

Business Evolution and Enterprise Integration



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Mandate



To identify a major direction for future development in the area of enterprise integration.

Overview



- The problem of virtual enterprise design
- Proposed research direction

Virtual enterprise

- Consists of multiple co-operating autonomous entities (enterprises) which together fulfil a common enterprise mission
- These entities jointly act in a specified limited domain
- The joint action appears as if it was performed by one autonomous entity

Why virtual enterprises

- Natural option for
 - one-off project enterprise
 - manufacturing, service, research consortia
 - re-organisation of existing enterprises as a set of linked enterprises
- Clear delineation of decisional frameworks (tasks, commitments and operational options) among constituents
- Added agility and flexibility

What is to be designed

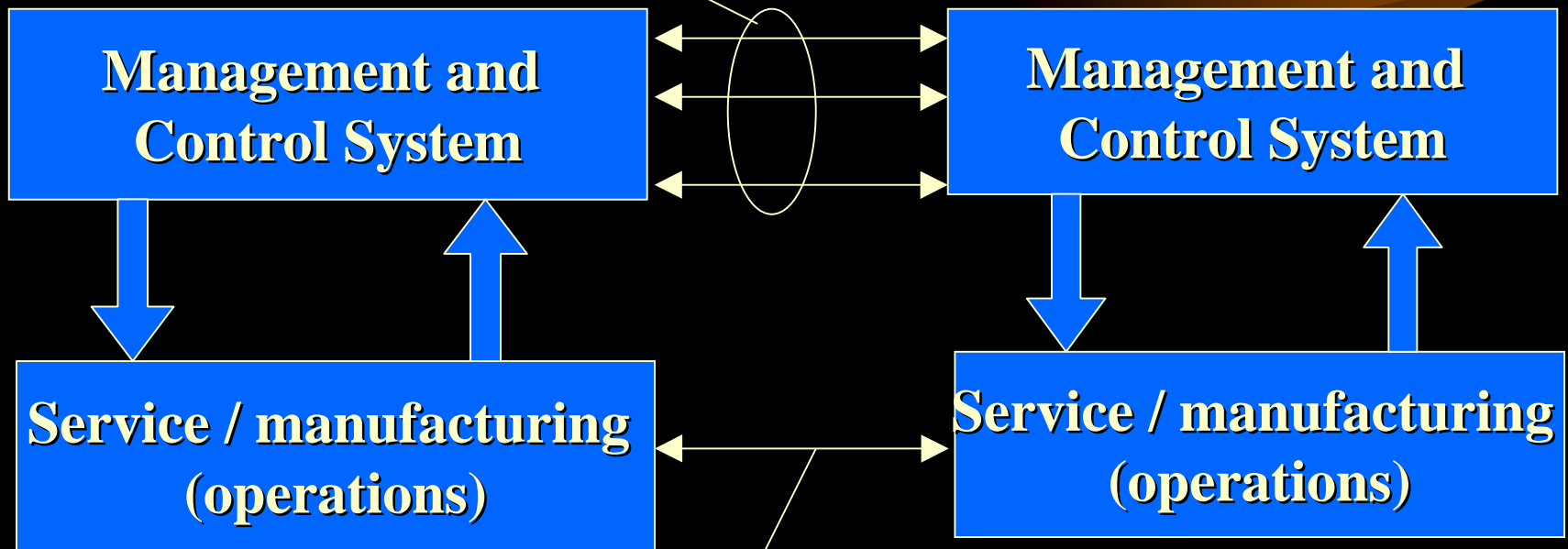
Management and Control System



**Service / manufacturing
(operations)**

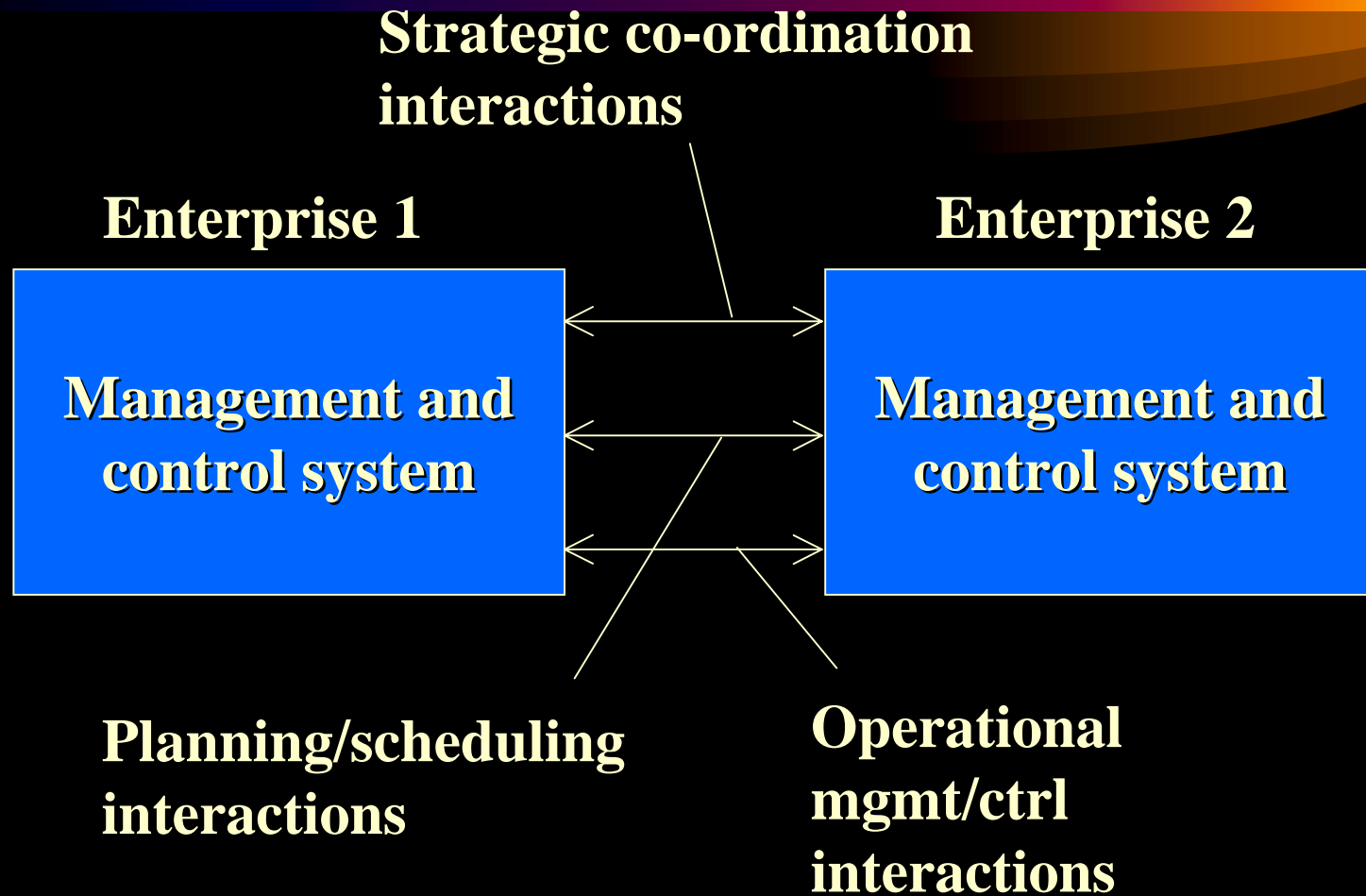
Design and Operation through transactions

