Genomics as a new innovation regime: implications for governance

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Valorisation as a new mode of governance in medical genomics?

*Genomics as a new innovation regime*
Two-year project, Centre for Society and Genomics

- Emergence of genomics involves a transformation of knowledge production in human genetics
- This transformation also has implications for the process of knowledge application in genomics, changing the relationship between the bench and the clinic
- ‘Valorisation’ as a new challenge in genomics
World of innovation can be described on different levels:

- Macro or landscape level of (national) *innovation system*
- Meso or field level of *innovation regimes*
A new political economy of knowledge production, changing contract between science and society …

*Valorisation* as a response to ‘innovation paradox’
A short history of valorisation

Concept of *valorisation* introduced in Dutch innovation policy discourse at the end of the 1990s

- Defined as *economic* valorisation of academic research
- Acquires special significance in the context of European Lisbon strategy (2000), aiming at a knowledge economy
A national strategy for genomics

Dutch advisory committee *Knowledge Infrastructure Genomics* (Wijffels, 2001)

- Integral approach, looking at *innovation chain* as a whole

- Public private partnerships (PPP) and valorisation as key factors, fostering the *protection, transfer and commercial exploitation* of knowledge

- Genomics as foundation for the future of Dutch industry: establishment of Netherlands Genome Initiative, fostering *public private partnerships* (NGI, 2002)
NGI Strategic Plan 2002 - 2006

Develop a world class knowledge infrastructure … firmly embedded in society and … yielding a continuous influx of new commercial applications (Strategic Plan 2002-2006)

- **Valorisation plan**: licensing intellectual property and supporting business start-ups

- **Translational research**: does not entail commercialisation, but inclusion of medical innovations in (insured) health care
Evaluation of NGI valorisation activities (Technopolis 2007)

- Successive valorisation plans had tendency to meander: from *top-down* approach emphasising industrial partnerships to *bottom-up* approach supporting research organisations.

- In terms of *valorisation output* – patent applications, licenses, spin-offs – NGI performs well.

- *Translational research* did not get sufficient attention.

- NGI (2008–2012) will place more emphasis on the utilisation of knowledge by its core activities … valorisation will get extra attention and will be linked to *quantitative targets* (Making the most of genomics, 2008)
Partners in the Polder (2009): a vision for the life sciences in the Netherlands

- Valorisation as “process of value creation from knowledge by making it available for economic and/or social use by translating it into competitive products, services, processes or new commercial activities” (Dutch Innovation Platform)

- Not only dissemination activities, but also – demand driven, user-inspired – research programming and interaction with stakeholders
Valorisation as mode of governance: value that can be measured

- Quantified valorisation targets for genomics consortia: dissertations, patents, start-up companies, industrial collaboration
- Valorisation events and meetings between researchers and entrepreneurs: Genomics Momentum, valorisation managers best practices exchanges, business development meetings
- Roles for private parties and Technology Transfer Offices (TTOs) are described in valorisation plans of consortia
- Valorisation is promoted with additional financial instruments: Venture Challenge, NGI Pre-Seed Grant, BioGenerations Ventures, and NGI Valorisation Award

“Developments (in Europe and the USA) show that a country has to act aggressively, and needs to have the ambition to become and remain one of the top bioregions in the world”

(Partners in the Polder 2009)
Medical genomics: a new innovation regime

From clinical genetics to medical genomics:
• Large-scale studies of genetic risk factors for common diseases
• Data collections as platforms linking public and private interests
• Valorisation a new challenge?
Value creation in medical genomics

- How are processes of value creation in medical genomics as a new *innovation regime* shaped by valorisation as a dominant mode of governance on the *innovation system* level of NGI policy-making?

- Importance of other modes of value creation in regime of medical genomics through *translational research*, based on reciprocal interactions between the bench and the bedside?

  Martin et al. *From bedside to bench: communities of promise, translational research and the making of blood stem cells* (2008)
  Wainwright et al. *Stem cells, translational research and the sociology of science* (2009)
Our research project: next steps

• In what ways is – economic and social – value being created in various and changing processes of knowledge production in the field of medical genomics (as a new innovation regime)?

• What is the significance and impact in this context of valorisation as dominant mode of governance?

• *Duchenne muscular dystrophy* and *Alzheimer’s disease* as case studies