.
	<p>3.2 Act sustainably.</p>	3.2.1 Attention is given to impact of decisions and actions on society, the environment, and the process and end product of the endeavour.
		3.2.2 Commitment is made to transfer of knowledge for the advancement of capability in the community.
		3.2.3 A culture is developed to support wellbeing of teams and individuals in the face of complexity.
		3.2.4 Teams are actively managed to benefit from diversity.
		3.2.5 Conflict is approached openly, strategically and creatively.
		3.2.6 Genuine commitment to and focus on the endeavour are demonstrated.
	<p>3.3 Set minimal rules to enable action.</p>	3.3.1 In setting up the organisation for the endeavour, consideration is given to creation of conditions that enable resilience , self organisation, and timely decision making.
		3.3.2 Governance and structure are iteratively reviewed and adapted.
		3.3.3 Multiple governance and ethical requirements are acknowledged and addressed.
		3.3.4 Level of complexity, uncertainty and stakeholder maturity are considered in selecting project strategy, delivery methodology and contracting forms.
	<p>3.4 Establish data management framework.</p>	3.4.1 Data needs are assessed.
		3.4.2 Data is ethically collected, verified, and shared.
		3.4.3 Data is validated, secured, and integrated across systems .
	<p>3.5 Establish control systems to leverage knowledge.</p>	3.5.1 Control systems acknowledge complexity and are tailored to suit the endeavour.
		3.5.2 A review and assurance process is designed and implemented to fit the complexities of the endeavour.
		3.5.3 Audits and reviews are used as opportunities for continuous performance improvement.
		3.5.4 External parties are involved in review processes to ensure that multiple perspectives are acknowledged.
3.5.5 Knowledge centres within and without the endeavour are identified, encouraged, empowered, and connected.		

Figure 6.2. Summary of Units, Elements, and Performance Criteria (continued next page)

Units	Elements	Performance Criteria
LC04 Respond to the Environment	4.1 Build responsive processes.	4.1.1 Flexibility is demonstrated in working in a volatile, uncertain, complex and ambiguous (VUCA) environment.
		4.1.2 Planning allows for emergence and iterative progression.
		4.1.3 Concepts are tested prior to commitment.
		4.1.4 Organisational capability is developed to support resilience in a VUCA environment.
	4.2 Plan resourcing for flexibility.	4.2.1 Team composition is aligned with the stage or phase of the endeavour.
		4.2.2 A flexible resource plan is developed that enables current and emergent needs to be balanced and addressed across the lifecycle of the endeavour.
	4.3 Review assumptions, constraints and implications of action.	4.3.1 Constraints and assumptions are identified, challenged and renegotiated throughout the lifecycle.
		4.3.2 The history of the endeavour is investigated to inform future decision-making and action.
		4.3.3 Influence of bias is understood and addressed .
		4.3.4 Interaction of regulatory environments is managed.
		4.3.5 Implications of complexity are identified and assessed.
	4.4 Continuously review complexity and direction.	4.4.1 Feedback is used to question and revise approach.
		4.4.2 Periodic and continuous feedback is utilised to maintain focus on achievement of evolving goals .
		4.4.3 Types and levels of complexity and their relative implications are identified and assessed at key stages of the endeavour using contextually relevant frameworks .
	4.5 Use data and prototyping to test and validate ideas.	4.5.1 Data is leveraged to drive decision making.
		4.5.2 A data strategy appropriate to the scope and environment is employed .
		4.5.3 Alternative approaches are used for testing and proof of concept prior to commitment.
4.5.4 Data is used to harvest insights for improved performance and innovation.		
LC05 Engage Collaboratively	5.1 Develop a collaborative and engaged culture.	5.1.1 A dynamic collaborative approach amongst stakeholders is fostered and maintained.
		5.1.2 Stakeholders are actively and strategically engaged to advance achievement of objectives.
		5.1.3 Multiple, diverse and cross-boundary contributors to resourcing are engaged and influenced to build commitment.
		5.1.4 Cultural norms, boundaries and rules are challenged to progress the endeavour.
	5.2 Nurture relationships and teams.	5.2.1 Deliberate effort is applied to establishing and sustaining relationships.
		5.2.2 Wellbeing and resilience of team members is actively monitored and supported.
	5.3 Foster collaborative communication.	5.3.1 Active listening is used when engaging with stakeholders.
		5.3.2 Communications are intentional, ambitious, consistent, collaborative and accountable.
		5.3.3 Informed advice is sought.
		5.3.4 A culture that supports and encourages open communication, innovation and creativity at all levels of the endeavour is promoted .
		5.3.5 Expectations are identified and managed.
	5.4 Appreciate diverse perspectives	5.4.1 A deep understanding of key stakeholders and their perspectives is developed and refreshed.
		5.4.2 Contribution of diverse views of stakeholders is leveraged .
	5.5 Work towards shared vision and purpose.	5.5.1 Appreciation of complexity is shared.
		5.5.2 Shared meaning amongst stakeholders is fostered to build momentum for change.
		5.5.3 A compelling and meaningful vision of the endeavour's future is communicated .

Figure 6.2. Summary of Units, Elements, and Performance Criteria

7. Detail of Units, Elements, and Performance Criteria

The following pages detail the Units, Elements, and Performance Criteria of this framework. They are presented using the format illustrated below in Figure 7.0, which includes descriptive comments in place of actual content.

LC0x		Unit Title
Unit Descriptor	A Unit of Competency defines a broad area of professional or occupational performance that is meaningful to practitioners and which is demonstrated by individuals in the workplace.	

LC0x	List of Elements in this Unit
x.1	Elements describe the key components of work performance within a Unit.
x.2	Elements describe <i>what</i> is done but do not prescribe <i>how</i> it is done.

LC0x	Performance Criteria and Explanatory Statements	
x.1	Elements describe the key components of work performance within a Unit.	
	Performance Criteria	Explanatory Statements
x.1.1	Performance criteria set out the type and/or level of performance required to demonstrate competency in each element.	<ul style="list-style-type: none"> a. Explanations are provided for key words and phrases in the elements or the performance criteria. b. The explanatory statements provide guidance for both Assessors and for the individuals being assessed.
x.1.2	Performance criteria describe observable results and/or actions in the workplace from which competent performance can be inferred.	

Figure 7.0. Illustration of presentation format for Units, Elements, and Performance Criteria

7.1 Detail of Units, Elements, and Performance Criteria

The following pages detail the Units, Elements, and Performance Criteria of this framework.

LC01	Think holistically
Unit Descriptor	This unit defines the Elements required to think holistically. It includes the Performance Criteria required to demonstrate competency in applying systems thinking approaches when responding to emergence and systemic opportunities and threats.

LC01	List of Elements
	1.1 Apply systems thinking approaches. 1.2 Understand and plan for emergence . 1.3 Manage systemic opportunities and threats.

LC04 Element 1

1.1 Apply systems thinking approaches.

Performance Criteria	Explanatory Statements
<p>1.1.1 Contextual sensitivity is applied in all aspects of the endeavour.</p> <p>1.1.2 Appreciation that issues and endeavours can be seen from multiple different perspectives is demonstrated.</p> <p>1.1.3 Systems thinking approaches are selected and applied to fit the problem context.</p> <p>1.1.4 System contexts, boundaries, and interfaces are considered throughout the lifecycle of the endeavour.</p> <p>1.1.5 Systems approaches are used to analyse and manage impact and implications of proposed changes.</p>	<p>a. Contextual sensitivity would include questioning of assumptions, being alert to weak signals, political awareness, paying attention and responding to trends, discrepancies, interdependencies and dynamic interrelationships. It would also include attention to cultural dimensions of the endeavour including stakeholder relationships, organisational constraints and spoken and unspoken rules, and taking this into account when designing processes, communications and meeting strategies.</p> <p>b. Appreciation includes understanding and acceptance that different stakeholders will have their own view of the endeavour and use of a range of approaches and techniques for reaching accommodation or agreement between these differing perspectives. This may also include encouraging the team to move away from thinking that there is one right solution to understanding and acceptance of multiple possibilities.</p> <p>c. Systems thinking approaches may include Soft Systems Thinking (SSM), Critical Systems Heuristics (CSH), System Dynamics, Viable Systems Model, Strategic Options Development Analysis (SODA), other management science and problem structuring methods.</p> <p>d. Implications of proposed changes may include levels of resistance to change, the scale and impact of the proposed change, the pace of change, stakeholder understanding of the need for change and the degree and level of support and championship for the change. Reference should be made to Change Management Standards eg https://www.change-management-institute.com/competency-model</p> <p>e. Changes will include required behavioural, societal, cultural and other changes.</p>

