

The Challenges of Managing **Public** **Infrastructure Projects**

A discussion paper from Oracle



Success factors in Public Infrastructure Project Management

Public infrastructure projects drive a country's economic success – providing the ability to grow and become more viable and competitive in world markets. Constructions such as roads, airports, bridges, buildings, complexes, and the delivery of essential services, also improve the quality of life for citizens.

As much as public infrastructure projects create positive impact on societies, influence cultures, and affect lives, when they fail the negative impact is far-reaching. It is estimated¹ that for every US\$1 billion spent on a failed project, US\$135 million is lost forever... unrecoverable. The cost of failure, however, can be more than purely financial. When projects involving billions of dollars' worth of investment overrun on budget or time the result can hurt the tax-payer, delay essential improvements, and even trigger civil unrest. The results can topple governments.

Avoiding failure

The efficient management of these projects presents challenges of vast complexity to those who conceive, design and execute them. Successful public infrastructure project management is driven and enabled by coordination and control of assets and

people, often across diverse locations and time zones. A wide range of skills and an enormous amount of information require systems and capabilities designed to support financial control and risk mitigation, drive operational excellence, and harness the real value of innovation.

Project level visibility

Public Infrastructure Management (PIM) addresses the responsibilities for eliminating wasteful spending, selecting the right projects, allocating the right resources to ensure on-time and on-budget completion, and coping with changes. The discipline and its related practices and processes enables those charged with public infrastructure projects to respond competently and efficiently to the widest possible stakeholder interests. Government bodies, public organisations, tax payers and often the media will give close attention to how effectively public infrastructure projects are managed and how wisely they use public money and respond to strategic economic goals. A 2013 report by Ernst and Young² suggests that global infrastructure demand will require \$57 trillion in investment by 2030 (based on projections of demand equalling 3.5% of global GDP, 2013-2030).

Successful programme management and project management requires insight into all the risks that may affect service delivery or system performance.

¹ "PMI's Pulse of the Profession™ – The High Cost of Low Performance" 2013. A report which features feedback and insights from nearly 800 project management leaders and practitioners across North America, Asia Pacific, Europe, the Middle East, Africa (EMEA) and Latin America and Caribbean regions.

² 'Infrastructure 2013 – Global Priorities, Global Insights'.



Making informed decisions – the **winning formula**

Direct value losses due to under-management of risks for today's pipeline of large-scale projects may exceed \$1.5 trillion in the next five years, not to mention the loss in GDP growth, as well as reputational and societal effects.³

The inability to deal with unanticipated changes is one of the biggest threats to the on-budget and on-time completion of infrastructure projects. It comes about when project management teams cannot see the problems in advance. Such foresight can be enabled by predictability and deterministic modelling of risk and development scenarios but this approach is not enough in itself.

Information, and how you use it, is critical. Visibility is all empowering. The two put together become a winning formula for successful public infrastructure project management.

Investment decisions must be of a strategic nature, aligned with national, provincial or municipal strategic objectives. Following these decisions through to successful completion depends on exercising complete visibility.

Greater visibility enables better planning, tighter coordination and improved productivity

The roadmap to successful project completion follows three fundamental steps:

- 1 Establishing strategic direction
- 2 Communicating expectations
- 3 Implementing strategy in the areas of:
 - financial control and risk mitigation
 - operational excellence
 - innovation

It is in the foregoing three areas of strategy implementation that real-time visibility on project progress serves to drive stakeholder objectives within specific constraints of cost, time, and quality across the organisation. Putting the right systems in place to monitor performance, and ensure optimal use of the many skills that the project involves, will streamline project coordination.

Visibility is simplicity – in understanding, in communication, in collaboration, and in the many elements that seem to make such a complex whole but that can become clear, transparent, logical and far more easily controlled when they are planned and scheduled, monitored and reported on.



Management gains greater ability – through insights and centralised views – to select the right skill-sets and determine the availability of project team members for strategic initiatives. Management can more efficiently control the wide range of relationships with suppliers, specialists, and the public sector organisations overseeing the project.

