

Sector Innovation Analysis

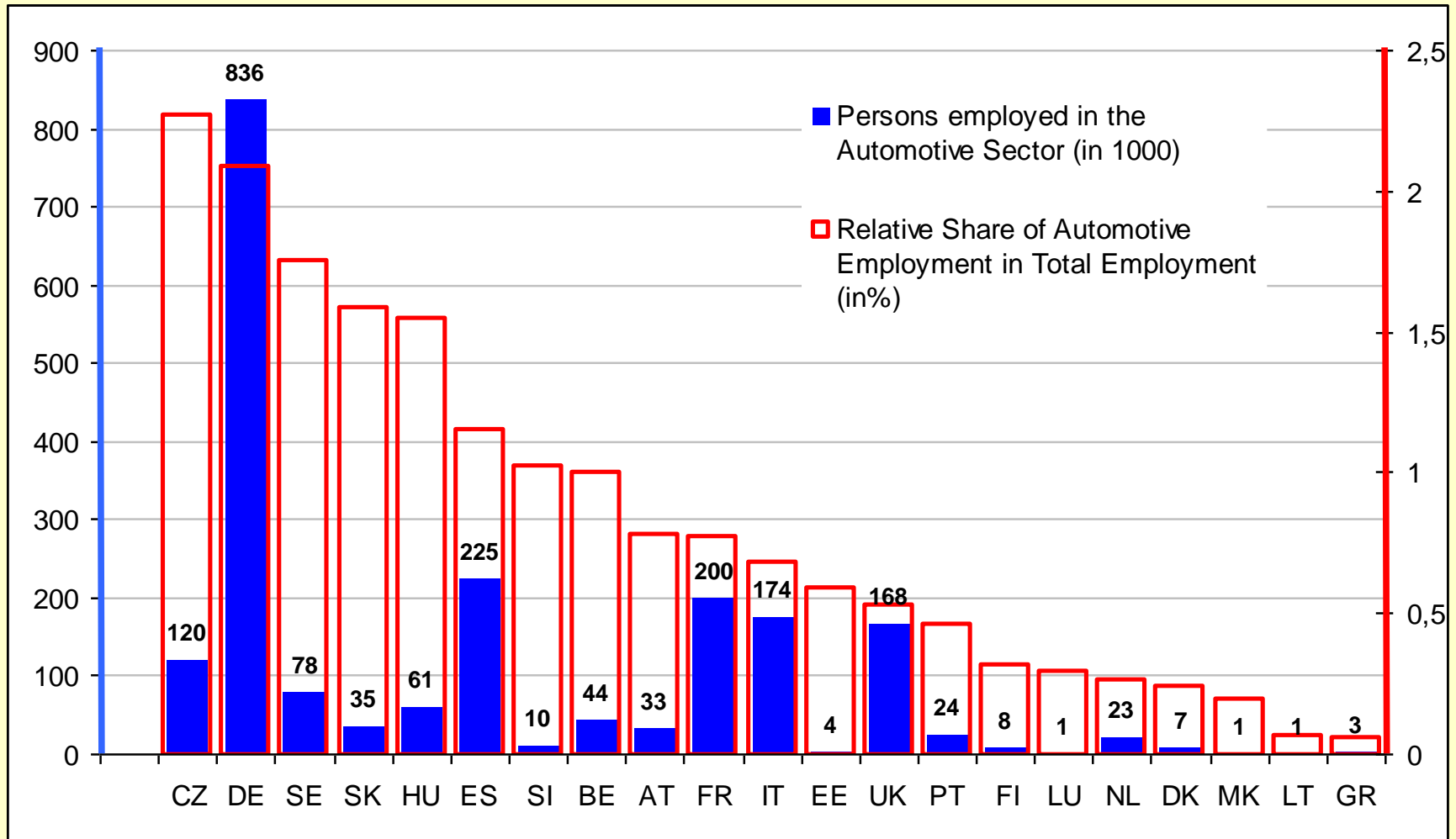
Automotive Sector

Michael Ploder

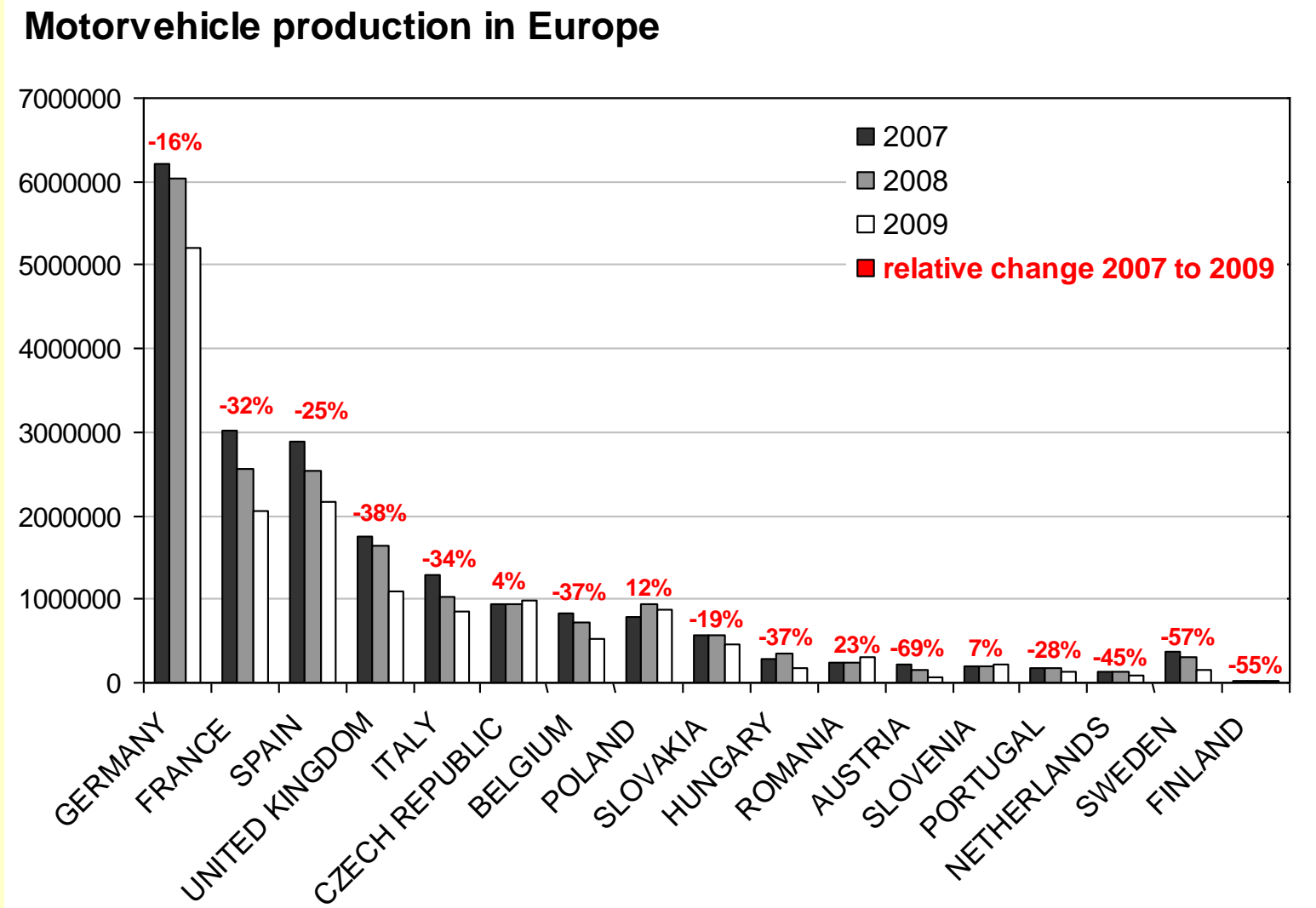
JOANNEUM RESEARCH

*Centre for Economic and Innovation Research
(newly established 2010)*

(1) Too relevant to fail?



