Value of assurance management practices

A research project investigating the design and implementation of the distinctive practices of assurance management as a service in project-based organisations and how organisations determine the level of the investment in assurance management

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Executive summary

The aim of this research is to advance and contribute to our understanding of assurance management as a service provided to governance bodies and individuals, adding to theoretical and practical understanding of how assurance management is used and experienced by organisations and by programme and project management practitioners. By exploring the practices of five organisations of different sizes across a variety of industry sectors in the UK and Canada, this research considers two questions:

RQ1: What distinctive practices are being used to develop and deliver an assurance management service in project-based organisations?

RQ2: How do organisations determine the level and type of investment they will make in assurance management practices (e.g. processes, tools, skills and knowledge)?

This study posits that the success of programmes and projects is of great importance to governments and organisations and, further, that assurance management matters a great deal in the success of programmes and projects. This research of assurance management practices is relevant to public sector, private sector and third sector programmes and projects, regardless of geography and regardless of whether projects are focused on infrastructure, transformation, international development, sustainability or digitisation. It has implications for professional bodies and for individuals with portfolio, programme or project management governance responsibilities and those providing support to governance, including those working in programme management offices, project offices and internal audit.

For the purposes of this research, we define assurance management as 'a discipline that provides transparency and confidence to the sponsoring group that the portfolio, programme or project will meet its objectives for beneficial change by focusing activities on the riskiest aspect of the portfolio, programme or project'. This definition applies to organisations that are delivering portfolios, programmes or projects using a formal governance structure. As such, assurance management is provided as a service that supports the decision-making structure established to govern the delivery of programmes and projects.

This research acknowledges that organisations use the terms 'programme' and 'project' in specific ways in accordance with professional guidance and academic literature. However, these terms are also used interchangeably. Rather than debate semantics, both terms are used in this research, and usage of either is meant to include the usage that best applies to your organisation.

We conclude that the assurance management service is designed, implemented and operated in consideration of practices that can be grouped into five dimensions:

- governance;
- methods;
- integration;
- cadence; and
- specialism.

Using these five dimensions, this study identifies a framework of indicators that describe a weak, excessive or optimised assurance management service. This framework offers the target state for an impactful assurance management service.

Governance draws attention to assurance management as a contributor to informed decision-making. It is not about providing oversight or 'marking the project's homework', as these are passive activities. Instead, it needs to help make the programme succeed by working alongside and with all levels of governance to increase the confidence of delivery, acknowledging that assurance management must remain objective and independent to maximise its value.

Methods draws attention to assurance management as a set of methods that collectively are used to deliver value. The methods include, but are not limited to, gate reviews, retrospective lessons-learned reviews, deep dives and progressive (i.e. continuous) assurance that adapts to the assurance needs of governance bodies and individuals during delivery. This research encourages applying nimble assurance, which is risk-based, dynamic, collaborative and provides insight to decision-makers in advance of issues arising.

Integration draws attention to assurance management as a collaborative undertaking that inherently considers intra-organisational, inter-organisational and external dependencies, e.g. along an extended supply chain. Because programmes and projects transcend horizontal and vertical organisational boundaries, so must assurance management. The more complex the dependencies between organisational entities, the greater the need to consider and integrate assurance management conducted by the different bodies involved with assurance management.

Cadence draws attention to assurance management being delivered at pace. Assurance provided after the fact is useful for historical record keeping, but rather less useful for providing confidence to decision-makers about the future. The timing and frequency of assurance management activities matter and should consider decision-events (e.g. funding milestones), temporal (e.g. monthly, quarterly or annual) events in organisations that affect the programme or project (e.g. resource review and planning) and risk-driven events.

Specialism draws attention to assurance management as more than 'just a side job' or 'something to lend a hand to'. An implication of this might be the potential for project professional bodies to review how they handle assurance management in their bodies of knowledge, competency frameworks and spectrum of accreditations and qualifications.

Determining the level of investment in assurance management is paradoxical by its nature since it is problematic to deterministically measure the impact of something that has been avoided and, hence, the value of the investment in the assurance management service. In practice, each of the five case studies derived from semi-structured interviews with participating organisations defines an empirical approach to optimising the level of investment, whereby the organisations implemented an approach and then made incremental changes based on feedback over time. The research provides insights into the design, implementation and operation of an optimised assurance management service and, potentially, the ideal level of investment to achieve the optimal assurance management service.

In practice, the authors encourage that the five dimensions of an assurance management service be rigorously considered when designing, implementing and operating the assurance management service, for example, when:

- Drafting programme and project management strategy and planning documents
- Designing programme and project management controls
- Designing and resourcing programme and project management offices
- Developing a holistic assurance management plan for a programme or project.

Acknowledgements

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Contributing organisations

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Employment and Social Development Canada (ESDC): ESDC is a department of the Federal Government of Canada that provides senior citizens with basic income security, supports unemployed workers, helps students finance their post-secondary education and assists parents who are raising young children. ESDC delivers Can$87bn in programmes and services and has approximately 24,000 employees. The department provides services online, by phone and via approximately 590 in-person service access points.

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1. Establishing the context

This section provides the context for this research. It considers project-based organising and the use of assurance management within a project-based organisation. We then move on to look at how assurance management has developed over time, the variety of definitions for assurance management and the value of assurance management.

1.1 Introduction

"Reviews are for the reviewed and not the reviewer. The review is a failure if the reviewed learn nothing from it." Jerry Madden, Associate Director, NASA.

Programmes and projects have a major impact on modern economies. APM-commissioned research indicates that 8.9% of Gross Value Add and 7.9% of employment in the UK is driven by programme- and project-based working (APM and PwC, 2019). The UK Government calculates that over 90% of policy and over £500bn of government spend is delivered through major projects (Public Administration and Constitutional Affairs Committee, 2019). However, it is difficult to deliver programmes and projects successfully due to the many compounding risks that need to be considered. These include but are not limited to:

- organisational risks, e.g. related to governance, leadership and resources
- technical risks, e.g. related to planning, design, testing, cut-over and implementation
- environmental risks, e.g. related to build environment, climate change and sustainability
- social risks, e.g. related to equality and equity
- political risks, e.g. related to election cycles and policies such as 'levelling up'.

Despite considerable attention, the 29-30% of major government projects consistently report poor (i.e. red or red/amber) prospects for delivery (National Audit Office, 2016; Public Administration and Constitutional Affairs Committee, 2019; Infrastructure and Projects Authority, 2021). Although these are labelled as public sector projects, the reality is that the public sector commissions and relies on the private sector to deliver. Hence, this research does not position the debate as a private versus public sector capability discussion. Instead, it is about successful project delivery overall.

> "This research identifies lessons learned, focused on one aspect of programme and project management, namely assurance management"

To prevent failures in the future, practitioners want to learn from the lessons of other programmes and projects to understand what led them to 'go wrong' and what helps programmes and projects to 'go right'. This research identifies lessons learned, focused on one aspect of programme and project management, namely assurance management. Assurance management is a discipline that provides transparency and confidence that the project or programme will meet its objectives (Axelos, 2020). It is focused on project performance and targeted outcomes, as much as on compliance.

This research supports APM's vision of inspiring people to create 'a world in which all projects succeed'. Understanding the value of assurance management is a particular interest of Association for Project Management, as reflected in the establishment of the APM Assurance SIG in 2008, in the inclusion of 'assurance principles' with the *APM Body of Knowledge* 7th edition (APM, 2019a) and in the Chartered Project Professional accreditation.

We[1] have defined assurance management as follows: 'A discipline that provides transparency and confidence to the sponsoring group that the portfolio, programme or project will meet its objectives for beneficial change by focusing activities on the riskiest aspect of the portfolio, programme or project'. Further, we have posed two questions in this research:

> **RQ1: What distinctive practices are being used to develop and deliver assurance management in project-based organisations?**

> **RQ2: How do organisations determine the level and type of investment they will make in assurance management practices (e.g. processes, tools, skills and knowledge)?**

This research is designed to advance the art, science and theory of assurance management and to enhance guidance and benchmark standards provided to project professionals. Current APM President (at time of writing), Visiting Professor at University College London and long-time champion of the use of assurance management across her career, Sue Kershaw has recognised the value of assurance management in supporting decision-making, particularly in major complex projects. Much of her own experience of providing assurance has been through Project Representative (P-Rep) teams, emphasising the role of assurance in providing objective challenge as well as support. As she has remarked: "The value of assurance in supporting decision-making in megaprojects can never be underestimated. Assurance professionals provide challenge and support to the delivery teams and sponsors, and together we can provide certainty on project outcomes."

Certainly, the profile of assurance among the project community has increased in no small part because of NAO recommendations and the Infrastructure and Projects Authority (IPA) acknowledging assurance management as a key part of project delivery. However, it is not well represented in academic project literature or in research. This research aims to redress this situation and to help bring assurance management into the everyday narrative when we organise for the purpose of delivering programmes or projects.

1.2 Project-based organising

Programmes and projects include a broad range of management practices as found in any organisation (Lundin & Soderholm, 1995); for example, governance and risk management, recruitment and selection, communication and marketing, budgeting and finance, operations, logistics, planning and release of products and services, performance monitoring and management, stakeholder engagement, procurement and contracting services, among many others. The collective set of practices required to organise programmes and projects is known as organisational project management (Winch, 2014; Morris, 2013), project-based enterprise (DeFillippi & Arthur, 1998), project-based firm (Gann & Salter, 2000), project-based management (Martinsuo et al, 2006) and project-based organising (Hobday, 2000). For the purposes of this research, we employ the term project-based organising[2] (PBO).

Hobday (2000) describes the project-based organisation in terms of its configuration, contrasting the 'pure' project-based organisation with a continuum of other structural designs, including functional and matrix forms. Project-based organising is a capability that must be formulated and matured, since this capability does not inherently exist in a parent organisation. For example, when faced with a major new initiative such as a corporate transformation, the required high-performing ready-to-go project-based organisation will not exist.

Organisations need to consider the state of the management functions required to successfully deliver programmes and projects in a project-based organisation (Schuster, 2016). In some cases, the routines that support management functions are readily available elsewhere and can be 'inherited' by individual programmes and projects, although this may not be the case and hence need to be developed. The management functions in a project-based organisation interconnect with management functions in the parent (i.e. functional-based organisation). Typical examples are human resources, financial management and IT. When routines used in a functional-based organisation are not fit for purpose for PBO, they need to be modified or 'deconstructed'. When PBO and functional-based organising (FBO) co-exist, the mirror process also happens whereby functional-based routines are continually being developed and project-based routines deconstructed. In effect, the development of the routines to support PBO and FBO are dynamic, requiring active ongoing design, development and embedding over time to ensure the required capabilities exist (see Figure 1).

