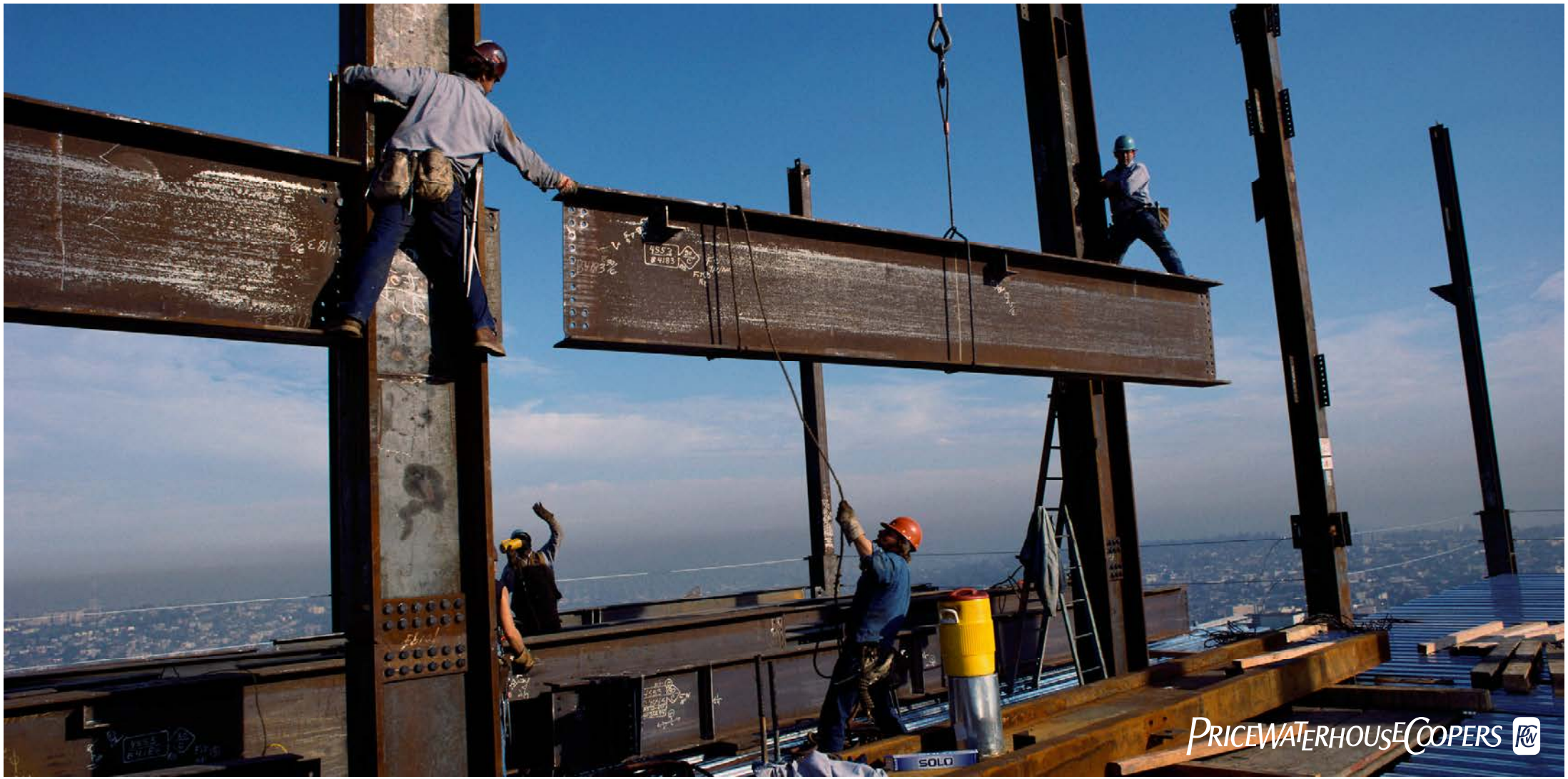
Capital Project Services
Middle East

Establishing a basis for effective project control



The challenges of the “Board” in delivering Capital Projects

Maturing economies and population growth across the Middle East have driven a rapid increase in demand for transportation, real estate, energy, utilities and social infrastructure assets. Project owners, investors and stakeholders have responded by investing in billions of dollars in major capital projects across a variety of sectors to accommodate this growth.

Experience in asset delivery through capital investment projects varies greatly, from organisations that routinely deliver complex programmes to those that may deliver one project every business cycle. However, a common factor that unites these oganisations is that capital projects represent a strategic investment for the Board, typically form part of a long term strategic plan to increase shareholder return, serve socio-economic need, take market share, enter new markets or gain competitive advantage.

High profile project failures are common and can damage reputations, brands and significantly disrupt the implementation of longer term strategic plans. In the worst cases they can threaten the very existence of the organisation altogether. Our experience is that Boards have a hierarchy of needs when it comes to capital project investment, which include knowing that:

- Capital is being deployed effectively
- Risks are being managed and appropriate trade-offs made
- Returns are being optimised and commercial viability regularly tested
- Business benefits will be delivered and aligned with end user requirements
- Informed strategic decisions are taken at Board and Project level
- Reporting is accurate, timely and can be relied upon by stakeholders

In the following pages we set out how our Review, Design, Apply and Monitor framework puts Boards and project teams in control.