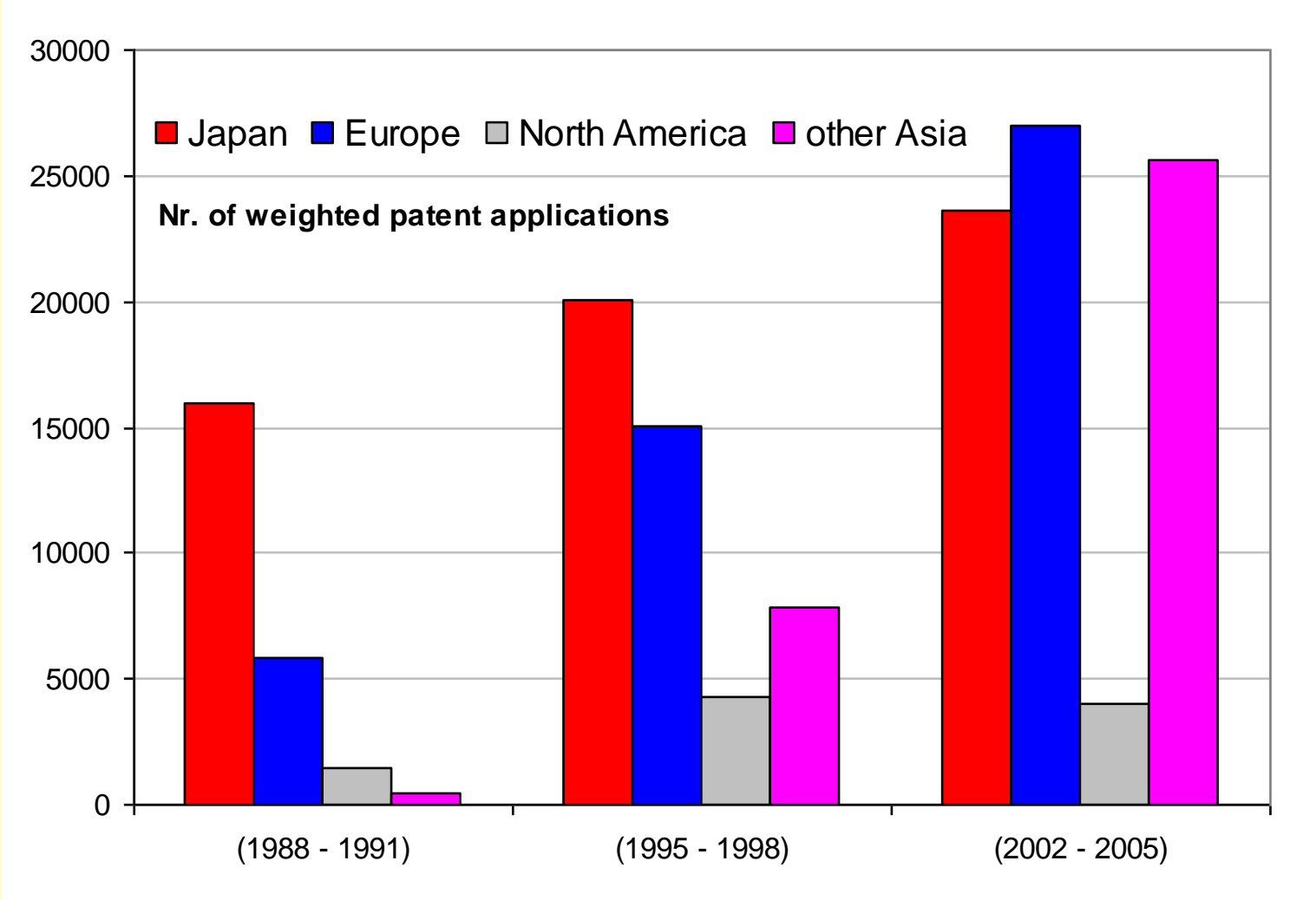
(2) Vulnerable, but too established to change?



(3) Innovation performance

- a. Automotive Innovation has a combinative character
 - innovation is frequently driven outside the Automotive sector
 - automotive sector as lead customer
- b. The share of innovative firms in the Automotive Sector is significantly higher than the average innovation-rate.
 - Innovation expenditures in the automotive sector are considerably above the average
 - higher shares of new products, mature patents are significantly more important.
- c. R&D and patent activities are highly concentrated in the automotive sector (large enterprise groups and networks)

(4) Considerable increase of patent activities



(5) Changing markets and competitive framework

- a. Stagnating car sales in triade markets (USA, JAPAN and Western Europe) but a rapid rise of „new“ demand in Asia and South America**
- b. Changing customer preferences and regulatory framework**
- c. Aspiring new competitors in Asia and increased international competition**
- d. Shift of competition from single actors to networks (alliances)**
- e. Regional shift of value added and production activities – relocations**
- f. Considerable differences between passenger cars and commercial vehicles**

