

Integrated Cost Management Solutions For Sustainable Infrastructure Projects Delivery: A Key to National Economic Development

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“For which of you, intending to build a tower, sitteth not down first, and counteth the cost, whether he have sufficient to finish it?

Luke 14:28,29

Structure of the Presentation

- Sustainable Infrastructure Projects
- Infrastructure Projects - Contribution to Economic Development
- The Role of Cost Management
- Integrated Cost Management Solutions
- Good Project Governance & Cost Management Solutions
- The Future – Skills, Competences and the role of the professions



The four dimensions of Infrastructure Sustainability

Economic Sustainability

- Economic & Social Returns
- Financial Sustainability
- Policy Attributes

Social Sustainability

- Poverty, Social Impact and Community Engagement
- Human & Labor Rights
- Cultural Preservation



Environmental Sustainability

- Climate and Natural Disasters
- Pollution
- Preservation of the Natural Environment
- Efficient Use of Resources

Institutional Sustainability

- Global & National Strategies
- Governance & Systemic Change
- Management Systems & Accountability
- Capacity Building

Source: IDB (Inter-American Development Bank).

Sustainable infrastructure refers to equipment and systems that are designed to meet the population's essential service needs — including roads, bridges, telephone pylons, hydroelectric power stations, etc. — based on all-round sustainable principles.

The world will have to invest \$90 trillion in sustainable infrastructure by 2030, according to estimates by “The New Climate Economy”.

Impact of Infrastructure on National Economic Development

- ❑ Reducing our environment and carbon foot print
- ❑ Fostering renewables (Decarbonising the economy and developing a de-centralised and digitised electric grid)
- ❑ Enables trade
- ❑ Creates opportunities for struggling communities
- ❑ Connects workers to their jobs
- ❑ Creating green employment
- ❑ Driving green economic growth
- ❑ Evening out inequalities (access to running water, sanitation, access to healthcare services, transport networks, etc.)



Top Infrastructure Projects Under Development in Nigeria

Lagos-Calabar Rail Line



Eko Atlantic City Project



Lagos Rail Mass Transit is a 35-kilometer urban rail system



Lekki Multi-Purpose Deep Seaport



Nigeria LNG Train 7 project US\$ 6.5bn,



Mambilla Hydropower Project - Taraba State - generating capacity of 3,050 megawatts



Badagry Deep-Sea Port Project



Ajaokuta-Kaduna-Kano (AKK) gas pipeline project



The **Lagos-Kano Standard Gauge Railway** is a 1,343 kilometers long



Second Niger Bridge Project - 1.6 km long bridge



Dangote oil refinery project - 650,000 barrels per day (bpd) integrated refinery and petrochemical



Abidjan-Lagos Corridor Highway Development



Nigeria's Tinubu approves new infrastructure fund to boost competitiveness

- By [Felix Onuah](#)
- July 21, 2023, 1:14 PM GMT+1

ABUJA, July 21 (Reuters) - Nigeria's President Bola Tinubu on Friday announced the creation of a new infrastructure fund, **part of a series of measures to boost the economy and ease the inflationary impact** of his decision to scrap an expensive petrol subsidy.

The new Infrastructure Support Fund (ISF) will help Nigeria's 36 states revamp transportation, including upgrades of farm-to-market roads. It will also fund health, education, power and water projects, the president's office said in a statement, without providing details of how it will be funded.



Funding Infrastructure Projects in Nigeria...1

- ❑ \$3 trillion in investment is needed over the next 30 years to plug the national infrastructure deficit (in Nigeria). *[Moody's 2020 report Infrastructure in Emerging Markets]*

Key funding mechanisms include:

- ✓ Infrastructure Corporation of Nigeria (InfraCo)
- ✓ The seed capital of N1 trillion (about \$2.6bn) from the Central Bank of Nigeria,
- ✓ The Nigerian Sovereign Investment Agency (NSIA)
- ✓ The Nigeria-based multilateral financial institution –
- ✓ The Africa Finance Corporation.

