

# Intellectual Capital and Innovation: Implications for New Service Development

James Brown - Cass Business School

## Intellectual Capital and Innovation

**Innovation** is viewed as an interactive and iterative process that turns ideas from research, into commercial products and services.

A **Resource Based View** of the firm says that innovation derives from a combination of internal resources (agents) and organisational capability (functional and integrative).

**Intellectual Capital** is one way of defining a company's intangible assets and resources.

## Edvinsson model of Intellectual Capital

### Structural capital

Knowledge that stays with the firm

Routines, Processes, Culture, Datasets

R&D

### Human capital

Knowledge that stays with employees

Skills, experience, ability

### Relational (or Network) capital

Knowledge derived from networks

Resources linked to external relationships

Customers, suppliers, partners

## Innovation in Services: Typology

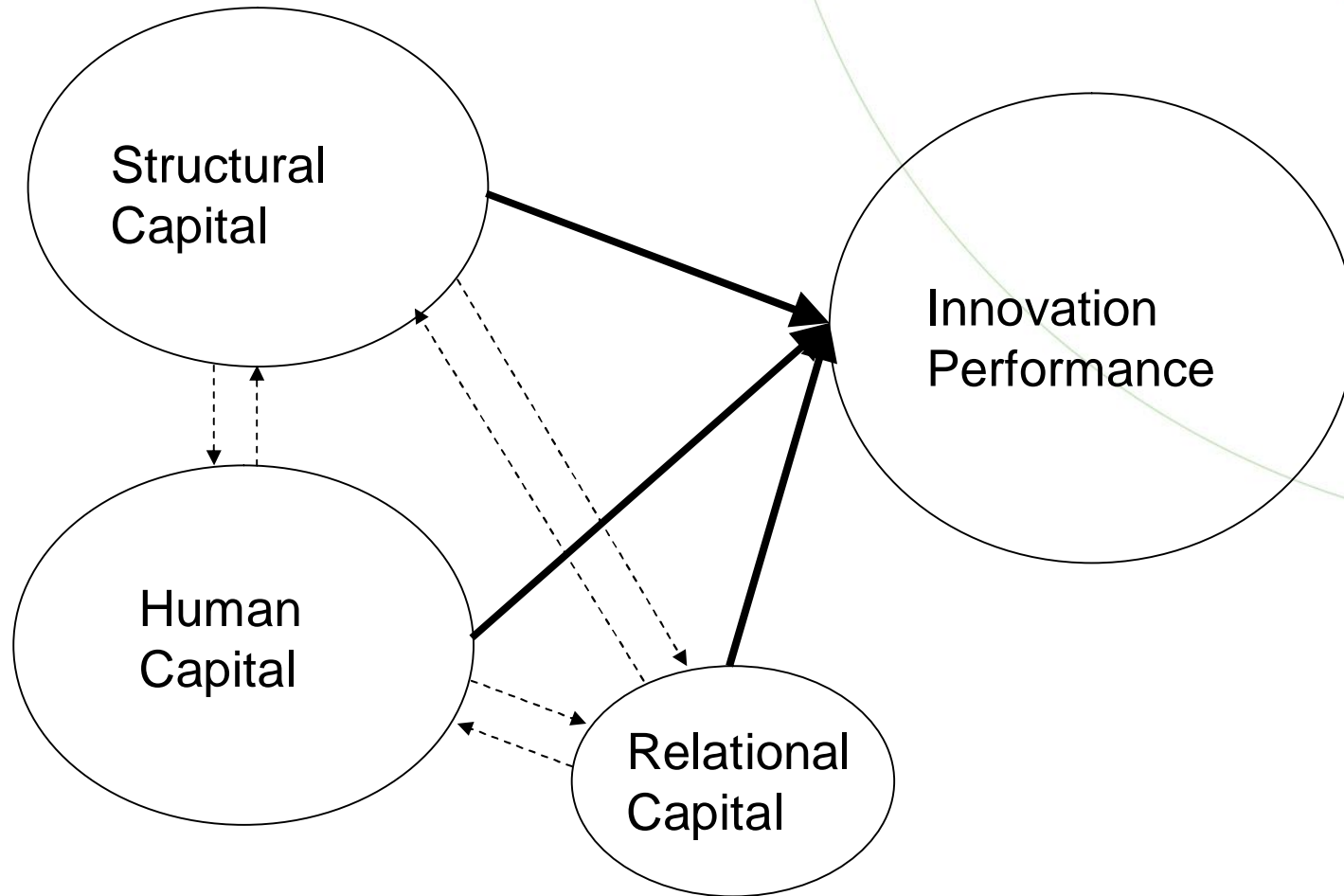
Physical services – related to tangible products and networks (eg telecommunications and energy)