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Establishing a basis for effective project control

Most project owners want to know their capital project is ‘on track’ to deliver defined business benefits and the risks are managed

A risk resilient project should be able to demonstrate and stand up to challenge on:

Benefit

Business revenue/benefit will be realised

Risk

Key risks are adequately mitigated

Stakeholders

Stakeholders confident with status & team / suppliers are performing

Cost

Actual & forecast vs planned cost variances are authorised

For any ‘issues’ in these areas, there needs to be a monitored plan addressing:

- The impact on scope, key deadlines, cost and revenue
- Achievable actions to get the project back ‘on track’
- Visibility on the action status for critical issues

Regulation

Project meets regulatory & oversight requirements

Quality

Technical, HSSE requirements are met

Schedule

Key milestones will be met

Change

Impact of any changes are understood and managed

Establishing a basis for effective project control

Significant delays and cost overruns for major projects show these are often not ‘in control’ and control objectives are unclear

Millions or billions over budget

“Cost overruns in major infra-structure projects…often 50-100%”

“For $100m+ off-shore projects, routinely 25%+ overruns”

A central Asian oil project $2.5bn budgeted, $4.1bn actual

MEast LNG $10bn budgeted, $19bn actual

Wrong contracting model

Incorrect contracting to build ships and infrastructure led to a $2m tax loss

‘Lump sum’ questions in power sector – rather partnerships and early contractor involvement

Delays & multi-million disputes

€2,4bn damages sought for 3 year delay on a turnkey €3bn power project

Capability gaps

$50m+ team inefficiencies in off-shore exploration projects

Poor cost control

“Typically no approval for up to 10% cost overruns”

… an energy project view

Regulatory investigations

US and UK anti-corruption investigations in local and international construction projects

Lost opportunities

“‘Sharp’ commercial management, incorrect (high) billing … break down of trust, lost future contracts”

Sources: ‘Megaprojects – ‘An Anatomy of Ambition’ (Flyvbjerg et al); PennWell Oil & Gas / Power Engineering journals, Cambridge University engineering case studies, specific project reviews

Good controls are essential to mitigate risk and minimise the impact of ‘issues’

Our approach to improved project governance and control focuses on key risks, control gaps and active monitoring, taking into account organisational aspects

Organisation & Behaviour

- Clear project structure, roles & responsibilities and project management methodologies
- Explicit control procedures and application guidance
- Use of supporting tools so that project controls are practical to apply
- Learning and sharing ‘as built’ and operational knowledge

Key Risks

- Each project has a different risk profile
- Top-down & bottom-up assessment
- Prioritised project risk register
- Mandated mitigation standards and objectives for key risks
- Project plan includes mitigation

Control Gaps

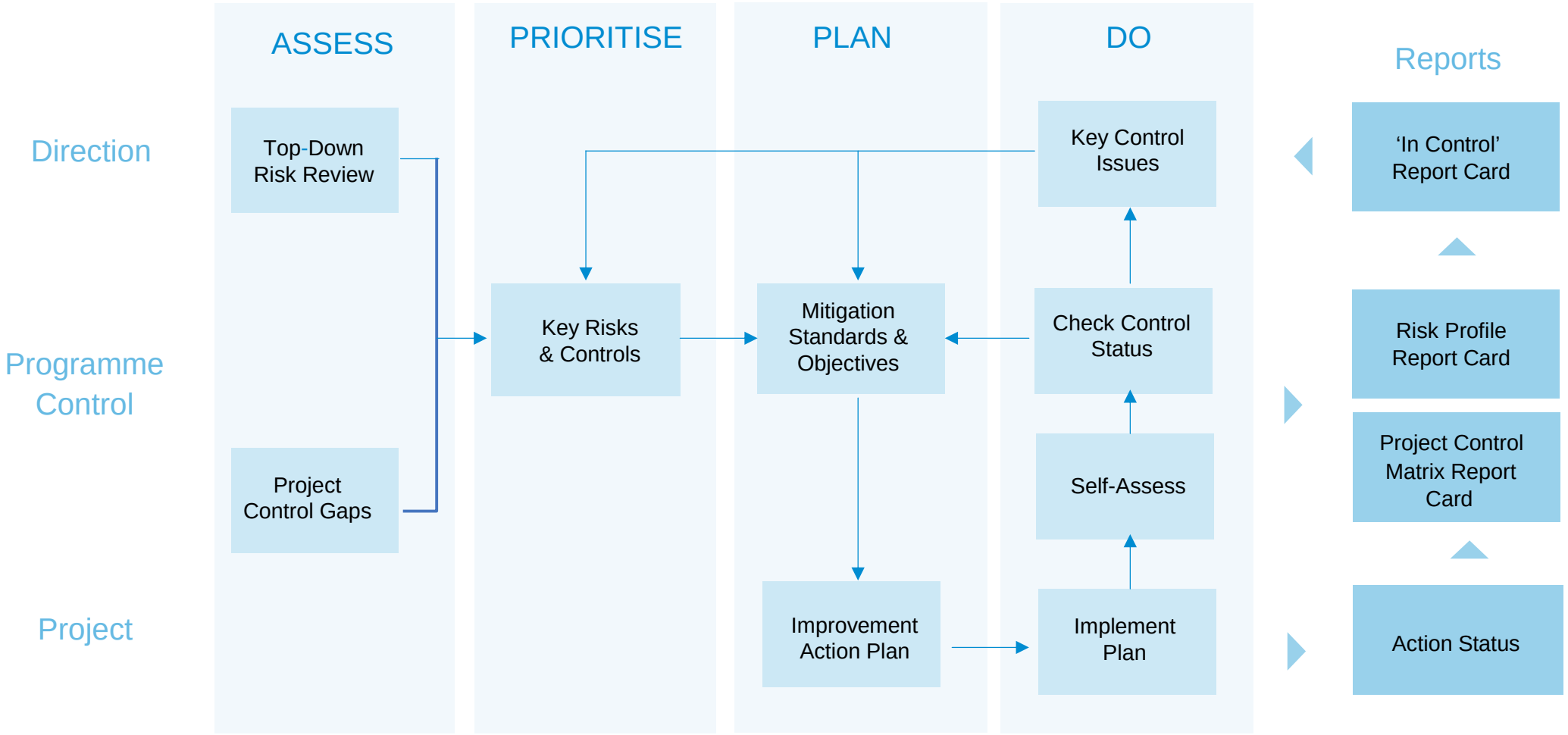
- Project success factors a basis for overall control objectives
- Control environment designed specifically for each project
- Mandatory mitigation standards & metrics for key risks
- Minimum set of good practice project controls

