Making a fast start for your capital projects

Power and Utilities Maturity Model and Architecture
The situation

Infrastructure is in a period of high investment; global power and utility organizations are forecast to spend >US$5t in the next 10 years to improve their infrastructure assets. Such significant investment is being driven by rapid population growth and increased urbanization, and the increased demand for resources such as water, food and energy that this creates.

With the increasing volume of capital projects in the pipeline and their increasingly complex nature, there is greater demand and competition for finance. To secure capital investment, infrastructure organizations must be able to act fast to establish projects that are set up for success, while providing shareholder confidence that their funds are invested wisely to maximize rates of return at the lowest possible levels of risk.

Project Directors are well placed to understand their businesses’ needs and to put in place the correct blend of processes, technology, information and people needed to successfully manage these projects through design, construction and into operations.

The Capital Projects Power and Utilities Maturity Model and Architecture (PUMMA) provides an opportunity to enable this “fast start” for your project while reducing the risk of having an inadequate and incomplete set of policies and processes to effectively govern, manage and deliver the project to plan. Using PUMMA, Project Directors can help their business quickly identify the key capabilities needed through the life of the project, decide when these are required and determine whether they will be built in-house or bought as a service from trusted partners.
Few capital projects to date deliver to time and budget. EY’s research has found that mega projects typically have budget over runs of 35% with an average delay of 2 years. There are a number of factors which drive these overruns:

**Misaligned decision-making**
- The investment case rationale provides the basis for the project to exist. Poor understanding of the investment case levers will result in decisions being made that will put delivery of the investment case at risk.

**Absence of key capabilities**
- Each project is different, so while core capabilities remain common between projects, these need setting up at the required level of maturity, and at the right time so that they can run like clockwork and don’t hinder delivery.

- As the complexity of megaprojects increases, so does the need for specialist capabilities critical to delivery. Failure to determine from the outset which should be developed internally, versus those that can be brought in through joint ventures or third parties, will delay their acquisition and increase the cost of their uptake.

**Lack of collaboration and integration**
- With the increasing reliance on joint ventures and third parties, identifying the integration points for processes and systems beyond organizational boundaries is a critical factor to restrain the different ways of working, organizational siloes and differing cultures that could threaten effective project execution.
Global demand for infrastructure is at unprecedented levels, fueled by global megatrends in urbanized population growth and the need to replace and replenish older, outdated infrastructure. This alone increases the pressure on the infrastructure sector to deliver, but is further exacerbated by other technological, economic and social factors:

- Access to capital to fund these large projects is proving increasingly difficult with a slowdown in economic growth. To improve the viability of projects, we are seeing an increasing number of joint ventures and negotiated guaranteed rates of return as instruments used to secure valuable investment into critical infrastructure programs.
- The increased investment in capital projects and potential impacts to the balance sheet or public purse is bringing additional scrutiny from investors, regulators and government bodies.
- An aging infrastructure workforce means that organizations have to understand the capabilities they need to sustain to maintain the required knowledge to improve investor confidence that risks are effectively managed to deliver the project to plan.
- The movement toward a new digital economy, with building information modeling becoming an industry requirement, is driving a paradigm shift in the infrastructure sector. Project organizations have to understand how they will benefit from the novel capabilities they need to build or buy to compete in an evolving market.

“The current generation of infrastructure projects are more complex than ever before, rely on capabilities that did not exist in a pre-digital era, and are being executed at a time of reduced access to capital and an increased need for transparency around risks.”

Chris Lewis
Partner, Ernst & Young LLP
The effect

Over the course of any project, unplanned events can have a significant material impact on delivery. How your project responds to these events to make accurate decisions in a collaborative, integrated way using the appropriate capabilities is essential for aligning the supply chain efforts to get the project back on track.

- What is your organization's risk threshold?
- What are the risks to project success and are they monitored at the right level?
- What will be the impact if something goes wrong?
- Is this project a one-off or are there future programs within your portfolio?
- Are the capabilities you need now the same as those you will need in the future?
- Do you have a plan to develop the capabilities that you need?
- How will the supply chain handle the anticipated volume of design changes during construction?
- How do you maintain alignment and control of the design, scope, cost, schedule and quality across a large and complex number of stakeholders?
- How do you access and use accurate information to update the investment case, and stakeholder reporting and testing prior to commissioning?
- How do you confirm that what you are operating has been built using the correct design and quality standards?
- How can you use the digital asset to optimize the physical one?
- How do you design for decommissioning?
- How do you set up your finance structure to fund decommissioning through operating income?
- How do you confirm that you have the right equipment and materials ready on-site?
- How do you use real-time information to drive decisions and optimize delivery?
- When a request for information (RFI) for non-conformance occurs, how will you resolve this in a timely manner?
- How do you confirm information be captured, mastered and sustained from construction through to operations?
- How can you use this information to reduce the amount of unplanned outages?
- How will asset information be captured, mastered and sustained from construction through to operations?
- How do you share and develop designs across your supply chain while maintaining its integrity?
- How does your project monitor the quality of critical components through manufacturing?
- How do you maintain visibility of commercial agreements, dependencies, liabilities and potential impacts across a complex supply chain?
- How do you access and use accurate information to update the investment case, and stakeholder reporting and testing prior to commissioning?
Typical methods to improve capital project performance look to iterate existing practices and standards. PUMMA will help you look ahead and identify the core capabilities that you need throughout your project and how these could be delivered differently to achieve the value defined in the investment case.

Our method involves five key steps that turn business insight into accelerated design:

1. **Identifying investment case drivers**
   - Identifying the factors that will have a material impact on your ability to deliver the investment case and raising awareness of these across your organization

2. **Determining the capabilities you need**
   - Determining how you will set up the organization to deliver the investment case

3. **Defining the capabilities to build**
   - Deciding what you will keep in-house and where you will partner with other organizations

4. **Enabling end-to-end integration**
   - Determining how to align your processes and systems across business functions to deliver the required level of performance

5. **Empowering data-driven decisions**
   - Establishing how you will provide consistent and accurate information to enable better-informed decisions
The bottom line

With an increasingly competitive and constrained landscape, capital and infrastructure organizations need to be agile and in control from planning to delivery. Identifying the people, processes, systems and information you need today, tomorrow and through the life of your project has never been more important to provide a “fast start” to reduce the time to achieve the final investment decision (FID) and long-term project delivery success.

“PUMMA will help accelerate the setup up of your project organization and give confidence you have the right tools in place when you need them”

Craig Hoggett
Partner, Ernst & Young LLP

PUMMA integrated business design accelerator

- Business strategic drivers
  The “top 10” principles that will guide the successful development of the business

- Project investment case
  The key levers to drive value and deliver the project on time and to cost

- Capability model
  What the business does and which capabilities need to be developed in-house

- Process model and scenarios
  How the business works in a joined-up way to deliver from end-to-end

- Change and readiness road map
  The changes required and the plan to roll out and embed the new ways of working

- System model
  The logical applications needed to automate and enable the processes

- Data model
  How the information enables decisions and flows through systems and processes