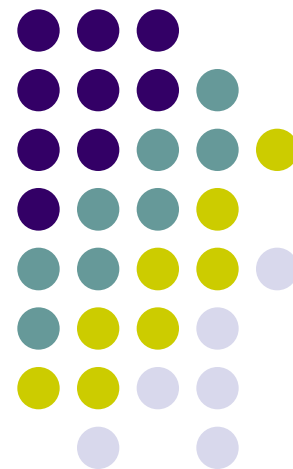


# Evaluations of competence brokering *-a successful Norwegian innovation instrument?*

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# Outline



- The history and theoretical foundation
- Characteristics of competence brokering
- Evaluations of competence brokering
- Main findings
- Some challenges

# The history of competence brokering in Norway



- In competence brokering a **broker** assists a firm to develop its own **R&D project**.
- A **researcher** from an R&D institution are involved in the accomplishment of the project.
- The process is heavily dependent on the broker's personal ability and established networks, the activities are mostly conducted by brokers from **R&D institutions**
- A **pro-active working method**; it is the broker that makes contact with the firm
- These working methods has been developed through several programs founded by the Research Council of Norway

# The history, cont.



## TEFT-programme (1994-2004)

- The historical roots of these **pro active working methods** could be traced back to the old TEFT programme (“Technology transfer from R & D institution to small and medium sized enterprises”)

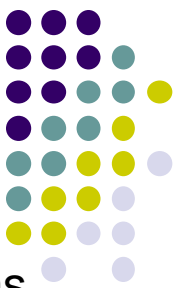
## The Competence Brokering Programme (2004-2007)

- Succeeded the second version of the TEFT programme in 2004
- Routines and procedures from TEFT was continued with some adjustment

## The VRI-programme (2007 →)

- The competence brokering programme merged into the new VRI-programme in 2007 (Programme for regional R&D and innovation)
- Became one of the three main innovation instruments in VRI

# The theoretical foundation of competence brokering



- Programme and innovation instruments are informed by theoretical ideas (programme theory) and the ongoing discussion between those analysing innovations and those developing innovation programs

## **Actor perspective:**

- Studies on innovation during the 1980s- and early nineties was emphasising technological development at firm level
- Focus on how innovation could be stimulated through linkages between R&D institutions and firms (Malecki 1991)
- Linear understanding of innovation

## **System perspective:**

- Innovation as an interactive and complex process → the innovation system perspective (Lundvall 1992, Cooke 2001)
- Development of the national/regional system,
- Lack of interaction between firms and the R&D sector
- A wider definition of innovation (technological, organisational, market)

# Theoretical foundation, cont.



- **TEFT;**
  - represented an **actor perspective**,
  - technology development at firm level
- **Competence brokering programme:**
  - introduction of ideas from the **system perspective**
  - development of the firm, the R & D institution and the region
  - in practice the emphasize was on the firm
- **VRI-programme**
  - a stronger emphasize on development of a **regional innovation system**
  - competence brokering one of several instruments
  - the focus on the region reflects a reorientation of the innovation system approach (from national level to the regional)

# Structural characteristics of competence brokering



## Funding

- Competence brokering programme (2005):** 1,1 mill EUR from the Research Council of Norway and 1,2 mill EUR from regional partners (the county).

- VRI-programme (2008):** 10 mill EUR from the Research council and approx 10 mill EUR from regional partner

- competence brokering only one of several innovation instruments within VRI

- the programme also founded a number of innovation research projects

## Organisation

- VRI-programme:** 15 regional initiatives

- each initiatives with their own strategy and priorities (selected industries etc)

- managed by research institutions, the county etc

# Characteristics of CB, cont



The content of a competence brokering projects:

- Small projects (approx 10-20 000 EUR)
- Emphasise on preliminary operation
  - testing and documentation of a technology
  - small step changes
  - market research
  - investigate possibilities for larger projects
  - developing network
  - competence upgrading