Monitoring & Escalation

- Good control requires active monitoring
- Regular self assessment, challenge & independent confirmation
- Exception-based reports
- Visibility of corrective actions
- Clear escalation criteria

Establishing a basis for effective project control

We use a top down and bottom up risk assessment to identify key risk and control issues, specify mitigation requirements, develop action plans and monitor these



Our approach uses established performance improvement and risk management approaches to engage at executive and project levels

Identify key project risks and mitigation status – taking an overall top-down view and engaging at executive and project levels

Performance Control Objectives

Overall Project Risk Areas

Risk

Key risks are adequately mitigated

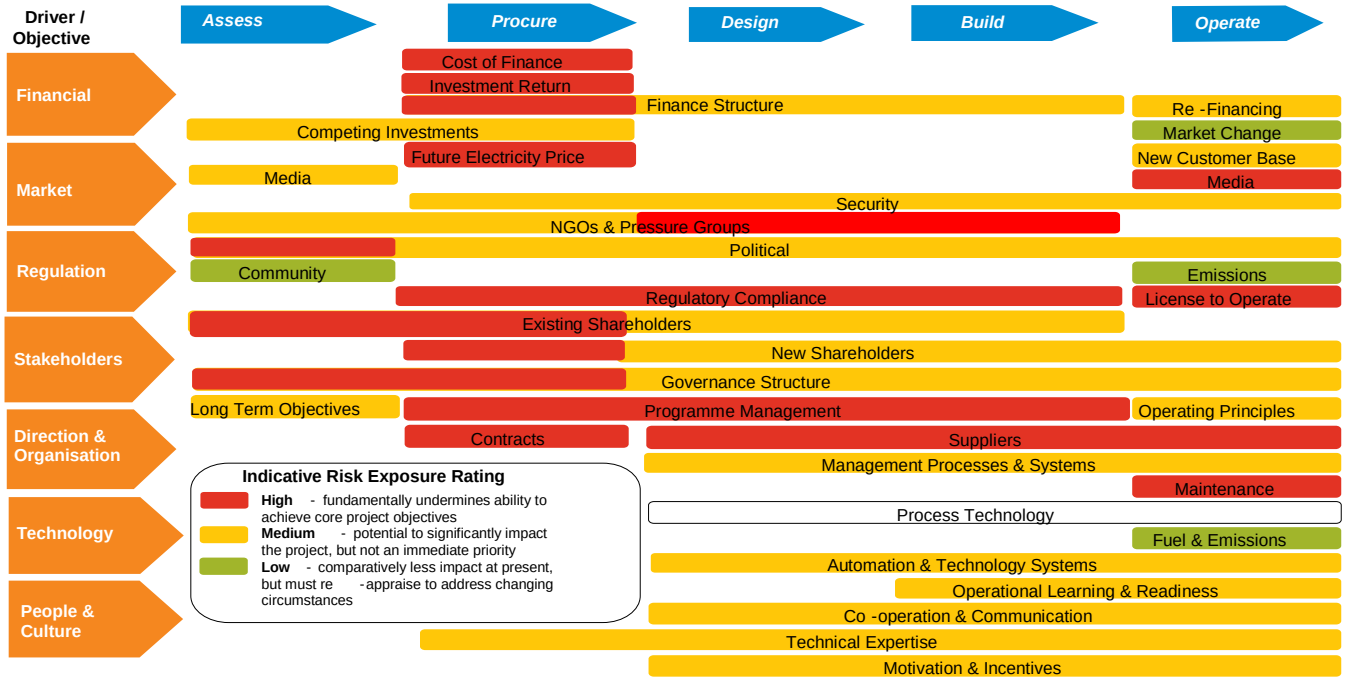
- Financial
- Market
- Regulation
- Stakeholders
- Direction & Organisation
- People & Culture
- Technology

