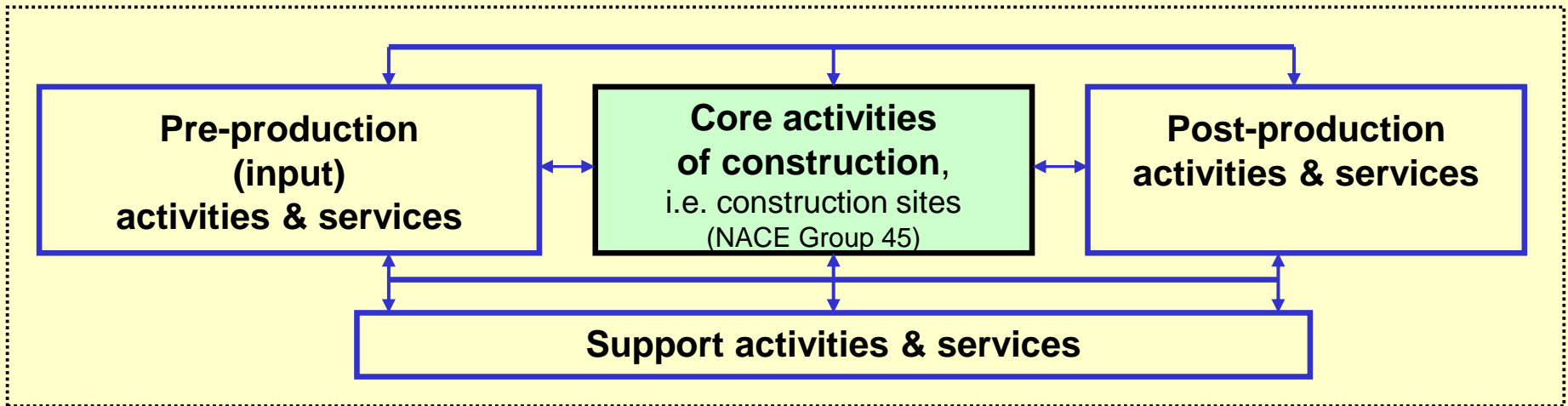
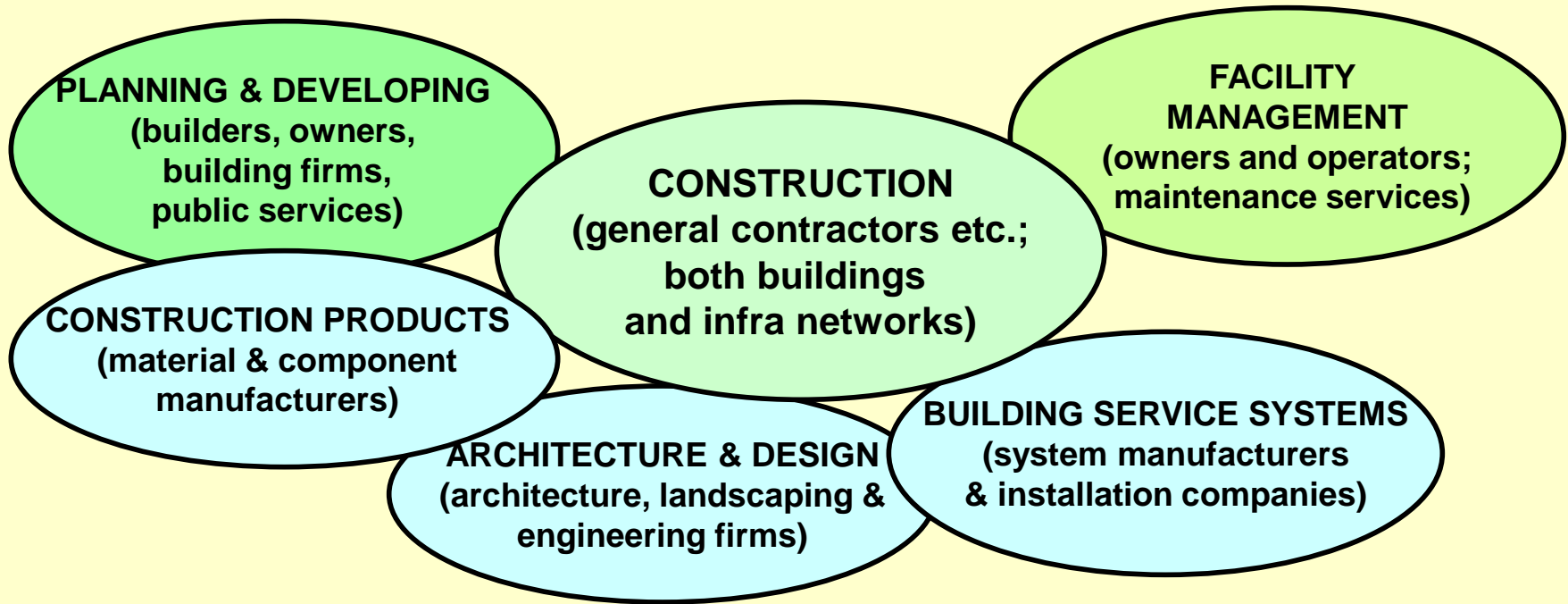


Sectoral innovation in comparison: Construction

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Incremental innovations – long tradition:

