Virtual Organisations in Grid environments
- A contribution to the EchoGRID roadmap-

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Storyboard

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K2M .:. from knowledge to market

- Technology and Innovation Consultancy since 1999

- Our mission: Innovation management

  - Innovation = invention + commercialisation

- Services

  - Matching Business Needs against Research Capabilities

  - Market Identification, Marketing/Business Plan Development, Implementation

- Expertise areas: Digital Libraries, Content, eLearning, eInfrastructures, Semantic and Knowledge technologies

- References (excerpt)

  - Utrecht School of the Arts, Stichting Dedicon, EADS Astrium GmbH, Spring Technologies GmbH, EUAIN project, ProAccess project

Grid and Virtual Organisations

- Grid environment --> flexible, secure, co-ordinated resource sharing among dynamic collections of individuals, institutions, and resources --> Virtual Organisations

- Some of the challenges in Grid technologies

  - Unique authentication, authorisation, resource access, resource discovery

- Main challenge for Virtual Organisations

  - Co-ordinated resource sharing and problem solving in dynamic, multi-institutional settings; resource brokering strategies emerging in industry, science, and engineering

  - Resource providers and consumers defining clearly and carefully just what is shared, who is allowed to share, and the conditions under which sharing occurs
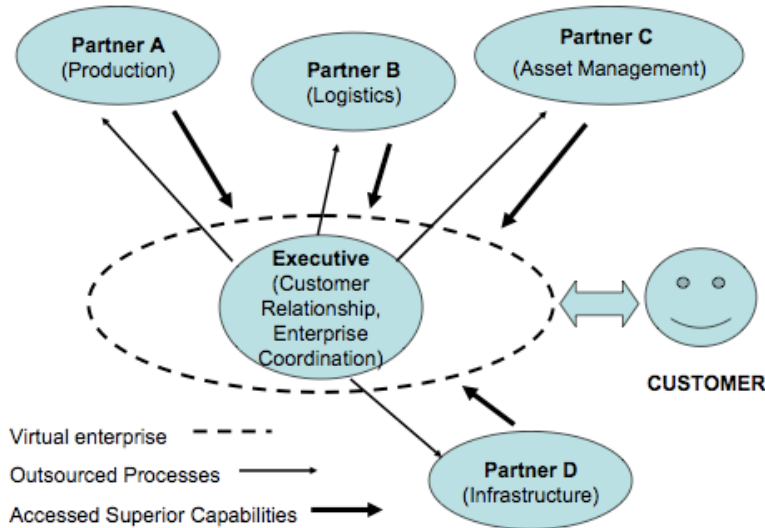
Grid and Virtual Organisations

- VOs vary tremendously in their purpose, scope, size, duration, structure, community, and sociology

- However, they share a broad set of common concerns and requirements:

  - Highly flexible sharing relationships, ranging from client-server to peer-to-peer

  - Sophisticated and precise levels of control over how shared resources are used, including fine-grained and multi-stakeholder access control, delegation, and application of local and global policies

  - Sharing of varied resources, ranging from programs, files, and data to computers, sensors, and networks

  - Diverse usage modes, ranging from single user to multi-user and from performance sensitive to cost-sensitive and hence embracing issues of quality of service, scheduling, co-allocation, and accounting

Virtual Organisations and Business

- A virtual organisation is a collection of geographically distributed, functionally and/or culturally diverse entities that are linked by electronic forms of communication and rely on lateral, dynamic relationships for co-ordination. Despite its diffuse nature, a common identity holds the organisation together in the minds of members, customers, or other constituents.

- Relationships within the virtual form are tenuous; in fact, a key implication of virtual organising is that these forms are more re-configurable, their boundaries are considerably more blurred, and their relationships are more likely to be contractual than traditional forms.

- These attributes enable the organisation to dynamically modify business processes to meet market demands, to co-ordinate via formal and informal contracts, to define the boundaries of the firm differently over time or for different customers or constituencies, and to re-arrange relationships among components as needed.