(6) Innovation Trends

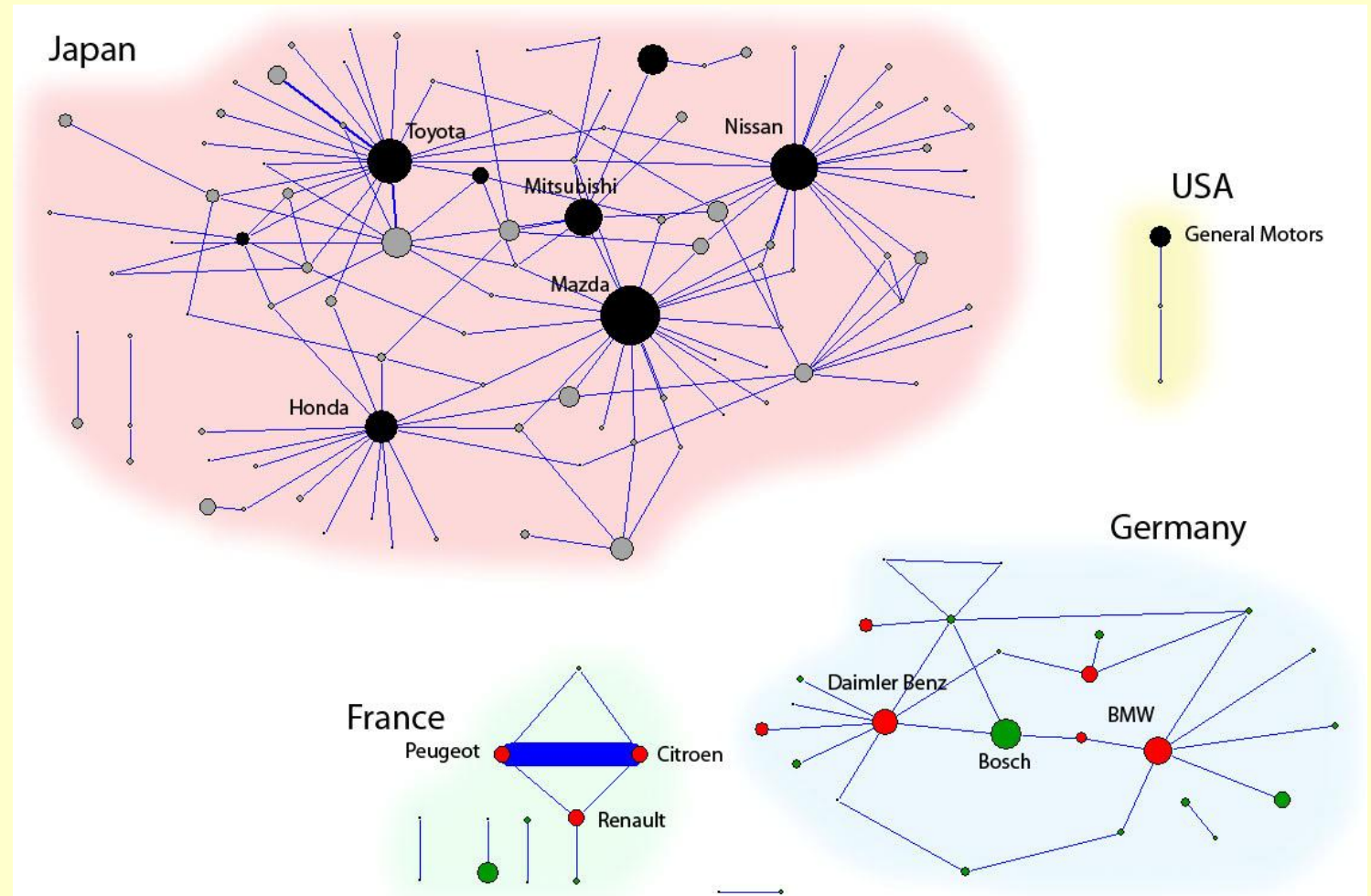
- a. Cost reductions and resource efficiency
- b. Increasing variance and complexity
 - The number of model variants increases in order to offer tailor-made cars in every segment
 - The technical complexity of car development and innovation processes rises as a consequence of mechatronical innovations
- c. Time to market
 - Innovation networks gained in importance
 - Interactive synchronization of development steps and direct involvement of system suppliers

(7) Integration of suppliers in the innovation process

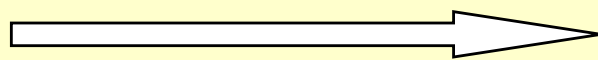
- a. Direct involvement of systems and component suppliers became necessary
- b. Changing Carriers of Innovation
 - OEMs lost core-competences and innovation capabilities
- c. Barriers for innovation along the value chain.
 - SME-suppliers are frequently not able to deal with increasing requirements for their integration in innovation processes

(8) Changing patterns of Innovation (co-patents)

