

From policy mix to policy remix: U.S. success examples in Norwegian science and innovation policy

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Starting point 1

- Research-based innovation is supported by many different policies – a policy mix (Flanagan et al. 2011) – that has co-evolved with and within a specific environment
- The varieties of capitalism literature: research and innovation policies evolve in often unique historical and institutional settings (e.g. Whitley 2002, 2003), strengthening their specificities
- Many policies and initiatives are also imported from other settings, not least the U.S. (Stone 1999)
- These are (more or less) adapted to the new local setting leading to what we may call a “policy remix”

Starting point 2

- Examples of popular initiatives migrating into other countries' and regions' policies: science parks, technology transfer offices, Bayh-Dole style legislation, mission-oriented policies and agencies like DARPA and SBIR
- STI scholars sometimes promote them, but more often they seem to warn against simple “emulation” of policies (Mowery & Sampat 2005; So et al. 2008) and that “one size does not fit all” (Cozzens 2006; Benneworth et al. 2016)
- Aim of my paper: to understand in more detail how this remix process unfolds

My questions and cases

- What happens in the remix process – is it “copy and paste” or is something more complex going on?
- Which role do the “success examples” play in different phases of an initiative’s development?
- The establishment of science parks in Norway in the 1980s
- Changed legislation and new TTOs in the 2000s

Method and data

- Two case studies with an aim of comparing them to allow for insight and analytical generalisation about “remix” processes
- Different sources of archival data:
 - Various documents gathered for a study of the University of Oslo’s innovation activities from 1960-2011 (Gulbrandsen 2011)
 - All weekly newsletters and special reports from the science adviser at the Norwegian embassy in Washington from 1999-2003
- Interviews with various stakeholders at the time when the science parks were first reorganised (Gulbrandsen 1995) and when Norway introduced a Bayh-Dole-like legislation (Gulbrandsen 2003)

Theoretical lenses

- Neo-institutional theory (e.g. Colyvas & Powell 2006)
 - Legitimacy
 - Taken-for-grantedness
- Phases of implementation
 - I call them “Idea and consensus”, “Implementation” and “Operation/Re-orientation”
- Other useful terms
 - Social entrepreneurs, innovation champions and gatekeepers (van de Ven 2003)

Case 1: Science parks

Science parks in Norway

- Established in the 1980s inspired in particular by the U.S. (Stanford)
- Failed to attract industry to a major degree and become meeting places between academia and industry
- Have fared reasonably well as incubators, but not limited to spin-offs from the universities
- Provided host universities with lots of extra office space

- “Teknostallen” (the technology garage) near the technical university in Trondheim (1985)
- The High Technology Centre at the University of Bergen (1986)
- Oslo Science Park adjacent to the university (1988)

An imported idea, public attention

A small group of people in Oslo started talking about a science park late 1983

“A part of Oslo may now become a miniature Silicon Valley” (Aftenposten newspaper, 1 February 1984, headline “Scientists are saving the Oslo industry”)

“The idea comes from abroad but is tailored to Norwegian preconditions” (NHST newspaper, 22 November 1984)

“[The universities] would do well to change their attitudes instead of copying the successes of others” (special advisor to the Prime Minister, Aftenposten, 21 May 1985, adding that “science parks is probably a good idea)

“Science parks are found at most leading universities, although the Oslo one should not be a pure copy of these” (Oslo Univ. Newsletter February 1986)

“After only 2,5 years the Lund science park had 65 companies in it” (Aftenposten, 24 June 1986)

“We will not make this into a Norwegian Silicon Valley” (project leader in Dagbladet newspaper, 8 August 1987, adding that “the university will dominate” and “all disciplines are needed in the park”)

The idea and consensus phase

Large site visit to the U.S. and other countries in 1984 concluded:

- “When establishing a science park it is paramount to adapt to local circumstances and not blindly follow other models”
- “The visit revealed how much remains to be done in Norway with respect to systematic efforts to stimulate innovation”

The role of the success examples in this phase

- Gain attention and support for the (bottom-up) idea
- Moderating statements and lesser-known examples strengthen the legitimacy of the idea, also tied to a situation of “crisis” (industry decline)
- The main audience seems to be internal to the university: a collective decision in a system with weak and possibly sceptical university leadership

