# Project Control & Management

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Lecture 2

# We will be discussing

1. Managing and organisation of projects

2. People Management

3. Organisational structures

Leading to a new concept

**4. Human resources capability modelling and measurement**

# Sources

- H. R. Herzner book, Chapters 3-7

- M. Shekarriz, et al (2015), paper on capability (print out of the paper distributed in class)

- E. Hosseini et al (2015), paper on team capability (print out of the paper distributed in class)

# Types of System (Schools of Thought)

- Mechanist → Total sum of members

- Organists → survival of the fittest (adaptation)

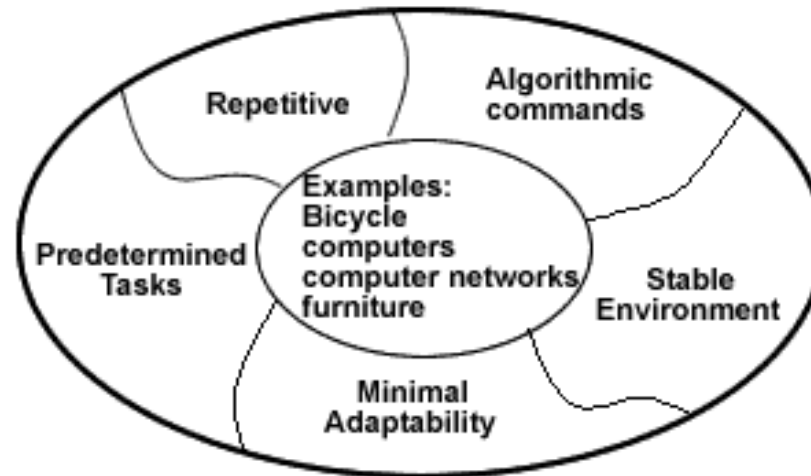- Viable/Sustainable Systems
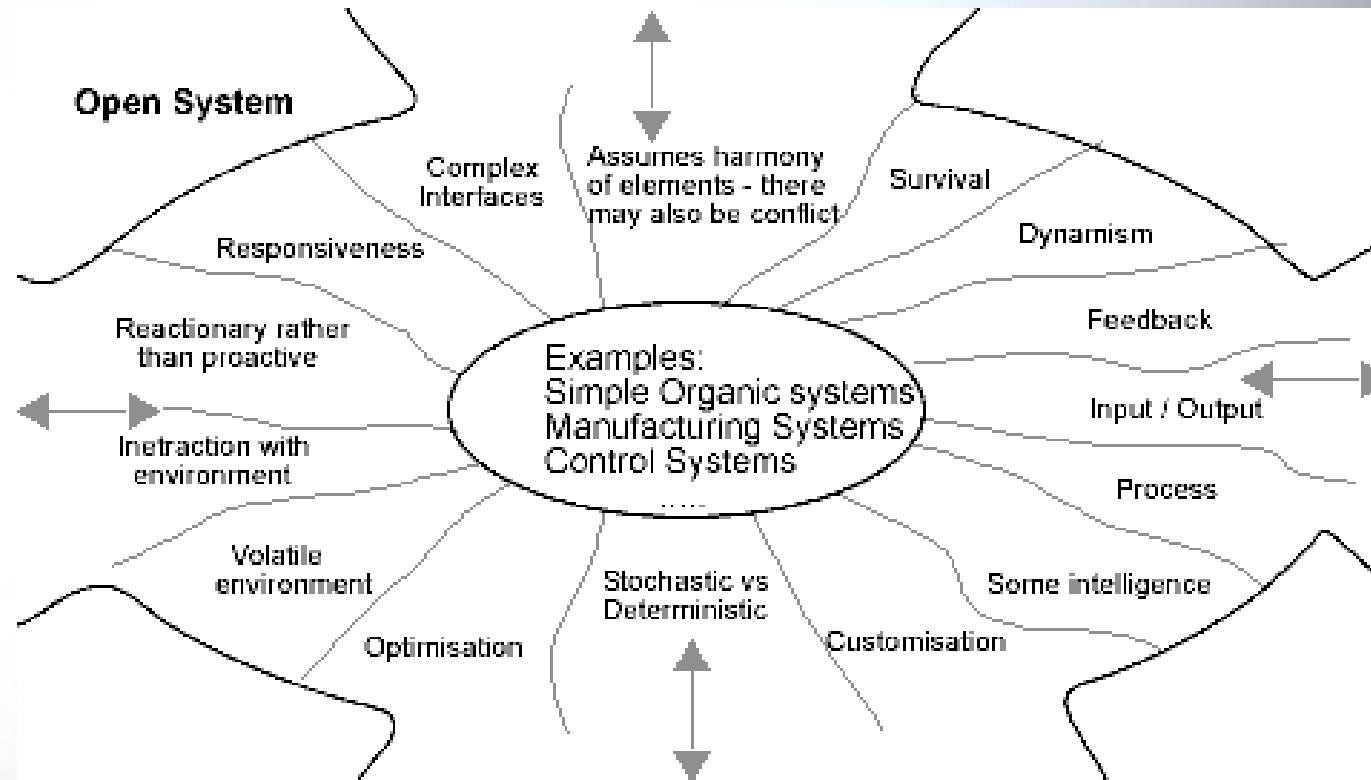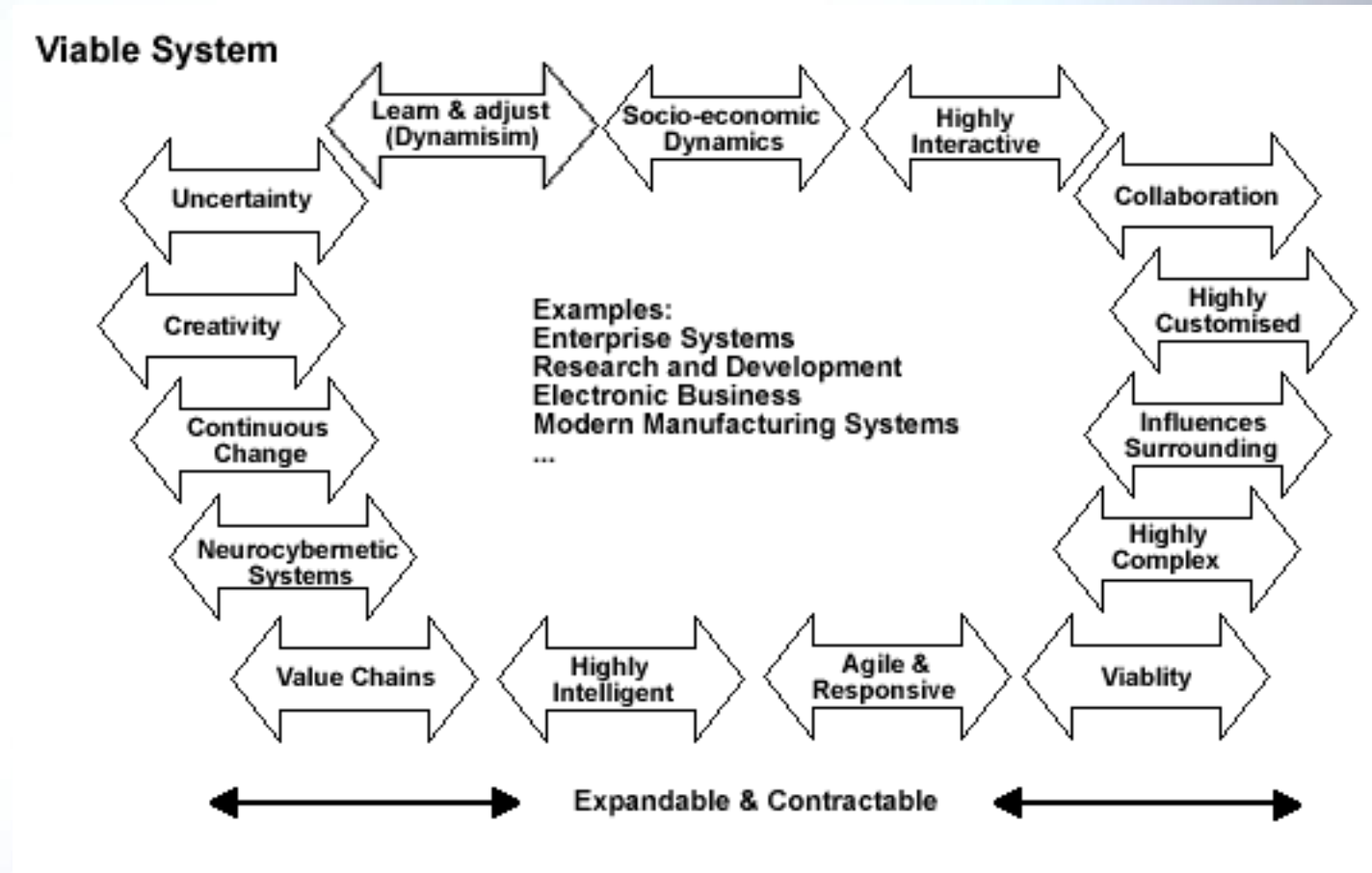
# Mechanical System