A centralised view also improves productivity. Human resources allocation is optimised through insight into the status and performance of each project stage or aspect that makes it easy to initiate preventive and corrective actions – such as augmenting or decreasing resources to support changing priorities and specific constraints of cost, time, and quality.

The 3 strategic drivers of project success

Financial management and risk mitigation: giving executives and state-sponsors visibility into wider activities, and overall commitments, as well as potential change factors that can affect overall project direction; offering financial metrics relating to the traceability of funding to ensure activities are aligned to the overall strategic direction.

Operational excellence: giving a range of operatives in diverse locations the ability to extract insight to support longer term objectives and their day-to-day decision-making process.

Innovation: using optimum systems and processes to keep projects on track, on budget and in line with the government's and constituents' expectations.

The **critical role** of data in making **better decisions**

Information already exists within every organisation in significant volumes. In today's digital age, data proliferate at a rate which is overwhelming organisations who have simply not explored better ways of coping with the data as it comes in and using the information to extract the true value it represents – the value of insight.

In the management of public infrastructure projects this value is important at every stage – from identifying which projects to pursue right through to their completion – enabling those charged with the responsibility for these projects to:

- Plan, schedule, execute and control large-scale capital programmes and individual projects
- Balance resource capacity

- Allocate best resources and track progress
- Monitor and visualise project performance versus plan
- Foster team collaboration
- Implement governance for change management
- Integrate with financial management and human capital management systems

Keep it simple. One planning tool – one place – one view

Using all information effectively – and making sure that you gather all the information pertaining to every element of the project and even the larger project portfolio – can make the difference between success and failure.

How to drive PIM success

Success comes from the ability to understand every aspect of a project; the tens of thousands (and frequently hundreds of thousands) of tasks, activities, and interactions taking place every day between suppliers and principals, engineers and construction teams, management and workforce, field operations and the Project Management Office (PMO).

Success is driven by the ability to see the outcomes of every scenario caused by change factors. It is accelerated by standardisation and automation – making sure all parties to every project share the same information at the same time in the same way. Avoiding failure depends on timely project completion, optimum use of assets and resources, a close fix on budgets and

progress against phased and planned expenditure, and the ability to cope with change as it happens.

Success requires innovation; avoiding failure by adopting project management practices and systems that are as advanced as possible and that have been proven effective around the world for projects that have changed the lives of people and transformed the economies of countries.

Is the idea of extracting true insight value from a wide array of information sources a challenge itself? Is it not easier, more expedient and more cost-effective to assume that each specialist function or department can continue to control its own part of the project and monitor and report on progress in ways which suit its own traditional style of operations?

A shared vision inspires greater levels of operational excellence.

In the modern world, tradition can hamper progress. Transformation accelerates it. More effective ways of driving success lean on collaborative processes – across every stage and between every contractor, organisation or specialist provider.

Collaboration derives maximum value from budgets by extracting optimum value from a shared approach. Interdependencies are acknowledged and understood by all parties, and critical paths run smoother through collective commitment to the goals they aim for.

Innovation through simplicity

It may seem hard to imagine that the scale of information involved in public infrastructure projects of vast magnitude can be focused to within one view,

one screen, one dashboard. There is an infinite array of metrics and KPIs, progress reports and cost centres, outlying and imminent risks and liaison points with contractors and suppliers, planners and operatives, office and field locations, government bodies and compliance and other regulatory authorities. The compelling feature of focusing on how you gather, aggregate, analyse and use your data is that it can be distilled into one single view of the truth.

For the successful management of public infrastructure projects it is essential that it is. Such organisations are using simple yet sophisticated management tools to make sense of all available and relevant information and leverage the insights fast to inform better decision-making at the point and at the time that decisions need to be made.

Organisations around the world are realigning their operations to the strategic imperative of better information use.



Complexity is disaster

Winning organisations are responding to the limitations of traditional ways of doing things. They understand that without a holistic view of operations, financial management and risk mitigation, and innovation, these very same areas are suffering.