[2] Note: this paper uses the terms 'project-based organising' (PBO) – a process of becoming – and 'the project-based organisation' – a state of being.
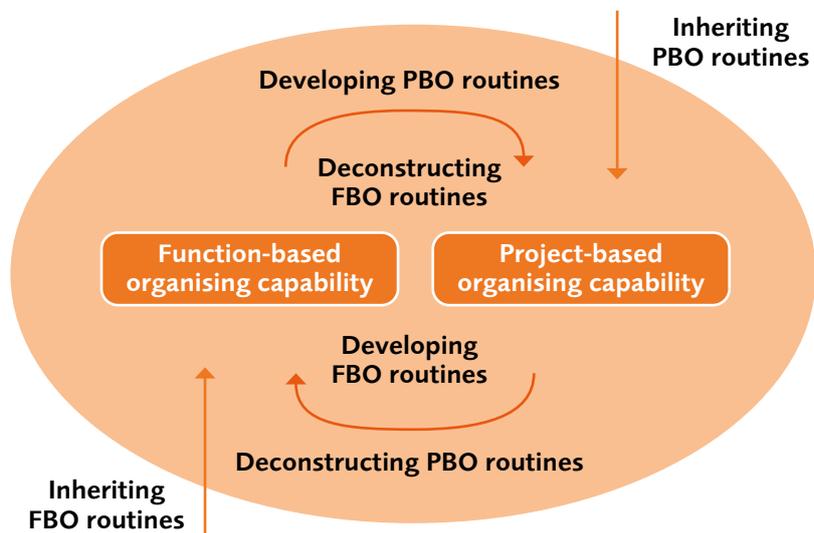
Figure 1: Developing the PBO (Source: Schuster, 2016)

The management processes of designing and maturing the capability of a project-based organisation are known as projectification (Maylor et al, 2006; Schuster, 2016). PBO capability depends on having a set of practices that become routines, which are then institutionalised (Dosi et al, 2000; Galbraith, 1973; Leonard-Barton, 1992; Mintzberg, 1979; Prahalad & Hamel, 1990; Winter, 2003). Leonard-Barton's (1992) study of capabilities in a project context proposed that core capability content is embodied in *skills and knowledge* and embedded in *technical systems, managerial systems* and *values and norms.* These dimensions are interrelated, each supported by the others. Values and norms permeate the other three dimensions of core capability and take on a type of integrating role (see Figure 2).
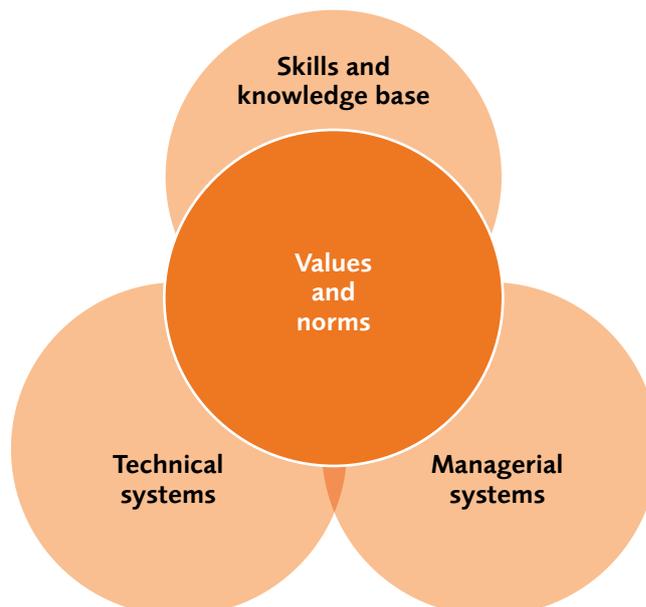
Figure 2: Dimensions of capability (Source: Leonard-Barton, 1992)

1.3 Assurance management as a PBO management service

APM (2021) states that, "traditionally, the capabilities literature describes the combined importance of strategic capabilities, project structures and everyday activities in delivering successful projects. [... However], further investigation is necessary to explain 'how' capabilities are built, distributed and coordinated in complex projects." As a response, this research is focused on how assurance management enables PBO capabilities.

Assurance management is a service within both the project-based organisation and the functional-based organisation. Oakes (2016) suggests that assurance management provides an independent perspective that cuts across oversights and biases and operates at the project, governance and organisational levels. He also highlights the role of the programme management office (PMO) in supporting the preparation, delivery and follow-up of assurance reviews. Cunningham (2016) posits mega-project assurance as an "objective examination and independent assessment of a Capital Investment (portfolio, programme, and/or project) risks, controls, processes, and governance". As such, focus may include risk, commercial, performance, compliance, system security, accountability, due diligence and/or dispute resolution engagements.

There are a variety of definitions for assurance management across empirical and profession-led literature. The Oxford English Dictionary simply defines assurance as 'the action of assuring; a positive declaration intended to give confidence'. Within the project profession, APM (2019b) defines assurance as the 'process of providing confidence to stakeholders that projects, programmes and portfolios will achieve their objectives for beneficial change'. Embedded in this definition are several important concepts. First, that there is an audience for assurance; that is, the receivers of assurance who use it for their own purposes. Second, that there is a subject for assurance; that is, the successful outcomes of the projects, programmes and programmes as measured in terms of benefits.

"Further investigation is necessary to explain 'how' capabilities are built, distributed and coordinated in complex projects"
APM (2021)

Axelos (2020) defines assurance as 'a discipline that provides transparency and confidence to the sponsoring group that the programme will meet its objectives by focusing activities on the riskiest aspects of the programme.' This definition embeds several additional concepts. First, assurance is a discipline; it is more than a process. Second, the audience for assurance is ultimately the sponsoring group which has formal accountabilities as part of the governance, in contrast to stakeholders who are an amorphous group of interested parties without formal accountabilities. Finally, assurance should be linked to risk management. The similarity in all the above definitions is that of providing delivery confidence to organisational leaders about a programme or project with the support of well-managed 'assurance'.

For the purposes of this research, we adopt a combination of the APM and Axelos definitions of assurance management, thus:

> **Assurance management**
>
> **A discipline that provides transparency and confidence to the sponsoring group that the portfolio, programme or project will meet its objectives for beneficial change by focusing activities on the riskiest aspects of the portfolio, programme or project.**

APM (2014) identifies six principles that inform the practice of assurance management (see Figure 3):

Impactful: Should contribute to project success by preventing failure

Independence: Provides an objective view provided by others rather than self-evaluation

Accountability: Insights and advice provided to the sponsor of their delegate

Risk-based: Effort is applied to area that deemed of most value to stakeholders

Proportionate: Tailored to avoid duplication of effort and unnecessary reporting

Planning & coordination: Delivered according to an integrated assurance strategy and plan

Figure 3: Normative principles of successful assurance management (Source: APM, 2014)

To enact these principles assurance management is multi-level, conceptually operating at three levels. These are defined as the 'three lines of defence' (3LoDs), one line of defence for each of the three levels of accountable **governance** (enterprise, programme and project level) (APM, 2014, 2021; Axelos, 2020; Institute of Internal Auditors, 2013). Together, the three lines of defence cooperate to ensure engagement at all levels and **escalation or delegation of management actions** between the levels of governance. They also provide integration between the temporary project organisation and the permanent parent organisation. Figure 4 illustrates this, showing also a seamless flow of upward and downward information for decision-making.

"Together, the three lines of defence cooperate to ensure engagement at all levels and escalation or delegation of management actions between the levels of governance"
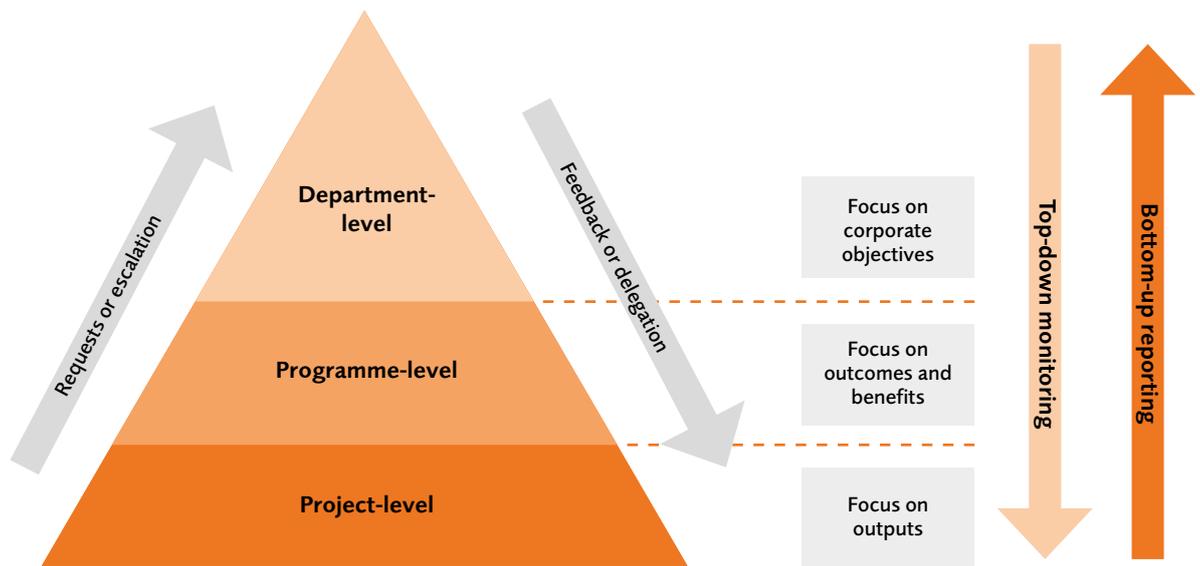
Figure 4: 3LoDs in a project-based organisation

The understanding and application of assurance management in the PBO has evolved significantly over recent decades along with the theory of project management. Classic project management practices focused on the three constraints of the iron triangle: time, cost, quality (Barnes, 1988). Early versions of project management frameworks and standards (e.g. COSO, ITIL, BiSL, ISO27000, CMMI, TOGAF, PMBOK, *APM Body of Knowledge 7th edition*) set controls and standards focused on planning and monitoring budgeting, scheduling and quality. As a result, classic assurance management practices aligned to these frameworks focused on related hard discipline controls as the way to ensure successful delivery. Assurance management continued to develop and expand into a more holistic approach incorporating soft skills (behaviours, leadership, people management), elements of context, environment and complexity (particularly in relation to major and mega projects) and understanding critical success factors and barriers to success.

At the beginning of this millennium, several watershed events shifted the underlying assumptions of project-related research and practice. The Office of Public Service issued the Improving Programme and Project Delivery Report (OPSR, 2003). Implementation of the recommendations in the report led to the creation of the Office of Government Commerce (OGC) (a precursor to the current Infrastructure and Projects Authority) and the implementation of a series of complementary initiatives to improve the delivery of major government projects. These changes included a major repositioning of the OGC Gateway Review™ as a central feature of the UK government's assurance management method for high-risk programmes and projects.

"Gateway reviews formalised assurance management for SROs in a way that did not exist previously"

The OGC introduced the OGC Gateway™ process in 2005. Gateway reviews are a third line of defence method applied to high-risk projects within the Government Major Projects Portfolio. The reviews formalised assurance management for SROs in a way that did not exist previously, drawing greater attention to value for money by considering benefit realisation (see Table 1) as well as project progress against milestones (IPA, 2016).

Gate	Description (and focus)	Benefits slogan
Gate 0	Strategic review (programmes)	Link benefits to strategy
Gate 1	Strategic assessment (projects)	Identify benefits
Gate 2	Business justification (projects)	Value and appraise benefits
Gate 3	Investment decision (projects)	Plan to realise benefits
Gate 4	Readiness for service (projects)	Work to realise benefits
Gate 5	Operations review and benefit realisation (projects)	Review performance

Table 1: IPA delivery review gates (Source: IPA, 2016)

During this same period, several different cadres of academics individually questioned and revisited the classical assumptions of project management under various banners: rethinking project management (Winter et al, 2006), reinventing project management (Shenhar & Dvir, 2007), making projects critical (Hodgson & Cicmil, 2006) and reconstructing project management (Morris, 2013). Cicmil and Hodgson (2006:114), for example, questioned the 'presumption of rationality in decision-making and control' surrounding projects: "It is increasingly apparent that accepting and applying such orthodoxy does not eliminate project failures, nor does it guarantee project success."