Questions to Address

- What are the key project risks?
- How are these project risks monitored, updated and reported?
- What are the mitigation plans and status?
- Do the project policies set out clear mitigation standards and objectives?

An Example of Key Risks Across a Project

A project risk profile from the assess phase of a major power project, based on a standard risk register



For the project control objectives and management areas, identify control gaps to assess achievement of the objectives – drawing on good project practice

	Project Management Areas	Performance Control Objectives
Change Revenue	Business & Regulatory Environment	Business revenue/benefit will be realised
Change Revenue	Scope & Change Control	Impact of any changes are understood and managed
Delay	Time Management (Schedule)	Key upcoming milestones will be met
Quality	Quality & Inspection	Technical, HSSE requirements met
Cost	Cost Management	Actual & forecast vs planned cost variances are authorised
Stakeholders	Communication & Reporting	Stakeholders ok & team / suppliers are performing
Stakeholders	HR Management	
Stakeholders	Procurement & Contracts	
Risk	Risk and Issue Management	Issue impact understood + improvement plans

Questions to Address

- How well defined are the required project process controls? See the matrix of project process controls across life cycle
- Does project documentation and reports indicate that these processes are operating?
- Do these findings suggest that the performance control objectives are likely to be met?
- Are key control gaps shown as risks in the risk register?

Criteria to Assess Achievement of Performance Control Objectives

The maturity of control processes is the basis for assessing whether control objectives are met, in line with their criticality. Processes which are assessed 'Not Achieved' require agreed improvement plans

0. Nothing in place
1. Informal, not documented
2. Working practice, but not fully documented or tested / monitored
3. Documented and in place, but not tested / monitored
4. Documented and tested / monitored and reported
5. Optimised, gone through an improvement process to gain value – e.g. automated checks

Not Achieved

Needs Improvement

Achieved

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A matrix of key process controls across the life cycle is the basis for the control gap assessment, with key gaps included in the project risk register

Project Life Cycle

Project Management Processes & Controls

	Planning	Design	Implementation	Testing	Turn-Over	O&M
Business & Regulatory Environment	Project Purpose Funding & Approval	Business Needs Assessment	Executive Oversight & Support and Regulatory Relations		Continuous Improvement and Reasonableness Reviews	
Scope & Change Control	Definition of Project Elements and Benefits	Design Project Components	Change Control Process		User Acceptance Process	Operations Acceptance Process
Time Management (Schedule)	Project Schedule Requirements	Baseline Project Schedule	Detailed Schedule Management		Schedule Completion Check List	Ongoing Maintenance Schedule
Quality & Inspection	Project Concept & Performance Requirements	Design Review & Approval	Quality Assurance Process	Conduct Inspections & Quality Review	Close Out Check List	Quality Assurance Process
Cost Management	Capital Budgeting and Ratemaking Approach	Cost & Schedule Forecast	Cost Control		Final Payment / Retention Release	O&M Budget Process
HR Management	Project Management Plan and Staffing			Staff Reductions / Transfers	Operations Staff Planning	Ongoing Requirements / Skills Review
Communication & Reporting	Project Reporting Requirements	Project Status and Regulatory Filings	Project Cost, Schedule & Budget Variance	Project Quality Performance	Project Close-out Performance	Financial Reporting
Procurement & Contracts	External Contracting Options	Vendor Qualification / RFP Process	Vendor Selection / Contracting	Contract Compliance Review	Trouble-shoot & Punch List	Vendor Qualification / Selection
Risk and Issue Management	Project Risk Management Planning	Risk and Issue Tracking & Resolution			Confirm Issue Resolution	Ongoing Issue Mgt Process

Key for completion Not Achieved | Needs Improvement | Achieved

Address requirements for ongoing risk management and control reporting, including the status of action plans to address key risks and control gaps

Direction

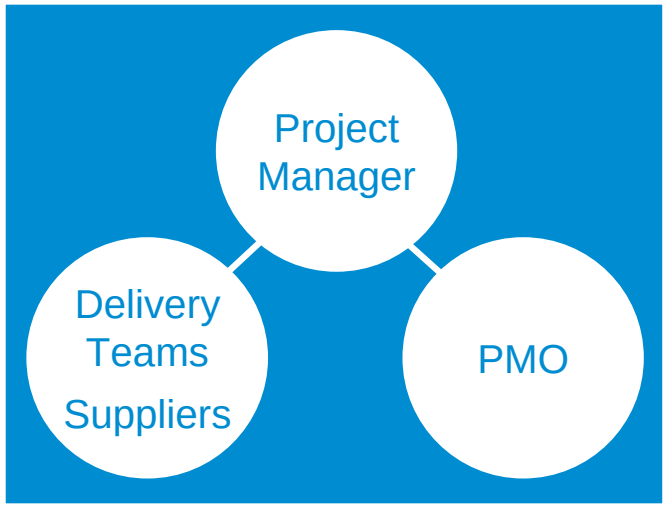
- Board / Executive Team
- Steering Committee
- Sponsors