Figure 1.2

# Adaptive System



Figure 1.3

# Viable or Sustainable Systems

- Govern complex interactions

- Active Learning, continuous monitoring & control, and aggressive prediction

- The **Viable Systems** not only adapt to changes but also *influence and change* the environment to their advantage

- Reinvention – Creativity – Innovation

# Viable or Sustainable System



Viable System

Learn & adjust (Dynamisim) — Socio-economic Dynamics — Highly Interactive — Collaboration — Highly Customised — Influences Surrounding — Highly Complex — Viablity — Agile & Responsive — Highly Intelligent — Value Chains — Neurocybernetic Systems — Continuous Change — Creativity — Uncertainty

Examples:
Enterprise Systems
Research and Development
Electronic Business
Modern Manufacturing Systems
…

Expandable & Contractable

# Your Organisation

- *Which Philosophy does your company fall in to?*

- *Management Structure?*

- *Products & Services?*

- *Organisational Behaviour?*

- *Employees and employers approach?*

- *How are projects managed within this context?*

# Organisation

According to Kerzner (2009):

- *"Behaviour scientists believe that a company performance can be optimised by achieving a balance between social and technical requirements."*

- *Organisations can be defined as a group of people who:*
  - *Coordinate their activities to meet organisational objectives*
  - *The coordination functions require:*
    - *Strong communication*
    - *Clear understanding of roles and interdependencies among people"*

# The Overrated Organisational *Change Philosophy*

- Before embarking on change understand the system and the people

- Organisational change and restructuring can seriously damage:

  - Communication channels

  - Production lines

  - Processes

  - Staff morale and satisfaction

  - New power structures and politicisation

# In managing the operations in the organisation

- Understand the philosophy and state of the company (mechanical, organic, viable/sustainable)