The reassessment of project management orthodoxy led to insights and conclusions that have influenced major revisions to influential guidance for programme and project management in the UK, including *Management of Risk*® (OGC, 2007a), *Managing Successful Programmes*™ (OGC, 2007b) and PRINCE2™ (OGC, 2009a, 2009b). These updates considered a wider set of determinants of successful delivery and, as a result, the assurance to be applied using these determinants.

Over ensuing years, attention on assurance management emerged, as evidenced by the continuing evolution in best practice guidance and standards. For example, the COBIT framework[3] formally introduced assurance management into its architecture as part of version 5 (ISACA, 2012). The subsequent version (ISACA, 2019a; ISACA, 2019b) added 'managed assurance' as a new governance and management objective (labelled MEA04), separating it from what was a 'managed system of internal controls', thereby elevating its importance and introducing new processes related to assurance management. The OGC Gateway™ process, introduced in 2005, was enhanced with the addition of the project validation review (early-stage review focused on the viability of a potential project), project assessment review and delivery confidence reviews (IPA, 2017).

"Academic research of assurance management has attracted much less attention and is markedly more fragmented and less mature than research into other areas of project studies"

The most recent version of *Managing Successful Programmes*® (Axelos, 2020) boldly introduced assurance management as one of the seven major themes for delivering a successful programme so further highlighting and broadening what was narrowly conceived as only quality assurance in the previous version (Axelos, 2011). The focus of assurance management shifted towards delivery confidence, risk, outcomes and decision-making of governance and away from project-level quality control. Similarly, project management methodology PRINCE2® (Axelos, 2017) also recognises the value of monitoring a project's performance and products independently of the project manager. From the above, the concepts of independence and objectivity can be understood to be central to the success of assurance management.

Much of the literature on assurance management is practitioner-based or provided as guidance from project professional and other associated bodies. Academic research of assurance management has attracted much less attention and is markedly more fragmented and less mature than research into other areas of project studies such as project front-end, project success and projects as value creators. Exceptions include Oakes (2016) and Cunningham (2016), mentioned earlier in this report. Another exception is Flyvbjerg (2013:763), who champions critical review of the project plan and personnel by

an expert independent organisation with expertise in benchmarking and project execution, noting that "promoters' forecasts should be made subject to quality control and due diligence by other parties, including banks and independent bodies such as national auditors or independent analysts. Such bodies would need the outside view or similar methodology to do their work."

This research offers a way forward by considering the following research question:

■ RQ1: What distinctive practices are being used to develop and deliver assurance management in project-based organisations?

1.4 Defining the value of assurance management

Quantifying the value of assurance management is problematic. If we think of value in financial terms (e.g. return on investment, internal rate of return, net present value), logically this implies there is a 'business case' for assurance whereby a measurable input (e.g. cost or effort) is applied to achieve a measurable result (e.g. cost reduction). The premise for such a business case is inherently flawed in its conception. The result of assurance is the avoidance of failure. If failure is avoided it is not realised and, hence, its effect and the magnitude of the effect cannot be measured. We need a different approach.

The measurement conundrum facing the value of assurance management also faces many other organisational functions including IT, human resources and project management. Specifically considering project management, Aubry & Hobbs (2011) observe that there is no consensus way to assess either the performance or value. Thomas & Mullaly (2008) also explore the value of project management and seek appropriate measures of success. They conclude that because organisations are multifaceted, there are no singular perspectives and evaluation criteria. However, they propose three influences to consider when measuring the value of a discipline (see Figure 5):

■ Fit: the degree to which the design of the discipline aligns to the organisational context

■ Process: the degree to which the practice of discipline is executed by practitioners

■ Outcome: the degree to which discipline impacts delivery results.
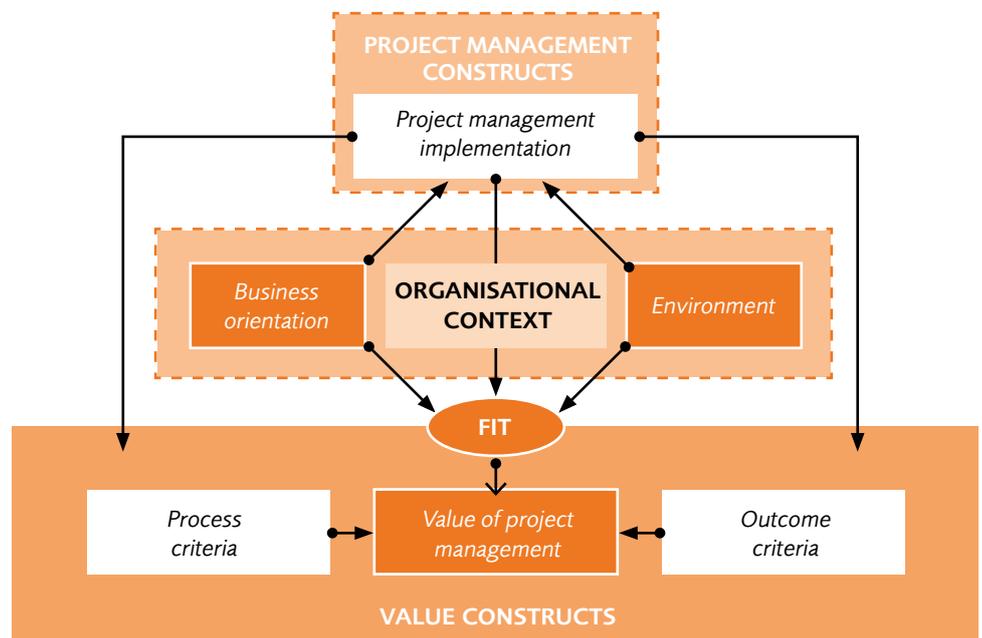

Figure 5: Determining value in a project-based organisation (Source: Thomas & Mullaly, 2008)

In considering these three influences on the value of assurance management, we acknowledge assurance management as a key element of governing and managing projects (Vo et al, 2021) and offer the following definition of the value of assurance management for the purpose of this research:

Value of assurance management

The regard that portfolio, programme and project sponsors hold for the design, practice and impact of the assurance management discipline.

COBIT (2019) provides a starting point for identifying measures of the design, influence, and impact of assurance management. The framework maps managed assurance to a set of financial, customer, internal and learning and growth goals (i.e. outcomes) (see Figure 6).

COBIT 2019 domains and objectives		Mapping alignment goals to governance & management objectives												
COBIT2019		I&T compliance & support for business compliance with external laws and regulations	Managed I&T – related risk	Realised benefits from I&T – enabled investments and services portfolio	Quality of technology related financial information	Delivery of I&T services in line with business requirements	Agility to turn business requirements into operational solutions	Security of information, processing infrastructure and applications, and privacy	Enablement and support of business processes by integrating applications and technology	Delivering programmes on time, on budget and meeting requirements and quality standards	Quality of I&T management information	I&T compliance with internal policies	Competent and motivated staff with mutual understanding of technology and business	Knowledge, expertise and initiatives for business innovation
COBIT 2019 gov & mgmt objectives		AG01	AG02	AG03	AG04	AG05	AG06	AG07	AG08	AG09	AG010	AG011	AG012	AG013
	Evaluate, direct and monitor	Financial				Customer		Internal					Learning and growth	
MEA04	Managed assurance	S	S		S	S		S			S	P		
		AG01	AG02	AG03	AG04	AG05	AG06	AG07	AG08	AG09	AG010	AG011	AG012	AG013

Figure 6: Managed assurance extract from COBIT (Source: ISACA, 2019)

In doing so, COBIT (2019) explicitly links the philosophy of the balanced scorecard and its associated metrics to assurance management. The mapping is designed from an IT perspective and omits a link to learning and growth. Despite this limitation, it does set a foundation for further examination of the regard that sponsors hold for assurance management. Therefore, measuring the value of assurance management is important and leads to the second research question:

■ **RQ2: How do organisations determine the level and type of investment they will make in assurance management practices (e.g. processes, tools, skills and knowledge)?**

2 Research methodology

This section describes the aims and objectives of the research, and how it was approached.

2.1 Research aims and objectives

The literature review highlighted the small amount of empirical research that exists regarding assurance management, and the significant gaps in our theoretical understanding and practice of it. This research is aimed at advancing and contributing to our understanding of the lived reality of assurance management, adding to our theoretical and practical understanding of how assurance management is used and experienced by organisations, projects and project practitioners. It also seeks to help us understand how organisations value assurance management and the degree to which they are prepared to invest in it.

2.2 Research approach

The research uses a qualitative approach with the case study as the unit of analysis (Eisenhardt, 1989; Yin, 2018; Martinsuo & Huemann, 2021) to gain insight into the use of assurance management. A total of five different organisations are interviewed and analysed, each constituting a case study. Van de Ven's (2007) concept of engaged scholarship brings together different points of view of key people; in this research, the key individuals are those involved with assurance management. Interviewees were individuals directly involved with the delivery of assurance to the portfolio, programme or project.

The research takes project actor practice and action as the empirical focal point. Geraldi & Soderlund (2016) suggest that the actuality of projects has been increasingly researched; however, practice-based research in relation to assurance management is still lacking. This research is linked to what Geraldi & Soderlund (2018) name Type 2 research: that is, practical and interpretive.

2.2.1 Organisation and interviewee selection

Five organisations across public services and the private sector were invited to participate in the research, split between Canada and the UK in line with the researchers' own places of residence. The organisations reflect a range of industry sectors to minimise commercial confidentiality issues and direct competition.

These organisations were invited into the research to help explore the range of project assurance models and practices in use. They were targeted and selected based on a range of criteria, including size of portfolios or significant projects; where project assurance has been deliberately introduced to support delivery and outcomes; availability and ease of access to interviewees (many of these organisations had volunteered to take part in other similar research programmes and were available during the required time period). Finally, they are all project-based organisations, albeit with different approaches; as such, they have had to build interfaces and connect their temporary project-based organisations into their permanent parent organisation.

A total of 17 interviews were undertaken, each ranging from 60 to 90 minutes. Potential interviewees were identified by their respective organisations according to their role and responsibilities in relation to the project, the organisation and assurance management. They were discussed with the researchers and a final set of interviewees agreed on. The final set of interviewees for each case study included project practitioners and members of disciplines outside the project management community, thereby providing diverse perspectives on assurance management.

Semi-structured interviews were undertaken adopting a Grounded Theory Analysis approach (Strauss & Corbin, 1997; Glaser & Strauss, 1999), which posits an open mind so allowing ideas to 'emerge from the field in the course of the study' (Miles & Huberman, 1994:17). Semi-structured interviews balance a discourse of prepared questions (structured approach) with the freedom and flexibility to discuss relevant and appropriate follow-up questions during the flow of the interview

"The interviewees for each case study included project practitioners and members of disciplines outside the project management community, thereby providing diverse perspectives on assurance management"

(less structured approach) (Yeo et al, 2014; Salmons, 2021). Additionally, an appreciative enquiry approach (Cooperrider & Whitney, 2005) was used to highlight strengths of approach to assurance management and focus on the best of 'what is'. Together, these approaches allowed the researchers to understand the interviewees' own lived experience of assurance management, as well as to understand organisational practice.

