

Mobilizing for change: Research units in emerging scientific fields

By Tommy Clausen[#], Jan Fagerberg^{*†‡} and Magnus
Gulbrandsen^{*}

[#]Nordlandsforskning, Norway

^{*}TIK, University of Oslo, Norway

[†]CIRCLE, Lund University, Sweden

[‡]IKE, University of Aalborg, Denmark

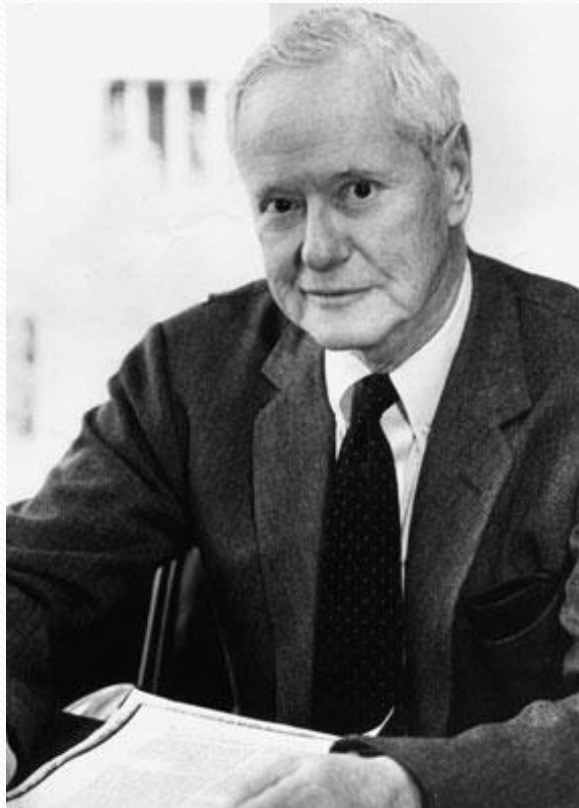
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Science as an evolving structure

- New problems – and/or insights – lead to the emergence of **new scientific fields** within or across disciplines
- Existing social sciences relatively recent examples ...
- The process goes on: **Innovation studies, entrepreneurship, STS ..**
- **Explore project:** Map & understand cognitive, social, and **organizational** aspects



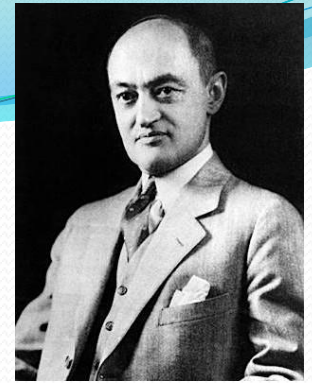
An evolutionary perspective ?



Robert K. Merton

- Three evolutionary processes: **variety creation**, **retention** and **selection**
- Variety creation : **A new identity or program** ("differentiation", Merton) emerge as scientific entrepreneurs react to new challenges and opportunities
- Retention: To survive the initiative needs to reproduce itself and expand (finance positions, recruit and train new entrants etc.), **resource mobilization** (Hambrick and Chen 2008)
- Selection: Support and resources obtained from the selection environment(s) in **competition** with other worthy purposes (requires "legitimation" and "adaptation")

What determines fate of local mobilization efforts?



“**new scientific/intellectual movements**” (as “collective efforts to pursue research programs (...) in the face of **resistance** from others in the scientific or intellectual community” (Frickel and Gross 2005, p. 206).

- Sources of “resistance” : conflicts about **cognitive authority versus control over resources** (Braun 2011)
- Avoiding cognitive conflict: Position the initiative as a **complement rather than alternative** to incumbents (socially needed knowledge)
- Avoiding resource conflict: Seek **external support**, a diversified financial structure ?
- Adapting to **selection criteria** (academic, external)
- Scientific **entrepreneurship** essential