LC01 Element 2

1.2 Understand and plan for emergence.

Performance Criteria	Explanatory Statements
<p>1.2.1 Appreciation of the consequences of dynamic interdependence between systems informs understanding and decision-making.</p> <p>1.2.2 Attention is given to weak signals.</p> <p>1.2.3 Capacity and capability are built to respond to emergence.</p>	<p>a. Thinking holistically about the endeavour will assist in early identification of consequences of action and interaction and the positive or negative impacts this may have on the endeavour.</p> <p>b. Dynamic interdependence refers to the interactions between parts of a system that in complexity are characterized by emergence and unexpected consequences. A complex system is more than the sum of its parts.</p> <p>c. Weak signals are indicators of potentially emerging issues that may, over time, have positive or negative impacts on the endeavour.</p> <p>d. Emergence occurs when parts combine or interact in unusual and unexpected ways resulting in properties, patterns or behaviours that the parts do not have on their own. It includes the concept of radical novelty arising seemingly out of nowhere where there may be simultaneous states of stability and instability, far from equilibrium.</p>

LC04 Element 3	
1.3 Manage systemic opportunities and threats.	
Performance Criteria	Explanatory Statements
<p>1.3.1 Uncertainty, opportunities and threats are assessed from multiple perspectives.</p> <p>1.3.2 Emergent opportunities and threats are evaluated and prioritised relative to resource availability and capability.</p> <p>1.3.3 Systemic interaction of opportunities and threats is analysed for potential impact.</p> <p>1.3.4 Potential for low probability, high impact events is investigated and addressed.</p> <p>1.3.5 Decision-making and action are driven by a systemic vision of the proposed outcomes of the endeavour.</p>	<p>a. Manage includes identification</p> <p>b. Multiple perspectives refers to the differing worldviews of stakeholders and includes consideration of the impact of boundaries and boundary judgements. Consideration of multiple and divergent worldviews can be used to enhance understanding.</p> <p>c. Emergent opportunities and threats may arise from unforeseen events. They may include opportunities for innovation.</p> <p>d. Systemic interaction refers to the potential systemic relationship between risks and with other parts of the system that may cause unintended consequences and positive or negative impacts that may not be identified by traditional approaches to risk identification.</p> <p>e. Investigated includes use of appropriate tools and approaches, being mindful of sufficiency of data and limitations of traditional tools such as game theory and Monte Carlo analysis.</p> <p>f. Addressed may include setting aside of contingency or management reserve which may be in the form of time, labour, money, or other resources. It may also involve preparation of stakeholders and management of expectations.</p>

LC02 Exercise Personal Mastery	
Unit Descriptor	<p>This unit defines the Elements required to exercise personal mastery.</p> <p>It includes the Performance Criteria required to demonstrate competency in self-awareness, resilience, openness to new ideas and ways of thinking and ability to act, that are required to provide leadership in complexity.</p>

LC02 List of Elements	
2.1	Maintain a resilient and open attitude.
2.2	Apply cognitive flexibility.
2.3	Lead with sensitivity.
2.4	Take informed action.

LC02 Element 1	
2.1 Maintain a resilient and open attitude.	
Performance Criteria	Explanatory Statements
2.1.1 A positive outlook is maintained. 2.1.2 Resilience is demonstrated. 2.1.3 Discovery and insight are driven by curiosity .	a. A positive outlook is defined as a constructive approach to everything that occurs. It will include but is not limited to approaching threats and issues as opportunities, reality based optimism, and remaining undaunted in the face of adversity. A positive outlook should inspire others and encourage followership. b. Resilience refers to the ability to continue or recover quickly from setbacks and challenges. c. Curiosity involves authentic and active interest and inquisitiveness that encourages use of probing questions that get to the root or cause of a situation or problem. This promotes a culture of discovery that leads to insights and learning. d. Insight enables deep understanding of a situation including the motivational forces behind actions, thoughts, and behaviours.

LC02 Element 2	
2.2 Apply cognitive flexibility.	
Performance Criteria	Explanatory Statements
2.2.1 Openness to different and conflicting views is exhibited. 2.2.2 Self-awareness and reflective ability are demonstrated. 2.2.3 Personal behaviour is modified based on awareness of the impact on others.	a. Self awareness and reflective ability may be demonstrated by recognition of one's own abilities and limitations, learning from mistakes, pursuing opportunities for growth, accepting responsibility, admitting error and responding constructively. b. Personal behaviour that impacts on others may include managing one's own time, making timely decisions, having sufficient strength of ego to allow others to take credit. c. Modification of behaviour is underpinned by reflective ability and cognitive flexibility.

LC02 Element 3	
2.3 Lead with sensitivity.	
Performance Criteria	Explanatory Statements
2.3.1 Authentic appreciation is expressed. 2.3.2 Trust is cultivated and employed responsibly and proactively. 2.3.3 Support is offered. 2.3.4 Leadership behaviours are tailored to the situation.	a. Authentic means that the appreciation is genuine and meaningful to the recipient. b. Support may include mentoring, coaching and advising teams and individuals and providing conditions and culture that empower them to take initiative and responsibility, make decisions and take action. It may also include mediation.

LC02 Element 4	
2.4 Take informed action.	
Performance Criteria	Explanatory Statements
2.4.1 Experience and judgement are deployed to determine when action or inaction are appropriate.	
2.4.2 Problems and issues are dealt with or retired.	
2.4.3 Persuasion is used effectively to advance the endeavour.	

LC03 Provide conditions to enable decisions and action	
Unit Descriptor	<p>This unit defines the Elements required to provide conditions that enable decisions and action in complexity.</p> <p>It includes the Performance Criteria required to demonstrate competency in maintaining strategic direction, acting sustainably, setting minimal rules, and establishing a data management framework and control systems that leverage knowledge and acknowledge and enable action in complexity.</p>

LC03 List of Elements	
3.1	Maintain strategic direction.
3.2	Act sustainably.
3.3	Set minimal rules to enable action.
3.4	Establish data management framework.
3.5	Establish control systems to leverage knowledge.

LC03 Element 1	
3.1 Maintain strategic direction.	
Performance Criteria	Explanatory Statements
3.1.1 Influence and persuasion are used strategically and with integrity for the benefit of the endeavour.	a. In complexity, the business case should be consistently reviewed in the light of contextual or strategic changes. There should be sufficient flexibility to modify direction if justified. b. Systemic refers to taking into account everything that relates to or affects an entire system.
3.1.2 Validity of the business case is monitored and maintained throughout the life cycle.	
3.1.2 Decision-making and action are driven by a systemic vision of the proposed outcomes of the endeavour.	

LC03 Element 2	
3.2 Act sustainably.	
Performance Criteria	Explanatory Statements
3.2.1 Attention is given to impact of decisions and actions on society, the environment and the process and end product of the endeavour.	a. In considering impact , reference may be made to the UN Sustainable Development Goals - https://www.un.org/sustainabledevelopment/sustainable-development-goals/
3.2.2 Commitment is made to transfer of knowledge for the advancement of capability in the community.	b. Some form of conflict is inevitable in complex endeavours where there are several paths forward. Conflict can be used constructively in a reflective or exploratory way to inform decisions about future action and can encourage creativity and innovation.
3.2.3 A culture is developed to support wellbeing of teams and individuals in the face of complexity.	c. A strategic approach to conflict may involve concessions that enable longer term achievement of goals. It may include ensuring that influential viewpoints are identified and explored.
3.2.4 Teams are actively managed to benefit from diversity.	d. Commitment may be demonstrated by visible championship of the endeavour, providing a model of positive engagement for the team and showing confidence in their ability.
3.2.5 Conflict is approached openly, strategically and creatively.	e. Focus on the goals of the endeavour is maintained regardless of setbacks or distractions.
3.2.6 Genuine commitment to and focus on the endeavour are demonstrated.	

