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Capital Projects in Africa

Achieving successful delivery using effective tools

Introduction

Delivering on capital projects in Africa is a complex process that requires integrating several variables that include effectively utilising people as well as the appropriate project delivery tools, methodology and technology.

Large capital projects are designed to meet the growing demand of customers aiming to make a positive contribution to the economy and society. Successful projects involve constantly measuring progress, evaluating plans, and taking corrective action when required.

Key to Successful Capital Projects

Main Gates	IDENTIFY	EVALUATE	DEFINE	BUILD	OPERATE
Main Activity	**IDENTIFY** Establish preliminary scope, business strategy and conduct pre-feasibility study.	**EVALUATE** Conceptual design, explore pros & cons of various options and execution strategy through a feasibility study.	**DEFINE** Select the best fit option, finalise project scope, design and execution plan.	**BUILD** Project delivery through selection of right contractor with right type and form of contract, project delivering, methodology technology and build the asset.	**OPERATE** Operate, maintain and show continuous improvement to asset portfolio.

The challenging project delivery environment in Africa unfortunately sees those in the energy and resources industry suffering from significant delays, invariably running over costs and missing deadlines.

This could be attributed to a number of factors. Supply-chain challenges, improper selection of project management methodology and inadequate planning often lie at the core of this. Other obstacles include an ineffective project management structure, a lack of skills and poor competency of the project management team, and ignorance to risk management and governance requirements, as well as inadequate commercial understanding for managing various types of contracts.

Capital Projects Overview

The Organisation for Economic Co-operation and Development (OECD) has reported that the combined investment in global projects as well as global infrastructure investment required for telecommunications, road, rail, electricity and water is likely to total around an average of 2.5% of the world gross domestic product (GDP).

If electricity generation and energy related infrastructure investments in oil, gas and coal are included, the annual share of GDP rises to around 3.5%.

This GDP figure would be even higher if one included other infrastructure projects such as metal and mining, ports and airports. To put GDP into valuation context augmenting understanding of the value of successfully managing large capital projects equates approximately $2.4 trillion by 2030. According to the Deloitte African Construction Trends Report 2014, $325.80 billion worth of projects were under execution in Africa as of 1 June 2014.

Dealing effectively with risks in large complex projects is difficult and half of the time key risks are not being detected before they affect the project performance. Any activity within a project that creates risk often brings surprises throughout the project life cycle, affecting everything from technical feasibility to cost, market timing, financial performance and strategic objectives.

Large capital projects deal with many diverse and powerful stakeholders, complex technical requirements, unbalanced large cash flows and have scalable effects to both the project investors and project management organisations.

The shifting boundaries of knowledge, volatile market conditions, logistics and supply chain constraints, and constant changes in local and international regulations have created further challenges for large capital projects in Africa. Hence, a dynamic project execution approach is required to manage the challenging environment in Africa and avail the benefits of technology and project management systems currently available. This will allow higher project execution efficiency and the anticipated customer demands to be met.

Understanding the challenges and their potential impact on capital projects helps in preparing a road map in order to increase the Return on Investment for projects and to improve NPVs of the project.

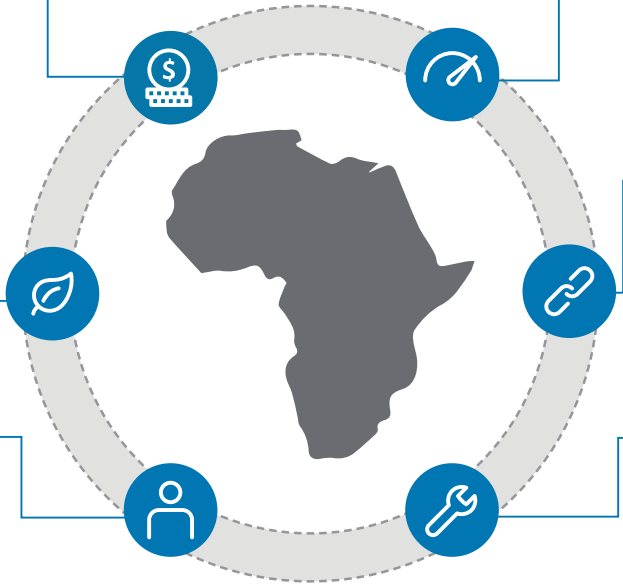
Real Challenges of Executing Capital Projects in Africa

An intelligent disciplined project management approach for Capital Projects is required to ensure that market challenges are anticipated in advance and that risks, interface and interdependencies are managed proactively to achieve project performance in line with objectives outlined in the project charter.