Human services – related to social and individual well-being (supported by technology)

Information services – mass communications, ‘infomediaries’ specialised knowledge providers

Technological innovation is important to all three types of service but there is a distinction between technology that supports a service and one that helps to create a new service.

## Theoretical Model



## Latent measures from data analysis

### Innovation

- Efficiency of the innovation process

- Effectiveness (% revenue from new products)

### Structural capital

- Management control of process

- Innovation process

### Human capital

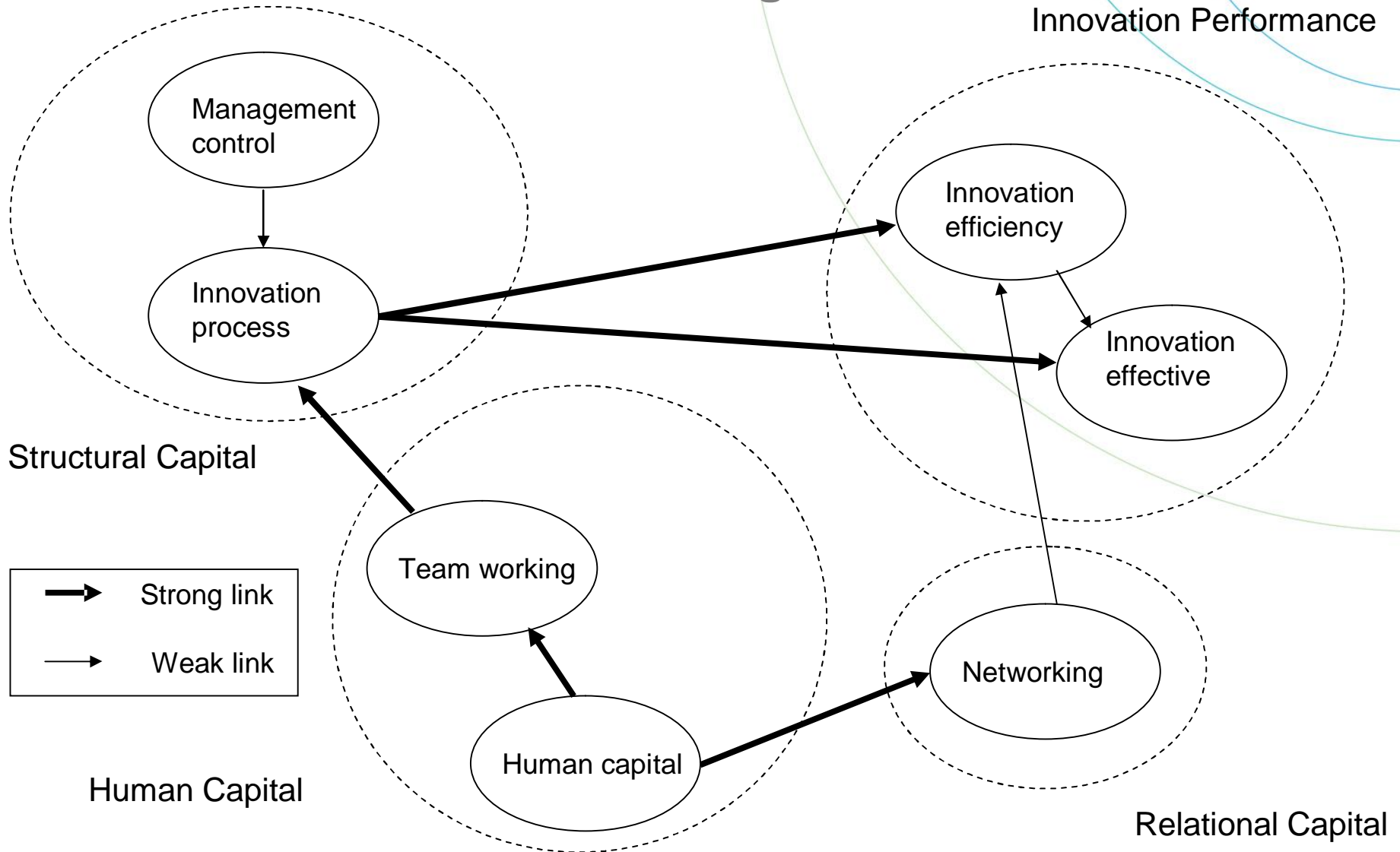
- Cross functional or team working

- Human Capital

### Relational capital

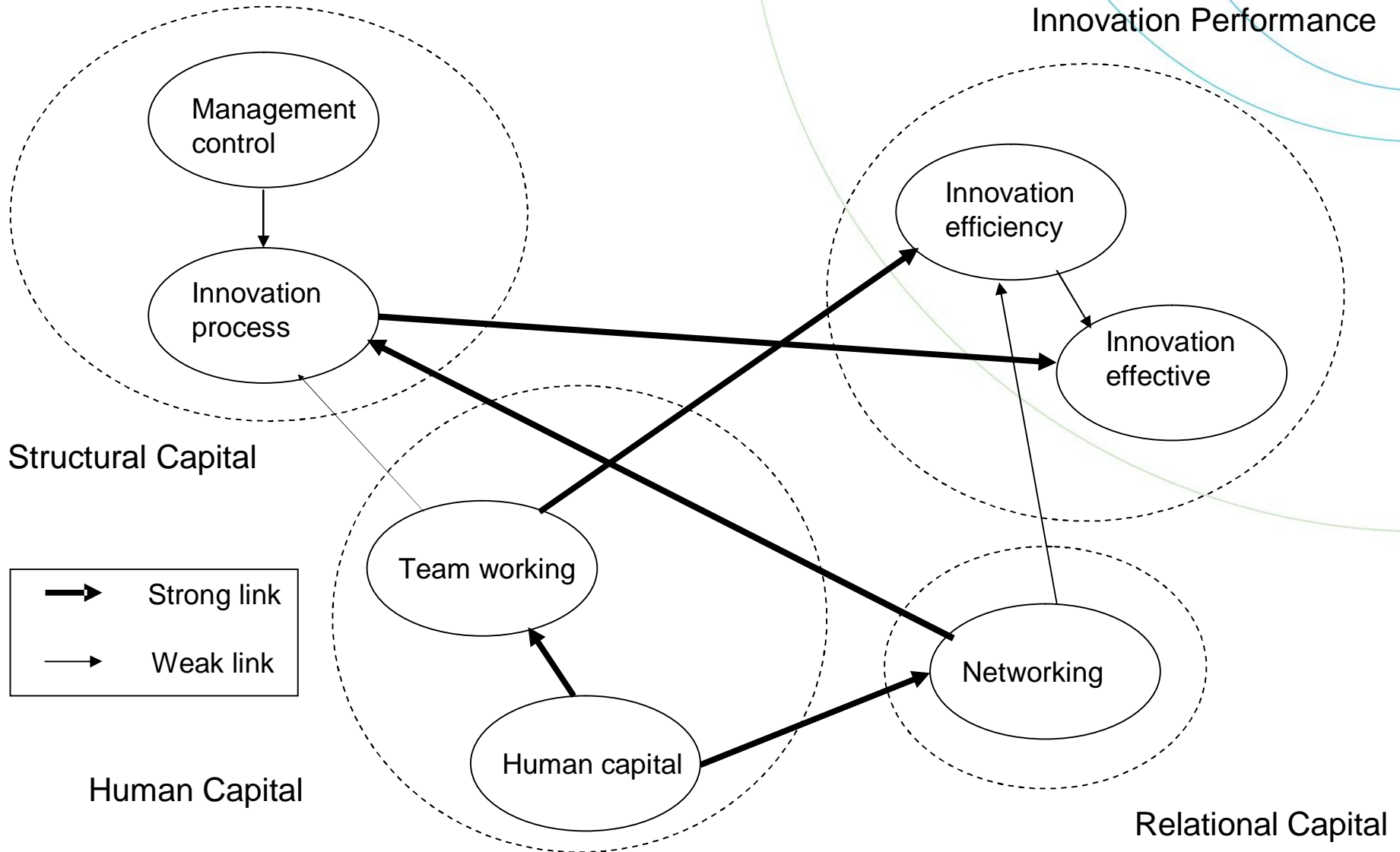
- Extent of networking

# Manufacturing Sector



# Service Sector

## Innovation Performance



## Conclusions from data modelling

Process is a critical factor in manufacturing where it has strong links to innovation efficiency and effective revenue share.

Process appears to be less important in services with no impact on innovation efficiency but a strong link to effective revenue share.

Team working in manufacturing (cross functional working) has no direct impact on innovation but is strongly linked to the innovation process.

Team working in services sector has a strong direct relationship to innovation efficiency and a weak relationship to the innovation process.