LC03 Element 3	
3.3 Set minimal rules to enable action.	
Performance Criteria	Explanatory Statements
3.3.1 In setting up the organisation for the endeavour, consideration is given to creation of conditions that enable resilience , self organisation and timely decision making.	a. Minimal refers to provision of as much structure and governance as is fit for purpose, enabling decisions and action to be taken.
3.3.2 Governance and structure are iteratively reviewed and adapted.	b. Multiple governance and ethical requirements will need to be addressed and acknowledged in complex endeavours involving different organisations and cultures.
3.3.3 Multiple governance and ethical requirements are acknowledged and addressed.	
3.3.4 Level of complexity, uncertainty and stakeholder maturity are considered in selecting project strategy, delivery methodology and contracting forms.	

LC03 Element 4	
3.4 Establish data management framework.	
Performance Criteria	Explanatory Statements
3.4.1 Data needs are assessed. 3.4.2 Data is ethically collected, verified and shared. 3.4.3 Data is validated, secured and integrated across systems .	a. Systems refers to different operating systems and data sources. Both systems and sources should be secured. Data may be drawn from different sources and systems.

LC03 Element 5	
3.5 Establish control systems to leverage knowledge.	
Performance Criteria	Explanatory Statements
3.5.1 Control systems acknowledge complexity and are tailored to suit the endeavour. 3.5.2 A review and assurance process is designed and implemented to fit the complexities of the endeavour. 3.5.3 Audits and reviews are used as opportunities for continuous performance improvement. 3.5.4 External parties are involved in review processes to ensure that multiple perspectives are acknowledged. 3.5.5 Knowledge centres within and without the endeavour are identified, encouraged, empowered and connected.	a. Control systems define the processes used to ensure achievement of objectives by establishing a baseline plan, confirming the control basis, metrics and assumptions, identifying deviations and recommending corrective actions. (Refer. GAPPS (2019) <i>A Guiding Framework for Project Controls</i> Sydney: Global Alliance for the Project Professions). b. In complexity, review and assurance may not be predetermined processes and should evolve to respond to emergence in the endeavour and its environment. Periodic and continuous feedback should be utilised to maintain focus on achievement of evolving goals. Data and artificial intelligence may have potential to assist in this process. c. Critical decisions are subject to review including review of consequences and implications and amendment if required. d. Knowledge centres are environments or interactions where information and knowledge are exchanged and created. Such centres may occur at the level of teams or networks.

LC04 Respond to the environment

Unit Descriptor This unit defines the Elements required to respond to evolving internal and external environments.

It includes the Performance Criteria required to demonstrate competency in sensing and responding to volatile, uncertain, complex and ambiguous (VUCA) environments.

LC04 List of Elements

- 4.1 Build responsive processes.
- 4.2 Plan resourcing for flexibility.
- 4.3 Review assumptions, constraints and implications of action.
- 4.4 Continuously review complexity and direction.
- 4.5 Use data and prototyping to test and validate ideas.

LC04 Element 1	
4.1 Build responsive processes.	
Performance Criteria	Explanatory Statements
<p>4.1.1 Flexibility is demonstrated in working in a volatile, uncertain, complex and ambiguous (VUCA) environment.</p> <p>4.1.2 Planning allows for emergence and iterative progression.</p> <p>4.1.3 Concepts are tested prior to commitment.</p> <p>4.1.4 Organisational capability is developed to support resilience in a VUCA environment.</p>	<p>a. Flexibility may include the ability to hold ambiguity rather than seek immediate resolution and certainty, to appreciate that there may not be one right answer to a particular problem, and to be able to change direction if necessary.</p> <p>b. Environment refers to internal and external factors that affect the endeavour.</p> <p>c. In a complex endeavour, planning needs to take into account the changing nature of the environment and the potential for non-linear and recursive behaviour. Emergence is defined earlier in this table under 1.2.1.</p> <p>d. Tested includes approaches such as pilots, prototyping, feasibility analysis, experiment, design thinking, user centred design, user acceptance testing, stakeholder acceptance, modelling. This may be done iteratively throughout the endeavour and applies to decisions and solutions.</p> <p>e. Organisational capability involves having the systems and processes in place to proactively prevent or prepare for critical events. This may include a risk management, crisis management, business continuity, incident or other management plan. Refer ISO 22301 - BCM; 22316 Org resilience; 22320 Emergency Management; 22330 BCM people aspects. Such capability may already be in place in the organisation and should be aligned with any relevant regulatory requirements.</p> <p>f. Resilience refers to the ability to withstand, recover or bounce back quickly from or adjust easily to change, setbacks or difficult conditions.</p>

LC04 Element 2	
4.2 Plan resourcing for flexibility.	
Performance Criteria	Explanatory Statements
<p>4.2.1 Team composition is aligned with the stage or phase of the endeavour.</p> <p>4.2.2 A flexible resource plan is developed that enables current and emergent needs to be balanced and addressed across the lifecycle of the endeavour.</p>	<p>a. Team composition should take into consideration the differing requirements for skills, knowledge and personality types throughout the endeavour.</p>

LC04 Element 3	
4.3 Review assumptions, constraints and implications of action .	
Performance Criteria	Explanatory Statements
<p>4.3.1 Constraints and assumptions are identified, challenged and renegotiated throughout the lifecycle.</p> <p>4.3.2 The history of the endeavour is investigated to inform future decision-making and action.</p> <p>4.3.3 Influence of bias is understood and addressed.</p> <p>4.3.4 Interaction of regulatory environments is managed.</p> <p>4.3.5 Implications of complexity are identified and assessed.</p>	<p>a. Implications of action may include unintended consequences and may be surfaced by use of simulations, systemic cause / effect modelling, pre-mortems, peer reviews and other approaches.</p> <p>b. Assumptions need to be surfaced, clarified, shared, questioned and challenged on an ongoing basis as they underpin worldviews and influence decisions and actions. In complex endeavours there is a high probability of conflicting assumptions and constraints that may interact in ways that will have a compounding effect.</p> <p>c. Bias may include over confidence, over optimism, availability (including limitations of expert opinion / judgement, denial), and others.</p> <p>d. Addressed may include ensuring a wide range of perspectives, and use of reflective, participatory, conversational and other techniques.</p> <p>e. Sources of complexity may include: Political/Policy (e.g. change of government; change of organisational strategy); Economic (e.g. local or global financial crisis); Social (e.g. community backlash); Technological (e.g. change in technology); Environmental (e.g. discovery of harm to wildlife); Legal (e.g. new/changed legislation).</p>

LC04 Element 4	
4.4 Continuously review complexity and direction.	
Performance Criteria	Explanatory Statements
<p>4.4.1 Feedback is used to question and revise assumptions and approach.</p> <p>4.4.2 Periodic and continuous feedback is utilised to maintain focus on achievement of evolving goals.</p> <p>4.4.3 Types and levels of complexity and their relative implications are identified and assessed at key stages of the endeavour using contextually relevant frameworks.</p>	<p>a. Evolving goals should include benefits and their realization.</p> <p>b. Key stages include at the initiation and start of the project.</p> <p>c. Contextually relevant frameworks for identifying and assessing complexity of the endeavour may include GAPPS CIFTER (2007); GAPPS ACDC (2011); IPMA [https://www.ipma.world/individuals/certification/complexity/][1]); and others referred to in Appendix D.</p>

LC04 Element 5

4.5 Use data to inform response.

Performance Criteria	Explanatory Statements
<p>4.5.1 Data is leveraged to drive decision making.</p> <p>4.5.2 A data strategy appropriate to the scope and environment is employed.</p> <p>4.5.3 Alternative approaches are used for testing and proof of concept prior to commitment.</p> <p>4.5.4 Data is used to harvest insights for improved performance and innovation.</p>	<p>a. Data may include preventive or predictive analytics, machine learning or artificial intelligence (AI).</p> <p>b. Employed includes support for planning, reporting, decision-making and control.</p> <p>c. Approaches may include pilots, prototyping, feasibility analysis, experiment, modelling. This would be done throughout the project. This applies to decisions and solutions throughout the project. Prototyping may include checking for fitness for purpose and stakeholder acceptance and may be associated with innovation and design thinking processes. It would apply to all types of endeavour including technical and social. Pilot projects would be considered a form of prototyping.</p>

LC05 Engage collaboratively

Unit Descriptor This unit defines the Elements required for collaborative engagement. It includes the Performance Criteria required to demonstrate competency in fostering collaborative communication, working towards shared vision and meaning, and developing a collaborative and engaged culture.