Interviews were based on the two research questions. A set of questions were formulated relating to the interviewee role, how assurance management is applied within the organisation, the development of assurance management as a service to governance, how the organisation determines the level of investment in assurance and what plans there are to mature assurance management within the organisation.

Additional conversations regarding the use and value of assurance management were also undertaken with experienced project practitioners, including the current president of APM, to help provide wider context and perspectives and additionally to test findings.

All interviews were done remotely due to the researchers' respective countries of residence and the impact of COVID – which introduced significant disruption and a hugely changing landscape for nations, communities, health, economies, travel and trade – and its immediate aftermath (Lupton & Willis, 2021). Both researchers were present at all interviews to allow each time to consider and reflect on responses to questions and make notes, while the other discoursed with the interviewee. Most interviews were undertaken with a single interviewee, although due to interviewee availability some interviews were held with multiple interviewees. All interview discussions were transcribed manually from the researchers' own notes independently, then reviewed together.

2.2.2 Interview analysis

Interview analysis was undertaken using first order concepts, second order themes and aggregate dimensions (Gioia et al, 2013; Glaser & Laudel, 2013).

The rich qualitative data collected were subsequently reviewed and analysed. The researchers were able to draw out second order themes that were relevant across all case studies, which were then used to analyse and report the findings. The first order and second order themes are summarised in Table 2:

First order concepts	Second order themes
Approach to Three Lines of Defence	corporate/enterprise, programme level, project level
Assurance management as a service	governance, integration, method, cadence, specialism
Measuring the value of assurance management	KPIs such as financial, resourcing, service quality

Table 2: First order concepts and second order themes from interviews

One aggregate dimension was identified from the analysis of interviews: this considered how well the assurance management was designed and implemented based on Thomas & Mullaly's (2008) ideas of fit, process and outcome (see Figure 5).

2.2.3 Limitations

This research is conducted using an interpretivist paradigm applied to case studies. As such, the findings are limited in that the researchers are focused on identifiable patterns during coding rather than anomalies.

Blaikie (2007) argues that researchers cannot approach the generation and interpretation of data with a blank mind; that the kind of data they have generated, the questions they have developed and posed to interviewees, and the generation of themes and categories as a result of data analysis will have been influenced by assumptions and experiences from their own experience and previous work. The researchers recognise that collectively they have more than 60 years of professional experience in project, programme, portfolio and transformation management; they also recognise that being objective and 'empathic neutrality' (Patton, 2002) are essential aspects of competent inquiry and that validity and reliability are crucial to empirical research. Indeed, Patton (2002) considers that 'the researcher's personal experiences and insights are an important part of the inquiry and critical to understanding the phenomenon.' Further, both researchers attended all interviews and co-created each case study so continually cross- and sanity-checking perspectives and understanding.

> "The researcher's personal experiences and insights are an important part of the inquiry and critical to understanding the phenomenon"
> Patton (2002)

3 Findings

This section details the analysis of five organisations providing assurance management during project-based organising. For each case, we describe the project-based organising context and then consider their approach to designing and implementing three lines of defence and assurance management as a service to governance. Finally, we summarise gained insights on measuring the value of assurance management.

3.1 Programme A: ESDC BDM Programme case study

3.1.1 Project-based organising at Employment and Social Development Canada (ESDC)

Over many years Employment and Social Development Canada (ESDC) has been implementing investments in automation and service improvement initiatives affecting the delivery of Employment Insurance (EI), Canada Pension Plan (CPP) and Old Age Security (OAS) to citizens. However, improvements were becoming increasingly difficult because the underlying systems had reached the end of their life. The Benefits Delivery Modernization (BDM) programme was conceived in 2016 to transform how the department delivers financial benefits payments to citizens by fundamentally renewing the underlying systems and processes. Spending during the life of the programme is estimated to be greater than CD$2bn affecting most operational aspects of the Department.

Starting early within the lifecycle, the programme leaders sought to apply lessons learned from other major technology enabled transformation programmes delivered domestically and in other countries. During the initial planning phase, the leaders recognised the need for a structured framework for programme delivery and chose to adopt Axelos's *Managing Successful Programmes®*. During the programme definition phase, the programme governance was designed with department, programme and project-level decision-making bodies. The levels were connected by delegation and escalation of accountabilities, and by reporting requests and feedback.

Support offices were established to support each level of governance. A programme management office (PMO) was established to support programme-level decision-making bodies and individuals. Project offices were created to support project-level decision-making bodies and individuals for each of the delivery projects. The BDM programme entered the first delivery tranche of programme delivery in May 2021, when the programme governance structures came into full effect.

3.1.2 Approach to three lines of defence

The BDM programme defined an assurance management strategy as one part of the overall programme strategy. The assurance management strategy adheres to the 5th edition of *Managing Successful Programmes®* (Axelos, 2020) and adopts a three lines of defence approach:

- The first line of defence at the project management level, supported by project offices, focuses on project outputs

- The second line of defence at the programme management level, supported by a programme management office, focuses on the delivery of programme outcomes and benefits

- The third line of defence at the enterprise level, supported by Internal Audit and the Chief Financial Officers Branch, focuses on the achievement of enterprise goals and objectives.

"The assurance management service has dedicated resources which help execute the service according to the defined strategy"

The assurance management strategy was defined according to four dimensions: programme governance and accountabilities, assurance methods, a cadence of assurance management activities and an identification of corporate, programme support, project support and system integrator teams with which the assurance management service needs to integrate. These same four dimensions were used in the structure of the strategies for complementary management services, i.e. risk and issue management, quality management, monitoring and reporting, benefit realisation management, stakeholder engagement and communication management, information management, and financial management.

The assurance management service has dedicated resources which help execute the service according to the defined strategy, including maintaining the relations with other governance support teams, for example, information management, risk and issue management, integrated planning, performance management and reporting, governance secretariat, quality management, etc.

3.1.3 Building an assurance management service

An assurance management plan provided a roadmap for maturing the governance, methods, cadence and activities identified in the assurance management strategy. During the earlier phases of the programme, assurance was provided primarily by the third line of defence, with an independent review of the programme commissioned by the Internal Audit team. By the time the second review by the Internal Audit team was being scoped, the second line of defence emerged within the programme management office, which later evolved into a full-time team dedicated to this work. Prior to Tranche 1 beginning, the first line of defence was emerging, with activities such as project-gating taking effect.

> **Nimble assurance depends on having distinctively defined and agreed programme-level 'landing points' (Axelos, 2020; 98). These are specific to the programme and should not be assumed to simply be system development life cycle (SDLC) decision points (e.g. gates) as large programmes have many projects, each with their own set of delivery gates that may or may not be germane to a programme landing point.**

Prior to launching the first delivery tranche, the programme reviewed the third line of defence. The concept of 'nimble assurance' emerged. Nimble assurance 'corralled external oversight bodies' (i.e. Internal Audit, departmental PPM centre of excellence, Treasury Board oversight bodies and several teams in the Finance Branch) in the hope of reducing redundant reporting and making funding and disbursement decisions more effective. The organisation identified that, for nimble assurance to take effect, the third line of defence needed to be very actively engaged and embedded in the governance of the programme.

3.1.4 Measuring the value of assurance management

> **"The value of assurance management comes from, for example, helping to streamline funding disbursement processes and eliminating poor (i.e. costly) decisions. It is about advising management rather. It goes well beyond post-hoc reporting on compliance."**

Here, the value of assurance management was dependent on how well it was conducted in a public sector context, while following best practice. This includes being objective (impartial), real-time, evidence based, truthful, streamlined and action oriented. It was stated that "unfettered access to programme information and having well-structured programme governance information (e.g. plans and decisions) are critical success factors." It was also deemed important to ensure that oversight gaps were closed between lines of defence and overlaps by oversight removed within each LoD, particularly the 3rd LoD.

> **The approach to assurance is tightly linked to the level and type of risks. It is about applying the 'knowledge and breadth of the organisation' to identify where to apply further concerted efforts.**

The decision as to the level of investment in assurance management resources was not formulaic. Instead, the programme manager and head of the assurance function made an informed estimate of the assurance demands from the programme governance bodies and individuals, reviewed the demand regularly and adjusted resourcing in line with the need to increase or decrease effort. It was an interactive process conducted in consultation with the programme manager, programme change authority and programme sponsor.

3.2 Programme B: SThree Portfolio case study

3.2.1 Project-based organising at SThree

Several years ago, SThree adopted a documented and structured approach to managing its portfolio of programmes and projects. Governance bodies (e.g. a steering group for major strategic programmes) and a support office (i.e. the portfolio governance group) were established to provide controls for project and programme approval and execution. Controls include, for example, assessing programme and project demand, prioritising budget and resource across the business and providing a roadmap for action.

3.2.2 Approach to three lines of defence

SThree embraces a three lines of defence approach to assurance management, integrating it into its project and programme management methods. SThree has a single programme and project management framework that brings each of the three lines of defence to life. The 3rd LoD sits with the group head of internal audit, who reviews in-flight and completed projects and programmes. The 2nd LoD provides oversight and sits with the head of portfolio & change and the head of risk & compliance; further, this is focused on the review of individual project risks, the overall programme risks and how these interlink. The 1st LoD sits with the PMO for each project and those on the project; this focuses on the identification, assessment and mitigation of risks and provides escalation as necessary.

As part of the formal governance process, risk-based recommendations are provided to management using project and programme reviews and performance reports.

3.2.3 Building an assurance management service

> "Assurance management is a mindset. It is about collaboration and cooperation to generate insight that leads to faster and better responses to risk. Assurance is viewed as an integral part of risk mitigation and confidence in the realisation of benefits."

The organisation has recruited specialists who understand the use and value of assurance management and the three lines of defence model. With their guidance, the organisation is connecting programme and project management practices to assurance management. For example, assurance management is being leveraged to improve project and programme benefits realisation. A knowledge management service with a repository of lessons learned is emerging over time, which will help to refine processes around assurance management. Further programme and project management integration work is being planned.

Improved reporting processes have supported assurance by providing increased visibility. SThree is exploring how to use digital processes and tools to help shift reporting away from compliance reporting to predictive analysis of risk and implications to benefits.

Looking forward, additional recruitment and upskilling is planned as well as continued engagement with stakeholders to embed lessons learned and introduce new ways of working that support best practice assurance management.

3.2.4 Measuring the value of assurance management

> "It is inherently difficult to measure something that has been avoided, as there is no data to evidence what did not actually happen. The value of assurance comes from having the right team to develop the right capability, built over time by mindful stealth."

SThree recognises the need to prove the value of assurance management to encourage increased engagement with assurance management and demonstrate the need to stakeholders. For this reason, SThree is developing a framework for performance and assurance incorporating five elements of delivery confidence:

- benefits, outcomes and confidence rating
- financial (costs, forecasts and variances)
- people and culture
- RAID and appropriate governance
- planning and resources.

SThree recognises that it gains greater value from assurance activities that provide quick feedback and immediately actionable recommendations. Hence, it is attempting to adapt 'agile assurance'. For example, a peer review might be used in project and programme team meetings rather than a lengthy review with interviews, document assessment and a formal report.