Management information flow

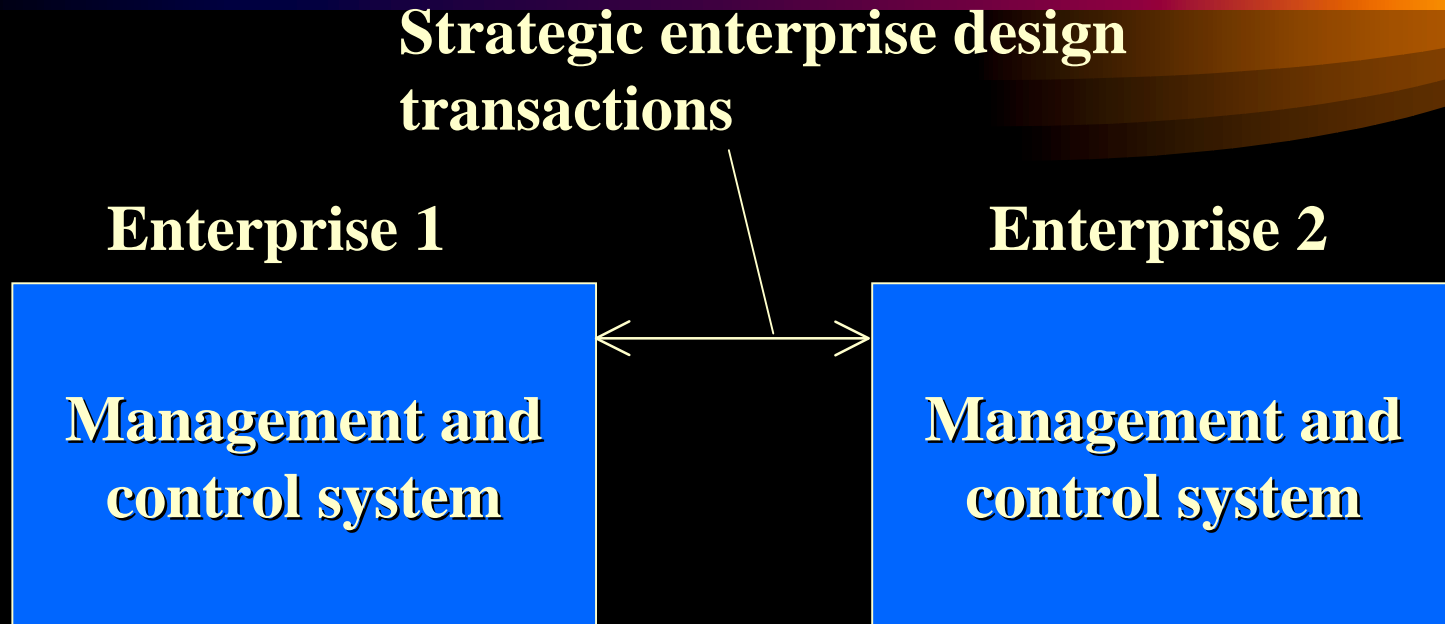


Material and information flow

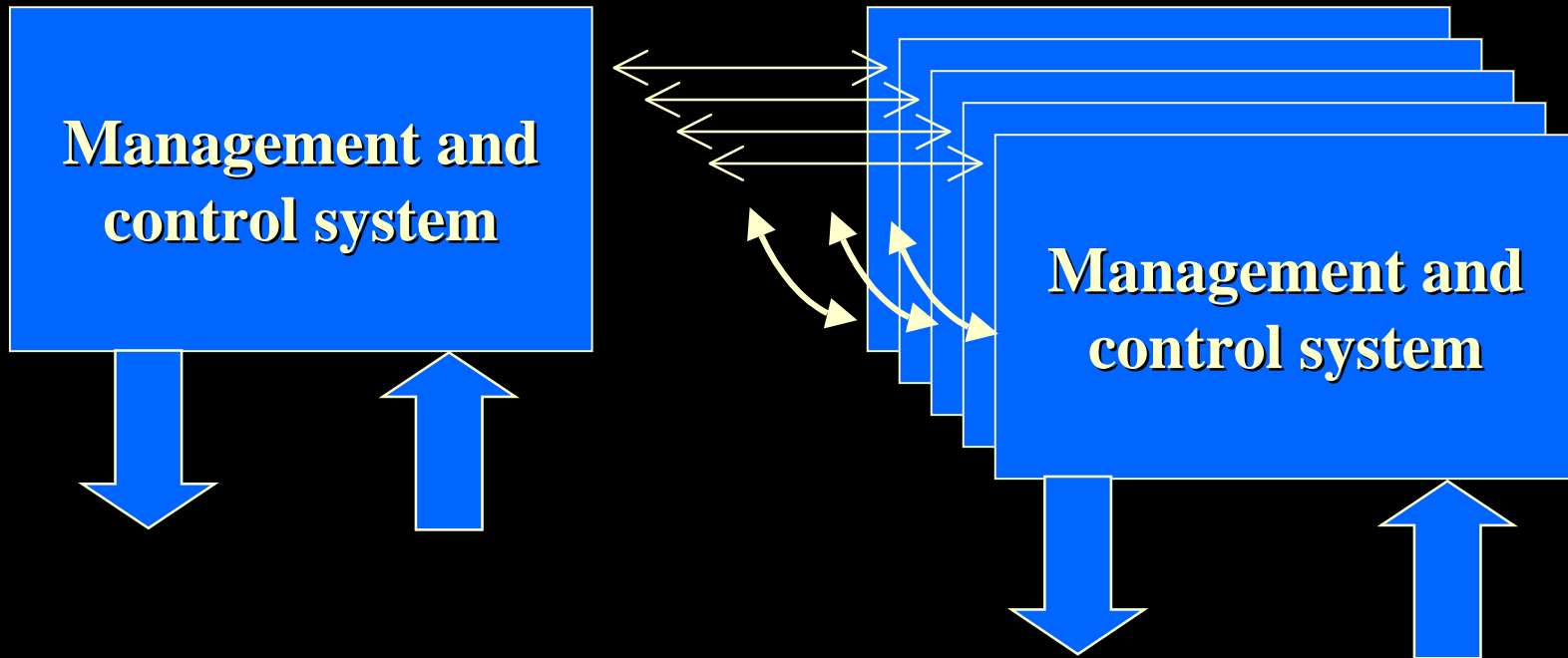
Interactions to operate the VE



Interactions to create the VE



Interaction among multiple potential entities



Need for a theory of VE design



- Account for dynamic, emergent design
- Account for organic and / or planned design

Based on the theory develop

- VE design **methodologies**; design transactions (what is the minimum commonality?)
- Supporting modelling **languages** (extend existing languages) and ontologies
- **Tools** to support the design transactions and analysis of the VE designs

Based on the theory develop (cont'd)

- Reusable VE designs - **models** and design representations (maturity models, metrics, agent models, holons, etc) and reference models
- Reference **architecture** showing the entities, life-cycles, life histories etc. of VE

*Based on the theory develop
(cont'd)*



- Common building blocks or **modules**
- These components have been defined as specialised forms of GERAM components

THE END

