

# Development of regional knowledge and innovation systems in 7 Dutch Greenports

Mechanisms/processes of innovation and knowledge sharing in agriculture and rural areas

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# Triple Helix networks for innovation

- The emerging awareness about complex societal problems led to a demand for a new policy approach that can strengthen more radical system transformation processes ([Rotmans, Kemp and Van Asselt, 2001](#))
- The Netherlands have a long tradition of organizing triple helix partnerships for knowledge and innovation in agriculture ([Hessels & Deuten, 2013](#); [OECD, 2004](#); [Spiertz & Kropff, 2011](#))
- Instruments are being promoted in which multi-actor networks collaboratively work on knowledge, innovation and transition towards sustainable agriculture ([Wielinga & Geerling-Eiff, 2009](#); [Beers & Geerling-Eiff, 2013](#), [Hermans, Geerling-Eiff et al, 2015](#))
- Partnerships for innovation can be divided into private, societal and public benefits of partnering and benefits of the innovation that is being developed ([Hall, 2006](#); [Hartwich et al. 2005](#); [Spielman & Von Grebmer, 2006](#))

# Triple Helix networks for innovation

- Many studies have indicated the potential of networks for system optimisation (Birner et al, 2009; Leeuwis and Aarts, 2011)
- 'The sources of innovation in a Triple Helix configuration generate puzzles for participants, analysts, and policymakers to solve. This network of relations generates a reflexive subdynamics of intentions, strategies and projects that adds surplus value by reorganizing and harmonizing continuously the underlying infrastructure in order to achieve at least an approximation of the goals.' (Etzkowitz & Leydesdorff 2000).
- Innovation concerns the successful combination of new technical devices and practices ('hardware'), new knowledge and modes of thinking ('software') and new social institutions and forms of organisation [('orgware') Leeuwis and Aarts 2011; Gibbons et al 1994)]

# Innovation in Dutch horticulture, photo: Wageningen UR



# Case study: K&I in 7 Greenports (2012-2015)

In 7 Dutch horticulture regions actors from research, advice, education, entrepreneurs and policymakers work in triple helix projects with other stakeholders to stimulate innovation.

The Greenports and their innovation programmes:

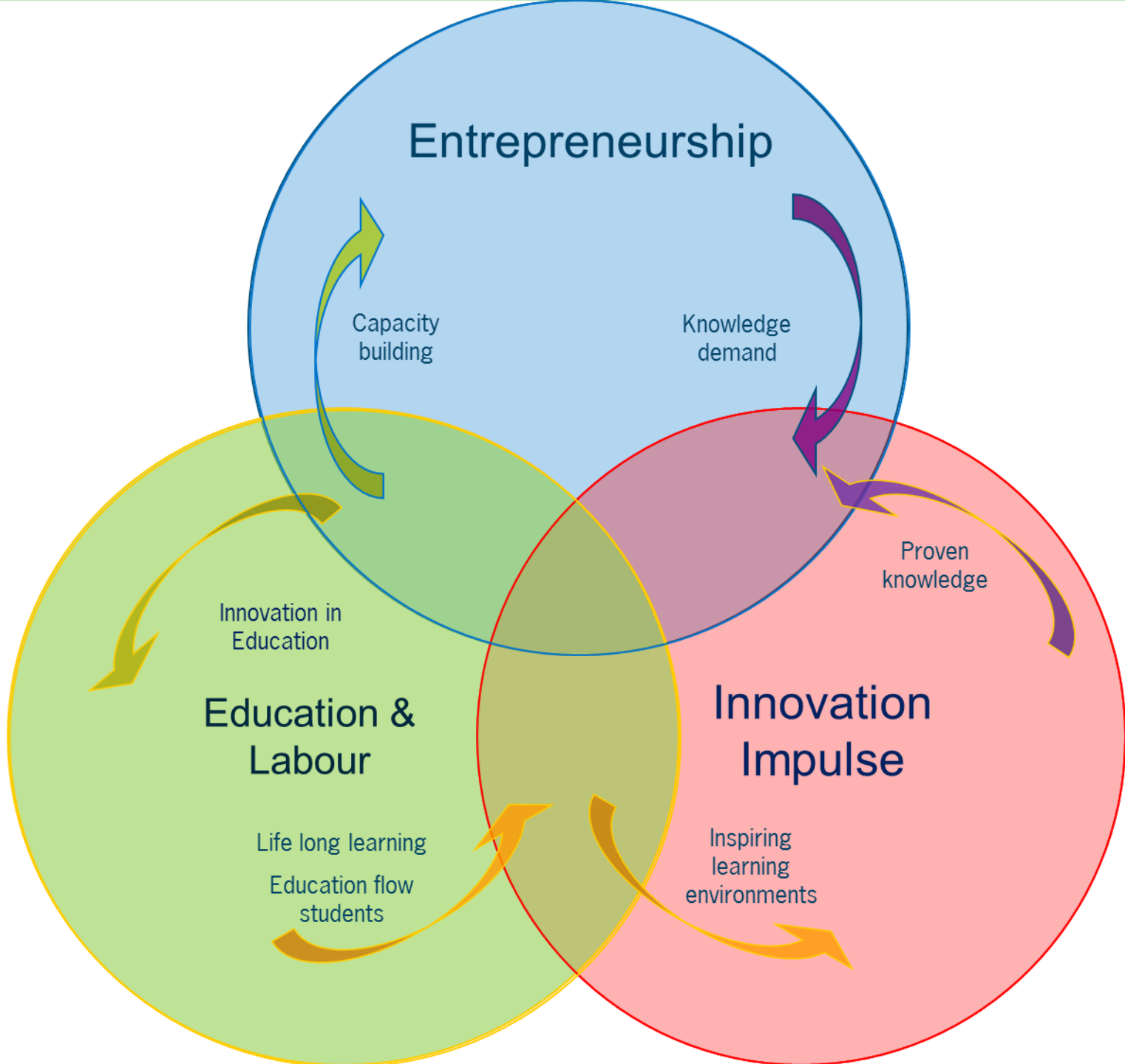
1. Northern North Holland: Agrivizier (EFRD)
2. Aalsmeer: the Innovation Motor (EFRD)
3. Westland-Oostland: 6 Innovation and Demonstrations Centres (EFRD)
4. Duin- en Bollenstreek: IDC flower bulbs and plants (EFRD)
5. Boskoop: Knowledge and innovation impulse (EFRD)
6. Gelderland: Spearhead knowledge and innovation (regional funds)
7. Venlo: GreenBrains (regional funds)