"SThree recognises the need to prove the value of assurance management to encourage increased engagement with assurance management and demonstrate the need to stakeholders"

3.3 Programme C: Jacobs case study
3.3.1 Project-based organising at Jacobs

For the purposes of this case study, we consider the Crossrail programme to illustrate project-based organising involving Jacobs. Jacobs was invited to provide a Project Representative (P-Rep) team to Crossrail Ltd in 2009 and has continued to be an integral part of the Crossrail programme since that time. The P-Rep team currently consists of nine people representing different disciplines (risk, scheduling, systems integration, controls, etc), and can make further calls on Jacobs' own in-house experience and expertise as required. The Department for Transport (DfT) is the P-Rep client, and the P-Rep team also reports to the joint sponsor team of DfT and Transport for London (TfL). The team's current focus is predominantly on programme cost and risk. They rely on unhindered access across the programme as a key component of how they work and are the 'eyes and ears' of the programme sponsor and client.

> As part of the UK's Crossrail Learning Legacy, the programme assurance strategy states that 'Assurance is the provision of confidence, to those with the right to receive it, that the Crossrail Project will be delivered, "in compliance with all formal and agreed sponsor requirements, as detailed in the Crossrail Act 2008 and elsewhere, using controlled processes; and by competent persons"' (Crossrail, 2014)

3.3.2 Approach to three lines of defence

Crossrail has adopted the three lines of defence principles. First, second and third lines of defence are provided by and through the Crossrail programme. The 1st LoD is focused on processes and procedures across the 11 functional areas at the programme level on the day-to-day management and control of risk, and reports to the programme director. Crossrail's own internal assurance team provides the 2nd LoD: it reports to the Executive Group and the Elizabeth Line Delivery Group, focusing on enterprise risk. The 3rd LoD is provided through an independent external assurance body which is engaged directly through Transport for London. It reports to the Elizabeth Line Committee and focuses on enterprise risk.

The P-Rep team is independent from the Crossrail 3rd LoD and reports to sponsors as a completely independent assurance but complements the other teams that also operate at the 3rd LoD. The P-Rep team members provide a continuous and comprehensive view of the programme to the client and sponsor body by the way they are integrated into the programme, being allowed clear access and engagement. They are invited to observe and engage at the various programme technical, governance and other forums, and have the authority to engage across the Crossrail programme. Reports, observations, challenges and suggestions are made to the sponsor and client; recommendations are not provided since this is not a consultancy role. The P-Rep team rely on their relationships at all levels of the programme to be able to engage effectively and to provide objective and constructive challenge and observations.

3.3.3 Building an assurance management service

> 'Success' is seen as bringing forward key issues as well as shining a light on risks. They provide 'critical friend' and 'objective observer' views, providing 'counsel and foresight into activities'. One interviewee described the P-Rep role as 'unique and unscripted: intuitive'.

"The original emphasis on technical detail and information flow has broadened out to a wider perspective of organisation, resources and change"

The provision and focus of assurance management by the P-Rep team has evolved over time in line with the needs of the client and the Crossrail programme. The original emphasis on technical detail and information flow has broadened out to a wider perspective of organisation, resources and change. Additional emphasis has now been placed on issues, challenges and 'what if' scenarios and toward operationalisation, business readiness and systems integration as the programme has progressed. In this way, the P-Rep team's perspective and focus mirrors the shifts of the programme lifecycle and what is happening in real time. Jacobs has built and matched abilities within the P-Rep team over its long engagement with Crossrail according to the needs of the programme at the time, being responsive by reaching back into the business to provide talent. Emphasis is placed on career experience and expertise in the areas needed at the time to provide practical suggestions to specific risks, issues and challenges.

The current focus is on how P-Rep's observations, challenges and suggestions land within Crossrail, and how these are picked up and implemented in the context of a major, complex programme where the programme team effort needs to be concentrated on the day job. While the Crossrail team is focused on the day-to-day responsibilities, the P-Rep team can horizon scan and provide a different perspective. Being embedded within the programme and being located on-site at Crossrail offices, the team also has the capacity to get right down into the key issues and stay with them.

3.3.4 Measuring the value of assurance management

The perception of the value of assurance that matters is that of the client.

The P-Rep team has no specific KPIs. Instead, they provide a blend of trend analysis, observations and challenge to underlying assumptions as well as layers of experience. They also provide suggestions Crossrail 'may want to consider' in addressing identified risks.

In 2018 Crossrail reviewed the use of assurance management and the client's perception of its value. Jacobs observed that the client invests in assurance management – particularly in the P-Rep model – to make cost savings. To meet this expectation, it is critical that the P-Rep team works closely with and alongside the programme delivery.

3.4 Programme D: BAE Systems case study

3.4.1 Risk-based assurance in BAE Systems

BAE Systems' Lifecycle Management (LCM) framework is a core business process mandated by its Operational Framework.

LCM comprises BAE Systems' approach to the assurance of projects. The application of LCM provides line leaders and project teams within BAE Systems with progressive risk-based assurance throughout the project lifecycle to aid decisions supporting delivery of projects to achieve customer satisfaction and agreed quality, schedule and financial requirements. This operates across a series of gates at key project lifecycle stages from initial opportunity (phase 0) to final project closure (phase 8). These gates are considered key inflection points to ensure the solution maturity is proceeding in line with expectations and understand any potential delivery challenges and risks.

The LCM framework includes mandates covering criteria for the application of LCM, its implementation within the business, tailoring to specific projects, and six reviews that are applied at appropriate points in a project's lifecycle that act as either 'decision reviews', 'approval reviews' or 'status reviews'.
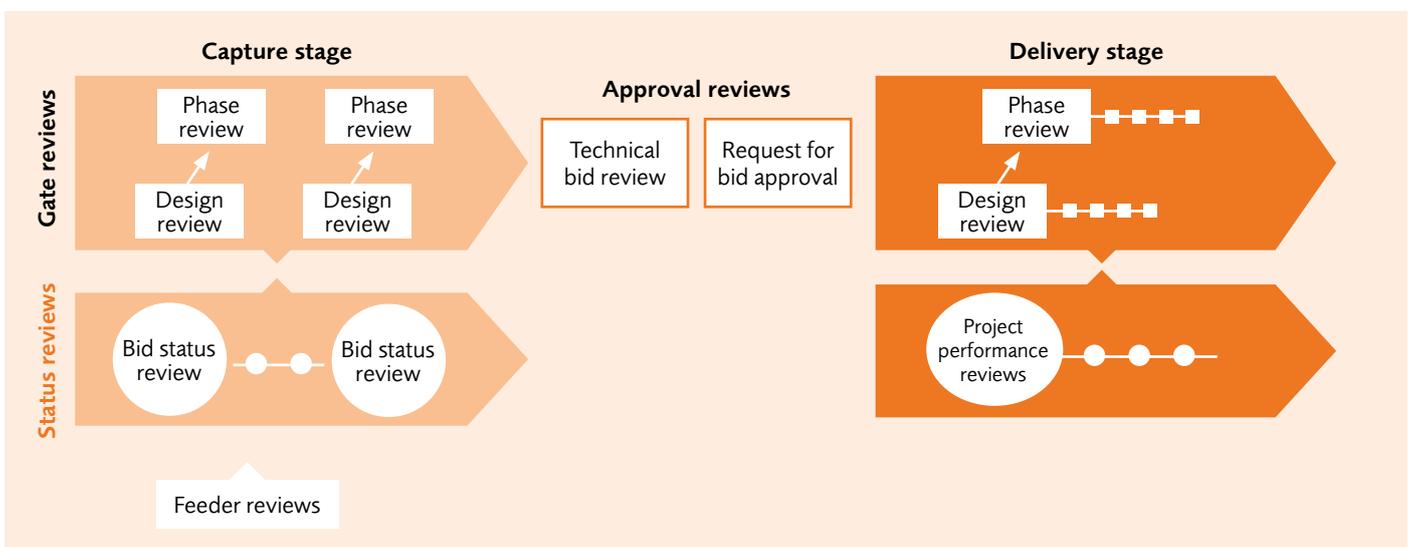

Figure 7: Summary view of BAE Systems' Lifecycle Management framework

These reviews are considered as an integrated set and tailored to occur at appropriate points in the engineering and project lifecycles, when key decisions are required. The number and timing of reviews are based upon key points of transition or major decision points.

The three key concepts for applying LCM effectively are:

- Tailoring – tailoring the application of the six integrated review types.
- Coupling – coupling the reviews to the engineering and project lifecycles at key points of commitment, decision or transition to the next phase.
- Integration – aligning a project's cross-functional or inter-business programme activities to ensure effective assurance at all levels.

This ensures that its application accommodates and reflects the unique requirements of individual projects (or where projects combine to form programmes or portfolios).

For projects that do not meet the criteria for the application of LCM, their effective execution is assured using BAE Systems' line of business policies and processes or project documentation. LCM principles can be tailored and applied: e.g. lifecycles, gate or approval review, maturity-based assessment, but without necessarily requiring independent chairpersons or formal review certificates.

3.4.2 Building assurance management capability

Although the LCM framework is defined centrally, it is implemented using a 'federated model'. Project Management Authorities for each line of business within BAE Systems are responsible for the implementation, application and tailoring of LCM within their business as an assurance management role.

The LCM framework has existed in different forms for over 20 years. As a core management framework, it is regularly reviewed to ensure it is fit-for-purpose.

Assurance management has matured over recent years, with a cultural shift. One noticeable change is the shift toward 'embedded' risk-based decision-making that is integral to good project delivery and the realisation of successful outcomes.

A second change has been the strengthening of assurance management training and engagement across the business as a critical step to building organisational capability. Assurance-related learning and development occurs in several ways. There is targeted training for project management novices, project management practitioners, and project review chairs, assessors and team members. The training includes insight into bias and behaviours, as well as setting the tone to help and support project delivery.

As the world evolves in its approach to planning and executing complex projects, programmes and portfolios, then the LCM framework is also adapted and transformed to enable even greater opportunities for sharing and learning from programme experiences. This includes assessing how data and analytics, trends and measures for assurance can provide valuable insight at business, sector and enterprise levels and how, with greater drive for strategic partnering, assurance management can be increasingly collaborative across organisations.

3.4.3 Approach to three lines of defence

BAE Systems differentiates between 'quality management' and 'assurance management', whereby the former focuses on the product provided, project outputs and deliverables; and in contrast, assurance management focuses on project outcomes plus other success considerations, so representing more than simply the product. Assurance provides the leadership with insights into what is currently happening and what can be expected, based on best practice. Assurance management reviews are meant to be about coaching, supporting, ensuring successes and mitigating risk before issues arise.

There are a range of assurance reviews conducted across the three lines of defence, including:

- business reviews (e.g. of contracts) led by executives (quarterly);

- business reviews (e.g. customer-focused risks and issues) led by project leads involving multi-disciplinary teams (ad hoc);

- performance reviews (e.g. finance) led by the Project Management Authority (monthly); and

- functional reviews run by project teams (monthly).

Performance assurance reviews are mandated at some gates in the LCM while others are left to the discretion of project leads based on the project risk profiles. Mandatory reviews for larger, more complex projects are executed under the leadership of an external independent chair, who may be brought in from a different part of the business. Where the project is smaller and less complex, the independent chair may be a different line manager.

3.4.4 Measuring the value of assurance management

BAE Systems uses its Operational Framework to ensure consistent planning, reporting and review of business performance across the organisation. Performance metrics have been developed to meet internal policy and measure adherence to the LCM, but there are difficulties in isolating the specific variables to measure the value of assurance.

