

Managing Projects in Complex Environments – Challenges and Opportunities

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Structure of Presentation

- Complex Projects – Definition and Contexts
- Characteristics of Complex Projects
- Complex Projects - The Nigeria Factor
- Appropriate Strategies and Techniques
- Summary and Reflections

“We can manage straightforward projects. We can also manage certain types of large complicated projects, such as building large chemical plants. But it has been increasingly clear over recent years that projects are becoming more complex and it is the complex projects that we aren’t good at managing – in fact we aren’t very good at understanding how they behave at all”

Kaye Remington and Julien Pollack (2008)

Projects and Project Management

- **Projects** : Plan Monitor and Control
- **Projects** are more open to outside influences - media, stakeholders, technology changes, dynamic nature of complex projects
- Need for a **whole systems approach** – links between Systems Thinking and PM

Characteristics of Complex Projects

- Many elaborately interrelated or interconnected components
- Numerous tasks
- High risk
- Leading-edge or rapidly changing technologies
- Multiple partners and/or vendors
- Geographically dispersed organizational entities
- Project implementation across many locations
- Many agents
- Great uncertainty about how to conduct the project
- from start to finish
- Nonlinearity

Complex Projects

..are characterised by **uncertainty**, **non-linearity** and **recursiveness**, best viewed as **dynamic** and **evolving** systems.
(ICCPM)

So why do we pretend they are **predictable**, **definable** and **fixed** – and why do we use **linear** lifecycle models to manage them???

Complex or Complicated ?

- **Complex** – “composed of many interconnecting parts
- **Complicated** – “composed of many elaborate interconnecting parts”
- Nature of the relationships between the parts
- **Complex Systems** – elements interact and produce outcomes that are nonlinear and unpredictable