*→early phase results, increase firms ability to innovate*



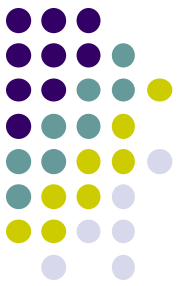
# Evaluations of competence brokering



- Independent evaluations from research institutions (process and results evaluations)
- **The competence brokering programme**
  - several reports from Institute for Research in Economics and Business Administration (SNF-report 08/06, 10/07)
  - survey, case studies
- **The VRI programme**
  - reports from various regions
  - Hordaland (SNF-reports 09/09, 23/09, 27/10)
  - Møre & Romsdal (Møreforskning notat 9/2010)
  - Agder (Agderforskning report 05/2010)
  - evaluations of results among firms participating in competence brokering and other innovation instruments (mobility, dialogue and participation etc)

# Findings from evaluation of the competence brokering program

## (Survey 2007, 68 responses, response rate 41%)



**Table 1: To what extent has the firm projects given the following results for the firm? The alternatives are ranked based on an average score from 1 (not at all) to 4 (to a high extent), the % that record 3 or 4 are presented in parentheses.**

	Firms with some R&D experience (N=31) <sup>1</sup>	Firms with little R&D experience (N=29/31) <sup>2</sup>	All (N=60- 62)
Increased knowledge about R&D environment	2,81 (78 %)	3,00 (78 %)	2,91 (78 %)
Increased competence on product and process development	2,50 (59 %)	2,70 (67 %)	2,60 (63 %)
Improve the firm's network	2,55 (61 %)	2,42 (48 %)	2,48 (55 %)
Increased competence on planning and conduct of projects	2,31 (50 %)	2,47 (43 %)	2,39 (47 %)
Improved production process	2,03 (42 %)	2,28 (48 %)	2,15 (45 %)
Improved profitability	2,03 (39 %)	2,21 (38 %)	2,12 (38 %)
Improved organization and leadership (management)	1,87 (27 %)	2,10 (38 %)	1,98 (32 %)
Cost reduction	1,68 (19 %)	1,97 (27 %)	1,82 (23 %)

<sup>1</sup> Includes firms that have purchased R&D services over the last three years.

<sup>2</sup> Includes firms that not have purchased R&D services over the last three years.

# CB-programme, cont.



## R& D Network

**Table 1: In what way has the conduct of the firm project contributed to the improvement of the firm's relationship to R&D institutions? The respondents have answered on a scale from 1 (not at all) to 4 (to a high extent), average score from 1 to 4, the % that record 3 or 4 are presented in parentheses.**

	Firms with some R&D experience (N=30-32) <sup>1</sup>	Firms with little R&D experience (N=30-31) <sup>2</sup>	All (N=60- 62)
The firm project has linked the firm with researchers and R&D networks in the <u>county</u>	2,44 (56 %)	2,68 (61 %)	2,56 (58 %)
The firm project has linked the firm with researchers and R&D networks <u>nationally</u>	2,48 (51 %)	2,32 (32 %)	2,41 (42 %)
The firm project has linked the firm with researchers and R&D networks <u>internationally</u>	1,80 (17 %)	1,60 (10 %)	1,70 (13 %)



# CB-programme, cont

## Other findings

- Most of the projects were conducted according to the plan (83%).
- Most of the firms were satisfied with the work of the competence broker (85%)
- Most of the firm reported that they were positive to use a researcher in another R & D project in the future (90%)

# CB-programme, cont

(survey among researchers 2007, 65 responses, response rate 43%)

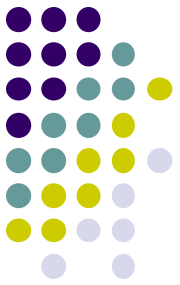


Table 1: To what extent has participating in a CB-projects provided the following advantages for you as a **researcher**? The respondents have answered on a scale from 1 (not at all) to 4 (to a high extent), **average score from 1 to 4, the % that record 3 or 4 are presented in parentheses.**

