



Five pillars of major project success

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Introduction

The challenges of delivering major capital projects are well documented¹. It is now widely understood that many of these initiatives often fail to achieve against the benefits, costs or schedules they initially promise. But does it have to be this way?

At KPMG our experience tells us this narrative can change. For over 30 years, the Global Infrastructure Advisory team in our Canadian practice has worked alongside contractors, investors and owners to deliver hundreds of large-scale and complex capital projects². In reviewing this experience, KPMG in Canada has identified the critical factors required for successful planning, design and execution of these works. From this understanding, we have formalized a globally-relevant framework of five pillars that we believe are crucial for any successful major capital project.

Understanding the current landscape

The use of major projects as a vehicle for delivering capital investment is increasing around the world. According to futurist Thomas Frey, these projects could account for up to 24% of global GDP within the next decade³ and are a response to growing populations, aging infrastructures, and rising urbanization.

Governments, corporations, and communities each have a stake in the success or failure of these projects, such is the size of their impact. If successful, major projects can improve quality of life, enable government investment, and create shareholder value. But

when things go wrong, the impact is equally severe. Wealth and reputations can be destroyed, governments can be destabilized, and communities and the surrounding environment can face significant negative outcomes.

Three principle concerns surround major project delivery:

- Meeting the proposed costs for the project
- Completing the project in line with the proposed schedule
- Ensuring the proposed benefits are delivered.

What is the scale of the issue?

KPMG International spoke with 300 senior leaders, from both private and public bodies, about project delivery and the effectiveness of their organizations. The results were as stark as they were revealing⁴.

- 53% of organizations had suffered one or more underperforming projects in the previous year – a figure that rose to 71% for natural resources companies.
- 91% of public sector respondents expected project failures.

- 31% of projects in the last three years completed within 10% of the budget, while 25% completed within 10% of their original deadlines.
- 50% of owners and 60% of contractors admitted poor project performance had significantly impacted their company.
- 70% admitted their company does not have integrated systems or processes for project reporting, meaning project managers and executives lack the capacity to see and control work.
- 86% said the ‘human element’ significantly influenced project delivery, but only 40% have formalized ‘soft’ controls as part of their delivery work.

Why do major projects fail to deliver?

The Global Infrastructure practice at KPMG is close to many of the world’s largest and most complex projects. Our experience and network give us valuable insights into why major projects fail – and it is rarely, despite a common belief, due to unforeseen events known as ‘black swans’.

1. Although US\$500 million is a common threshold for defining major projects, there is no consensus definition. It is widely accepted that what constitutes a major project will vary from one organization to another, based on factors such as geography, industry, market-cap, etc.

2. As an example, since 2012 KPMG in Canada has been recognized for our annual achievements within the country by being awarded the “Platinum” badge by ReNew Canada and the Top 100 Projects.

3. Thomas Frey, 2016 ‘Megaprojects Set to Explode to 24% of Global GDP Within a Decade’, Future of Construction Knowledge Sharing.

4. Statistics derived from KPMG Global Construction Survey’s in 2015 and 2017.



Many organizations, governments and academics rationalize the failure of their major projects as being caused by catastrophic or uncontrollable events or issues. In most cases, the focus is entirely on the failure of technical elements. These include breakdowns in project planning, risk management, design changes, uncertain regulatory environments, or a lack of adherence to process. While concerns about these complex issues are well founded, they are not the only causes of systemic failure.

Instead, the holistic problems underlying almost every project failure result from executives and senior leaders who do not recognize the importance of, or have the capability to integrate, both a 'technical' systems focus alongside broader 'non-technical' competencies.

The skillset and experience of senior project executives tend to be skewed towards the technical elements of project planning, management, and execution. Stakeholder and commercial management are also priorities. In contrast, the 'non-technical' elements of governance and leadership receive less focus. But they still have a significant impact on the outcome.

In *Global Construction Survey: Make it or Break it*⁵, KPMG observed that only 40% of organizations had mechanisms in place to manage the 'non-technical' or 'soft' control aspects of projects. So while technical competency and detailed delivery systems are important, KPMG's work with major projects highlights that they are insufficient by themselves. They must be complemented by project leaders who understand the value of both 'technical' and 'non-technical' systems. Those leaders must, in other words, have the skillset of experienced CEOs⁶.

What is the solution?

Traditional project management techniques are often insufficient in managing major projects. These projects can spend several million dollars every day and have time frames that extend years or even decades. We believe success in major projects comes from project executives who accept two fundamental notions:

1. Understanding that failures can be caused by either technical or non-technical project elements.
2. Correctly managing and integrating the technical and non-technical elements of a given project.

Research is beginning to show that organizational design, decision-making protocols, culture, communications and the integration of stakeholders are incredibly important⁷. They have a similar impact on the schedule and budget as traditional focus areas, such as workforce productivity and procurement.

Bringing these elements together requires leaders with the understanding and skills assumed in other complex and large-capital business ventures. They must be able to merge technical knowledge with soft skills, remembering that decision frameworks and relationship management are just as important as technical project delivery.