Human Capital is a key 'individual' factor, but its influence is mediated through team working and networking. Its direct influence on innovation performance is negligible.

Networking has a weak relationship to innovation performance directly, but has a strong link to the innovation process in new service development.

## Implications for service based products with high technology content

Team working – From cross functional teams to multi disciplinary teams. Consider the heavyweight versus autonomous team alternatives.

Networking – Recognise increased importance of partners and customers in the innovation process. Get closer to technology and market developments and trends.  
Connect R&D to strategic level, demanding customers and technical networks

Innovation process – make it more informal with greater emphasis on speed to market and experimentation. But control is still important especially some form of review process.

## BT Openzone Case

Public wireless 'hotspot' internet service launched 2002 (WiFi)

Previous experience with private wireless connectivity and internet infrastructure

Dedicated team with ambitious targets for early implementation and wide coverage

Team lead by chief technology officer and expert in wireless communications

Collaboration with Motorola/Cisco for equipment and then Hilton, BAA, Starbucks for site access.

Initial target market business traveller with laptop – now potential platform for voice over internet, local community networks, special events.

Participation in Wireless Broadband Alliance and this means rival network operators and suppliers.

## Sulzer Hexis Fuel Cell Case

Fuel cell for residential combined heat and power, based on using natural gas. Potential mass consumer market.

‘Venture capital’ approach started in 1991 building on experience with materials, process control, and system integration.

In house technology but collaboration with Japan (electrolyte), Holland (research centre), Austria (gas safety) organisations.

Extensive field trials with utility companies in CH, GER and AU to establish ideal configuration and connection to electricity grid.

Energy contracting concept – effectively outsourcing energy services – leading to the idea of the virtual power plant.

BT's strategy is to build long-term partnerships with our customers. With their support, we aim to maximise the potential of our traditional business - through a combination of **enhanced quality of service**, creative marketing, innovative pricing and cost efficiency - while pursuing profitable growth by migrating our customers to **new wave products** and services such as ICT, broadband, mobility and managed services.

Strategy statement from BT web site