# Map: [greenportlogistics.nl](http://greenportlogistics.nl)



# Question addressed

- 'How should knowledge through research, advice and education be organised in triple helix partnerships, in particular with SMEs, to stimulate innovation in the Dutch Greenport regions?'
- Hypothesis: collaboration between different knowledge actors, entrepreneurs, policymakers and other stakeholders leads to more knowledge valorisation to stimulate innovation in the Greenports.





# Research approach

- Qualitative research approach: literature and desk research, circa 200 interviews, next to workshops, group discussions, other meetings and field trips;
- Twofold approach:
  - monitoring the development of RE-KIS' for best practices, lessons learnt and to serve as a mirror for reflection for further developments;
  - supportive research for the collaborating partners in triple helix partnerships to embed a sustainable RE-KIS.
- This type of both monitoring and facilitating research is identified as reflexive (Van Mierlo et al, 2010) and action research (Almekinders et al, 2009; Van Paassen et al, 2011) through which the researchers are part of the actual developments.

# Methodology

- A framework to monitor the main research factors:
  - development of vision, strategy and agenda setting;
  - collaboration and commitment of the actors involved;
  - activities undertaken and concrete results, incl. dissemination;
  - public and private investments in K&I activities and its balance;
  - iterative learning: the enhancement of developments based on follow-ups, reflection and rolling insights.
  
- Specific questionnaires for interviews and a toolbox with several specific research instruments were developed to perform a.o. a network and stakeholder analysis and to map the different phases of the RE-KIS'.

# Photo: Wageningen UR



# Conclusions

- After thorough pre-investments in time and effort (1-3 years), authentic regional, unique visions, agendas and approaches were developed;
- However adaptations and interventions were necessary to renew collective strategies and approaches indicating a dynamic process;
- Most programme and project aims were accomplished in the end;
- However the term 'regional' was defined differently. The best triple helix partners weren't always found within the region;
- Definition and level of innovation differed per Greenport region: 1) incremental 2) market breakthrough 3) technological breakthroughs and 4) radical innovation (Chandy en Tellis, 1998);
- Many business partners and SMEs were involved in the K&I activities;
- However the capacity or will for private investments is rather feeble;
- Public investments are a necessity to sustain the K&I infrastructure.

# Recommendations

- In order to establish a regional triple helix RE-KIS, all three parties should have a role in the decision making process. Top-down governance does not work and give it time!
- Furthermore it should collectively be clear how innovation is defined and which strategy is followed to accomplish the ambitions being set;
- A RE-KIS acquires:
  - an integral approach from scientific research to knowledge valorisation;
  - a transdisciplinary approach from question to implementation;
  - cross-sectoral networks e.g. other agro sectors, health, water, energy;
- Acknowledge that the private sector will not invest substantially in the K&I infrastructure; structural public funding is a requirement;
- In PPP distinguish between **people-planet**-profit vs **profit**-people-planet driven projects, for which private investments are likely to be higher;

# Recommendations

- Instruments for K&I and financial support, both public (e.g. SBIR, tax reductions) and private parties (e.g. banks, business angels, venture capitalists), should be better connected. This is often not yet the case;
- More synergy between different knowledge functions (research, education, extension, advice) and an integral mix of instruments for a real K&I chain;
- Regions should work on establishing interregional K&I agendas in which umbrella topics can be better tackled next to own agendas, to avoid overlap;
- Horticulture does not operate in a regional vacuum. The TH partners should set the regional agenda but extend their K&I network and collaborate on national and international level (e.g. in ERIAFF on EU level).

# Implications for further research

- To address challenges like socio-economic dynamics and climate change i.r.t. rural development, Quadruple Helix (Carayannis and Campbell, 2009) or Quintuple Helix frames (Carayannis and Campbell, 2010) seem more appropriate;
- The role of public private partnerships in relation to European innovation partnerships. Insight in the effects of PPP i.r.t. how they support different functions of innovation systems and act as an orchestrating device within the mix of innovation instruments, is limited (Hermans, Geerling-Eiff et al, in prep.);
- Roles, positions, links and dynamics between RE-KIS, N-AKIS, EU-AKIS and GLOB-AKIS;
- Changing roles and dynamics of cooperation and alliances between the *'modern knowledge workers'*
  - researchers, educators, extension workers, advisors, knowledge and innovation brokers, etc.

Photo: Rabobank Bollenstreek, by Sven van der Vlugt





Thank you for  
your attention!

Questions and  
discussion