"Project leaders look at the feedback from the team to see if there is too much or not enough control"

One subjective measure of the impact of assurance is whether the assurance provides insights that are actionable and actioned. Project leaders look at the feedback from the team to see if there is too much or not enough control; they also look at customer and supplier feedback to see if projects are performing well. Several indicators of impactful assurance include clarity of scope and purpose, engagement of suppliers and customers, ownership of assurance and whether it is tailored to the specific needs of the project.

However, while difficult to measure, the value of applying LCM is far wider than just project specific. Value can be directly or indirectly 'felt' in many different ways, e.g. making financial gains to unlock other activities, enhancing people's capability, capturing opportunities, reducing risk, etc. Although it may not be easy to measure, the process of building a culture which recognises the value LCM can bring will itself continue to increase its value.

3.5 Programme E: Shell case study

3.5.1 Project-based organising at Shell

Project management competencies are a critical component of the company's long-term global business strategy. The organisation has invested in project management capability and competencies over many years and continues to do so. The Shell Project Academy and its partnership with leading academic institutions bear witness to this.

"Good assurance is broader than project 'schedule, cost, etc'. It must focus on value and outcomes and consider commercial aspects, reputation and risk."

The organisation believes that "the rigour of process leads to good outcomes". Projects are delivered using a structured integrated plan, which is signed off at senior levels. The organisation has a risk-based investment control framework that supports decision-making during delivery. Governance bodies and individuals openly consider upside and downside risks and potential optimism bias at each gate.

The organisation embraces learning and continuous improvement. Benchmarking is conducted. When projects are closed (early or as planned), lessons learned exercises are conducted and used to inform future decisions.

3.5.2 Approach to assurance management

Shell's vision for assurance management is centred on 'having an honest conversation', rather than policing and ensuring compliance, to support decision-making capability for more consistent delivery of the opportunity value promise. It is a provision that, when provided by a credible party, increases the level of confidence about the assured scope in order to improve decision quality. Shell sees the role of assurance management as helping to debias and improve quality in the full TECOP (technical, economical, commercial, organisational, political) spectrum. The leadership expects timely impactful advice and seeks to speedily distinguish the 'good' from the 'not so good' opportunities.

Each investment opportunity has an assurance plan customised accordingly in relation to a TECOP risk assessment. For each phase of the opportunity, the assurance plan will include, as examples, a combination of value assurance, integrated technical and project execution (e.g. planning, integrated functional, operational readiness and post-implementation) reviews. Assurance is provided as early as possible to avoid 'regret costs', when money and time are spent unnecessarily 'marching the army up the wrong hill'.

"Shell sees the role of assurance management as helping to debias and improve quality in the full TECOP spectrum"

Assurance reviews are conducted by seasoned specialists from across the business and functions. There is continuity of members to the assurance teams where possible. The assurance teams consider longitudinal progress from previous reviews, identify risks and issues, and offer objective advice on best practice and experience. Benchmarking data, where available, is used by specialists to develop insights, e.g. front-end scheduling. For capital intensive projects, findings and management action recommendations are provided in a two-page assessment in person to the Executive Committee and Board for consideration and ratification.

Assurance is delivered using three lines of defence provided by different teams, with each having a distinct focus area (technical, economical, commercial, organisational, political) and a fully integrated, cross-functional review.

- 1st LoD – detailed reviews provided by peers and discipline specialists
- 2nd LoD – integrated functional and value reviews provided by specialist assurance teams
- 3rd LoD – investment appraisal provided by specialist teams and corporate reviews by internal audit.

Where partner organisations are involved, assurance may be conducted jointly with partners, considering the level of experience working with the partner and the partner's own assurance capabilities.

3.5.3 Building an assurance management service

Shell has been building its assurance management capability and capacity over time. Some highlights are given below.

Prior to 2000, there was a focus on providing assurance to 'project leads'. In the last 20 years, the focus has evolved to additionally providing integrated assurance advice to project directors, business leaders and ultimately to the Executive Committee and Board. Initially the focus was on corporate leaders, but it now includes delivery level leads, e.g. capability managers, opportunity managers and technical managers. Assurance management methods have been integrated more and more with other governance support services including, but not limited to, value (benefit realisation) management, risk management, learning management, information management and decision management.

Shell is increasingly embracing continuous assurance, maturing the event-driven assurance approach (for example, decision gate reviews), and is working to develop digital tools and information management systems that support longitudinal study of a project, i.e. predictive analysis and trends.

Shell originally focused on recruiting experienced individuals with a broad technical background as the means to develop assurance team competency. However, structured learning was introduced to further develop competencies, e.g. benchmarking, networking with assurance specialists in other major organisations and lessons learned reviews. More recently, Shell broadened its recruitment make-up with more ECOP-oriented individuals to enhance focus on value and risk.

3.5.4 Measuring the value of assurance management

Assurance is designed to provide confidence to management that the opportunities are appropriately evaluated and that projects are in control. To achieve this, an investment of time and money is required. Assurance reviews take up time from reviewers and those who are reviewed, and there is a recognition of the opportunity cost of the expert time required as well as the lead time needed to ramp up resourcing for reviews.

> **It is a misconception that assurance drives opportunity wins. It should be seen as a service to support making quality decisions, e.g. reframing or stopping an opportunity can be the better decision.**

The level of investment in assurance management (and specialist teams) is commensurate with the perceived value of assurance. Determinants of the value of assurance include:

- **level of risk: the higher the risk the more valuable the assurance**
- **timeliness: the insights and advice need to be provided rapidly and early enough for management to take impactful action**
- **quality of insights: insights are gained by focusing on risk trends over time**
- **quality of advice: good advice comes from experts with practical experience and knowledge of best practice.**

4 Findings and discussion

Based on the analysis of the case studies undertaken for each of the organisations, this section describes and discusses the research findings. The findings are grouped across five dimensions: how assurance management supports governance, how to integrate assurance across organisational boundaries, the assurance management methods, assurance management cadence and assurance management specialism. We posit that these dimensions can be conceived of as, in effect, restatements of Leonard-Barton's (1992) dimensions of capability (see Figure 2): *skills and knowledge* and embedded in *technical systems, managerial systems* and *values and norms*, adapted based on the evidence found in our study.

4.1 Consider how assurance management supports governance

NAO (2010) states that the role of assurance is to 'provide information to those that sponsor, govern and manage a project to help them make better informed decisions which reduce the causes of project failure, promote the conditions for success and deliver improved outcomes'. *Managing Successful Programmes®* (Axelos, 2020) emphasises this concept. The guidance defines assurance as 'a discipline that provides transparency and confidence to the sponsoring group that the programme will meet its objectives by focusing activities on the riskiest aspects of the programme' (Axelos, 2020). Similarly, Vo et al (2021) acknowledge the role of assurance as a key aspect of project governance, as well as 'triggering improvement actions'. Reiss et al (2006) describe how programme assurance functions provide programme governance bodies (e.g. Programme Board) and individuals (e.g. programme director) with independent information to confirm that everything is going as described in reports.

> "[The role of assurance is] to provide information to those that sponsor, govern and manage a project to help them make better informed decisions which reduce the causes of project failure, promote the conditions for success and deliver improved outcomes"
> NAO (2010)

Based on the interviews, assurance management was perceived to provide 'confidence that projects and programmes are being actively managed and progressed to their stated conclusion'. The approaches varied depending on the size and complexity of the projects and programmes. However, several common dimensions were highlighted across organisations to maximise the value of assurance management:

■ The organisations in the case studies used some version of three lines of defence but in slightly different ways. Interviews demonstrated the spectrum of use of the 3LoDs model, ranging from where the 3LoDs were populated entirely in-house and assurance team members typically had other 'day jobs' (although there may also be full-time assurance specialists), to the on-site, 'always-on' team commissioned from an external organisation and whose client was separate from the entity being assured. In effect, the spectrum demonstrated an expansion of the use of assurance beyond typical gating to include continuous assurance.

■ Historically, there was a focus on providing assurance to 'project leads'. Our findings suggest the focus shifted over time to providing integrated assurance to 'decision-makers' and, hence, assurance exists to support the various layers of project and programme governance. This suggests that assurance management exists as a service to governance as well as to project and programme leads, so again reflecting the 3LoDs.

■ Additionally, interviewees were clear that teams and individuals providing assurance management should be positioned within the 3LoDs with defined roles and responsibilities. It was highlighted that there should be no bystanders providing additional 'oversight' as this adds burdensome overheads, increasing cost and slowing progress, which in effect diminishes the value of assurance management. Further, assurance management **is tailored across the LoDs** to ensure effort is applied **proportionate to risk and governance needs and expectations**.

4.2 Consider how to integrate assurance across organisational boundaries

"Assurance operates at three lines of governance: enterprise, programme and project"

Assurance management operates in an organisational ecology with many organisational boundaries. According to *Managing Successful Programmes®* (Axelos, 2020), there are three main types of dependencies to consider:

- **Internal dependencies between projects in the programme**
- **Intra-organisational dependencies of the programme with other projects or programmes within a portfolio**
- **External dependencies either within or outside the organisation, such as legislation and strategic decisions.**

Assurance management spans horizontal organisational boundaries. When it operates as part of project-based organising, assurance management must also consider how it supports functional-based organising as both forms of organising are interrelated and co-exist (see Figure 1). To illustrate, funding for projects is allocated using functional-based organising financial management processes and people are recruited using functional-based organising human resources processes. Yet, these processes also serve the project-based organisation and are relevant to project-based organising success.

Assurance management also spans vertical organisational boundaries. Assurance operates at three lines of governance: enterprise, programme and project. Decision-making at each level affects the other levels. Assurance as a service, therefore, affects decision-making at each level. There is an escalation and delegation process between vertical levels that is inherent (see Figure 4).

Further, these horizontal and vertical boundaries are replicated when multiple parent organisations are involved, e.g. consortium partners, joint ventures or extended supply chains. This complex, boundary-spanning ecology is inherent with major projects: due to the size of the investment, multiple organisations are generally involved.

It is important to acknowledge how the practice of assurance management extends across and beyond the immediate portfolio, programme and project and connects with other corporate functions, programmes, projects and business-as-usual activities. Successful assurance management depends on minimising gaps and duplication of effort from a scarce supply of assurance specialist practitioners that exist to support the involved organisations. It should also remove (or at least reduce) burdensome 'oversight' provided by individuals and groups (with the best of intentions) that do not function as part of a unified, integrated and coordinated three lines of defence strategy.

Based on our interviews, assurance management that integrates across vertical and horizontal boundaries for smaller projects that can be fully contained within a single organisation is better understood. However, assurance management that integrates across the vertical and organisational boundaries across multiple organisations is more complex and is not as well understood.

4.3 Consider the assurance management methods

Project-based organising requires many services to be provided by support offices to governance bodies and individuals (Axelos, 2020:33-34), e.g. planning, reporting. Assurance management is one of these services. Assurance management methods are used to ensure that management controls are in place and working well.

Gate reviews are one assurance management method commonly used to inform governance bodies and individuals. All the organisations involved in this research had some form of gate process, primarily used as a control for gaining approval to proceed (with funding) to the next step or stopping work. *Managing Successful Programmes®* (Axelos, 2020:97-100) presents an evolutionary approach to traditional gate reviews. The guidance defines 'landing points' as major programme-level decision checkpoints used to ensure the alignment between multi-project (programme) delivery, the creation of benefits to the business and the release of funding. The landing points are determined by the nature of the programme rather than a sequential set of waterfall-based project delivery checkpoints.

