

Introduction

The emerging discipline of *Enterprise Systems Engineering* aims to integrate and study in a holistic manner a range of associated topics which together cover how organisations apply systems engineering and allied disciplines to the challenges of developing complex, interdependent products in the 21st Century, as well as to designing and transforming the organisations (enterprises) themselves to allow them to meet the challenges involved.

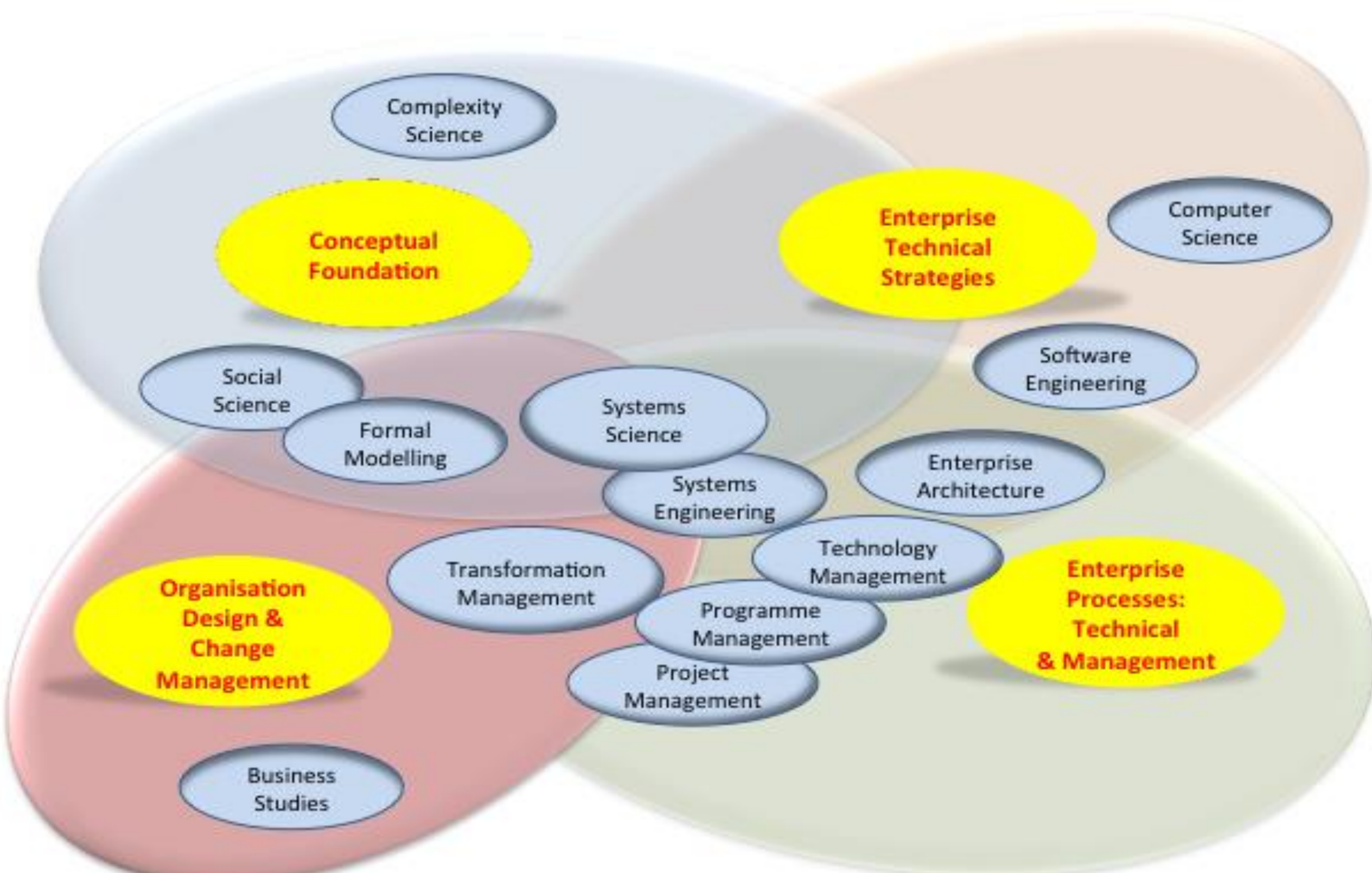
The lessons learned by such work are applicable to large companies, government departments - and INCOSE itself.

Overview

The subject is very broad and includes a number of overlapping areas:

- **Conceptual Foundation:** Understanding and classifying types of enterprises and their characteristics, both hard and soft; drawing upon the related fields of complexity science and sociology.
- **Enterprise Technical Strategies:** enterprise architecture and frameworks; generic platform architectures; architectural patterns; strategic management of technology.
- **Enterprise Processes and Management:** linking enterprise management to organisational objectives; enterprise systems of systems engineering; agile development methods to counter uncertainty; and decision-making techniques at all levels to support the above.
- **Organisational Design & Change Management:** shaping the organisation for adaptability and to match the types of complexity involved; top-down vs. peer-to-peer collaboration and governance strategies; enterprise leadership styles; implementing, sustaining and measuring change

Systems Engineering and *Systems Science* sit at the core of this agenda, and can act as an integrating discipline, working other disciplines as shown below.



Core Objectives

The Enterprise Systems Engineering IG provides a forum for exchange of ideas and promotion of cooperation between Government, industry and academia, all of whom are represented in the membership and the activities so far conducted.

Objectives have been deliberately kept fluid and open during its first 18 months of existence to allow the group to follow the interests of its members.

A number of activities have been conducted, as detailed below, with the aim of covering the breadth represented in the *Overview* alongside. In summary:

Talks from leading practitioners and consultants on:

Enterprise Transformation, Enterprise-Level Collaboration, Enterprise-Level Tools.

Talks from active researchers on:

Systems of Systems Research, Design of Resilient Systems for Agile Enterprises.

Talk on a major international enterprise systems engineering endeavour:

The SESAR Enterprise – Transforming European ATC.

Invited talk from James Martin (editor of the ESE Knowledge Area in SEBoK)

Workshops to explore relationship between *ESE and SoSE*

Major contribution to last edition of SEBoK, with liaison now established to play a key role in next update.

Liaison established with the INCOSE Intelligent Enterprises Working Group (IEWG)

Activities & Outputs

- Discussion meetings, typically led by invited speakers, to explore aspects of the subject, held at Defence Academy (one at Loughborough U)
- Workshops: the 2014 topic was *ESE and SoSE*, leading to the paper given at ASEC 14
- Continuing liaison with the SEBoK editor (James Martin) to influence the further development of the published body of knowledge.
- Liaison as required with other professional groups in the field

Outputs so far have included:

- Workshop at ASEC 12
- Papers at IS 12 and ASEC 14
- Website

Ideas for future outputs include a z-guide and bibliography (others TBD)

How to get Involved

To sign up to the Interest Group, get news of forthcoming meetings, offer a talk or idea for a workshop, or get involved in activities, visit the ESE interest Group area on the INCOSE UK website.

Or email Peter Brook (ESE IG Leader) on dashwoodbrook@aol.com