Clusters as Drivers of Competitiveness,
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Technology Cluster Evolution: The Medical Devices Cluster in the West of Ireland

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Introduction

- Industrial Clusters – in theory
  - Geographic proximity, local linkages, local knowledge transfer, intense local rivalry and cooperation, ‘endogenous and self-organised’ (renowned clusters)

- Clusters of a small, open economy
  - Limited local market, FDI, policy – ‘creating’ sectors

- Case study: Galway Medical Technology cluster
Galway Medical Technology Cluster

- Galway Medical Technology cluster, West of Ireland
  - Regional cluster in Ireland

- Approx 60 companies in total, formation via foreign direct investments (1970s/1980s)

- 2 pioneering MNEs: Boston Scientific and Medtronic, world-leaders, create most employment in the cluster,
  - Specialisation in cardiology (drug-eluting stents)
Medical Technology Cluster in Galway

Stents on balloon catheters before inflation

- Stents
- Guidewire
- Balloon
- Catheter
Number of companies by nature of investment for each year
Broad activity classification by nature of investment, 1990-2011
Broad technology classification by nature of investment, 1990-2011

- Tissue regeneration, gastrology, urology, pulmonary-cardio, oncology-cardio, medical software, intelligent diagnostics, laparoscopy, connected healthcare, wounds
- Optical
- Muscle strength
- Respiratory
- Diagnostics
- All med tech areas (suppliers/subcontractors)
- Vascular - Cardiovascular/Endovascular
Cluster Dynamics, given years


- New investments to the cluster: foreign-owned companies
- New investments to the cluster: indigenous companies
- Acquisitions: cluster indigenous companies acquired by cluster or non-cluster foreign-owned companies
- Acquisitions: non-cluster companies acquired by cluster indigenous companies
- Foreign-owned divestments
- Indigenous divestments
Evolution of the cluster

- **Genesis:**
  - Pioneering MNEs: low-value added activity

- **Development and dynamics:**
  - Pioneering MNEs: specialisation in cardiology, increased project responsibility from HQs – product design and development

  "Originally we used to go to the States and learn stuff, whereas now they send a lot of people over here…..to learn [about] drug-eluding stents”
  (MNE A, 2005)

  "We take products all the way through from concept to commercialisation”
  (MNE A, 2008)

- Spillover to locality: new indigenous suppliers and global start-ups
- Med Tech Research Centres in HEIs – industry-third level partnerships
- Acquisitions of indigenous companies by foreign-owned companies
- Outward foreign investment
- Specialisation and diversification (MNEs, HEI-industry linkages, indigenous start-ups)
Evolution of a technology cluster: Roles of MNE subsidiary
Implications of Research

- Balancing specialisation and diversification
  - Focusing on narrowly defined sectors is restrictive
  - Understanding technological capabilities internationally and locally
    - Related and unrelated variety

- Role of pioneering MNEs (inward and outward FDI)
  - ‘Dual-network’ of local and global connectivity
  - Engaging with home clusters of pioneering MNEs

- Developing the local ecosystem: HEI research, co-inventions, future ‘anchors’/pioneering organisations
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