The need for gate review methods was universally acknowledged. However, it was recognised by interviewees that historical gate review methods are insufficient for a robust assurance management service when they:

- **are process-focused, treating the gate as an administrative process to be 'got through'**

- **are focused on checking retrospectively to see that documentation has been put in place, e.g. a costed schedule or completed register**

- **do not provide governance bodies and individuals with forward-looking insight into emerging risks and responses and instead provide a historical summary of risks experienced**

- **are conceived and applied using a waterfall mindset and are not adapted for agile delivery**

- **are designed for single projects, but applied to complex, multi-year programmes with multiple projects, each with different timelines and risks.**

One topic of conversation within the assurance management community is about the use of 'progressive' assurance as a method. This is described as a rapid response, real-time approach where assurance personnel embedded in the organisation work day to day with internal and external stakeholder teams to routinely participate in meetings and reviews throughout the life of the project, formulating observations and recommendations to support project efficiency and effectiveness, and Executive and Board decision-making. There is evidence that progressive assurance is being attempted within the East London Line Project (Faulkner & Stubbs, 2005; East London Line Project, 2008), High Speed 2 Programme, and others. Several of the case study organisations were employing a form of progress assurance, e.g. the use of the P-Rep team provided to the Crossrail programme (Section 3.3) and an embedded assurance manager provided to the BDM programme (Section 3.1).

The interviewees recognised that innovations in assurance management methods are required to provide the level of confidence required by governance bodies and individuals overseeing modern programmes. Traditional assurance was insufficient. In response, organisations were developing or aspiring to develop a version of risk-based 'nimble' assurance (see Table 5).

Traditional assurance	Nimble assurance
Process-focused	Risk-based
Reacting to	Intervening
Done to the project	Done collaboratively with project leader
Compliance after the fact	Insight during delivery
A single point (or gate) in time	Progressively
Static	Dynamic

Table 3: Traditional vs nimble assurance

Nimble assurance focuses on exposing the governance bodies and individuals to potential risks (i.e. uncertainty), based on expert experience of the subject matter contained in the programme or project and judgement relative to the organisational context. Rapid investigation of risk areas mitigates the uncertainty, informing governance bodies and individuals of the current situation and providing potential responses to the findings.

Assurance management, as a service to governance, is distinctive. However, according to the case studies, there are interdependencies between the methods of assurance management and other management services. To be successful, practitioners need to understand the interdependencies and strengthen these relationships when they apply assurance management methods.

> *Finding 3: Assurance management is designed and implemented as a distinctive service provided by offices supporting governance, done with distinctive methods for a distinctive purpose. At the same time, assurance management is inter-dependent with other support services, e.g. risk management. The methods and how they connect are refined as project-based organising capabilities develop and strengthen over time.*

Table 4 below describes the interdependencies of assurance management with three of the many other services that are required to support governance bodies and individuals, for illustrative purposes:

Service	Purpose of service	Interdependencies with assurance management
Quality management (sometimes called quality assurance or quality control)	To control the dimensions[4] of product quality, such that the product meets expectations.	Assurance management uses quality management to inform scoping of investigations that will have the most impact for management. Quality management uses findings of assurance management to ensure quality management controls (e.g. features) are designed and working well.
Knowledge management	To control the translation of information into actionable decisions based on lessons learned that matter.	Assurance management uses knowledge management to inform scoping of investigations that will have the most impact for management. Knowledge management uses findings of assurance management to ensure knowledge management controls (e.g. lessons learned) are designed and working well.
Risk management	To control management, respond to uncertainties.	Assurance management uses risk management to inform scoping of investigations that will have the most impact for management. Risk management uses findings of assurance management to ensure risk management controls (e.g. risk identification) are designed and working well.
Benefit realisation management	To control the measurement of benefits and plans to realise them, relative to expectations of the funders of the programme/project.	Assurance management uses benefit realisation management to inform the priorities of where to focus assurance effort. Benefit realisation uses assurance management to inform the actual progress on achievement of expected benefits.

[4] *According to Garvin (1984) there are eight dimensions of product quality: performance, features, reliability, conformance, durability, serviceability, aesthetics and perception.*

Table 4: Assurance management methods' interdependency with the methods of other services

Within this, the emphasis is on coordinated and joined-up teams to have an 'honest conversation' based on best information and current understanding in order to 'add clarity' for the benefit of governance bodies and individual decision-makers. For example, assurance management should be linked to information management to help programmes operate from a single real-time 'source of truth' (e.g. risks) that the project faces.

4.4 Consider assurance management decision-making cadence

Managing Successful Programmes® (Axelos, 2020) illustrates how assurance management brings pace and value to delivery by planning assurance that **is timely and appropriate** in order that leaders can take actions earlier to prevent issues that slow down delivery. **Impactful management action** depends on assurance conducted at pace and the timely escalation or delegation of management actions to the appropriate line of defence.

The timing and frequency of assurance management activities will help drive programme and project pace. Assurance activities can be **decision event-driven** (e.g. sponsoring group's decision to release funding, proceed with a 'good' business development opportunity or stop one that is 'not so good'), **temporal-driven** (e.g. annual assessment and corporate reporting cycle) or **risk-driven** (e.g. uncertainties of delivery, or turnaround when faced with a major issue).

The impact of assurance management is optimised by obtaining a balance between the three types of assurance management activities. Oakes (2016) differentiates between assurance reviews as exceptional events (tending to be 'heavyweight affairs' and often associated with the perception that the project is in trouble) and as routine (tending to be less disruptive and less contentious so more effective).

One of the current topics of discourse that is emerging in programme and project management literature relates to the flexibility and pace of governance and assurance structures (Luna et al, 2014). The term 'agile' assurance is emerging. However, this is not to be confused with the agile project methodology – agile assurance seeks to bring a cadence to assurance management activities that improves pace.

Finding 4: Successful assurance management is designed and implemented as a defined cadence to decision-making activities conducted by governance bodies. These decision-making activities are planned according to a rhythm (decision event-driven, temporal driven, risk-driven) that suits the needs of the project-based organisation governance bodies and individuals.

"Impactful management action depends on assurance conducted at pace and the timely escalation or delegation of management actions to the appropriate line of defence"
Axelos (2020)

4.5 Consider the assurance management specialism

APM (2014) describes assurance management as being provided by specialised assurance teams. The interviewees made the point that high impact assurance management required honesty, openness and transparency; one interviewee encapsulated this in the phrase 'bringing out your dead'. Programmes and projects are dynamic. The knowledge and skills required of assurance management teams shift with the changing context and progress of delivery. High impact assurance management depends on a heightened level of understanding of risks and what might be happening, which is something that can only be gained from experience and what was described by interviewees as the 'lived reality'. This supports assurance practitioners, providing them with the necessary insights to know what questions to ask and how to frame them.

Interviewees identified different approaches for developing their specialist talent; for example, by inheriting relevant knowledge and skill by seconding the 'organic and considerable knowledge' embedded in individuals, infusing talent by bringing in experienced external consultants or by recruiting new talent.

"High impact assurance management depends on a heightened level of understanding of risks and what might be happening, which is something that can only be gained from the 'lived reality'"

There was a heavy focus on the need for technical experience and expertise by some organisations. In these organisations, the individuals seconded to provide assurance had long experience of opportunity evaluation or of projects and programmes either in technical areas (e.g. construction, engineering, information technology) or transformation. Most of the organisations interviewed voiced that assurance management experience and expertise was an emerging area of specialism. As such, resources were invited to shadow and build their experience in assurance management methods.

There was also the understanding of the need for behavioural and social skills to complement the technical. Accordingly, recurring themes were: ensuring the psychological safety of those being interviewed; the ability to elicit information in a supportive rather than confrontational way; and clarifying the use of assurance and for whom at that point so developing the scalability and proportionality of assurance. Presenting assurance as the opportunity to take advantage of 'free consultancy' to 'kick the tyres' of a project helped position assurance as supportive and working with, rather than assurance being done to. This approach also helped unlock issues thereby unblocking progress and driving resolution.

Organisations emphasised the need for continuity of personnel within assurance management generally and within review teams specifically. This helped ensure connection between reviews and links between previous recommendations and the resulting actions taken because of those previous recommendations, understanding that assurance review recommendations help inform decisions and actions.

In summary, the interviewees highlighted the need for specific knowledge and skills for assurance management practitioners, with deep experience of similar types of projects. Assurance management expertise is much more than a requirement of skilled and experienced individuals to 'lend a hand' or 'lend time'. This points the way to a need for professionalisation of assurance management as a specialism akin to other programme and project management specialisms: scheduling/planning, risk management, cost management, etc.

The interviews underlined what little formal training is available for assurance management. Training was typically provided in-house, specific to the organisational requirement and provided, for example, as a single module within a defined development programme.

Finding 5: Successful assurance management is designed and implemented to include specialists who understand the parent organisation's ways of working and have experience developing and implementing project-based organising that deliver similar transformations. The ability of individuals to be predictive and forward thinking relies on judgement built on experience with inherent transformation, technical and organisational risks.

5 Conclusion

This research considers the design and implementation of the distinctive assurance management practices as a service in project-based organisations and how organisations determine the value of the investment in assurance management. Our findings are based on the exploration of the assurance management practices of five organisations of different sizes across different industry sectors in the UK and Canada. This final section provides conclusions regarding distinctive practice and value based on these case studies, the implications for practice and suggested areas for further research.

5.1 Distinctive assurance management practices and value

Our first research question was:

■ **RQ1: What distinctive practices are being used to develop and deliver an assurance management service in project-based organisations?**

Successful project-based organising depends on a well-designed and implemented assurance management service being provided to governance bodies and individuals. The service is provided by distinctive specialists using distinctive methods for a distinctive purpose.

The assurance management service is a distinctive service that provides support to decision-making governance bodies and individuals. It should not be conflated or confused with other project-based organisational management services (e.g. quality management and risk management) as each is operated by different specialists, using different methods for different reasons. However, it is recognised that all the services are interrelated and reinforce one another to support the successful delivery of programme and project outcomes and benefits.

Our findings demonstrate that effective assurance management is provided using 3LoDs. This means, in practice, that the teams and individuals conducting assurance management should work to a single and common plan that is aligned, coordinated and vertically and horizontally integrated. The project management strategy should guide this thinking. When developing the assurance management section of a project management strategy, it is necessary to define how the programme needs to develop and implement the assurance management service according to five dimensions: governance, methods, integration, cadence and specialism (see Figure 8).