Traditional Project Management

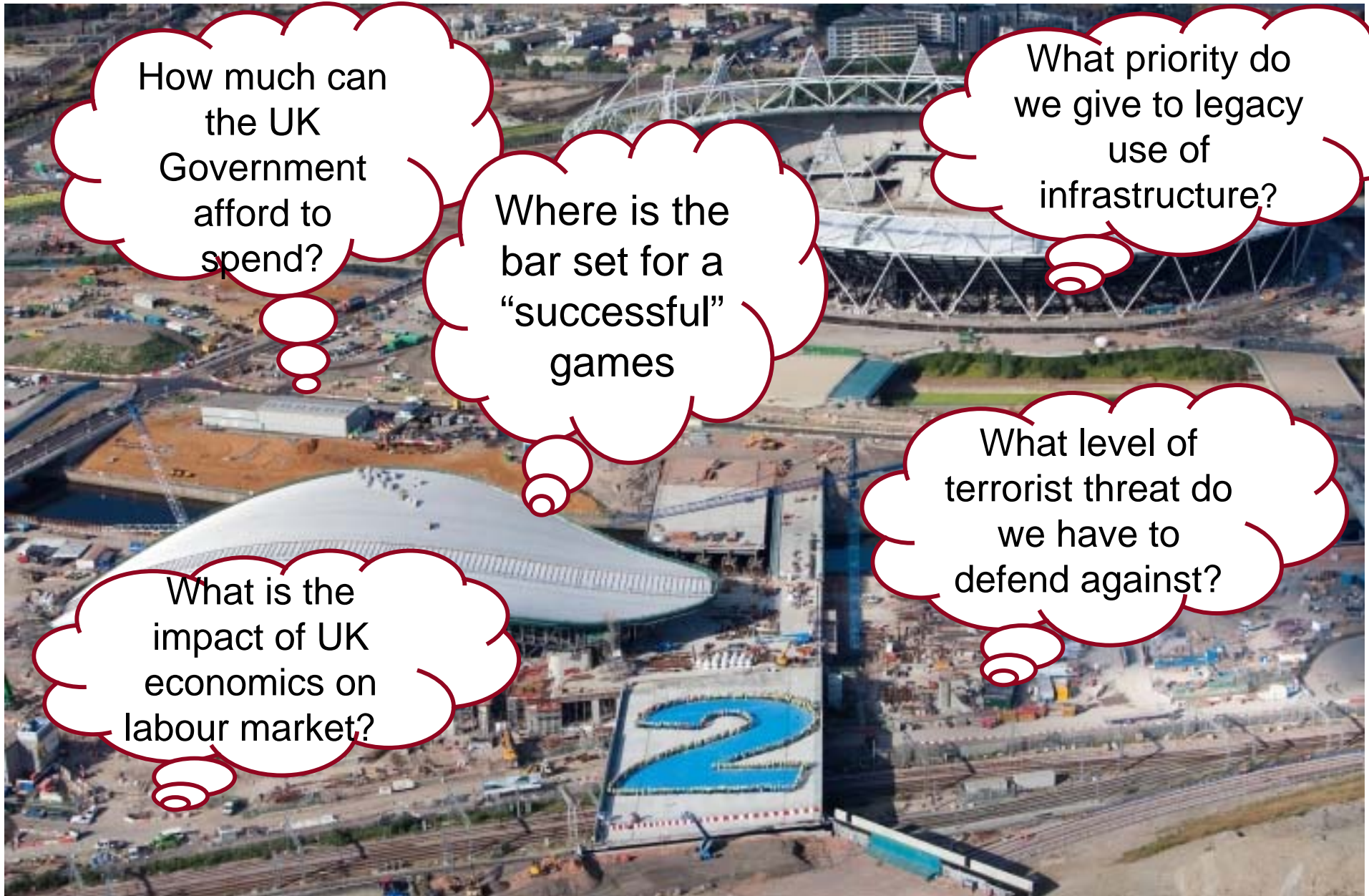
➤ **Based on two theories.**

- 1.Reductionism:** Complex entities may be better understood by reducing them to their simpler constituents (e.g. WBS).
- 1.Control theory:** In order to achieve optimal outcomes, one only needs to manipulate the constituent parameters of a complex system

Traditional Project Management

- Traditional project management creates a WBS, assembles a plan and rigorously guards against change while marching toward the goal,
- Techniques are executed in a rigid, top-down hierarchical structure
- Emphasizes compliance, conformity, and adherence.

Non Linear Projects – London 2012



How much can the UK Government afford to spend?

Where is the bar set for a "successful" games

What priority do we give to legacy use of infrastructure?

What level of terrorist threat do we have to defend against?

What is the impact of UK economics on labour market?

Types of Complex Projects

- **Structural complexity**
- **Technical complexity**
- **Directional complexity**
- **Temporal complexity.**

The source of project complexity will influence ...

- ✓ The project life cycle
- ✓ The critical review points
- ✓ Lengths of project phases within the life cycle,
- ✓ Governance structure for the project,
- ✓ Selection of key resources,
- ✓ Scheduling and budgetary methods
- ✓ Ways of identifying and managing risks.
- ✓ Impact on choice of procurement method and approaches to contract management

Challenges....

- **Role definition and keeping focus**
- **Interface management issues**
- **People issues**
- **Culture and political influences**
- **Risk management**
- **Resource management**
- **Project methodological issues**

Opportunities....

- **Introducing change**
- **Innovation**
- **Sustainability – social, economic, environmental**
- **Value creation**

Complexity Theory, Systems Thinking and Complex Adaptive Systems

Complex Projects

- Complexity theory acknowledges the constant change that characterizes the business environment.
- Recognizes that there are interdependencies that are often invisible and difficult to understand, manage and plan for

Complexity and the Nigeria Factor....

- Weak governance structures and infrastructure - electrification; poor roads and logistics; poor water supply
- Challenging, un-predicatable, and unreliable systems
- Bribery and corruption
- Nepotism (meritocracy Vs mediocrity)

PFI Projects in Nigeria: country requires between US\$12 billion to \$15 billion annually for the next six years to meet the infrastructure requirements.²



Endemic budget deficits and the inefficient management of large infrastructure projects and services within the public sector are a few of the reasons why the traditional procurement method of governments funding infrastructure projects through fiscal budgets is increasingly considered unviable



Mushin, Lagos, Nigeria

16 urban roads covering 10.5 kilometers - is one of four being undertaken by China Gezhouba Group Corporation