- Communicate the philosophy to the people

- Understand the fundamental scientific, technical, socio-economic drivers

- Implement changes with care – be brave to admit to mistakes

- Understand the principles of *Authority, Responsibility and Accountability*

# Organisational Structure (functional-mechanistic)
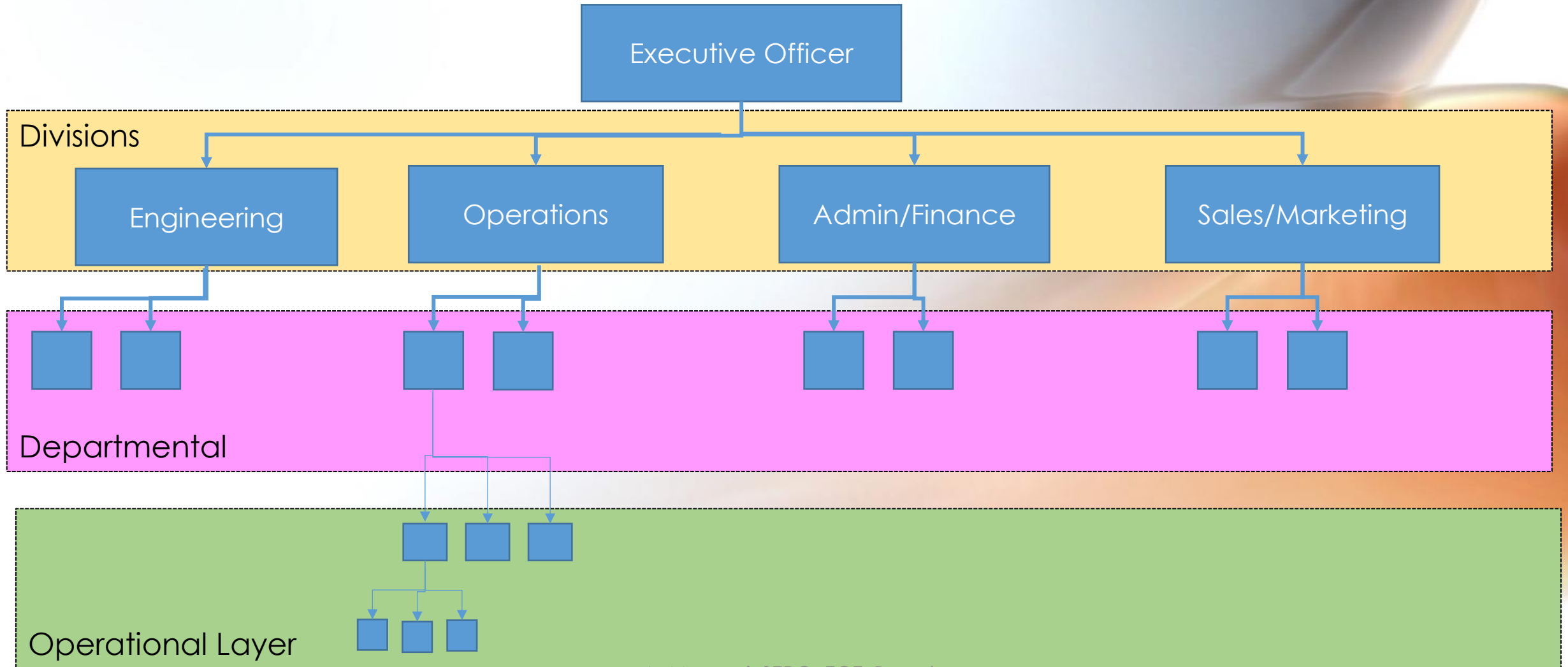
# The attributes of functional structure

- Highly regulated

- Strong budgeting and cost control

- Efficient grouping of specialists

- Allocation of resources into multiple projects

- Flexibility in use of manpower to achieve the specified targets

- Vertical communication channels (layered)

- Product or process oriented (low variety – high rate)