Requirements

Upward Reporting

Controls

- Policies and Standards
- Internal Audit
- Ethics and Compliance
- Risk Management
- Independent Review



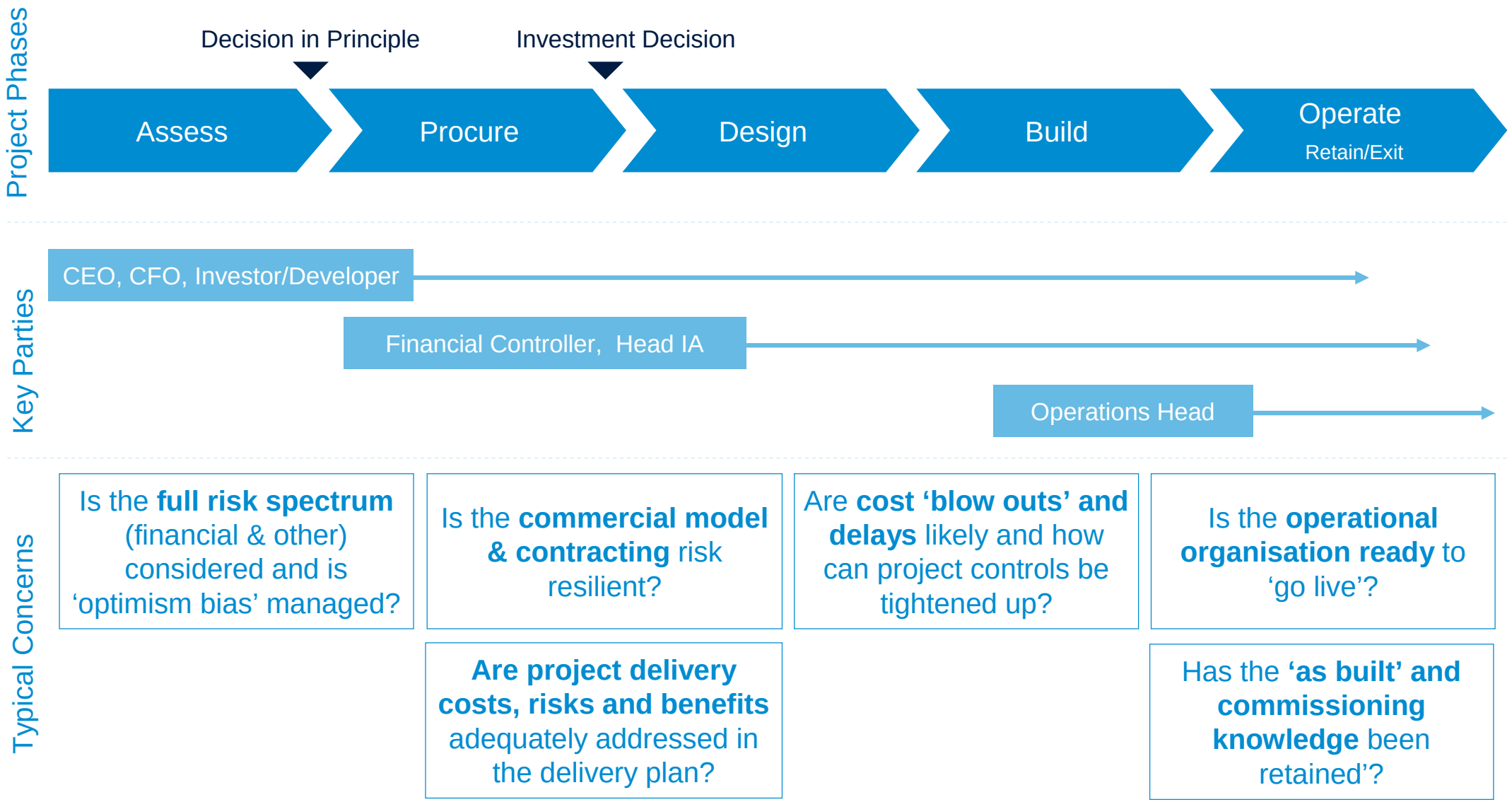
Project

Functions

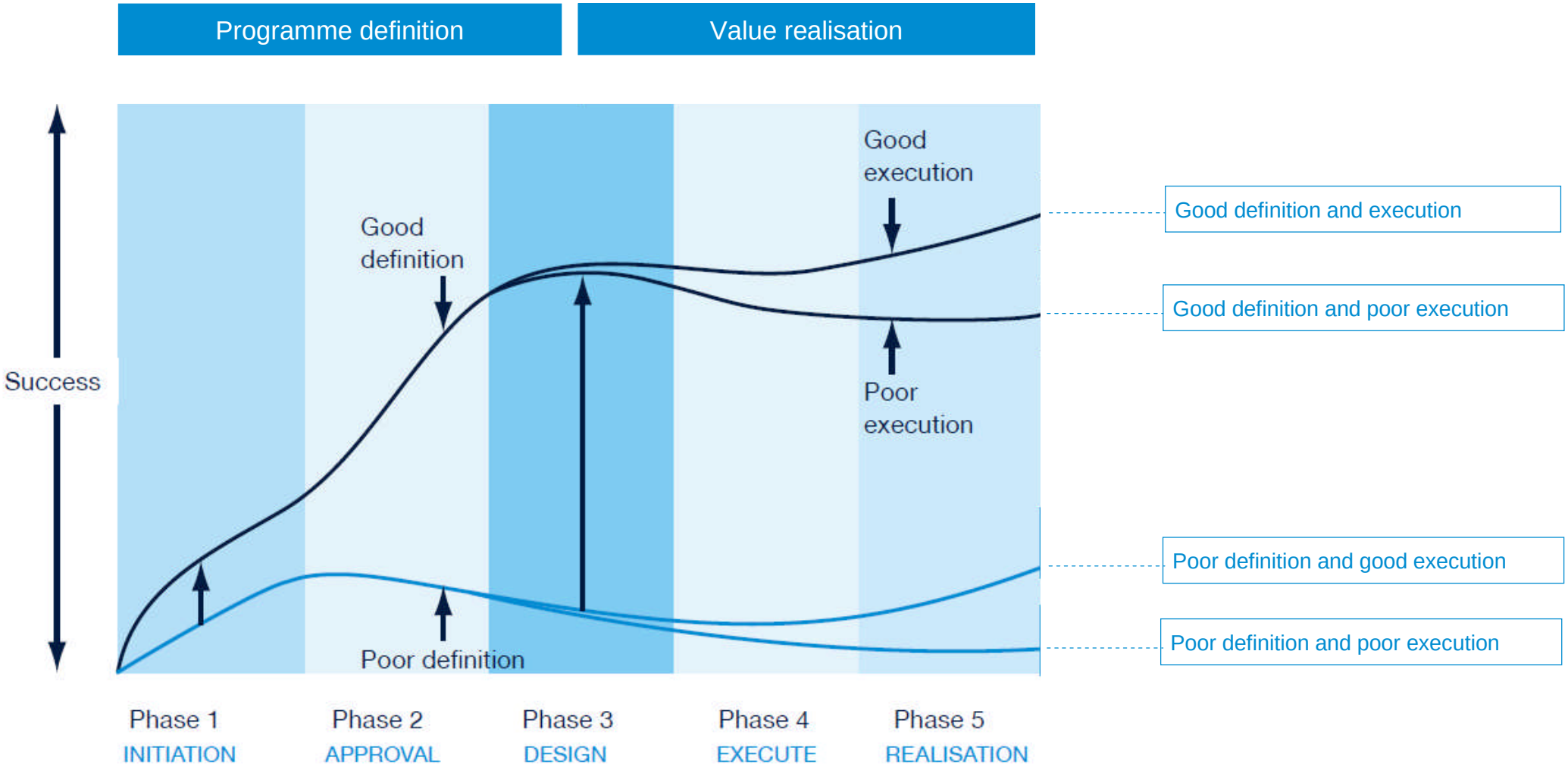
- Finance
- Tax
- Legal
- Procurement
- HR
- IT
- BD / Marketing

Regular checks by the Directive group against the business case and implementation of risk management standards, recognising the need to challenge the Project Manager / Teams' assessment

What questions and concerns typically drive steps to improve project governance, risk management and control



The ability to influence success and enhance value is greatest in the early stages of a project and declines rapidly as a project advances towards completion



What a typical project governance and control engagement covers

We use a tailored end-to-end approach, aligned with key project governance requirements and based on standard process improvement and risk management approaches

Engagement Phases

Activities	I - Review: Governance Readiness	II - Design: Controls Development	III - Implement: Application	IV - Operate: Monitor & Improve
Context	• Project status & organisation • Work schedule / interviews	• Project & stakeholder requirements	• Approve updated project policies • Communication & team awareness	• Ongoing continuous improvement • Targeted advice
Key Risks	• Key risks & mitigation status • Nature of risk management process	• Key mitigation policies / standards • Develop improved risk mitigation plans	• Action mitigation plans	• Risk management awareness
Controls	• Identify project control status & gaps	• For gaps, develop improved controls • Document controls	• Implement improved controls	• Integrated controls • Independent reviews
Reporting	• Format of project reporting	• Reporting system, metrics & issue escalation	• Regular risk & control reporting	• Ongoing monitoring & confirmation
Deliverables	• Report outlining significant risks, control gaps, improvement recommendations • Improvement plan	• Defined risk mgt framework • Documentation for key project controls • Defined control reporting framework • Implementation plan	• Fit-for-purpose confirmation by project manager / team	• Confirmed control self assessments • Exception reports & corrective action plans • Record of issues / actions

Establishing a basis for effective project control

A case study from the energy industry

Project readiness assessment for a nuclear power plant construction – A major utility required our help to establish the organisation's preparedness to start a multi-billion, multi-year new build project. The highly regulated context meant a strong control environment to manage the project was essential.

