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# EARTO Annual Conference 2008

## RTO impact on SMEs: a Case Study from Finland

### May 2008



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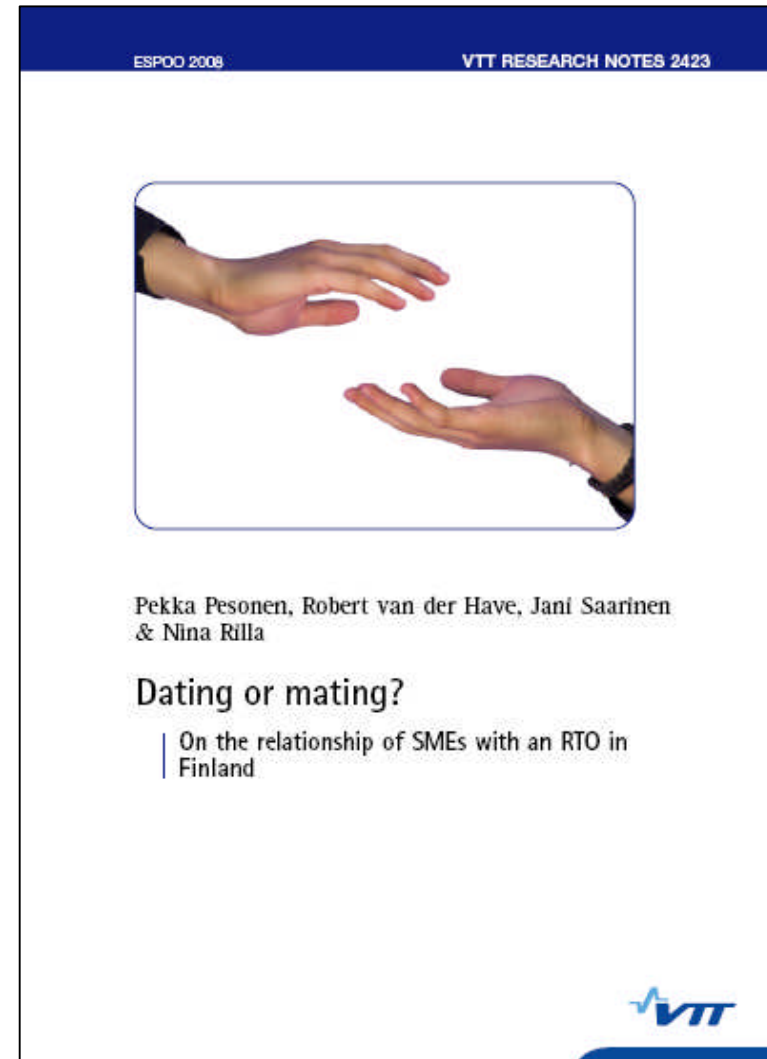
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<http://www.vtt.fi/inf/pdf/tiedotteet/2008/T2423.pdf>