LC05 List of Elements

- 5.1 Develop a collaborative and engaged culture.
- 5.2 Nurture relationships and teams.
- 5.3 Foster collaborative communication.
- 5.4 Appreciate diverse perspectives
- 5.5 Work towards shared vision and purpose.

LC05 Element 1

5.1 Develop a collaborative and engaged culture.

Performance Criteria	Explanatory Statements
<p>5.1.1 A dynamic collaborative approach amongst stakeholders is fostered and maintained.</p> <p>5.1.2 Stakeholders are actively and strategically engaged to advance achievement of objectives.</p> <p>5.1.3 Multiple, diverse and cross boundary contributors to resourcing are engaged and influenced to build commitment.</p> <p>5.1.4 Cultural norms, boundaries and rules are challenged to progress the endeavour.</p>	<p>a. Stakeholder coherence is a key challenge in complexity involving creation of a common understanding amongst stakeholders with different worldviews. Fostering a dynamic collaborative approach amongst stakeholders will involve understanding of multiple perspectives and their underpinning assumptions and working with these to achieve a shared view. This will be an iterative process that interacts with the changing environment throughout the lifecycle of the endeavour.</p> <p>b. A collaborative approach is important in complex endeavours as the complexity can lead to the breakdown of relationships leading to conflict and competing positions that adversely affect the endeavour. It may be necessary to develop a strategic and economic rationale for taking a collaborative approach.</p> <p>c. Strategic and active engagement of stakeholders may include identifying and involving particular stakeholders to provide influence and support in the interests of the endeavour.</p> <p>d. Multiple, diverse, and cross boundary contributors to resourcing will span different supply chains, organisational and jurisdictional boundaries, as well as the boundaries defined by the endeavour.</p> <p>e. Challenge will recognise the value laden nature of boundary judgements and decisions, cultural and ethical norms and organisational rules both spoken and unspoken.</p>

LC05 Element 2

5.2 Nurture relationships and teams.

Performance Criteria	Explanatory Statements
<p>5.2.1 Deliberate effort is applied to establishing and sustaining relationships.</p> <p>5.2.2 Wellbeing and resilience of team members is actively monitored and supported.</p>	<p>a. Deliberate effort will include understanding the foundations and drivers of relationships, establishing common goals, building relationships with thought and purpose, resolving issues collaboratively in a timely manner, setting shared expectations, establishing trust and ensuring that decisions and actions are consistent with the principles of the relationship.</p> <p>b. Wellbeing includes ensuring the psychological and physical safety of all team members.</p> <p>c. Resilience refers to the ability to withstand, recover or bounce back quickly from or adjust easily to change, setbacks or difficult conditions.</p>

LC05 Element 3

5.3 Foster collaborative communication.

Performance Criteria	Explanatory Statements
<p>5.3.1 Active listening is used when engaging with stakeholders.</p> <p>5.3.2 Communications are intentional, ambitious, consistent, collaborative and accountable.</p> <p>5.3.3 Informed advice is sought.</p> <p>5.3.4 A culture that supports and encourages open communication, innovation and creativity at all levels of the endeavour is promoted.</p> <p>5.3.5 Expectations are identified and managed.</p>	<p>a. Active listening involves positive engagement with another person, listening attentively while they speak, paraphrasing and reflecting back what is said, and withholding judgment and advice so that the other person feels heard and valued. It includes empathy and willingness to help.</p> <p>b. Communications refers to all forms of communication within and relating to the endeavour both formal and informal. Communications should be tailored to suit the audience and processes should be in place to assess their effectiveness. In complex endeavours an important aspect of communication is the ability to present complex issues in a clear and compelling manner so that important messages are conveyed and received.</p> <p>c. Informed advice will include seeking many external views and interpretations, advice from ‘experts,’ those with relevant experience, team members, internal and external networks.</p> <p>d. Promoted may include providing opportunities and rewards for creativity, and support for multiple innovation initiatives, within an energetic, no blame, fast fail environment on the basis that in complex endeavours, iterating fast failures will achieve a desired result faster than perfecting a solution.</p> <p>e. Expectations of stakeholders are likely to differ in accordance with their perspectives and worldviews relative to the endeavour. These expectations need to be understood and managed. It is important to be aware of one’s own expectations as they may consciously or unconsciously influence the expectations of others.</p>

LC05 Element 4	
5.4 Appreciate diverse perspectives	
Performance Criteria	Explanatory Statements
5.4.1 A deep understanding of key stakeholders and their perspectives is developed and refreshed. 5.4.2 Contribution of diverse views of stakeholders is leveraged .	a. Key stakeholders are those that are identified, usually by some form of stakeholder analysis, as potentially having the greatest impact, positive or negative, on the achievement of the goals of the endeavour, the organisation and the wider community. b. Diverse views may include those who are in favour of the project and those who are opposed in addition to those of stakeholders from different cultures, professions and interest groups. Open questioning and ensuring psychological safety can assist in eliciting diverse views. c. Leveraged implies using the diverse views of the stakeholders for the benefit of the endeavour within the wider community.

LC05 Element 5	
5.5 Work towards shared vision and purpose.	
Performance Criteria	Explanatory Statements
5.5.1 Appreciation of complexity is shared. 5.5.2 Shared meaning amongst stakeholders is fostered to build momentum for change. 5.5.3 A compelling and meaningful vision of the endeavour's future is communicated .	a. Demonstrable effort is taken to ensure that all stakeholders share an understanding of the nature and level of complexity of the endeavour. b. A meaningful vision is one that is credible, achievable, tangible, sustainable, and inspirational, which articulates value to stakeholders. c. Communication of the vision should be an ongoing process involving regular review and restatement as required to connect with particular audiences.

APPENDICES

APPENDIX A: COMPLEXITY RELATED REFERENCES

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Prasetyo, Adi	IAMPI	Indonesia
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Stonehouse, Patty	Headspace	Australia
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APPENDIX C: GAPPS TLFs AND WORKING SESSIONS

This is a list of the GAPPS Thought Leadership Forums (TLF) and other events at which work was done towards development of this Guiding Framework.

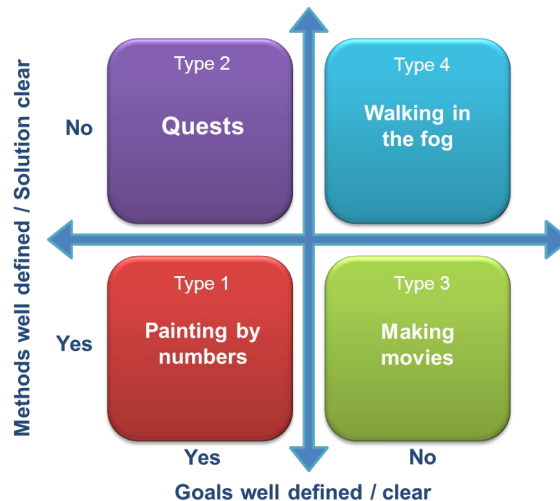
A number of the events in addition to GAPPS TLFs were organised by the International Centre for Complex Project Management with whom GAPPS collaborated during the development process.