Funding Infrastructure Projects in Nigeria...2

- ❑ Plans to develop and rehabilitate special economic zones (SEZs) across the country. Only about 24 out of 43 existing zones are operational at present.
- ❑ Six (6) greenfield SEZs are being planned, including the Textile and Garment Park in Lekki, the Ilorin SEZ in Kwara State and the Medical Tourism Park in Lagos State. *[The Nigerian Export Zones Processing Authority, NEPZA]*

Cost Management

The totality of all the process required in cost planning, controlling and monitoring of a project cost from inception, completion and commissioning stages

- ✓ Application of the tools within an overall project management structure - Cost estimating, value engineering, and life cycling cost are useful tools.
- ✓ Cost management should enable all involved in a project to respond to project challenges, issues, and to understand the interrelationships that result from serious decision about cost.
- ✓ Clear objectives to align scope, user/owner expectations, and budget from the outset and overtime are important.

Cost Management

Improving cost performance and efficiency

- **cost estimation and budgeting,**

Create accurate and realistic estimates based on historical data, industry standards, and project specifications

- **cost tracking and reporting**

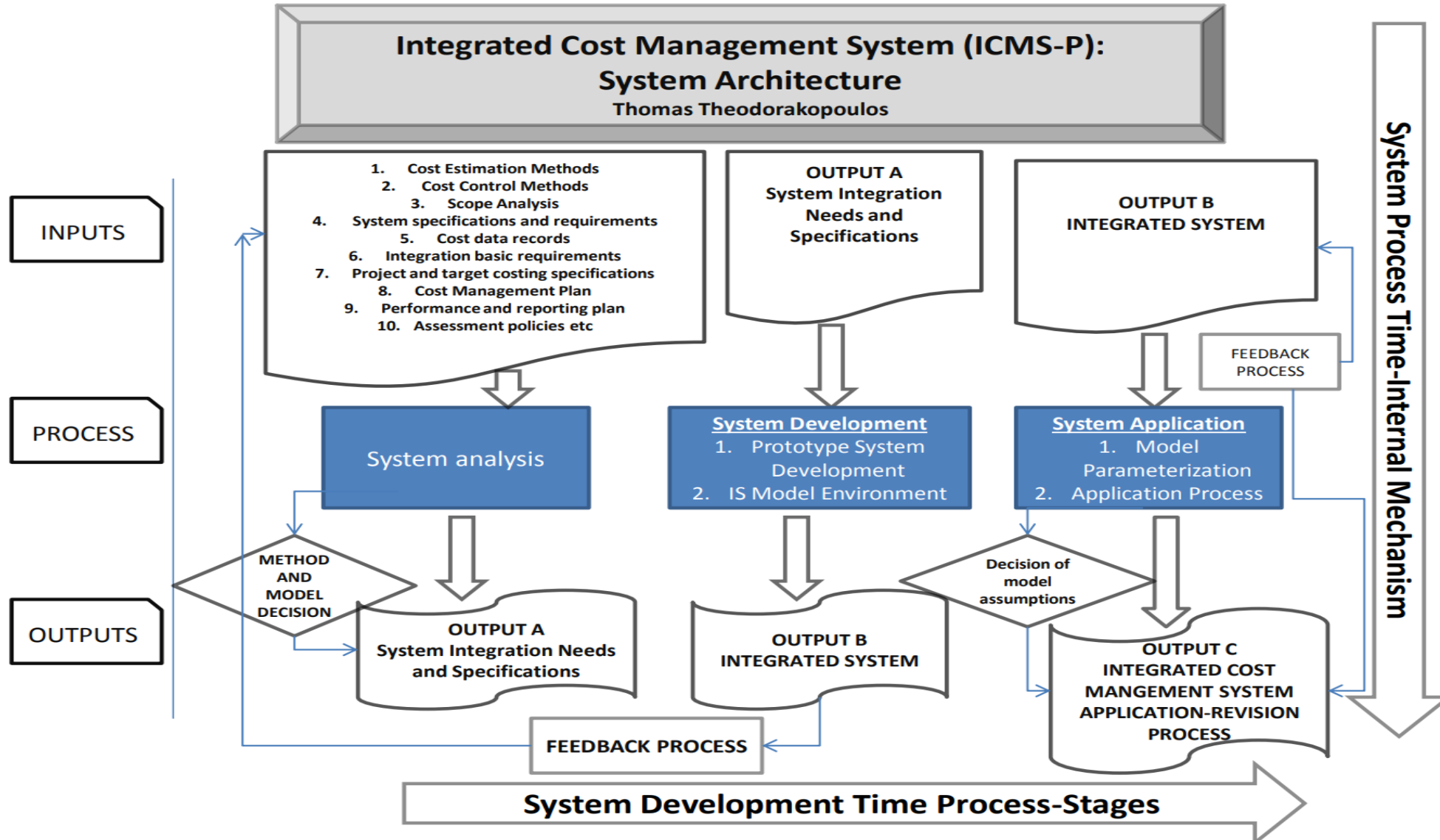
Tracking actual costs against planned costs, compare costs with scope, quality, and schedule baselines, generate reports, and share cost dashboards with stakeholders