I

Governance Readiness Review – As part of the project planning and set up, we undertook a governance readiness review to assess the current systems and controls. We established key project organisational and procedural risk areas, and developed mitigation plans. Using an integrated risk management approach, we identified priority areas of the project organisation and procedures. This took into account the current project state, key risks, and the controls to manage those risks at each phase of the project life cycle. The scope included:

- Proposed controls for oversight of the EPC contract and quarterly reporting to regulatory bodies
- Documentation and retention guidelines to evidence decision processes, alternatives and conclusions
- Internal controls to meet regulatory accounting and Sarbanes Oxley reporting needs
- Relevant existing programs in the organisation, including the construction audit program
- Available technology to provide timely and accurate access to project data

Our report presented actionable recommendations based on industry standards and good practices, to various groups including the Project Steering Committee. This led to a second phase to provide implementation advice.

II

Controls Development – Assistance with the development of the project organisation, processes and procedures and systems, including:

- A Project Financial System to forecast the Total Project Cost, manage invoice payments, formulate "what if" scenarios, report Earned Value and develop a detailed cost audit trail suitable for regulatory proceedings
- A consolidated pre-deployment schedule with all project elements leading to the start of physical works
- A project level risk management system to track, communicate, escalate and report all levels of identified risks across the entire project

III

IV

Application Advice & Monitoring – We subsequently undertook periodic governance and control reviews, along with regulatory, contract administration and project execution support.

Drawing on experience gained on numerous multi-billion dollar, multi-year projects, we provided asssurance that key project risks, regulatory requirements, and gaps in the control framework were adequately addressed

We bring best practice from major capital projects across the world

We have deep engineering experience from major international capital projects in energy and utilities, real estate, transportation and infrastructure as well as other sectors. This includes process evaluation, project management/administration, contracting, cost analysis, disputes and risk management.

Depending on specific project risks and the stage of the project, practical aspects of our work can include:

- A proven approach to project risk management and control
- Assessment of contracts, contractor payment applications and contract compliance
- Identification of root causes for project failures relating to time, cost and resources
- Working with Project Management Office (PMO) groups and back-office staff of corporate clients
- Ability to transfer knowledge to client's team's through training sessions, deep-dive meetings and workshops
- Work on capital projects that are subject to retrospective reasonableness reviews by regulatory authorities for purposes of cost recovery
- Forensic based approaches to maximise cost recovery opportunities
- Design and management of underlying financial processes
- Design and development of web-based approaches to governance, risk management and compliance

Benefits of good project governance and control

1. Projects deliver the expected return on investment
2. Minimised project delay and cost leakage or “blow outs”
3. Reliable and timely project status information - critical project issues identified early, enabling managed intervention
4. Board and key stakeholders are informed, with realistic expectations, and able to intervene quickly if required
5. Compliance with regulatory and other stated requirements, with an audit trail