Introducing the five pillars of success

KPMG in Canada's five pillars framework provides a holistic and globally-relevant solution for major capital projects. It accounts for the needs of both the technical and non-technical elements of a project. By understanding and integrating these five pillars, major project teams can increase their chance of being on time, on budget, and delivering their promised results.

5. Global Construction Survey: Make it, or break it, KPMG, October 2017.

6. Chapman, P. (2009) 'Educating major programme managers', Educating Programme Managers for the 21st Century conference, Oxford, UK, June 22-23.

7. Gary Heerkens (2013), 'Next Generation Project Management Must-Haves', Project Management Institute.

Leadership

A pillar of major project success

Major projects are organizations in themselves. While they are only temporary, they still need the same set of core leadership competencies as traditional organizations. Competencies such as business acumen, strategic vision and effective communication help maintain strength of focus, direction, and motivation over the length of a major project.

Take time to consider the following questions:

- Does the project have a defined vision, mission, and values to sustain focus until completion?
- Is there a strong culture of leadership and mentorship?
- Do project leaders have the right mix of technical, business, commercial and communications skills?
- Is there a plan for managing change during the project?



Case Study - Major Canadian Infrastructure Project

Recently, construction began on a significant remote infrastructure project in northern Canada. Following the first season of constructing permanent structures, this high-profile project experienced substantial delays to the schedule, cost overruns, and a combative culture between the owner's organization and the main contractor had evolved as a consequence. To address these issues, an in-depth review and 'Healthcheck' of the overall project was conducted to determine root causes and to identify potential solutions. The analysis concluded that misalignment and gaps in priorities, communication, culture, capability, and change management were significant contributors to the project's productivity and cost challenges.. A shift in leadership focus to refining systems and processes, better issues management, better communication, and a collaborative culture was needed.

At its foundation, each organization's leadership had become internally focused; ultimately intensifying key issues and challenges. To address these problems a robust leadership and organizational strategy was designed in an effort to motivate and mobilize collaboration, and a robust change program was instituted to enhance non-technical leadership capabilities (e.g., team effectiveness and organizational culture) between the owner's project team and the main construction contractors.

As a result of these efforts, the project team committed to a "one team" approach to the work and a "best-for-project" approach to decision making. Leadership fostered collaboration and this approach led to the establishment of a high-performance culture and revamped communication processes across the project organization. These changes resulted in significant gains and were an essential contributing factor in getting this project back on track.

Governance

A pillar of major project success

Effective systems need to be in place for leaders to have the visibility they need to access the right information at the right time to make the right decisions. Having the right decision-making roles in place, such as project sponsor and steering committees, enabled with the right authority, information and performance measures, ensures that the important issues on projects are managed effectively and in a timely manner; before they grow into larger and more complex challenges.

Take time to consider the following questions:

- Is proper oversight provided through an executive or board steering committee?
- Is there a practical escalation process so the right person can make the right decision when they need to?
- Is there timely and accurate reporting to enable a clear line of sight?
- Does the organizational design meet the needs of the project?



Case Study – Municipal Transit 10-Year Capital Program

Entering into the most extensive transit capital program in the city's history, one of Canada's largest municipalities needed to re-think how it managed and governed major capital programs. Because of the size, scale, and impact of the new program, current methods were not fit for purpose, and it was determined that leading practices would have to be adopted by the organization if they were to have a chance at successfully delivering this new program.

At issue for the Board Chair and other senior executives were the role and responsibility of board members within the program, including the relevant questions and concerns each member should recognize at each stage of the program and how the programs issues/progress would be reported. Having the proper governance structures in place to support board members to make decisions on such large capital expenditures was a vital part of ensuring that each phase of the program could deliver what was needed.

In response to the needs identified, a capital projects governance toolkit was developed to assist executive governance and decision making throughout the program, and a capital reporting protocol was established to ensure timely reporting and an accurate line of sight. These solutions have bolstered the confidence of the board of directors and Board Chair in managing the program and have provided effective methods of management for the project to date.



Commercial

A pillar of major project success

Commercial expertise is one of the major factors in project success. It determines many of the crucial legal and financial parameters. Understanding the commercial requirements and strategy that best suit the complexity and context of each major project ensures that key determinants of success, such as key contracts, project economics, finance and risk are appropriately managed.

Take time to consider the following questions:

- Is the project structured to optimize its commercial requirements?
- Is the commercial strategy reasonable, and is the risk transfer achievable?
- Does the approach to risk reflect the organization's appetite for risk?
- Has there been a formal mapping of risks, in which risks are allocated to the party best able to manage them?
- Are the material, equipment and labor markets fully understood and aligned the with contract strategy?