GAPPS Thought Leadership Forums	Working Sessions
Lisbon, GAPPS TLF#37 22-23 March 2017	Sydney, Working Session 15 February 2018
London, GAPPS TLF#38 26-27 June 2017	Canberra, Working Session 26 October 2018
Singapore, GAPPS TLF#39 10-11 November 2017	Sydney, Working Session 5 November 2018
Vienna, GAPPS TLF#40 23/24 February 2018	Sydney, Working Session 7 May 2019
Delft, GAPPS TLF#41 29-30 June 2018	Virtual, Working Session 16 May 2019
Bali, GAPPS TLF#42 23-24 November 2018	Canberra, Working Session 23 July 2019
Hungary, GAPPS TLF #43 22-23 March 2019	
Lancaster, GAPPS TLF #44 21-22 June 2019	
Mexico, GAPPS TLF#45 23-24 September 2019	
Sydney, GAPPS TLF#46 7-8 February 2020	
Virtual, GAPPS TLF#47 19-20 May 2020	
Virtual, GAPPS TLF#48 8-9 September 2020	
Virtual, GAPPS TLF#49 20-21 February 2021	

APPENDIX D: TOOLS FOR DIAGNOSING COMPLEXITY

The Goals and Methods Matrix

The goals and methods matrix shown below is a good place to start. It is simple and easy to understand. A Type 1 endeavour may be considered simple and Type 4 most complex as it has neither well defined goals or well defined methods. However, few endeavours are only one type or another. Most endeavours will have components that can be categorised as different types and many endeavours will start as Type 4 and then be broken down into sub-endeavours and tasks with different characteristics.



Turner & Cochrane (1993), Goals-and-methods matrix: coping with projects with ill defined goals and /methods of achieving them. *International Journal of Project Management*, 11, 93-112 and Obeng, E. (1994). *All Change! The Project Leader's Secret Handbook*. Pitman Publishing.

GAPPS CIFTER

The CIFTER factors identify causes of management complexity in projects and other endeavours. The Table provides a relatively simply and easily understood basis for categorising endeavours and therefore selecting the appropriate leader based on their demonstrated competence.

<https://globalpmstandards.org/tools/complexity-rating/project-complexity/>

Management Complexity Factor		Descriptor and Points			
1.	Stability of the overall project context	Very high (1)	High (2)	Moderate (3)	Low or Very low (4)
2.	Number of distinct disciplines, methods, or approaches involved in performing the project	Low or Very low (1)	Moderate (2)	High (3)	Very high (4)
3.	Magnitude of legal, social or environmental implications from performing the project	Low or very low (1)	Moderate (2)	High (3)	Very high (4)
4.	Overall expected financial impact (positive or negative) on the project's stakeholders	Low or very low (1)	Moderate (2)	High (3)	Very high (4)
5.	Strategic importance of the project to the organisation or organisations involved	Very low (1)	Low (2)	Moderate (3)	High or very high (4)
6.	Stakeholder cohesion regarding the characteristics of the product of the project	High or Very high (1)	Moderate (2)	Low (3)	Very low (4)
7.	Number and variety of interfaces between the project and other organisational entities	Very low (1)	Low (2)	Moderate (3)	High or Very high (4)

GAPPS ACDC

The ACDC was developed for categorisation of programs based on their management complexity. It provides a mechanism for matching competency to need by identifying the factors that affect the program manager's challenge.

Aitken-Carnegie-Duncan Complexity Table for Program Manager Role Definition

Program Management Complexity Factors		Criteria for a Rating of:			
		1	2	3	4
Governance Complexity					
1	Sponsorship support.	Consistently strong	Usually strong	Occasionally strong	Seldom strong
2	Program management structures.	Mostly simple	A few complex	Some complex	Many complex
3	Decision-making processes within the program. †	Little to no variability	Variability in some areas	Variability in many areas	Variability in most areas
4	Program manager's authority.	Total to almost total	Extensive	Moderate	Limited
Stakeholder Relationship Complexity					
5	Stakeholder stability over time.	Very high	High	Moderate	Low or very low
6	Degree of public interest in program.	Very low	Low	Moderate	High or very high
7	Degree of cultural diversity.	Very low	Low	Moderate	High or very high
8	Percent of staff able to converse fluently in program's primary language.	90-100%	50-89%	20-49%	Less than 20%
9	Number of languages used in conducting program activities.	One	2-3	4-5	More than 5
10	Number of active locations requiring overnight stay for meetings.	1-3	4-5	6-7	More than 7
11	Range of time zones with active stakeholders.	1-3 hours	4-6 hours	7-9 hours	More than 9 hours
Program Definition Complexity					
12	Agreement regarding the desired future state.	High or very high	Moderate	Low	Very low
13	Level of fluidity in desired future state.	Very low	Low	Moderate	High or very high
14	Clarity of expected benefits.	High or very high	Moderate	Low	Very low
15	Stakeholder expectations regarding benefits.	Most clearly stated	Many clearly stated	Some clearly stated	Few clearly stated
16	Interdependency of benefits.	Very low	Low	Moderate	High to very high
17	Degree of competing stakeholder interests.	Very low	Low	Moderate	High to very high
Benefits Delivery Complexity					
18	Assessment of benefits delivered.	Simple for most	Simple for many	Simple for some	Simple for a few
19	Amount of cultural and behavioural change required within the sponsoring organization.	Very low to low	Moderate	High	Very high
20	Impact on other work of the sponsoring organisation.	Very low	Low	Moderate	High to very high
21	Demand for innovation in constituent projects.	Very low	Low	Moderate	High to very high
22	Management complexity of constituent projects.	Very low	Low	Moderate	High to very high
23	Stability of methods and approaches used in constituent projects.	All or most are known	Many are known	Some are known	Only a few are known
24	Magnitude of overall program risk.	Very low	Low	Moderate	High to very high
Resource Complexity					
25	Availability of capable people.	Mostly assured	Usually assured	Occasionally assured	Seldom assured
26	Availability of adequate funding.	Mostly assured	Usually assured	Occasionally assured	Seldom assured
27	Availability of suitable equipment.	Mostly assured	Usually assured	Occasionally assured	Seldom assured
28	Availability of suitable supplies and materials.	Mostly assured	Usually assured	Occasionally assured	Seldom assured
29	Number of independent funding sources.	1	2-5	6-10	More than 10

ACDC Table Factors

IPMA Complexity Sheet

The International Project Management Association (IPMA) has developed a Complexity Sheet for evaluating project management complexity for the IPMA certification process <https://www.ipma.world/individuals/certification/complexity/> and here to download the spreadsheet <https://www.pma.at/de/service/downloads>

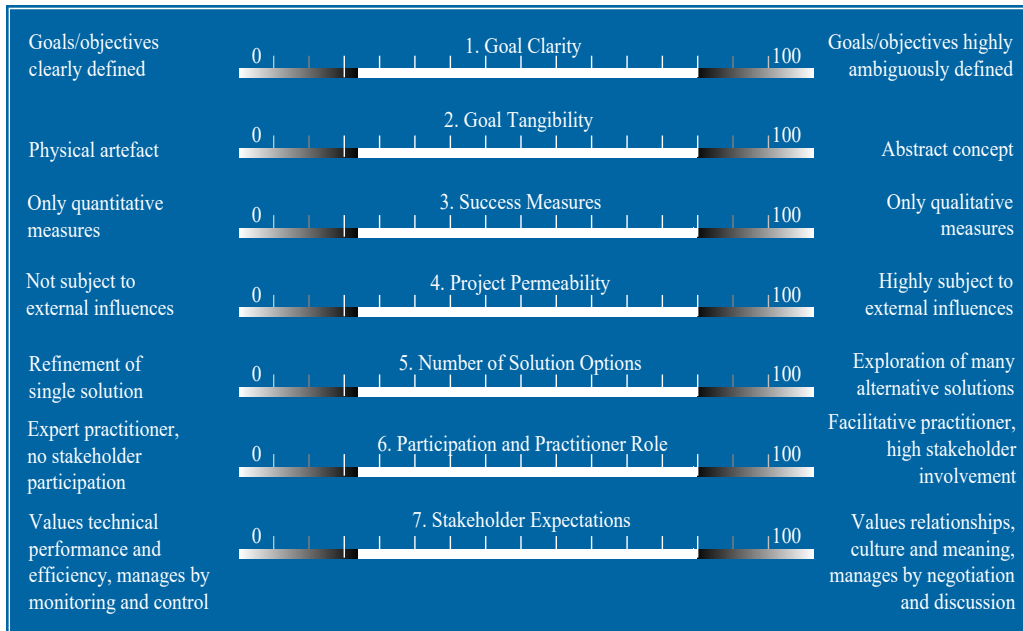
Complexity Sheets

- The Complexity Sheet evaluates the complexity of a project.
- For each selected complex project listed in the application form (Item 6) as well as for the complex project selected for the Report the candidate has to fill out a Complexity Sheet.