- **Cost analysis and optimization**

Involve techniques like value engineering, life-cycle costing, target costing, earned value management, what-if scenarios, sensitivity analysis, and risk analysis.

Integrated Cost Management Solution - Benefits

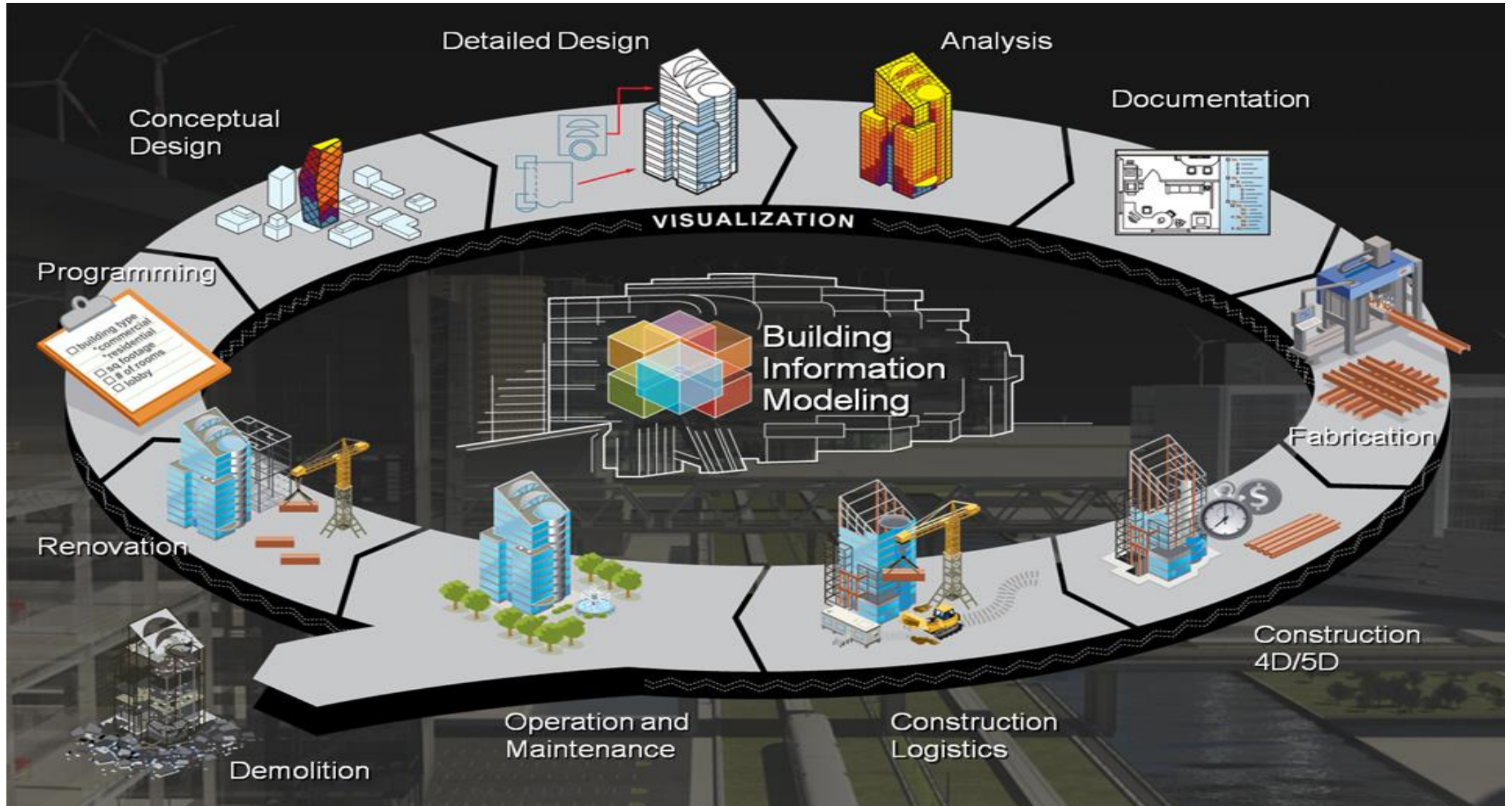
- Eliminating differences between cost estimation and cost control processes (and integrate both).
- Reduction in cost uncertainties in projects.
- Provide a new way of managing cost in project delivery.
- Addressing poor communication of information linkages that traditional cost management methodology produces.
- Satisfy clients' needs much better.
- Make cost a driver for design, thereby reducing waste and increasing value.
- Improve cost manager, project manager, and project team's performance