This is how they are suffering. **Operations are not adhering to schedules** or are not optimising assets

between varying projects within the portfolio, so duplication and waste is being incurred and often the problems are not coming to light until it is too late to avoid them. **Budgets are being overrun** as a result; and small overruns in self-contained areas of the project are slowly coming together and aggregating into major financial disasters. **Risks have not been properly analysed** and have materialised in the form of significant barriers to project progress.

Avoid the disaster scenario. It can all be so different, and it can be so much better...

Smarter decisions

A critical aspect of dealing with the challenges of managing public infrastructure projects is seeing what these challenges are at the commencement of every project and even before. Using common measurement techniques to assess and compare the likely outcomes and risks associated with a number of candidate projects across a portfolio drives a smarter decision making process.

New disciplines for a new route to success

Accepting that a single version of the truth is the only logical way to mitigate risk, drive operational excellence, exercise true financial discipline and harness innovation, how, then, does an organisation unify its information, action and decisions?

The focal point is a consolidated information repository or data platform spanning the entire organisation

including structured and unstructured data. This platform enables near real-time updates not just for those with the need to plan and monitor project progress at a high level but for those involved at any functional point in the business.

The transformation which this approach brings to project management is driven by standardisation and automation; making sure that information is consistently created, delivered and stored and making sure, above all, that it is used more effectively. Automation makes the data more easily usable and generates clear and unequivocal dashboards which everybody can see and everybody can use.

This is the power of Enterprise Project Portfolio Management (EPPM) – helping public sector organisations and the partners they work with to rise to challenges of complex projects and ensure success, globally, nationally, and collaboratively.

Gain improved communication, better decision-making, and better-executed projects across your entire public infrastructure project portfolio.





The **best practices** of EPPM

Governance: Ensure alignment of strategy, execution and results.

Resource Management: Support top-down and bottom-up resource requests and staffing processes and make it easy for project and resource managers to communicate their requirements and decisions throughout a project's lifecycle.

Provide a graphical analysis of resource and role utilisation in order to help project teams manage resources in a dynamic environment and allow managers to see where resources are being used across all programmes and projects, as well as their forecasted future use.

Communication and Collaboration: Quickly record, access, and review elements often to determine the successful outcome of a project. Adopting the 'one single view of the truth' approach enables you to store everything about your project in a single, secure place enabling visibility into any potential issues or delays via workflows and alerts.

Reporting and Analytics: Deliver timely information for accurate decision making.

Cost Management: Roll up all costs to a central cost sheet normalised by a robust cost code structure, where project cost information is available for drilldown by work package or for the entire project.

Cash Flow Management: Reliably forecast final costs by taking into account actuals to date, changes, trends, and risks over time.

Funds Management: Leverage a funds management capability that is fully integrated with the cost sheet, ensuring visibility of funding against project budgets, actual spend, and forecasted spend.

Document Management: Ensure that everyone is always working on the most-current versions, for storage of attachments, file control access, e-mail alerts, and version control.

Contract Management: Manage all of your contracts regardless of type, from simple material procurement to complex construction contracts and capture all relevant contract details.

Change Management: Manage all transactions leading up to and resulting in a schedule or cost change using approval workflows.

About Oracle's Primavera

Oracle work globally with governments, public sector organisations, and major contractors and service organisations involved in delivering public infrastructure projects.

We have helped empower and enable project management professionals to address cost, planning, risk management and safety issues, and operational excellence, in the transformation of entire country-wide transformation projects.

Contact us to discuss how the visibility and project control we can put within your grasp will help realise your vision, save costs and confidently predict project success.

Continue the **discussion**

One hour could change everything

In just one hour, we can tell you how we can help you drive better project performance, at lower costs. We can show you how we have helped governments and major organisations with thousands of challenges, mountains of information, tens of thousands of workers and millions of transactions across diverse project portfolios, to gain control over costs, people, partners and, of course, the future.

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