Establishing a basis for effective project control

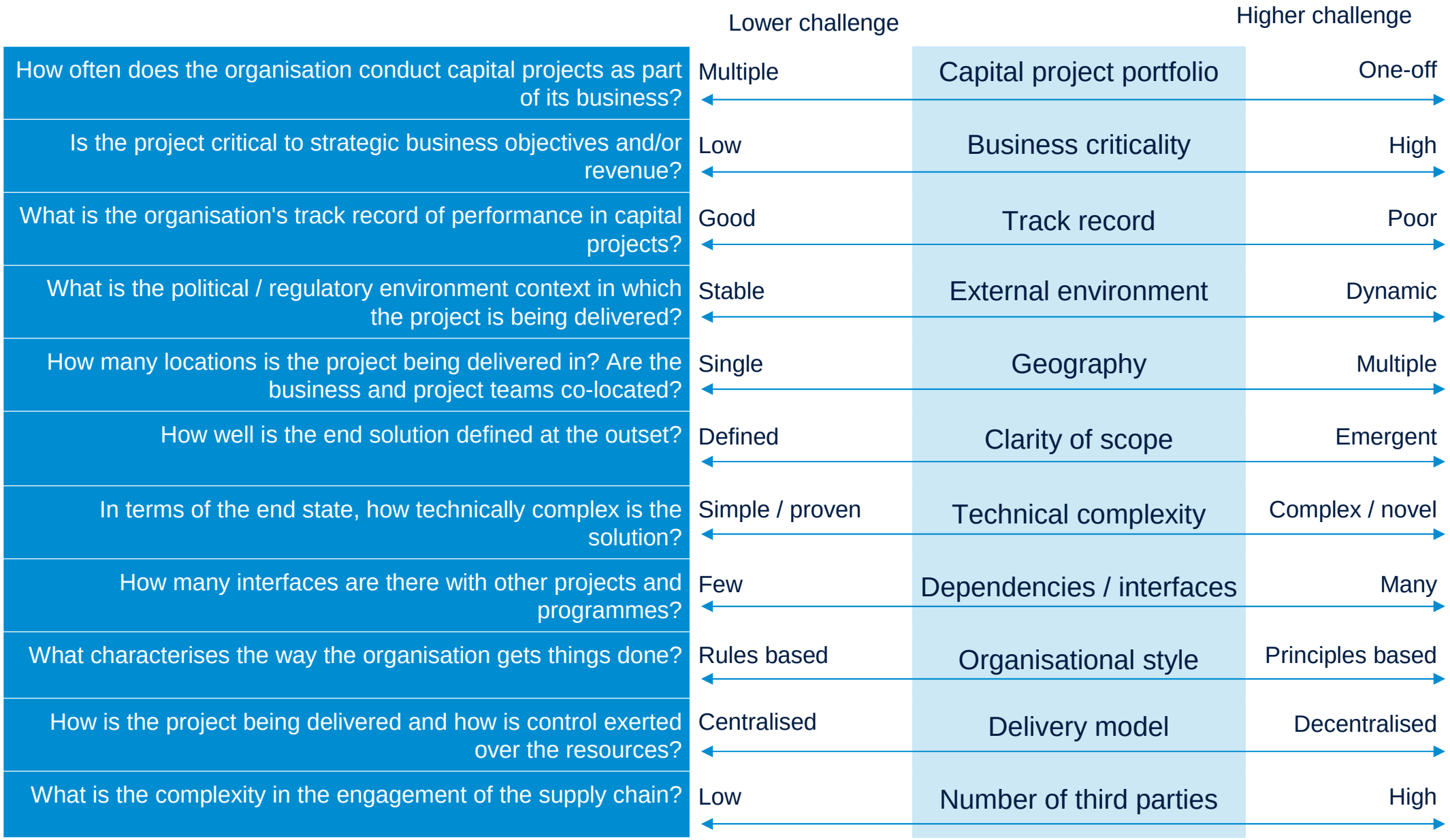
Supporting Details

A. Sizing up your project governance challenge

B. So what’s wrong with project governance?

C. Examples of our energy capital project experience

What tells you that your project may have governance challenges?



So what's wrong with project governance?

From our experience, questions and issues that need to be addressed

We like risk
- Are key risks and opportunities identified and managed effectively?
- Are executives engaged to maintain alignment and develop wider opportunities?

Thinking inside the box
- Are projects 'open' or 'black boxes' managed for the benefit of the project team or the contractors?
- Are there independent checks on project status?

Who's in charge today?
- Is senior level sponsorship clear?
- Are roles, responsibilities and authorities clear?
- How well do project stakeholders communicate?

Front end spend
- Is upfront spend enough for maximum influence on the final outcome?
- Is sufficient time spent on project definition?

The games people play
- Do rewards align with corporate objectives?
- Are subcontractor risks and dependencies clearly visible?

Budget variances are good
- Are there variance ups and downs in status reports?
- Are actual costs visible to management at any time?

Examples of our energy sector capital project experience

European energy company	Prior to approval of a multi-billion capital project, assessment of strategic risks and mitigation plans across the project. Developed a governance and risk management framework, including a supplier health check
European industrial consortium	Assessment of strategic program risks for nuclear new build projects, drawing on an earlier review of strategic risks and mitigation strategies for a nuclear new build project
Major US utility	To support multi-billion capital investment plans for major infrastructure projects, including new power plants, upgraded facilities, and environmental projects, we identified key risks facing the organisation and helped it to establish more rigor around its capital projects policies, procedures, organisation and methodologies
Major utility	A major utility required our help to establish the organisation's readiness to start a multi-billion, multi-year nuclear new build project. The highly regulated context meant a strong control environment to manage the project was essential
US repowering project	After helping select a contractor for a project to transform a power station from natural gas to clean coal, we reviewed the plans to manage the construction phase. Assessed the utility's governance framework based on key project control components across the lifecycle, made recommendations based on a review of policies, procedures and systems, and proposed ways to implement these
UK nuclear utility	Assessed the contract governance framework for capital projects to improve end-to-end contract management, taking into account risk factors, supplier relationships and alliancing
Oil major	Review of selected international exploration projects and management approaches, including in Africa and central Asia Identification of organisational development and management control lessons for petrochemical joint ventures in SE Asia
North American oil supplier	Review of the project control environment, governance organisation, and general readiness to undertake a major capital project. Required analysis of business functions and needs to make recommendations that best positioned the company to successfully manage its projects
Spanish power plant	Appointed as independent delay experts for arbitration relating to a significant delay on a $920m turnkey contract for a power plant constructed by an international consortium
Philippines utility	An independent review of a contractor dispute relating to a delayed half billion dollar power plant construction
African joint venture	A review of the performance of constructing a process manufacturing plant in Nigeria
Russia energy company	Performance review of engineering and project management services on a multi-billion new-build refinery

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