Roles and responsibilities of governance bodies and individuals and the offices that support them

The processes executed and techniques and tools used to execute the processes

Vertical and horizontal connection of teams working across organisational boundaries

The pace and rhythm of assurance activities that inform decision-making

Assurance management, business management, project management and other technical skills and knowledge
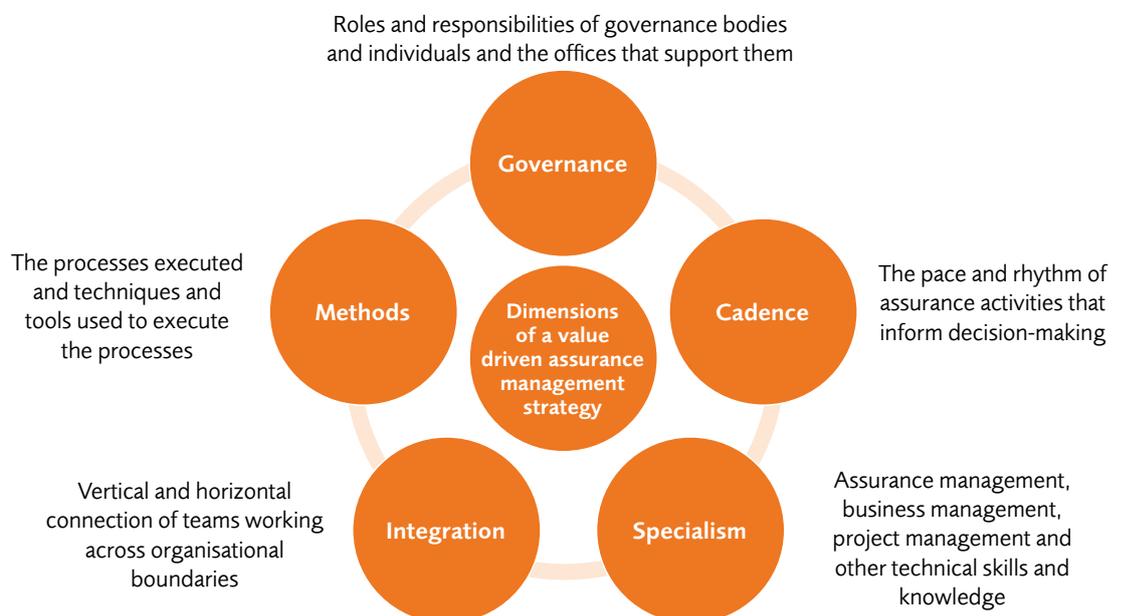

Figure 8: Five dimensions of value-driven assurance management

We observed that each of the five dimensions exists **along a continuum from weak to excessive**, with **well designed and implemented** as the optimum between these two extremes (see Table 5). Based on the case studies, there are different practices that manifest in the three states for each of the five dimensions.

	Indicators that assurance management is weak	Indictors that assurance management is well designed and implemented	Indicators that assurance management is excessive
Governance	Not all lines of defence have formally designed and implemented assurance. Lack of overarching assurance management policy, standards or directive. Lack of consideration of the value of assurance management. Weak recommendations provided to governance bodies and individuals.	Engaged governance at enterprise, programme and project level. 1st LoD supporting project governance. 2nd LoD supporting programme management. 3rd LoD supporting enterprise management. Single unifying policy, standard or directive that encompasses all lines of defence. Assurance management acting as a 'service' to governance, providing meaningful and actionable recommendations to governance bodies/individuals. Key performance indicators for assurance management defined, implemented and in operation.	Many bodies providing assurance management (particularly at the 3LoDs), but not operating to one integrated and coordinated assurance approach and plan. Multiple policies, standards or directives from different oversight bodies that conflict. Proliferation (non-prioritised list) of recommendations going to governance bodies.
Methods	Focus on retrospective analysis of progress. Preoccupation with project documentation. Quality assurance conflated with assurance management, rather than treated as separate services with different methods provided by different people for different purposes. No continuity/linkage in the approach to assurance activities.	Assurance management methods are future-looking and pre-emptive as well as retrospective. Assurance management method linked with others: • information management • decision management • benefits realisation management • knowledge (including lesson) management • integrated planning • programme/project performance reporting • risk management. Assurance management methods tailored to context and environment (scalability, proportionality). Type and sequencing of assurance activities planned in a holistic way.	Lack of agile assurance, i.e. reviews taking too long (and costing too much) to complete, providing findings and recommendations after the fact. Inappropriately applying one-size-fits-all assurance management methods.
Integration	Gaps (blind spots) in the assurance management service, due to missing linkage: • with other services such as risk management • between the levels of governance (LoDs) • with other teams in other partner organisations (e.g. consortium partners, supply chain).	Boundary spanning vertically within a single organisation: integration between • 1st and 2nd LoD • 2nd and 3rd LoD • between all three LoDs. Boundary spanning horizontally within a single organisation: integration between project-based organisation and functional-based organisation. Boundary spanning horizontally: multi-organisational integration with LoDs in partner organisations (where they exist).	Too many assurance activities, by too many assurance teams, often producing similar findings or simply restating other team's findings and risks that were identified by others. The wrong reviews occurring at the wrong times.

Cadence	No explicit definition of the timing or frequency of assurance management activities (decision event-driven, temporal-driven or risk-driven). Use of 'exceptional' assurance reviews driven by issues is the norm.	Agile (nimble) assurance in place as pace matters. Time and effort moderated by using systematic continuous (progressive) review cadence that accommodates: • Decision-event reviews (e.g. funding) • Milestone-driven reviews (e.g. release) • Temporal-driven reviews (e.g. annual reporting) • Risk-driven reviews (i.e. deep dives) • Normalisation of the use of assurance rather than exceptionalism.	Too much effort on assurance activities, unnecessarily diverting focus and effort away from programme/project delivery efforts.
Specialism	Generalist resources inexperienced with the risks of delivery transformation conducting assurance: • Insufficient technical experience • Insufficient assurance management • Insufficient business management experience.	Across all LoDs, there is the optimum level of specialist knowledge and experience with: • Transformation/programme management • Governance and risk management • Funding and commercial management • Other relevant skill set and experience. Technical experience complemented with strong communication and behavioural skills. Continuity of assurance management actors, as well as adding specialisms to the mix.	Overly qualified (and expensive) resources conducting administrative tasks rather than providing insight and knowledge. Too many generalists in specialist roles.

Table 5: Continuum of practices enabling the five dimensions of assurance management capability

Our second research question was:

■ **RQ2: How do organisations determine the level and type of investment they will make in assurance management practices (e.g. processes, tools, skills and knowledge)?**

The question of quantifying the level of investment in assurance management was debated strongly with our participating organisations. All interviewees recognised that assurance reviews require notable time and effort from both the reviewers and reviewed; further, there is a recognition of the cost of the effort required to prepare for, execute and follow up on the reviews. There is also an investment in building assurance teams, tools and processes, the capability to deliver the service itself. This cost of designing, implementing and operating the service needs to be commensurate with the value derived.

Quantification of the value is more complex. Conceptually, the value of assurance management results from helping ensure programme and project success. Overwhelmingly, the responses were that it is difficult to define the specific impact for assurance management: a typical response was '*how do you put a value on something that doesn't happen?*'. This illustrates the paradox. How do you deterministically measure a failure that has been avoided, when the failure and its consequences have not been realised?

Instead, an alternative paradigm is required to understand the value of assurance management. Based on our findings, the views repeated across interviews were pragmatic in their approach to assessing the value of assurance management. Impact is determined by the views of governance bodies and individuals. It is a subjective rather than deterministic assessment as to how well assurance management is designed and implemented to support governance. Hence, we posit that an interpretivist approach to assessing value is required, given the subjective and contextual specificity of the assurance management service provided to each programme or project.

Thomas & Mullaly (2008) highlight the need to consider both design and practice with thinking about value. Therefore, we can infer that the value of the investment in assurance management is affected by both the investment in the **design** of assurance management practices and the investment in

the execution of assurance management **practices**, in order to achieve the value of an optimized assurance management service that is neither weak nor excessive (as illustrated in Table 5).

The case studies show that the value of optimisation and the effort to optimise the service relative to the status quo, be it weak or excessive, is entirely a subjective determination by organisational executives. Our findings highlight several determinants of the perception of the value of assurance management by executives, including:

- **Level of risk – the higher the project or programme risk the more perceived value of assurance**
- **Pace and timeliness of investigations – the insights and advice need to be provided rapidly and early enough for management to take impactful action**
- **Quality of insights – insights are gained by focusing on particular aspects, for example, on risk and benefits trends over time**
- **Quality of advice – good advice comes from in-house and external individuals with practical experience and knowledge of good practice**
- **Quality of recommendations provided – as both actionable and actioned by delivery or other individuals/teams**
- **Quality of the individuals providing assurance management –**
  - Professionalising assurance management. Recognising this as a specialism rather than treating it as various individuals 'lending their time'
  - Recruiting team members that have been previously subjected to review and developing them into reviewers
  - Expertise and experience in those specific areas covered by a review's terms of reference.

In practice, the leaders approached the decision regarding the level of investment in assurance management empirically. They started with an approach based on assumptions and the experience of the involved individuals, reviewed and then made incremental changes.

5.2 Implications for practice

We proffer that this research is relevant to public sector, private sector and third sector programmes and projects, regardless of geography and regardless of whether projects are focused on infrastructure, transformation, international development, sustainability or digitisation. Based on our findings, assurance management is one of many services contributing to project-based organisation capability. Consistently across the case studies of this research, assurance management was provided across three lines of defence by a plethora of teams and individuals. We conclude that the design and practice of assurance management can be considered according to five dimensions: governance, methods, integration, cadence and specialism. This study identifies a framework of indicators that inform how well assurance management is designed, implemented and operational, according to the five dimensions. The indicators are used to define and cost a plan to optimise assurance management as a service, alongside other decision-enabling services, e.g. risk management, integrated planning, knowledge management, performance reporting, benefit realisation management, etc.

This research contributes to programme and project management practitioner literature and to the improvement of assurance management practices within projects and programmes. It has implications for individuals with portfolio, programme or project management governance responsibilities and those providing support to governance, including those working in programme management offices, project offices and internal audit.

The research provides insights into the design and implementation of optimised assurance management services and, potentially, how to accelerate the optimising of the service and investment. With a framework, as provided in this study, the decision regarding investment should become more informed as this study provides an aspirational target state to assess against. In this regard, the authors encourage that the five dimensions of an assurance management service be rigorously considered when:

- **Drafting programme and project management strategy and planning documents**
- **Designing programme and project management controls**
- **Designing and resourcing programme and project management offices**
- **Developing a holistic assurance management plan for a programme or project.**

Also, our findings recognise the experience and expertise required for assurance management, indicating a specialism rather than 'just a side job' or 'something to lend a hand to'. Acknowledging this, project professional bodies may consider reviewing how they handle assurance management in their bodies of knowledge, competency frameworks and spectrum of accreditations and qualifications.

5.3 Areas for further research

"Our findings recognise the experience and expertise required for assurance management, indicating a specialism rather than 'just a side job' or 'something to lend a hand to'"

This research explores the theme of assurance management: how it is used within project-based organisations and how its value is perceived. As a relatively neglected area of study, there are many opportunities for future research.

Historically, project management studies have been conducted as a separate field of research with distinct boundaries and scope. Increasingly, project researchers are pursuing an expansion into other affiliated areas to end this 'splendid isolation', cross-fertilising between disciplines to 'break out of the straitjacket' (Jacobsson & Soderholm, 2020) and contributing to multi-disciplinary collaboration with neighbouring disciplines (Davies et al, 2018). In this study, we have reached across boundaries, incorporating organisational theory.

Further research might consider fields such as organisational performance excellence and human systems design so exposing other meaningful research questions to explore, for example:

- **Which assurance management metrics are most meaningful for governance bodies and individuals?**
- **What key performance metrics are used to design and implement effective assurance management as a service?**
- **How is assurance management best designed into project management offices?**
- **How does assurance management link with enterprise-level performance?**
- **What is the role of agile governance in assurance management?**
- **What are the characteristics of an effective assurance management specialism?**

These are all pertinent questions beyond the scope of this research, but which may be addressed by future research.

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