Cost Management Tools and Software

- Determining appropriate processes
- Tools needed [Evaluation and comparison of different tools and software based on your objectives and requirements, and factors such as compatibility, usability, reliability, and support]
- Installation and setting up of tools according to project specifications, standards, and guidelines; test and verify them to ensure they work as expected; provide adequate training to teams [Capability & Capacity]
- Expectation of tools and software (cost performance indicators, data sources, reporting formats, and user access levels)

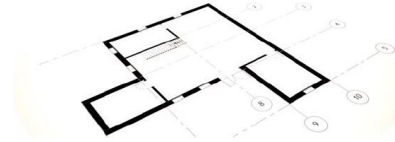
PROJECT LIFE CYCLE -Project Management



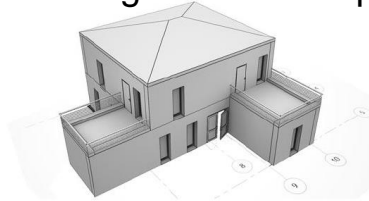
BIM LEVELS

1) The use level :

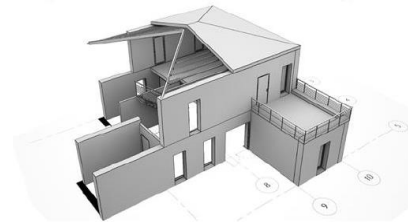
2D visualisation of the 3D on a plan



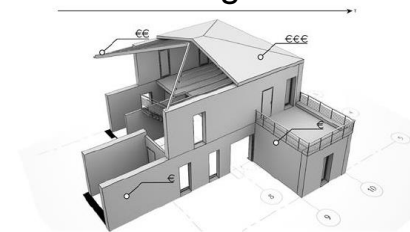
3D Basic geometrical representation



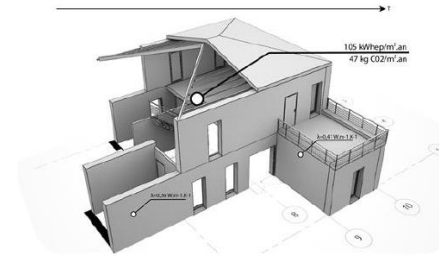
4D + Scheduling



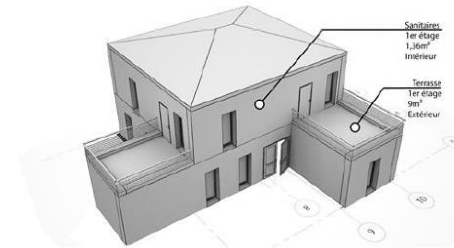
5D + Estimating



6D + Sustainability



7D + Facility management applications.



XD The next ones : comfort ? Security ?