Certification level	B				This scheme is used to assess the complexity of project management in a project. Each indicator is rated according to four levels of complexity (4 = very high complexity, 3 = high complexity, 2 = low complexity, 1 = very low complexity). Please fill in a comment for each criteria.									
Candidate (Last name, first name)														
Project														
Criteria	<table border="1"> <thead> <tr> <th colspan="2">Description of criteria</th> <th rowspan="2">Value</th> <th rowspan="2">Comments/justification</th> </tr> <tr> <th>Significant complexity</th> <th>Limited complexity</th> </tr> <tr> <th>complexity very high (4)</th> <th>complexity high (3)</th> <th>complexity low (2)</th> <th>complexity very low (1)</th> </tr> </thead> </table>				Description of criteria		Value	Comments/justification	Significant complexity	Limited complexity	complexity very high (4)	complexity high (3)	complexity low (2)	complexity very low (1)
Description of criteria		Value	Comments/justification											
Significant complexity	Limited complexity													
complexity very high (4)	complexity high (3)	complexity low (2)	complexity very low (1)											
1. Objectives, Assessment of Results	<table border="1"> <tr> <td> <ul style="list-style-type: none"> Mandate and objective Conflicting objectives Transparency of mandate and objectives Interdependence of objectives Number and assessment of results </td> <td> <ul style="list-style-type: none"> uncertain, vague many conflicts hidden very interdependent large, multidimensional </td> <td> <ul style="list-style-type: none"> defined, obvious few conflicts quite transparent quite independent low, monodimensional </td> <td></td> </tr> <tr> <td>Rating</td> <td><input type="radio"/></td> <td><input checked="" type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> </table>				<ul style="list-style-type: none"> Mandate and objective Conflicting objectives Transparency of mandate and objectives Interdependence of objectives Number and assessment of results 	<ul style="list-style-type: none"> uncertain, vague many conflicts hidden very interdependent large, multidimensional 	<ul style="list-style-type: none"> defined, obvious few conflicts quite transparent quite independent low, monodimensional 		Rating	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	
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2. Interested Parties, Integration	<table border="1"> <tr> <td> <ul style="list-style-type: none"> Interested parties, lobbies Categories of stakeholders Stakeholder interrelations Power/Interests of involved parties </td> <td> <ul style="list-style-type: none"> numerous parties many different unknown relations divergent interests </td> <td> <ul style="list-style-type: none"> few parties few uniform categories few and well known relations comparable interest </td> <td></td> </tr> <tr> <td>Rating</td> <td><input type="radio"/></td> <td><input checked="" type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> </table>				<ul style="list-style-type: none"> Interested parties, lobbies Categories of stakeholders Stakeholder interrelations Power/Interests of involved parties 	<ul style="list-style-type: none"> numerous parties many different unknown relations divergent interests 	<ul style="list-style-type: none"> few parties few uniform categories few and well known relations comparable interest 		Rating	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	
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3. Cultural and social context	<table border="1"> <tr> <td> <ul style="list-style-type: none"> Diversity of context Cultural variety Geographic distances Social span </td> <td> <ul style="list-style-type: none"> diverse multicultural, unknown distant, distributed large, demanding </td> <td> <ul style="list-style-type: none"> homogeneous uniform, well known close, concentrated small, easy to handle </td> <td></td> </tr> <tr> <td>Rating</td> <td><input type="radio"/></td> <td><input checked="" type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> </table>				<ul style="list-style-type: none"> Diversity of context Cultural variety Geographic distances Social span 	<ul style="list-style-type: none"> diverse multicultural, unknown distant, distributed large, demanding 	<ul style="list-style-type: none"> homogeneous uniform, well known close, concentrated small, easy to handle 		Rating	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	
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Rating	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>										
4. Degree of Innovation, general conditions	<table border="1"> <tr> <td> <ul style="list-style-type: none"> Technological degree of Innovation Demand of creativity Scope for development Significance on public agenda </td> <td> <ul style="list-style-type: none"> unknown technology innovative approach large large public interest </td> <td> <ul style="list-style-type: none"> known and proven technology repetitive approach limited public interest low </td> <td></td> </tr> <tr> <td>Rating</td> <td><input type="radio"/></td> <td><input checked="" type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> </table>				<ul style="list-style-type: none"> Technological degree of Innovation Demand of creativity Scope for development Significance on public agenda 	<ul style="list-style-type: none"> unknown technology innovative approach large large public interest 	<ul style="list-style-type: none"> known and proven technology repetitive approach limited public interest low 		Rating	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	
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Rating	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>										
5. Project structure, demand for coordination	<table border="1"> <tr> <td> <ul style="list-style-type: none"> Structures to be coordinated Demand of coordination Structuring of phases Demand for reporting </td> <td> <ul style="list-style-type: none"> numerous structures demanding, elaborate overlapping, simultaneous multidimensional, comprehensive </td> <td> <ul style="list-style-type: none"> few structures simple, straightforward sequential uni-dimensional, common </td> <td></td> </tr> <tr> <td>Rating</td> <td><input type="radio"/></td> <td><input checked="" type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> </table>				<ul style="list-style-type: none"> Structures to be coordinated Demand of coordination Structuring of phases Demand for reporting 	<ul style="list-style-type: none"> numerous structures demanding, elaborate overlapping, simultaneous multidimensional, comprehensive 	<ul style="list-style-type: none"> few structures simple, straightforward sequential uni-dimensional, common 		Rating	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	
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6. Project organisation	<table border="1"> <tr> <td> <ul style="list-style-type: none"> Number of interfaces Demand for communication Hierarchical structure Relations with permanent organisations </td> <td> <ul style="list-style-type: none"> many indirect, demanding, manifold multidimensional, matrix structure intensive mutual relations </td> <td> <ul style="list-style-type: none"> few direct, not demanding, uniform uni-dimensional, simple few relations </td> <td></td> </tr> <tr> <td>Rating</td> <td><input type="radio"/></td> <td><input checked="" type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> </table>				<ul style="list-style-type: none"> Number of interfaces Demand for communication Hierarchical structure Relations with permanent organisations 	<ul style="list-style-type: none"> many indirect, demanding, manifold multidimensional, matrix structure intensive mutual relations 	<ul style="list-style-type: none"> few direct, not demanding, uniform uni-dimensional, simple few relations 		Rating	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	
<ul style="list-style-type: none"> Number of interfaces Demand for communication Hierarchical structure Relations with permanent organisations 	<ul style="list-style-type: none"> many indirect, demanding, manifold multidimensional, matrix structure intensive mutual relations 	<ul style="list-style-type: none"> few direct, not demanding, uniform uni-dimensional, simple few relations 												
Rating	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>										
7. Leadership, teamwork, decisions	<table border="1"> <tr> <td> <ul style="list-style-type: none"> Number of sub-ordinates Team structure Leadership style Decision-making processes </td> <td> <ul style="list-style-type: none"> many, large control span dynamic team structure adaptive and variable many important decisions </td> <td> <ul style="list-style-type: none"> few, small control span static team structure constant and uniform few important decisions </td> <td></td> </tr> <tr> <td>Rating</td> <td><input type="radio"/></td> <td><input checked="" type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> </table>				<ul style="list-style-type: none"> Number of sub-ordinates Team structure Leadership style Decision-making processes 	<ul style="list-style-type: none"> many, large control span dynamic team structure adaptive and variable many important decisions 	<ul style="list-style-type: none"> few, small control span static team structure constant and uniform few important decisions 		Rating	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	
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Rating	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>										
8. Resources incl. finance	<table border="1"> <tr> <td> <ul style="list-style-type: none"> Availability of people, material, etc. Financial resources Capital investment Quantity and diversity of staff </td> <td> <ul style="list-style-type: none"> uncertain, changing many investors and kinds of resources large (relative to project of the same kind) high </td> <td> <ul style="list-style-type: none"> available, known one investor and few kinds of resources low (relative to project of the same kind) low </td> <td></td> </tr> <tr> <td>Rating</td> <td><input type="radio"/></td> <td><input checked="" type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> </table>				<ul style="list-style-type: none"> Availability of people, material, etc. Financial resources Capital investment Quantity and diversity of staff 	<ul style="list-style-type: none"> uncertain, changing many investors and kinds of resources large (relative to project of the same kind) high 	<ul style="list-style-type: none"> available, known one investor and few kinds of resources low (relative to project of the same kind) low 		Rating	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	
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Rating	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>										
9. Risk and opportunities	<table border="1"> <tr> <td> <ul style="list-style-type: none"> Predictability of risks and opportunities Risk probability, significance of impacts Potential of opportunities Options for action to minimise risks </td> <td> <ul style="list-style-type: none"> low, uncertain high risk potential, large impact limited options for actions large potential of opportunities </td> <td> <ul style="list-style-type: none"> high, quite certain low risk potential, low impact many options for actions low potential of opportunities </td> <td></td> </tr> <tr> <td>Rating</td> <td><input type="radio"/></td> <td><input checked="" type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> </table>				<ul style="list-style-type: none"> Predictability of risks and opportunities Risk probability, significance of impacts Potential of opportunities Options for action to minimise risks 	<ul style="list-style-type: none"> low, uncertain high risk potential, large impact limited options for actions large potential of opportunities 	<ul style="list-style-type: none"> high, quite certain low risk potential, low impact many options for actions low potential of opportunities 		Rating	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	
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Rating	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>										
10. PM methods, tools and techniques	<table border="1"> <tr> <td> <ul style="list-style-type: none"> Variety of methods and tools applied Application of standards Availability of support Proportion of PM to total project work </td> <td> <ul style="list-style-type: none"> numerous, manifold few common standards applicable no support available high percentage </td> <td> <ul style="list-style-type: none"> few, simple common standards applicable much support available low percentage </td> <td></td> </tr> <tr> <td>Rating</td> <td><input type="radio"/></td> <td><input checked="" type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> </table>				<ul style="list-style-type: none"> Variety of methods and tools applied Application of standards Availability of support Proportion of PM to total project work 	<ul style="list-style-type: none"> numerous, manifold few common standards applicable no support available high percentage 	<ul style="list-style-type: none"> few, simple common standards applicable much support available low percentage 		Rating	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	
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Rating	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>										
Total complexity value	The project is appropriate for a certification process on IPMA Level B													
next step:	Executive Summary Report IPMA Level B [®]													
	Version 1.0/November 2017													