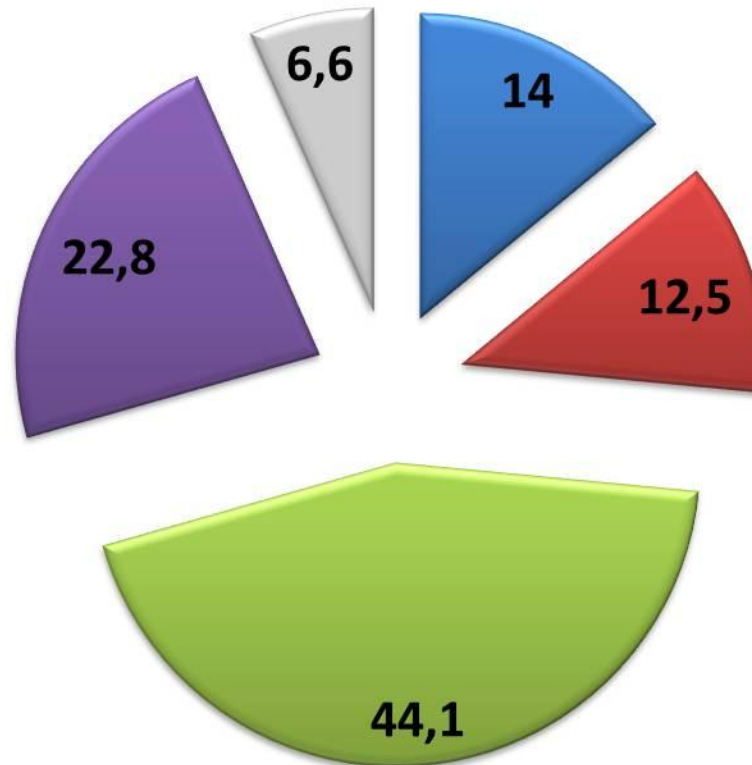
Some hypotheses

- New units in emerging fields are mainly driven by the “**need for new knowledge**”
- **Academic entrepreneurs** essential
- **Universities** the most fertile environment for such initiatives (because of the need for constant support)
- Without **support** new initiatives will fail, in universities, : **support from the top is essential**
- **External finance** may dampen conflicts about resources but also lead to **distractions**
- Without a strong emphasis on education (**Master & PhD**) the new initiative is not likely to persist

A survey of 136 research units in innovation studies & related fields

- All over the world: 40 countries and three continents; US & UK largest
- They focus on **innovation & entrepreneurship**, often in **combination**, sometimes extending to **science/research policy** and **STS**
- Appr **80%** located to **universities**; various organizational forms, mostly centers, few departments, most participate in **teaching** in some way or another
- Around 1/3 of these have their own **Master program**, similarly for **PhD program**

The focus of the units



- Only innovation
- Only entrepreneurship
- Combining innovation and entrepreneurship (sometimes including other fields)
- Combining innovation with one or two other fields (but not entrepreneurship)
- Other

Key reasons for the establishment

- Academic **entrepreneurship** (84%)
- Need for **new knowledge** (68%)
- Need for more **cross-disciplinarity** (57%)
- Need for new **teaching** program (34%)
- Initiative from **policy makers** etc (30%)

Barriers and Support

- **University leadership** support crucial (53%)
- Support from **other parts of university** important (42%)
- Support from **policy-makers** important (38%)
- Strong **skepticism** from traditional disciplinary departments (29%)

Activities

(high extent):

- Research on **own defined** problems (77%)
- Research on **externally defined** problems (48%)
- Policy advice (40%)
- Evaluation (23%)
- Consultancy (21%)

Resource mobilization:

- Basic/core funding (38%)
- Other public (28%)
- Research council (26%)
- EU (19%)
- Other university (13%)
- Foundations (13%)
- Other international (10%)
- Private firms (8%)

Correlations between main activities and funding sources

	Basic/ core funding	Research council	Other national funding
Research on own defined problems	.227**	.168	-.034
Research on externally defined /negotiated problems	-.236**	.144	.263**
Policy advice	-.241**	.177*	.366**
Evaluation	-.213*	.195*	.321**
Consultancy	-.241**	.262**	.228**
Master program	.325**	.05	-0.10
PhD program	.358**	.20**	.016

N = 136, * sig at the 0,05 level, ** sig at the 0,01 level

Studying failures: Case studies

- SISTER (Sweden): Outside university, difficult to get permanent funding, gradually less academic, closed down
- CRP (Australia, University of Wollongong),:Initially research council funding, later university finance+ contract research, no teaching program, problem to keep focus, closed down
- CPA (US, MIT): Policy research, no teaching, entrepreneur had a stroke, closed down, later new center with teaching & broader profile, 1998 own division (ESD): 60 PhD students, 300 Master students

Studying successes

- SPRU (United Kingdom), entrepreneurship from several sources, strong support from the top (but declining?) and externally, engagement in both research and teaching (and increasingly so), developed into international hub, building legitimation (RP)
- CES (Babson, US), strong support from the top (strategic move) and externally (private foundations), initial focus on curriculum development, increasingly on research, building legitimation (BCERC 1981, GEM)

Some lessons for entrepreneurs

- **Support from the top** essential but difficult to maintain
- Position the initiative as an **supplement rather than a competitor** to existing fields
- **External support** useful
- **Multi-level selection:** Opportunities and threats
- High **basic/core finance** essential for “**independence**” in research
- In the longer term external funding needs to be transformed into **core funding**, difficult to do outside universities
- In universities **engagement in teaching** is one way to increase legitimacy and, thereby, attract **basic/core** finance

Implications for university politics

- Overcoming **disciplinary narrow-mindedness** difficult but **necessary** in a changing world: “scientific fields are no longer coterminous with academic disciplines” (Whitley 2000, p. 302)
- Continuous **support from the top leadership of the university to such experimentation** essential (to counteract inertia)
- Multi and interdisciplinary fields are not **temporary** phenomena (but constant features of well functioning universities) and require **appropriate organisational structures**
- **Cognitive control** & educational programs on **master & PhD** level essential for these fields’ survival (just as in other areas of science)
- **Fair, unbiased criteria** for evaluation and distribution of resources necessary (why should a paper in Nature count less than ...?)