# Matrix Organisational Structure
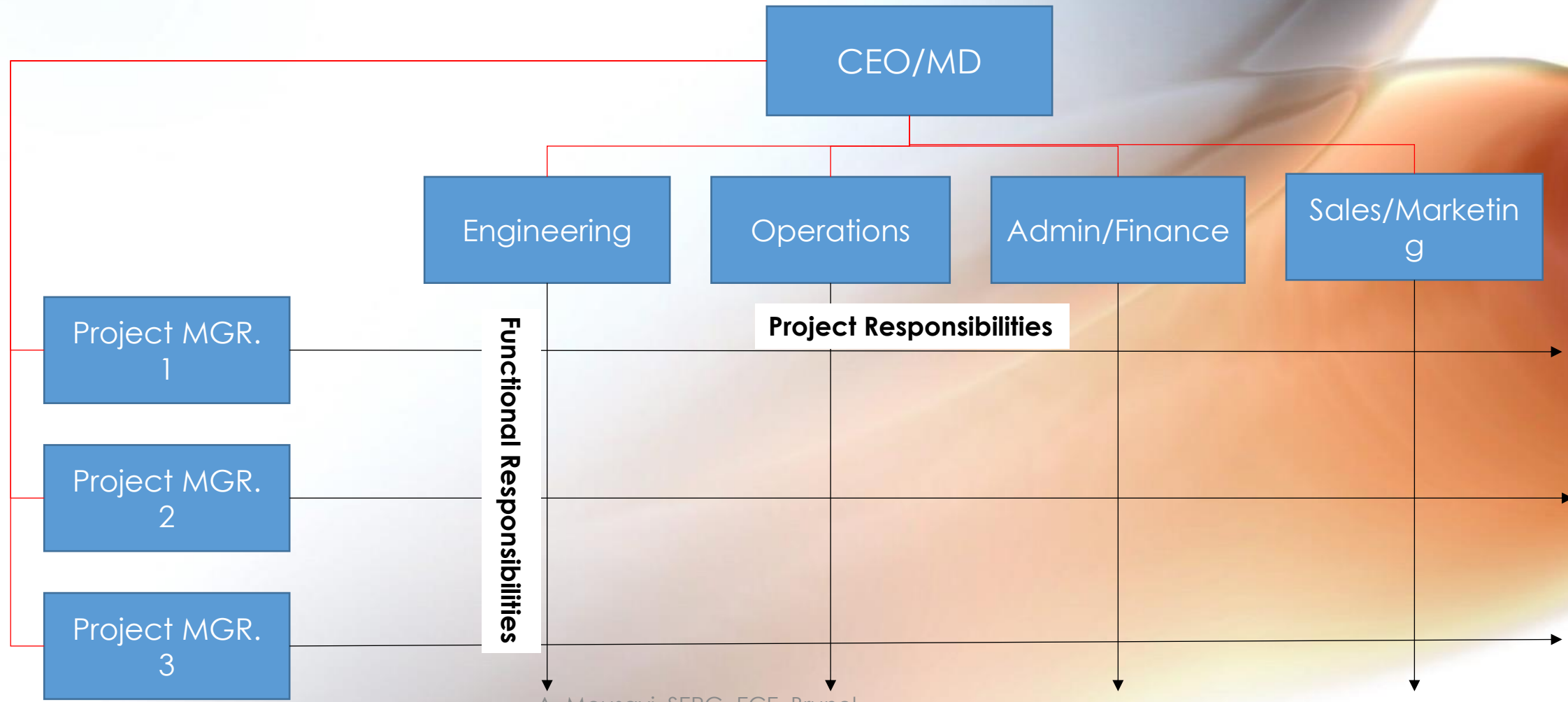
# Matrix Structure Kerzner (2009),chapter 3

- Project manager authority, responsibility and accountability
- Resourcing project based and controlled by project manager subject to constraints
- Good communication needed for rapid response and conflict resolutions
- The functional part of the organisation should exist for the sole purpose of supporting the teams (not create bureaucracy!)
- Skill and capability based resource allocation (platform to improve staff capabilities)
- Distribution of responsibilities, potentially causing a balance among time, cost and performance
- Strong tracking and traceability of products, processes and inventory.

# Matrix Structure Potential Pitfalls

- Complexity in information flow

- High frequency conflict of interest

- Confusion with priorities

- Difficulty in monitoring and control (could be chaotic)

- Potential for power struggle and politicisation of priorities

- Reaction time could be slow

- Roles ambiguity

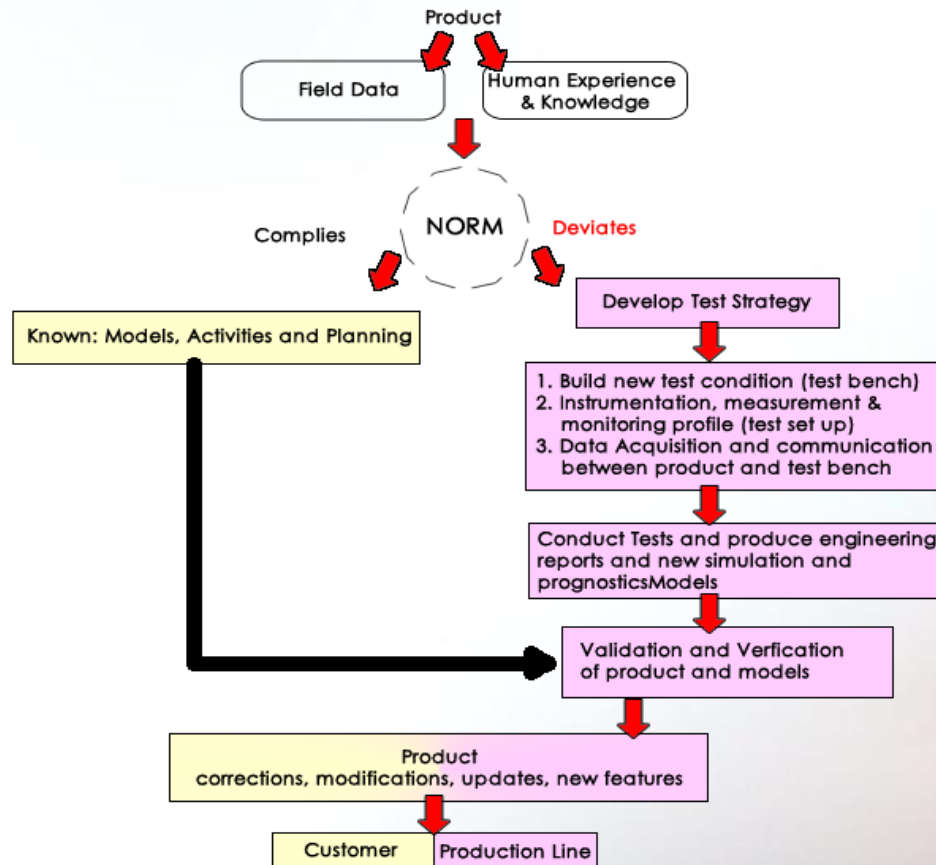# Product Engineering, Testing (PET) and Evaluation – Within PCM Context