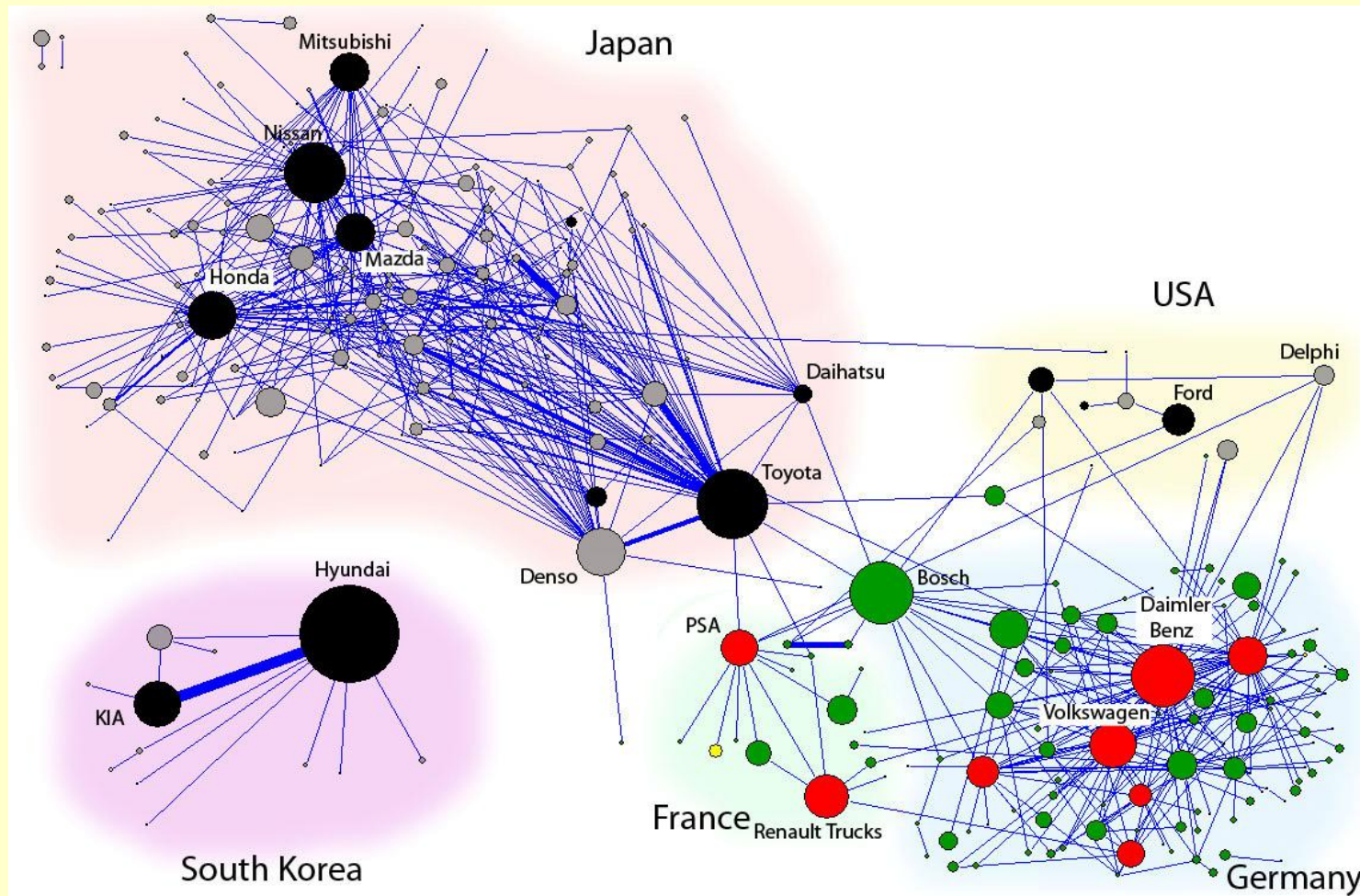
Period 1988-1991



(9) Changing patterns of Innovation



Period 2000-2005



(10) Challenges for Future Innovation in the Automotive Sector

- a. Indications for an increasing loss of hegemony for Western (US-American, European) OEMs and a shift of centres of innovation to emerging markets.
 - Ultra low cost vehicles
 - Electric mobility

- b. Alternative concepts requiring the softening of established hierarchical structures

- c. Involvement of customers/users and public infrastructure considering integral mobility concepts (regional frameworks)

- d. The sector was already undergoing a process of restructuring and consolidation before the onset of the current financial and economic crisis.