



CLUSTER POLICIES AND KNOWLEDGE EXCHANGE

A case study of the Port of Rotterdam

Workshop on Maritime Clusters and Economic
Challenges, 1 December 2016

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What are clusters?

- Geographic agglomeration of competing and cooperating firms and associated institutions
 - suppliers, service providers, and associated institutions (e.g., universities)
- Clusters are based on developing synergy
 - economies of scale, technology transfer and the availability of human capital
- Benefits for cluster members include
 - reduced transaction costs, reduced uncertainty
 - increased efficiency, collaboration and opportunity recognition
 - greater bargaining and lobbying power, tacit knowledge



Is public policy intervention needed?

- External factors
 - Create impact across a sector introducing unintentional co-dependency between organisations
 - One or more actors can negatively influence the economic viability of others
- Public policy in cluster development creates formal (and informal) institutional frameworks to
 - reduce coordination failures
 - facilitate collaboration between private–private, public–private, and public–public actors
 - Creates connections – can facilitate relationship building
- Coordination and trust need time and practice to evolve and public policy can bring this in

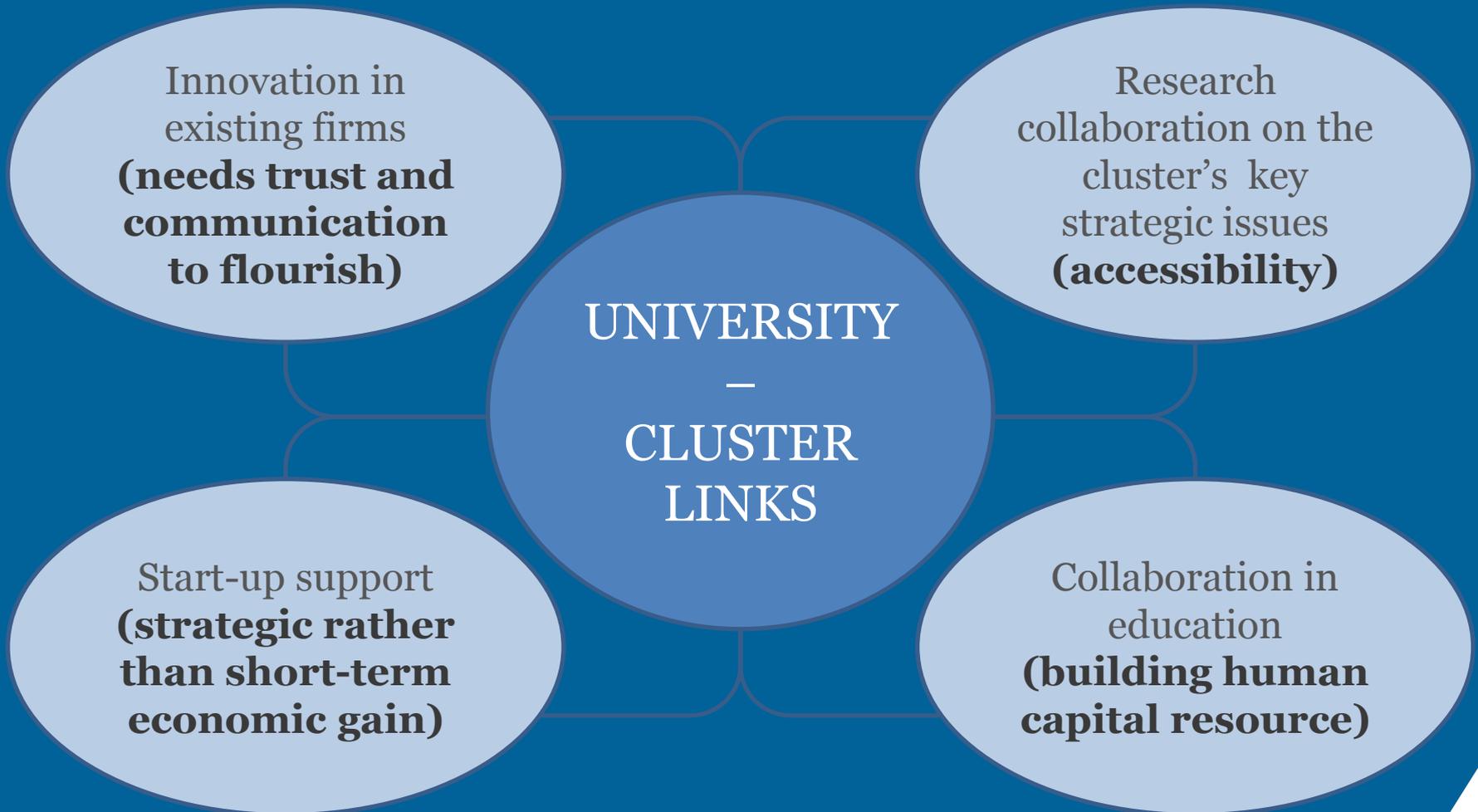


Universities: key knowledge exchange partners in clusters

- Universities perform a three-fold role
 - education, creation of scientific knowledge, and knowledge transfer
- Uni-Business links have moved into the centre of policy initiatives
 - (public) universities are one of few actors (national and regional) innovation systems, where application of funding can still be steered
- Reasons and motivations to collaborate with Universities
 - vary across sectors and firm size;
 - universities are only one of several knowledge partners of a firm
 - High-tech firms are keen to access scientific knowledge to update and enlarge their internal knowledge base,
 - High-tech firms will establish long-term links, even at a low level of intensity, in order to stay informed about Uni's research
- Sharing costs and risks of research, is a common reason for collaboration (→ cluster creation) and industry development