□ An internal control framework established to help safeguard the interests of the owner and mitigate risks throughout the capital project lifecycle

Good Project Governance



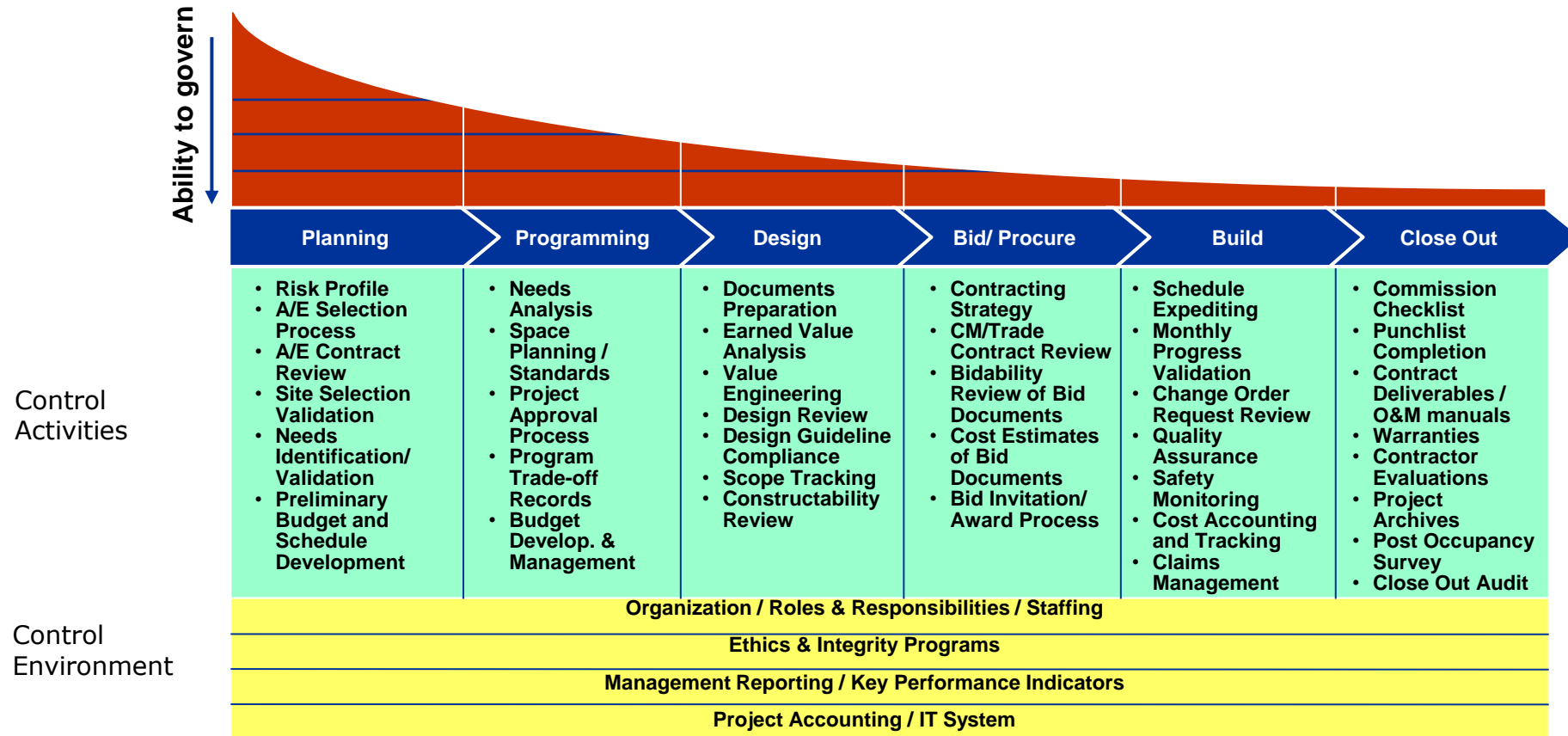
Successful realisation of project objectives and integrated cost management solutions

Project Governance vs. Project Management

	Project Management		Project Governance
Strategic Imperative	Transactional	→	Aligned with business objectives
Accountability	Facilities Department, Project Management	→	CEO, CFO, Head of Internal Audit
Systems	Stand-alone	→	Integrated
Controls	Ad-hoc/Project-specific	→	Standardised internal control framework approved by CFO
Oversight	Internal project management team, owner's representative, project manager, construction manager	→	Same, plus CFO, internal audit, Audit Committee

Typical Governance Model for projects and Programmes

Owner's ability to effectively govern decreases as the project progresses, hence owners need to focus on critical project processes early in the project lifecycle.



Future – Skills, Competences, and the Role of the Professions

- Competencies and dynamic capabilities
- Infrastructure Project Governance
- Digitalisation in project delivery
- Professional training, qualifications and CPD
- Professional conduct – Integrity and excellence [Behaviour & Attitudes]