Virtual Organisations and Business

K. R. Hales, (2005), Value Creation in a Virtual World, School of Information Technology, Bond University

- Generalised model of a VO

- Characteristics
  - Network structure
  - Geographical independence
  - Duration
  - Focus on core competence
  - Trust and common purpose
  - Strong reliance on ICT

Virtual Organisations and Business

K. R. Hales, (2005), Value Creation in a Virtual World, School of Information Technology, Bond University
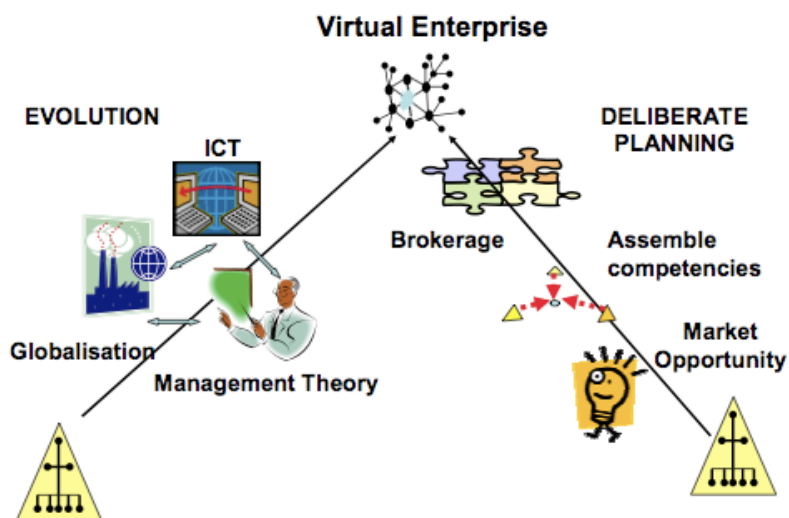
- Evolutionary and deliberate paths to VO

- The evolutionary perspective of virtualisation is that the Virtual Enterprise is an inevitable result of economic and technological change, whereas the deliberate approach is based on market forces, but both assume a common structural outcome.

Virtual Organisations and Business
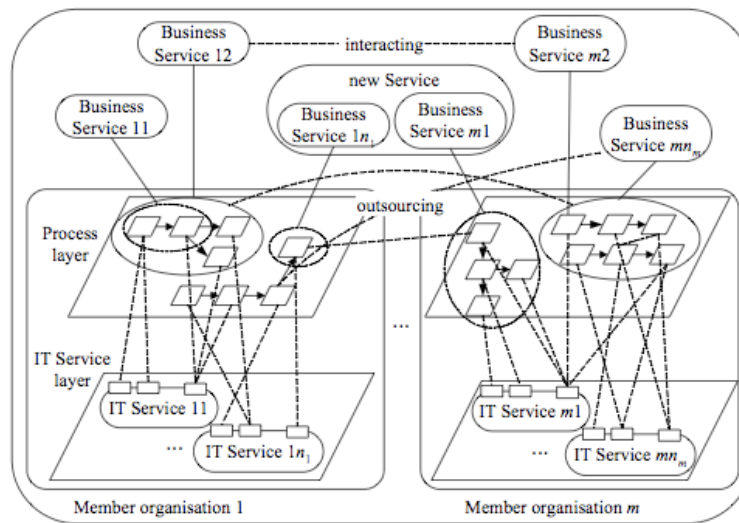
Xiaohui Zhao, Chengfei Liu and Yun Yang, Supporting Virtual Organisations with relative workflows, January 2006 APCCM '06: Proceedings of the 3rd Asia-Pacific conference on Conceptual modelling - Volume 53

Grid and Business - Issues to address in the roadmap

- ■ (Generic) business models to support Virtual Organisations and Virtual Value Creation

- ■ Research on the inter-organisational process layer for business services collaboration

- ■ Change in collaborations and content of communication in Virtual Organisations and effects to Grid technologies

  - ■ To what extent can task-related networks substitute for personal relationships as inter-firm co-ordination mechanisms?

  - ■ Will formalised, programmable communication replace more informal, customised communication?

  - ■ Building and maintaining trust in virtual teams

- ■ Organisational identity and cohesion in virtual organisations

- ■ Legal Issues and IPR in virtual organisations

Thanks and let's draw the roadmap now ...