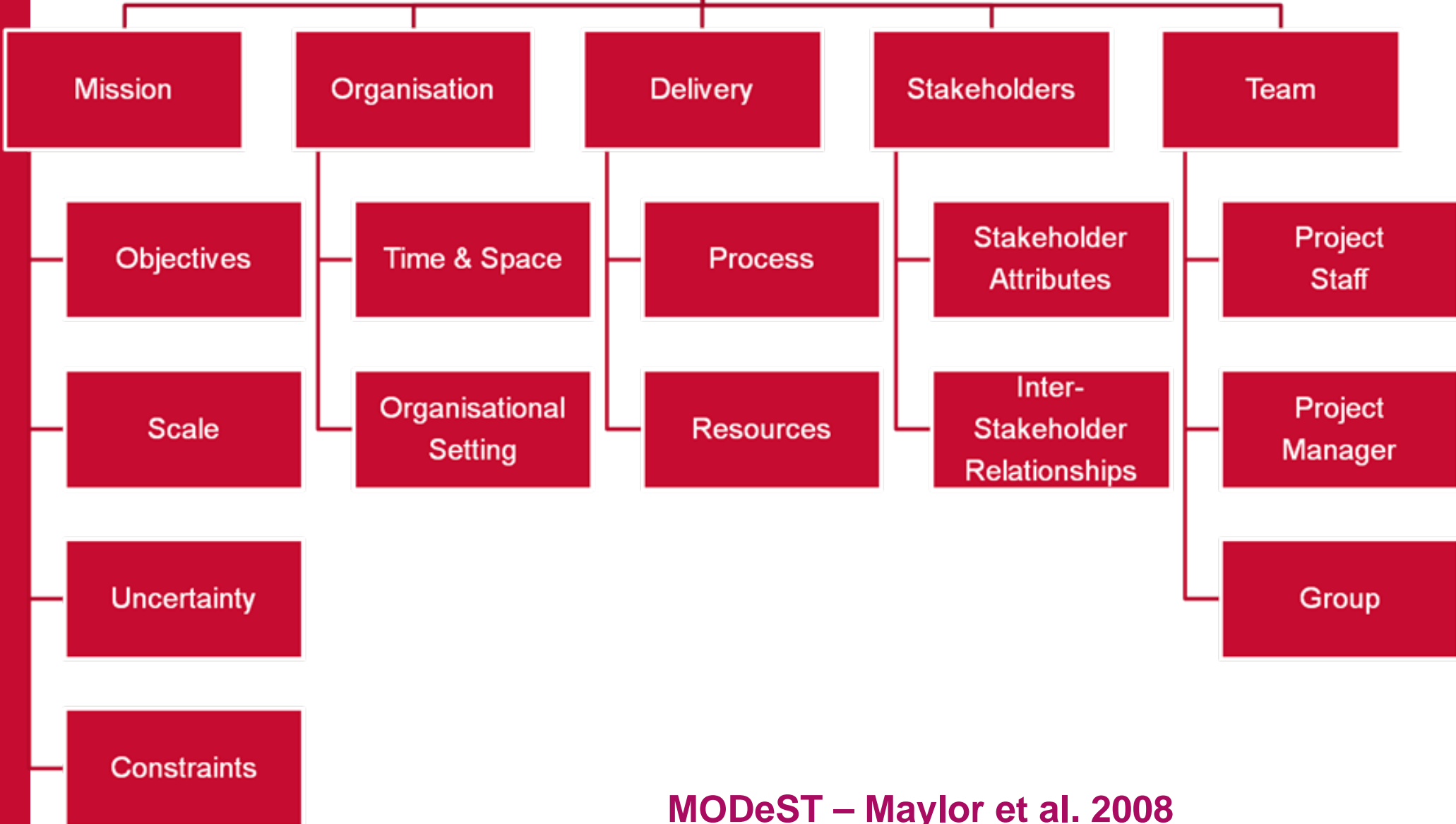
Chinese engineers boost Nigeria's roads

Complex Management

- Collaboration/decentralized control
- Inclusive view
- Principles guide
- Flexible/open boundaries
- Deemphasized barriers
- Supportive leader style
- Serial and circular
- Parts working in collaboration and sharing

Models to help

Managerial
Complexity



MODeST – Maylor et al. 2008

ESI's Complex Project Model™

1. ***Knowledge of Complexity: The science that helps people understand the*** interactions that occur on a project
2. ***Communication: The methods of communication, critical information that*** must be transferred, and the essentials of feedback
3. ***Project Management: Application of the disciplines and competencies*** required to manage complex projects
4. ***Leadership: The role of the project manager in guiding and managing the*** project and related interactions

Managers of complex projects must —

- Define a project structure that enables the accomplishment of the vision and project charter or contract
- Help the project team achieve the triple constraint while encouraging interaction and emergence
- Establish a well-defined plan that functions as an “area of order” (the “area of order” is the plans, procedures, policies, and guidance defining and setting up the project for success)

Summary and Reflections (1)

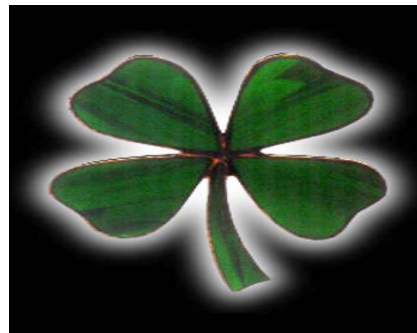
- Leadership
- Willingness to learn from others
- Use of Good Interpersonal skills
- Ability to Motivate
- Energy
- Commitment to excellence and success
- Sense of humour
- Plus a “tool box” of “Hard PM Skills”

Summary and Reflections (2)

- ✓ Establish and validate the project vision and goals
- ✓ Ensure that the project is progressing toward the project's vision and goals
- ✓ Align behaviour with the complexity of the project
- ✓ Complex projects should be built around the organizational, work, and product breakdown structures best suited to the particular project
- ✓ Understand the paradox: The need for discipline and freedom at the same time
- ✓ Principle based rather than formula based



Thank you for your attention!



Reference/Further Reading

Kaye Remington and Julien Pollack, "*Tools for Complex Projects*" Publisher: Gower | ISBN 10: 0566087413 | 2008 | *PDF* | 232 pages