	All
Increased insight in sectors of the industry	2,77 (69 %)
New contacts in the industry	2,68 (66 %)
Increased insight in the relevance of R&D for the industry	2,45 (45 %)
Increased insight in research dissemination	2,47 (45 %)
Increased product or process development competence	2,38 (43 %)
Improved regional disciplinary network	2,32 (42 %)
Improved national disciplinary network	2.13 (31 %)
Increased project planning and conduct competence	2,03 (21 %)
Increased project management competence	1,95 (14 %)
Improved international disciplinary network	1,52 (10 %)

# Evaluations of the VRI-programme



- Evaluations conducted in different regions (Hordaland, Møre & Romsdal, Agder)
- Evaluations of results among firms participating in competence brokering and *other innovation instruments* (mobility, dialogue and participation etc)
- In total 1175 firms participated in VRI in 2008, 52% of these took part in competence brokering



# VRI and competence brokering

**Agder** (Agderforskning rapport 05/2010)

- VRI is evaluated as *"fairly successful for participating firms"*
- VRI has improved firms network, especially towards other local firms and towards the University in the region
- It has contributed toward *"development of new and relevant knowledge"* among participating firms
- There are less *"concrete innovations"* (new products, new processes)
- Several projects have been *"continued"* after VRI

# VRI and CB, cont.



**Møre** (Møreforskning notat 9/2010)

- *"most firms have positive experience with competence brokering and pre-projects"*
- Participating has *"strengthening firms network, especially towards other firms and institutions in the region"* (67% to a high or very high extent)
- Participating has *"increased firms knowledge about R &D institutions"* (80%)
- Firms are also *"positive towards new projects that includes links with R&D institutions"*



# VRI and CB, cont



## Hordaland

Case studies of 15 firms that have been involved in competence brokering (10 firms) or mobility (5 firms))

- In general firms are fairly satisfied with their participation
- Participation has given firms increased knowledge about how to use R&D institutions when innovating
- Has provided networks towards researchers at R &D institutions or it has maintained existing networks
- Contributions from VRI has been crucial for the accomplish of the project (additionality)

# Main findings



- Consensus among the evaluators
- Firms participating in competence brokering are satisfied with this innovation instrument
- *Early phase results* → increase firms ability to innovate (competence, network, facilitate for larger projects)
- CB can be evaluated as successful at firm level
- CB do have an impact, but it is important that the instrument is linked to other innovation instruments

# Some challenges



- A majority of participating firms have either R & D experience or have been participating in similar projects  
→ originally the aim of competence brokering was to support firms with none or limited R & D experience (additionality)

*Should CB be directed towards experience or non-experienced firms?*

- Competence brokering have mainly contributed towards linkages between firms and R & D institutions in the region

*Is there a danger of a lock-in, and what is the possible consequences of such situation?*

*(has CB become more regional oriented after it become a part of VRI?)*



# Some challenges, cont.

- A high numbers of firms are participating in small projects, many of the participating firms are asking for more resources and more long term co-operation with R & D institutions

*Should we go for fewer and larger projects to ensure results at firms level?*

- Even if CB do make an impact for participating firms we do not have any solid evidence on how CB contribute towards strengthen R & D institutions role as partner for the industry (institute objective, development of the regional system)

*How can we ensure that CB also strengthen R & D institutions role as partner for the industry?*



# Some challenges, cont.

- It can be difficult to balance a firm objective with an institute objective in CB (and VRI), for instance when it comes to which R & D institutions that should be responsible for organising competence brokering and providing research competence in firm project

*→if the main objective is firm development the emphasis should be on R & D institutions that are experience with working with the industry (making does good at doing it better)*

*→if the main objective is institutional development the emphasise should be on R & D institutions with little industry experience (greatest potential for change)*

*(or should the choice of R & D partner solely be decided by the need of the firm?)*