Hard and Soft Continuum

Crawford and Pollack’s Hard and Soft Continuum provides a way of analysing the characteristics of an endeavour at a point of time. The assessment is entirely subjective, offering a framework for discussion and shared understanding of the complexity of endeavour as a basis for action. The higher the score, the higher the level complexity.



Crawford, L. H., & Pollack, J. B. (2004). Hard and soft projects: A framework for analysis. *International Journal of Project Management*, 22(8), 645–653.

Shenhar and Dvir’s Diamond Model

Shenhar, Aaron., & Dvir, D. (2007). *Reinventing project management: The diamond approach to successful growth and innovation*. Harvard Business School Press.

The Complexity Assessment Tool

Maylor, Turner and Murray-Webster's (2013) Complexity Assessment Tool (CAT) was developed to assist in early identification of complexities so they can be managed to minimize negative impact. The 32 statements are intended to apply to a broad range of endeavours but may be tailored to specific circumstances. The authors recommend using the Tool in a facilitated discussion to develop a shared understanding of the complexity of the endeavour.

The Complexity Assessment Tool

Areas of complexity

- Structural Complexity (1–21)
- Sociopolitical Complexity (22–32)
- Emergent Complexity (defined by expectations for stability)

Do you agree with
this statement?
(Y/N)

Do you expect this
situation to remain
stable (i.e., NOT to
change)? (Y/N)

Structural Complexity

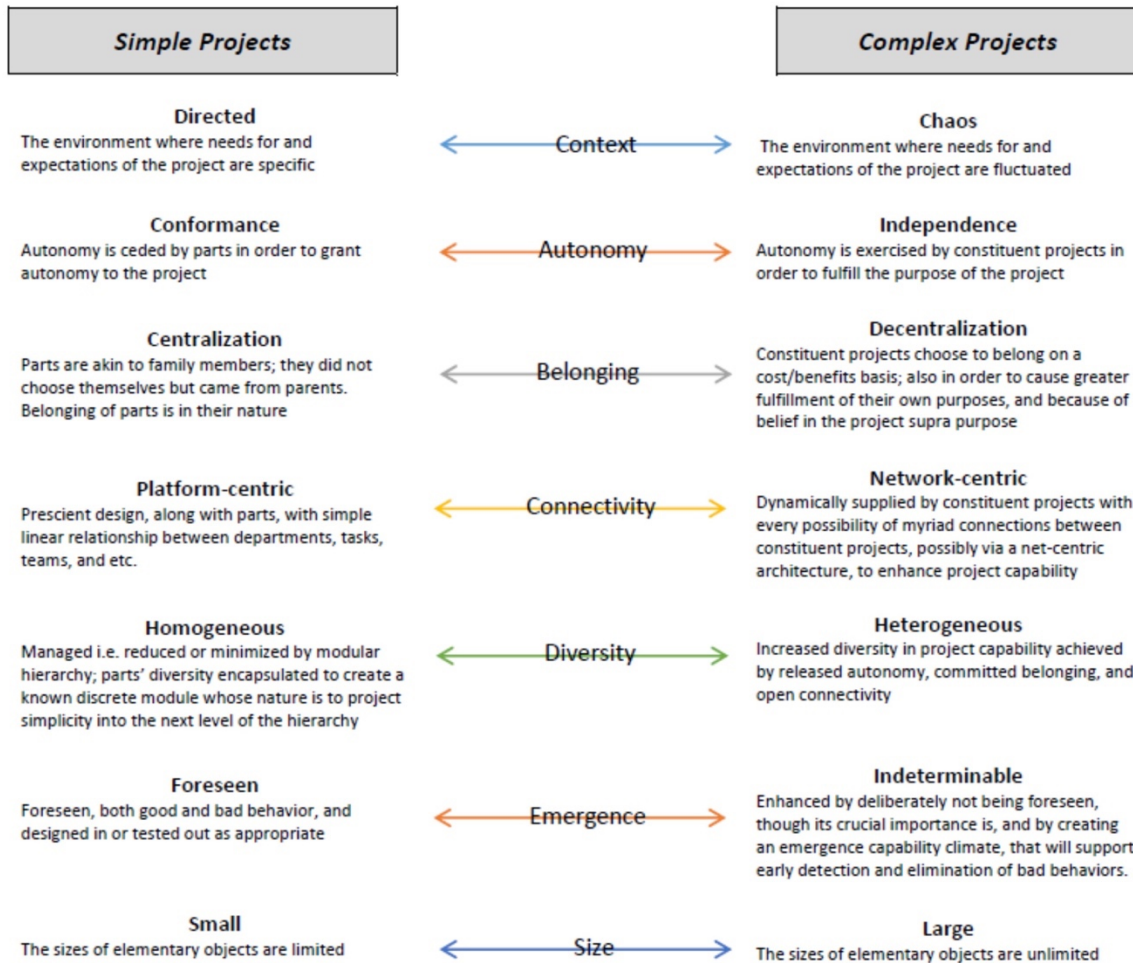
- 1 The vision and benefits for the work can be clearly articulated.
- 2 Success measures for the work can be defined in agreement with the client.
- 3 The technology is familiar to us.
- 4 The commercial arrangements are familiar to us.
- 5 The scope can be well defined.
- 6 Acceptance criteria for quality and regulatory requirements can be well defined.
- 7 A schedule and resource plan can be well defined.
- 8 The supply chain is in place.
- 9 Lines of responsibility for tasks and deliverables can be defined.
- 10 Accurate, timely, and comprehensive data reporting is possible.
- 11 Existing management tools can support the work.
- 12 Sufficient people with the right skills are available.
- 13 Managers have adequate control of human resources (i.e., direct reporting).
- 14 Key people are wholly allocated to the work.
- 15 Integration across multiple technical disciplines is not required.
- 16 The budget is sufficient for the task.
- 17 The budget can be used flexibly.
- 18 The work will be carried out in a single country/time zone/language/currency.
- 19 The work is independent of other projects and business-as-usual operations.
- 20 The pace is achievable.
- 21 Resources (e.g., test facilities, equipment) will be available when needed.