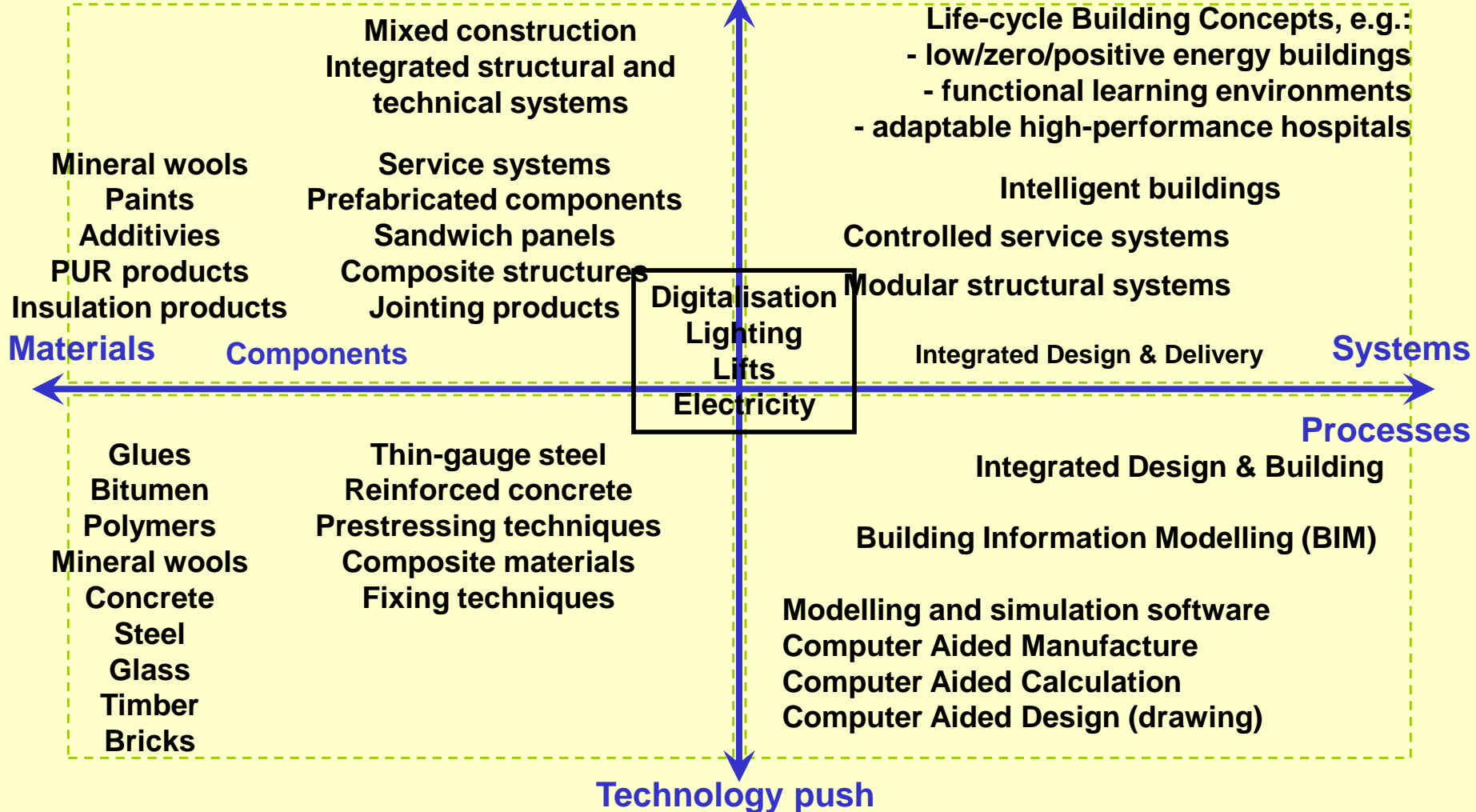
- Cross-sectoral implementation (materials, energy, tools)
- Technology and regulation as drivers
- Changes mostly at product and working method level – just enough to get some competitive edge
- Competition with price

Construction is a highly networked manufacturing and service business sector - tens or even hundreds of companies work together in one construction project; if one company introduces a new products or solution, it will cause problems to others in the same project; you need system innovations of 4 – 6 companies in the value network to have an overall positive effect in productivity (*John Taylor, Stanford University, thesis ca. 2003*)

Construction sector: a broad platform for innovations

Customer/user needs - Market pull

Client needs in supply chains



Changing construction cluster

- The percentage of (invisible) technical systems in buildings and districts is steadily increasing; technologies are connected
- From regulating products to regulating performance and usability
- Towards complex subcontractor / partner networks (from supply chain to supply & demand networks)
- From documents to virtual models; all parties making use of the same files
- Information technology empowers users to require more; increasing user requirements demand more information => transparency of the processes is increasing
- **Eco- and energy efficiency requirements leading into a bigger and faster change in technologies than ever in the history of mankind: craftsmanship is not enough – understanding of complex human behaviour and a multitude of technologies has become a must!!!**

Current drivers of innovation

USER AND SOCIETAL NEEDS

1. Ecoefficiency/Sustainability (energy efficiency as a key component; material efficiency on the rise)
2. Comfort, usability and efficiency for all users (improved conditions, more services for users; ageing societies)

TECHNOLOGY PUSH

1. Information and Communication Technology
- 2....and to lesser extent new material technology as an enabler

But in real daily life of the sector:

- Economy, economy, economy (cheaper to manufacture, easier to install, attractive location of buildings)

The future of sectoral innovation: **CONSTRUCTION**

- Construction sector is an integrator and developer of technologies produced by other industries: a city is an integrated machine with complex techniques embedded
- Due to huge volumes, it is seen as a lucrative application area for e.g. ICT, chemical & material industries
- Built environment is in a critical role as regards sustainability and other grand challenges; incremental innovations will not be enough anymore
- Performance metrics from component level to buildings, districts, cities and even beyond; optimum to be defined in a wider and wider setting (...”should we close down a paper mill or would it be better to have tougher insulation requirements”...)