Figure 1: Product Engineering, Testing and Validation Process
© Systems Engineering Research Group (SERG), Brunel University, UK

The process of product engineering, testing and validation (PET) requires:

- a set of meticulously planned tasks. Regardless of whether a new design is undergoing tests or an existing product requires modification or being fault analysed (e.g. fail claim)
- the activities ending in validation and verification may require new resources, settings and understanding of the relationship between engineering specifications and the actual performance of the product in different working environments.
- Due to the importance of PET, high-tech companies treat them as "projects"; and deploy the project planning and management protocols for them.

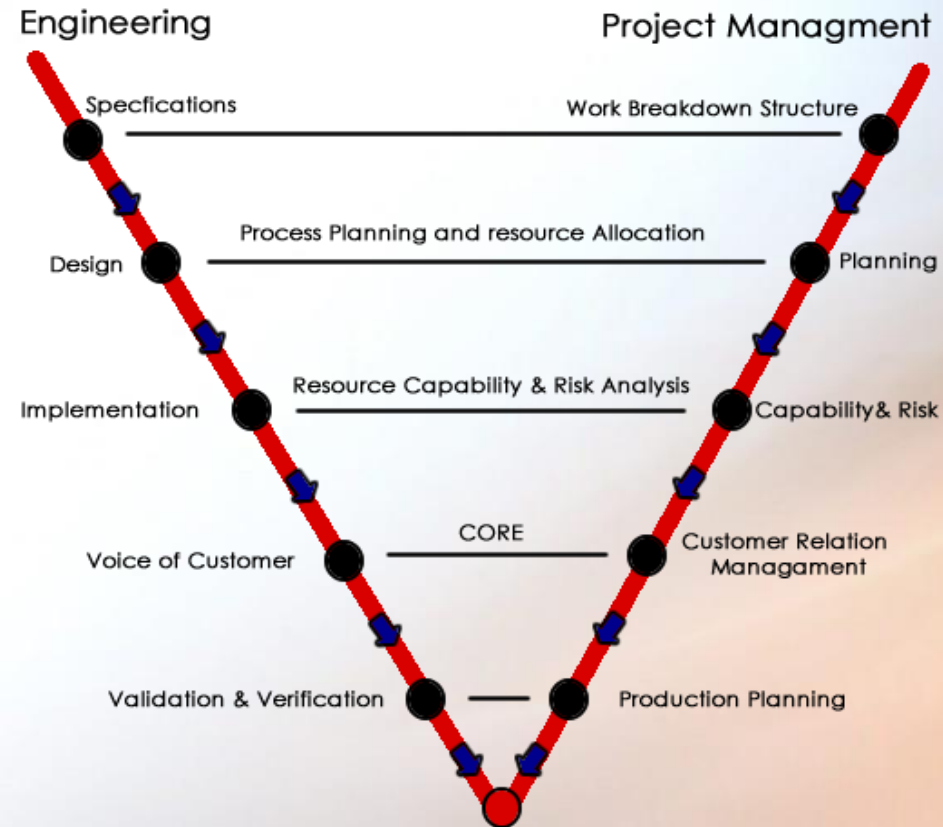# Product Engineering and Project Management



Figure 6: The conceptual integration of Engineering and Project management for Efficient PET.

# Further Reading

I will leave you with further reading on organisational structures and their impact literature.

Now on Capability Modelling (Lecture 3)