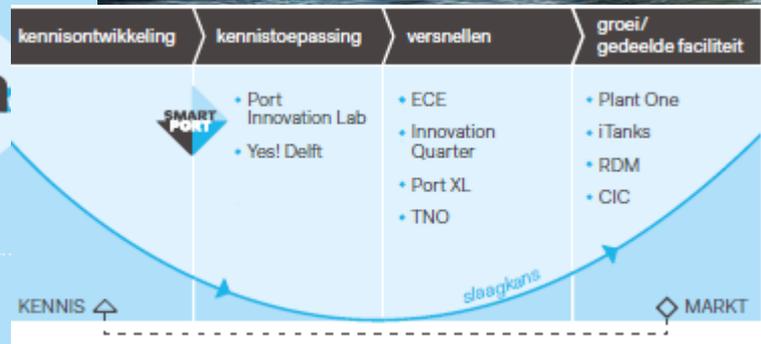
Knowledge exchange practices in clusters





The Case of Rotterdam Port – **Smart Port**

<https://www.youtube.com/watch?v=O4ZX5shozyk>



connecting
knowledge

Contributors: Gabi Kaffka, Lesley Hetherington, Robert van der Linden

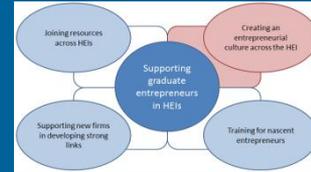


Key facts & challenges

- Largest port in Europe with annual throughput of approx. 450 million tons; total length of port area 40+km
- “Maasvlakte 2”, opened in 2013, created a new port and industrial area with a total of 6 000 ha of industrial sites
- In 2015 second Port Environmental Review System certification
- Increase in scale of container shipping requires further optimisation of logistic chain
- Shifts in energy sector and emergence of circular economy put new emphasis on energy efficiency and environmental performance
- Formation of alliances among shipping companies
- Demand for new skills from quickly changing technologies and increasing automation



Research collaboration on the cluster's key strategic issues



- **Why:**

- Smart Port serves as common contact point
- Smart Port facilitates application for public funding
- Smart Port provides a bigger context for collaboration

- **How:**

- 5 Roadmaps (knowledge alliances) for:
 - Futureproof Port Infrastructure; Smart Energy; Smart Logistics; World Port City; Smartest Port
 - Roadmap for how to get from action (research) to impact (outcome you want to know about)
 - INDEEP: action-based research
- Partnerships with Plant One (test facility for sustainable technology), iTanks (knowledge and innovation platform for port-related industry), CIC (private accelerator with long-standing experience in venture capital raising)



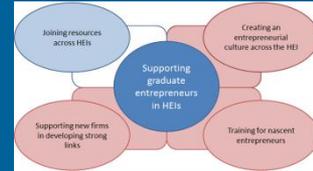
Collaboration in education



- **Why:**
 - Co-operative education: Co-design and co-delivery of HEI educational programs with port-related industries
 - Enhances impact of further education & lifelong learning
- **How:**
 - Transition from bilateral relationships to thematic networks with multiple HEIs
 - Mainport Campus Rotterdam
 - internships, work placements, thesis assignments
 - centrally co-ordinated for Rotterdam University of Applied Sciences and VET programmes



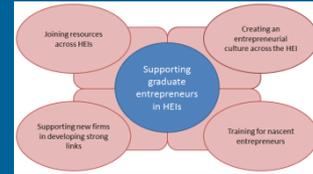
Start-up support



- **Why:**
 - Growing need for venture creation activities to address port-relevant issues (logistics, automation, time efficiency)
 - Provide incubation & acceleration infrastructure that is close to the universities & the Port (makes research real)
 - Co-location for port incumbent firms and startups
- **How:**
 - Port XL (tech start-up accelerator)
 - ventures: transport & logistics, energy, chemical & refinery, maritime
 - Port Innovation Lab
 - with Yes!Delft at Technical University of Delft



Innovation in existing firms



- **Why:**
 - Rapidly changing technology and knowledge requirements - or lose global market share
 - Keeping track: Coordination and transparency within cluster (who does what, when, why, with whom)
- **How:**
 - Collaboration between start-ups and incumbent firms
 - Innovation Quarter attracts and supports firm (re)locating to Rotterdam
 - Leading edge projects attracts enthusiasm and alternative approaches