Sociopolitical Complexity

- 22 The work has clear sponsorship consistent with its importance.
- 23 The business case for the work is clear.
- 24 The goals for the work align with the organization's strategy.
- 25 Your own senior management supports the work.
- 26 Team members are motivated and function well as a team.
- 27 Managers are experienced in this kind of work.
- 28 The work involves no significant organizational/cultural change.
- 29 The work will be unaffected by significant organizational/cultural change.
- 30 The external stakeholders (i.e., not immediate team members) are aligned, supportive, and committed to the project and have sufficient time for the work.
- 31 The external stakeholders (i.e., not immediate team members) have a realistic, shared understanding of the implications of the work.
- 32 The core team has the authority to make decisions.

Maylor, H. R., Turner, N. W., & Murray-Webster, R. (2013). How Hard Can It Be?: Actively Managing Complexity in Technology Projects. *Research-Technology Management*, 56(4), 45–51.

Bakhshi et al: Simple versus Complex characteristics



Bakhshi, J., Ireland, V., & Girod, A. (2016). Clarifying the project complexity construct: Past, present and future. *International Journal of Project Management*, 34(7), 1199-1213.

APPENDIX E: FRAMEWORKS AND STANDARDS FOR USE IN CONJUNCTION WITH THIS GUIDING FRAMEWORK

The GAPPS Guiding Framework for Leadership in Complexity may be used for many different types of endeavours. In developing the framework an effort has been made only to include actions and behaviours that may not be covered in other relevant guides and standards or where a particular aspect, relevant to complexity would benefit from being highlighted.

The following organisations and websites provide related resources that may be used in conjunction with the GAPPS Guiding Framework for Leadership in Complexity. These resources are indicative only. Many other resources may also be relevant.

GAPPS

<https://globalpmstandards.org>

Guiding frameworks for:

- Project Managers
- Program Managers
- Project Sponsors
- Project Controls
- Management complexity of projects (CIFTER) and Programs (ACDC)

IPMA

<https://www.ipma.world/individuals/standard/>

The IPMA suite of standards including the:

- Individual Competency Baseline (ICB)
- Project Excellence Baseline (PEB)
- Organisational Competency Baseline (OCB)

PMI

<https://www.pmi.org/pmbok-guide-standards/foundational>

The PMI suite of standards and guides including:

- Foundational Standards
 - *A Guide to the Project Management Body of Knowledge (PMBOK® Guide)*
 - The Standard for Risk Management in Portfolios, Programs, and Projects
 - The Standard for Organizational Project Management
 - The PMI Guide to Business Analysis
 - The Standard for Program Management – Fourth Edition
 - The Standard for Portfolio Management – Third Edition
- Practice Standards
 - Practice Standard for Project Estimating - Second Edition
 - Practice Standard for Scheduling - Third Edition
 - Practice Standard for Work Breakdown Structures – Third Edition
 - Practice Standard for Project Risk Management
 - Practice Standard for Project Configuration Management

- Practice Guides
 - Agile Practice Guide
 - Benefits Realization Management
 - Requirements Management: A Practice Guide
 - Governance of Portfolios, Programs, and Projects: A Practice Guide
 - Business Analysis for Practitioners: A Practice Guide
 - Implementing Organizational Project Management: A Practice Guide
 - Managing Change in Organizations: A Practice Guide)

ISO TC 258 Standards on PPPM: The ISO 21500 Family

<https://www.iso.org/standards.html>

<https://www.iso.org/committee/624837.html>

- ISO 21500:2012 Project, Programme and Portfolio Management –
- Guidance on Project Management (revised edition in production)
- ISO 21503:2017 Project, Programme and Portfolio Management –
- Guidance on Programme Management
- ISO 21504:2015 Project, Programme and Portfolio Management –
- Guidance on Portfolio Management
- ISO 21505:2017 Project, Programme and Portfolio Management –
- Guidance on Governance
- Terminology and supporting standards
 - ISO TR 21506:2018 Project, Programme and Portfolio Management – Terminology
 - ISO 21508:2018 Earned value Management in Project and Programme Management
 - ISO 21511:2018 Work breakdown structures for Project and Programme Management

WEBSITES

AACE (Association for the Advancement of Cost Engineering) <https://web.aacei.org/>

ACEI (Association of Consulting Engineers of Ireland) - <https://www.acei.ie/selection-criteria>

Agile, SAFE (Scaled Agile Framework) - <https://www.scaledagileframework.com>

AIPM (Australian Institute of Project Management) <https://www.aipm.com.au/home>

APM (Association for Project Management, the Chartered Body for the Project Profession. <https://www.apm.org.uk/>

ASQA (Australian Skills Quality Authority) <https://www.asqa.gov.au/>

AXELOS Global Best Practice Portfolio - <https://www.axelos.com/best-practice-solutions>

Change Management Institute (CMI) <https://www.change-management-institute.com> has it
Change Management Body of Knowledge (CMBOK) <https://www.change-management-institute.com/cmbok>

DAMA International (2017). DAMA-DMBOK (2nd Edition): Data Management Body of Knowledge (Second edition). Technics Publications.
<https://www.dama.org/cpages/body-of-knowledge>

GPM P5 Standard – <https://greenprojectmanagement.org/the-p5-standard>

ICEC (International Cost Engineering Council) – <http://www.icoste.org/>

IIBA (International Institute of Business Analysts) has produced the Business Analysis Body of Knowledge (BABOK® Guide) - <https://www.iiba.org/>

ISACA (The Information Systems Audit and Control Association) <https://www.isaca.org/> provides the COBIT standard for IT Governance <https://www.isaca.org/resources/cobit>

ISO 8000 series global standard for Data Quality and Enterprise Master Data. <https://www.iso.org/standards.html>

ISO 44001:2017. Collaborative business relationship management systems — Requirements and framework - addresses key practices that enable stakeholders to work together more effectively in complex organizational relationships <https://www.iso.org/standard/72798.html>

National standards such as - Australian National Standards and Standards Australia <https://www.standards.org.au/> and other national members of ISO– Occupational Standards – Health, Medical, Legal, Accounting, IT, Automotive (refer to ISO headings <https://www.iso.org/management-system-standards-list.html>)

PMAJ (The PM Association of Japan (PMAJ) provides the Guidebook for Program and Project Management - P2M (https://www.pmaj.or.jp/ENG/p2m/p2m_guide/p2m_guide.html)

Praxis Framework, bringing together a body of knowledge, methodology, competence framework and capability maturity model in a single integrated framework with a single structure and terminology. <https://www.praxisframework.org/>

PROSCI, A Change Management Office Primer <https://www.prosci.com/resources/articles/change-management-office-primer> and <https://www.ipma.world/change-management-office-cmo-enabling-change-readiness-in-organisations/>

SAQA (South African Qualification Authority) <http://www.saqa.org.za/>

DAMA International (2017). DAMA-DMBOK (2nd Edition): Data Management Body of Knowledge (Second edition). Technics Publications. <https://www.dama.org/cpages/body-of-knowledge>