Cast Study - Fixed-Link Transportation Infrastructure Program

In support of a prominent international sporting event, one of Canada's largest provincial ministries embarked on an ambitious fixed-link infrastructure project to meet the increasing demand for transportation of goods and people. This program was the most extensive provincial program to date and at the time faced competition for labour and resources from other projects throughout the region as it prepared for the upcoming events. The resulting environment, combined with the multivariate nature of the projects within the program, required special attention to commercial strategies (contracting, procurement and financial) for the program.

Ensuring the proper transfer of risk to the parties best able to accommodate them, while allowing for flexibility throughout the procurement process, were especially important for this project. Among other challenges, the program also faced fallout from the global financial crisis and was forced to shift/adapt strategies throughout the program. Ensuring proper commercial mechanisms were in place was an essential part of the success of this program.

Ultimately, the program was able to maintain competitive interest from the market, provide construction financing and find operators, where required, to take on revenue risk and manage finished assets. Having a robust commercial strategy that incorporated more than financial considerations was important to manage the difficulties faced by the program which was ultimately delivered on time and on budget.

Stakeholder

A pillar of major project success

Project leaders must properly and effectively engage, manage, integrate and motivate any project's stakeholders. From members of an impacted community to government personnel, contractors, NGO's or affected internal parties, the effective integration of stakeholders is important to achieve buy-in, support and backing for major projects.

Take time to consider the following questions:

- Is there a clear strategy for stakeholder management and communication?
- How are you gauging social license and community engagement?
- Does the project have strong relationships with the labor market, Indigenous leaders and communities, and environmental organizations?



Case Study - Wind Farm Energy Project

In pursuit of clean energy policies, a 400MW wind energy project has been proposed on Canada's West Coast. The project is designed to power over 130,000 homes and to supply clean energy to liquefied natural gas (LNG) operations anticipated in the region. As the first project of its kind with a complex investor set-up, and being constructed in a highly sensitive political and environmental geography, this project required expertise in working with government and regulatory agencies, Indigenous communities, unions, and other internal and external stakeholders.

To effectively build and assess the business case for this multi-billion dollar development, the joint-venture (JV) partnership worked to evaluate and inform stakeholder interests across the project; understanding the impact that positive relations and social license can have on investment outcomes. Leaders worked to assess stakeholder impact on the financial viability, structuring, tax, environmental and feasibility of the project and ensure effective management and communications processes were established.

Because of this initiative's focus on stakeholder integration from conception, the JV was able to build meaningful partnerships and support with the project's commercial, community, environmental, and Indigenous stakeholders. The procurement and construction of the wind farm are supported by stakeholders who played a vital role in the initiative's overall success.



Technical

A pillar of major project success

The technical process of any major project needs several strategic decisions to be successful. Without a holistic approach to major projects, the technical delivery becomes a major challenge. But without getting the technical aspects of a project right, nothing can be accomplished. Ensuring that organizations have the engineering management, project controls and technology in place is an essential part of delivering successful major projects.

Take time to consider the following questions:

- Were the technical and functional requirements approved before the project was authorized?
- Is there an approved baseline for the project scope, cost and schedule?
- Is there a lifecycle approach to the project? Does the scope reflect the long-term operational requirements of the organization?



Case Study - Wastewater Treatment Program

After years of planning and design, a new wastewater treatment facility is under construction to serve one of Canada's most prominent provincial capitals. This complex major project includes 10 unique yet tightly interfaced contracts and spans a variety of project delivery models. The technical nature of this work, combined with a challenging external environment, necessitates that specific details be carefully managed concerning regulatory and permitting processes, scheduling constraints, project controls, detailed engineering, and management of the final assets.

Organizations that deliver major projects of this size and complexity are few and far between. Building out the organizational expertise and technical qualifications to successfully deliver this initiative required sustained and concentrated efforts. With this in mind, the team responsible for delivering this program began by taking a lifecycle approach to the design and execution of each project component. Aspects such as the development and alignment of service requirements and key performance measures, cost and schedule baselines, and the implementation of tight and effective project controls were instituted to ensure the project delivery remains on track.

Because of the detailed work and lifecycle view of technical requirements, this project is being delivered on-time, on budget, and with the functionality and quality required.

Conclusion

Understanding the successful elements of major capital projects is complex and challenging. Even the most experienced organizations and professionals work on very few major capital projects over the course of their careers, so becoming highly proficient after completing just a handful of projects is extremely difficult. The 5 pillars framework can help organizations incorporate the required 'technical' and 'non-technical' elements required to plan, manage and deliver successful major capital projects.



KPMG's Global Infrastructure practice

Integrated services | Impartial advice | Industry experience

Every day, our network of more than 2,500 highly-experienced people work shoulder-to-shoulder with infrastructure leaders across more than 150 countries to share industry best practices and develop effective local strategies.

By combining valuable global insight with hands-on local experience, we understand the unique challenges facing different clients in their individual markets and in the rapidly-evolving global marketplace.

By bringing together valuable interrelated disciplines, including economics, engineering, project finance, project management, strategic consulting, tax and accounting, KPMG's Global Infrastructure professionals provide integrated advice that achieve effective results and help clients succeed.

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