Cost and Schedule Overruns
- Inaccurate evaluation of projects
- Poor planning and integration management leading to cost and schedule overruns
- 9 out of 10 projects (90% projects) have cost overruns of more than 28% of forecasted cost
- Decisions are made on capital cost, not based on capex to opex ratio and operational requirements

Governance and Compliance
- Inadequate understanding of regulatory requirement
- Lack of initiatives for workforce, supplier development, and strategic community investments affecting project success
- Unstable government policies
- Inappropriate decisions in meeting local content requirement

Low-skilled Manpower
- Inadequate skills and competency deployed to manage capital projects
- Development and transfer of skills are not thought through or are imposed but not managed effectively, affecting operations requirements
- Intercultural communication



Project Management
- Inadequate interface management
- Lack of utilisation and integration of project management systems, processes, tools and technology
- Inadequate risk management for interdependencies between various stakeholders
- Ignored involvement and contribution of local community during project execution

Supply Chain
- Selection of the key partners without effective due diligence
- Inadequate understanding of global sourcing and risk associated in the value chain
- Poor contract administration and claims management
- Inability to manage a diverse set of contracting models and an incorrect selection of contract types

Operational Readiness
- Inadequate planning and knowledge of operational requirements
- Lack of understanding of developing comprehensive and intergrated systems, structure, policies, procedures and commercial management approach to meet operational requirements
- Materials and equipment coding not done during project execution

Counting the Cost of Failure

Some of the failures can be attributed to misunderstanding the risk and complexity involved in the project. For any organisation looking to embark on a capital industry project, the challenges and potential impacts need to be examined by any organisation looking to embark on a capital industry project.

The consequences of failures of these large-scale capital projects are significant.

Going over budget and missing deadlines not only damages the company's reputation but also erodes shareholder value. Inevitably, this overrun in cost and time makes it unviable to deliver on the project due to increasing costs.

More significantly, these failed projects could also result in delayed economic contributions to the private and public sectors, losing competitive advantage in the market, and making it difficult to get funding in future.

This is where the role of project management needs to be put under the spotlight. The team needs to be measured in terms of business performance and decisions have to be made based on the lifecycle costs of equipment and materials.

Doing the basics right

Having an effective project-management team in place will contribute significantly towards solving the business problem and creating a competitive advantage for the company. Dealing effectively with risks in complex projects of this nature requires management interventions that go beyond simple analytical approaches.

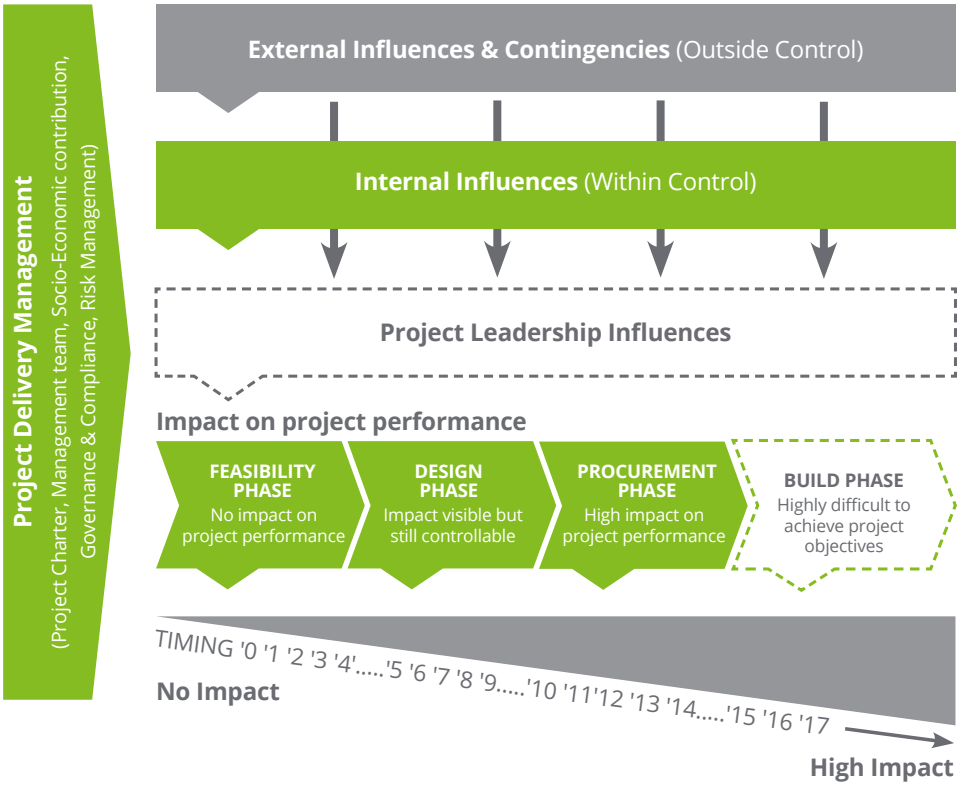
It is therefore critically important that the effectiveness of the collective managerial actions are able to factor in the specific level of risk to the project. This has to be based on a risk-impact model that is able to suggest specific actions, organisational conditions, and work processes required for fostering a project environment conducive to collaboration amongst all stakeholders.