The implementation phase

- *“All Faculties have voted to support the science park [at the University of Oslo], which is considered nothing less than a miracle” (Dagbladet, 8/8/1987)*
- None of the university-internal documents regarding the practicalities of the park mention international examples at all
 - Challenging tasks related to securing funding, land and permission
 - No referrals to solutions elsewhere (not even nationally)
- “Local preconditions” not mentioned but implicitly taken into account
 - Innovation centre based on industrial membership fees
 - Regulations of university ownership in external organisations

The operation/re-orientation phase

- Huge crisis: park planned in a period of strong growth became operational in a period of economic crisis and property market collapse
 - Lack of industrial participation
 - Changed economic liabilities for the university
- Major restructuring of the “border zone”, including the park, into part incubator, part TTO, part cross-disciplinary office space
- Benchmarking carried out by the organisations themselves
 - Linkages to “normal” science parks, evaluations, membership in organisations for science parks
 - Slow adaption to the local context but also more similar to other science parks over time

Case 2: Technology transfer offices (TTOs)

TTOs in Norway

- Created after legislative changes in 2003 granting the rights to commercial exploitation to the universities rather than individual professors
- All universities now have TTOs, most as external limited companies
- Increasing patenting, a few moderately successful spin-offs, some income is generated through license deals

“The Bayh-Dole Act seems to have led to a significant increase in technology transfer ... but important success factors have been the infrastructure for commercialisation support, significant investments in both commercialisation and research ... and taking care of the needs of scientists e.g. for publishing” (White Paper on commercialising research, 2001)

Setting the scene for TTOs

The Ministry of Research argued that legislative changes were necessary to “create homogenous rights for all publicly funded research”, “increase commercialisation” but warned against “the Stanford model” (2002)

The ministry expected the universities “to establish units to support commercialisation” and underlined that “they will not be profitable in the short and medium term” (2003)

“[An external TTO] similar to what is found at Stanford and Cambridge will make it easier for the university to exchange competences and build national and international ... networks” (University of Oslo planning document, 2003)

“Time has shown that the fear of commercialisation has been largely unfounded ... it is the elite universities of the world that have been successful in this activity” (UiO rector Underdal to the magazine Apollon, 2003)

TTOs – idea and consensus phase

- Balanced discussion of many different international cases and fairly modest expectations
- Stanford OTL director invited to Norway (where he infuriated some representatives of the old science parks)
- A clearer political mandate in the form of legislative changes and the letter from the Ministry
- As in the science park case, success examples largely served to convince the sceptical researchers more than anyone else – not the general public or the policymakers

TTOs – implementation phase

- Consultants sent on field trips to California and Boston – and a few other places
- Information about practices elsewhere about e.g. rules for TTO employees, competences needed etc. were at least to some extent taken into account
- Strong network between the Norwegian universities and collective learning processes – also joined by the common (negative) experience with the science parks
- Facilitated by a strong co-ordinated role of the Research Council of Norway with a longer experience in commercialisation and giving basic grants to the TTOs

Operation/reorientation phase

Many challenges also for the TTOs

- Creating legitimacy with little or no income to show, coping with the university politics and battle for resources
- Who should pay for their basic operation in a startup-phase
- Do you need them if they will never generate a surplus?

Formalised and institutionalised networks between TTOs and their personnel, inspiring e.g.:

- Reorientation from spin-offs towards licenses
- Reorientation from “supporting all disciplines” to stronger specialisations
- Mergers among the TTOs to create larger units

Conclusions 1

- The remix process different from what we normally think: the TTOs and science parks started out as very different from their sources of inspiration but have become more similar
- Policymakers often critical to universities' invocations of foreign success stories, knowing international examples better than most researchers
- Bayh-Dole was reasonably well analysed and only a minor justification for the changes in Norway
- Learning from the science park case to the TTO case, but also very different contexts and processes: top-down versus bottom-up and number and type of actors involved

Conclusions 2

Stanford, MIT and so on in early phases act more as “success” than as “examples”

- Convince university-internal sceptics
- Invoke elite universities and securing symbolic and political support and legitimacy
- Learning part small for science parks, somewhat more pronounced for TTOs

Success examples focus the attention in complex situations of partly competing perspectives, problems and logics

In later phases more concrete learning can be seen, but from a broader set of examples than the famous ones

Thank you!

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Web page for current largest project:

<http://www.sv.uio.no/tik/english/research/projects/osiris/>