This integration management defines the level of success for the capital project being embarked on. It also ensures that the required amount of time is allowed for front-end planning, integrating delivery schedules for design, procurement lead time, and the mobilisation of resources and technology organisational processes and systems.

Key Project Management Elements

The elements shown in the above figure affect the project performance, and indicate the importance of finding an innovative and optimal way to drive cost and time efficiency during a project's execution through effective integration of all aspects of project management. It is also essential to continuously review the project from the perspective of scope, design, time, quality and cost optimisation throughout the project's lifecycle. The right selection of partners, tools, techniques, and the integration of the procurement and engineering team becomes essential in all of these aspects.

Project Management Influences and Impact on Project Performance



Impact of External influencers on project performance outside of Project Owner's control (Political, Economical, Social, Tax, Legal, Environmental)

Impact of Internal Influencers on project performance (Within Project Owner's control) Project Delivery Methodology System & Process, Leadership & Management team, (Technology, Skilled resources, Project strategy, Community relations)

Impact of Project Management team and it's ability to make bold and correct decisions influences project performance (Within Project Owner's Control)

Growth, cost, schedule, and quality defines project performance. Making the right decisions at an early stage is preferable.

Project Conceptualisation (This phase defines the financial viability of the project and assumptions to achieve project objectives), Project Definition and Design (This phase defines an anticipated impact throughout project life cycle), Project Delivery Management (This phase defines the actual impact on project objectives), Operational Readiness (Defines the organisation's ability to deliver projects on time and cost)

African Solutions for African Challenges

So what are the key driving forces for the success of capital projects in Africa?

Finding an innovative and optimal way in driving cost and time efficiency during project execution should form the foundation of a successful capital project in Africa. It is essential to continuously review the project team for scope, design, time, and cost optimisation throughout the life cycle of the project.

The right selection of partners, tools, and techniques, and integration between the procurement and engineering team becomes essential. Part of this is to have key consultants, suppliers, and contractors involved from an early stage in selecting the right technology and methodology to drive cost benefits. This is where a trustworthy relationship between all stakeholders becomes critical to the success of the project.

The project management team needs to ensure that there is compliance with local regulatory requirements and that local community expectations are managed. Even though there should be a balance of risk among all the stakeholders, it is the project owner that is ultimately responsible.

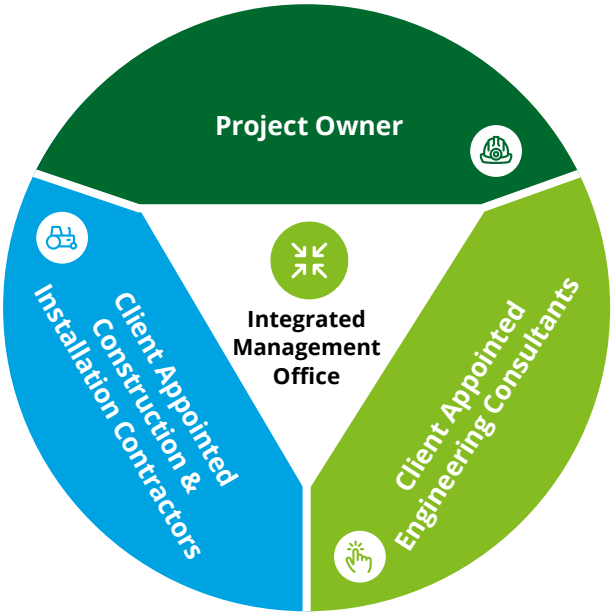
Adopting a right project management approach could make a significant difference in solving the business problem and creating a competitive advantage for the company.

Establishing an Integrated Management Office (IMO) which could act as the management team of the project owner will make great strides in accomplishing this.

This IMO could manage the interface and interdependencies between the various agencies to ensure that the objectives of the project are achieved. It will also ensure the project is delivered better than similar ones in terms of budget and schedule.

Integrated Management Office (IMO)

Integrated management office has emerged as a new delivery system with the potential to provide better performance through more supply chain integration. This concept defines the level of success for the capital project being embarked on. It also ensures that the required amount of time is allowed for front-end planning and integrates delivery schedules (engineering, procurement and construction) with resources, technology and organisational processes requirements.



Role of Integrated Management Office

The integration management office **centralises** and **integrates** the following **functionalities:**

Integration Management • Project delivery management • Interface and interdependency management • Cost and budget management • Quality management • Stakeholder management • Performance management • Document management • Commercial management	**Capital Procurement** • Global sourcing • Procurement planning and management • Free issue material management • Expediting and logistics management • Master data management **Governance & Compliance** • Meeting local content requirement • CSI project management • Compliance with project charter and other regulatory requirement
Operational Readiness • People, systems, process & technology readiness • Procurement & supply-chain readiness • Master data management and inventory modelling • Warranty management	**Change Management** **Document Management** **Risk Management**

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