## Introduction

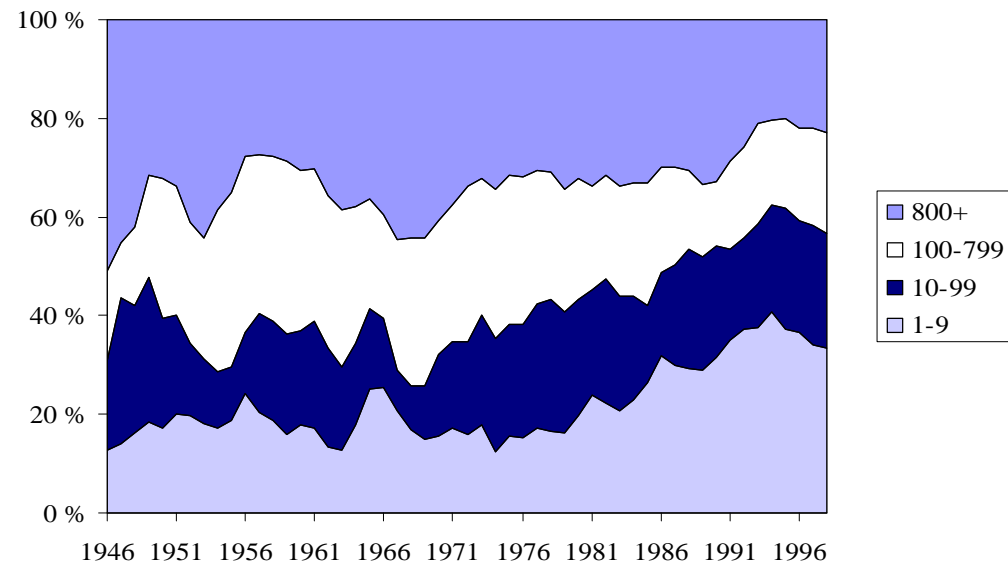
# Starting point

SMEs are significant for VTT

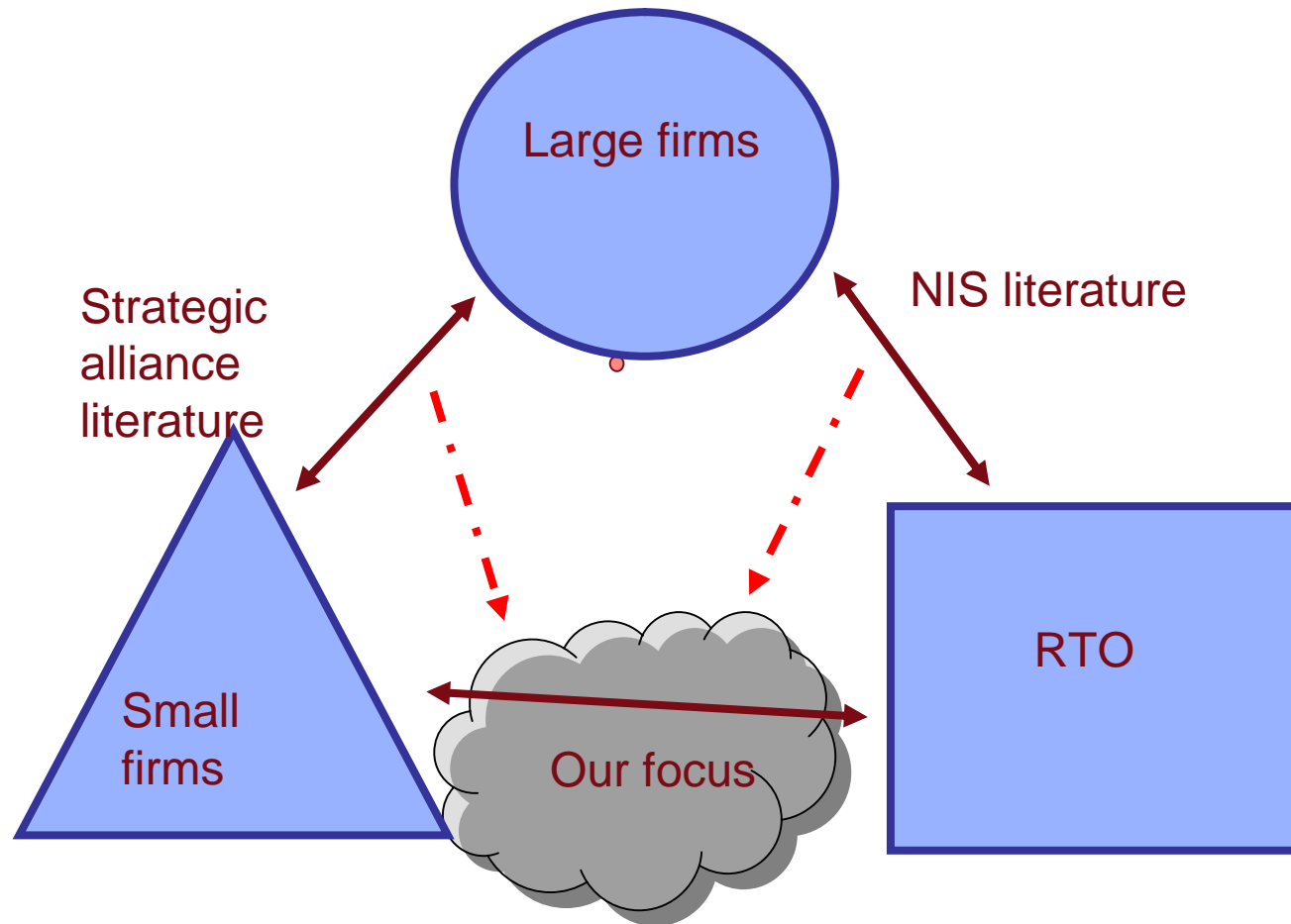
SMEs are really innovative

Demand for information about innovation processes of SMEs

What is the purpose of VTT for SMEs?



# The relationship of SMEs, large firms and RTOs in NIS



## Research questions

What are the characteristics of SMEs collaborating with the RTO?

- e.g. 'new' or 'mature' innovators, (inter-)national players, 'open' innovators, value chain position.

What kind of capability developing services and knowledge do SMEs seek from the RTO and in which phases of the innovation trajectory?

What kind of capabilities and innovations were developed in relation to the characteristics of collaboration?

What is the relationship between collaboration, patents and growth over time, and is there an impact of various forms of collaboration?

Data

## Data collection

### Sample:

- Initial set -> All SME customers of VTT 2005 (1687 firms, sized 10 – 249 empl.)
- Criteria for selection of cases:
  - Minimum project size € 1000,- (1066 firms)
  - Availability of CEO name (1010 firms)
  - Removing bankruptcies and public organisations
- Resulting sample 1007 firms (= target population)
  - 281 'error mails' returned -> re-checked
  - 182 firms not contacted
- Questionnaire reached 825 firms, 175 responses (21.2 %)

Data

## Integrated Datasets

VTT customer data: project size, firm size, SIC-code, location

Collected patent data (applications + granted patents in Finland) for all firms for period 1960 – 2006

(source: PRH)

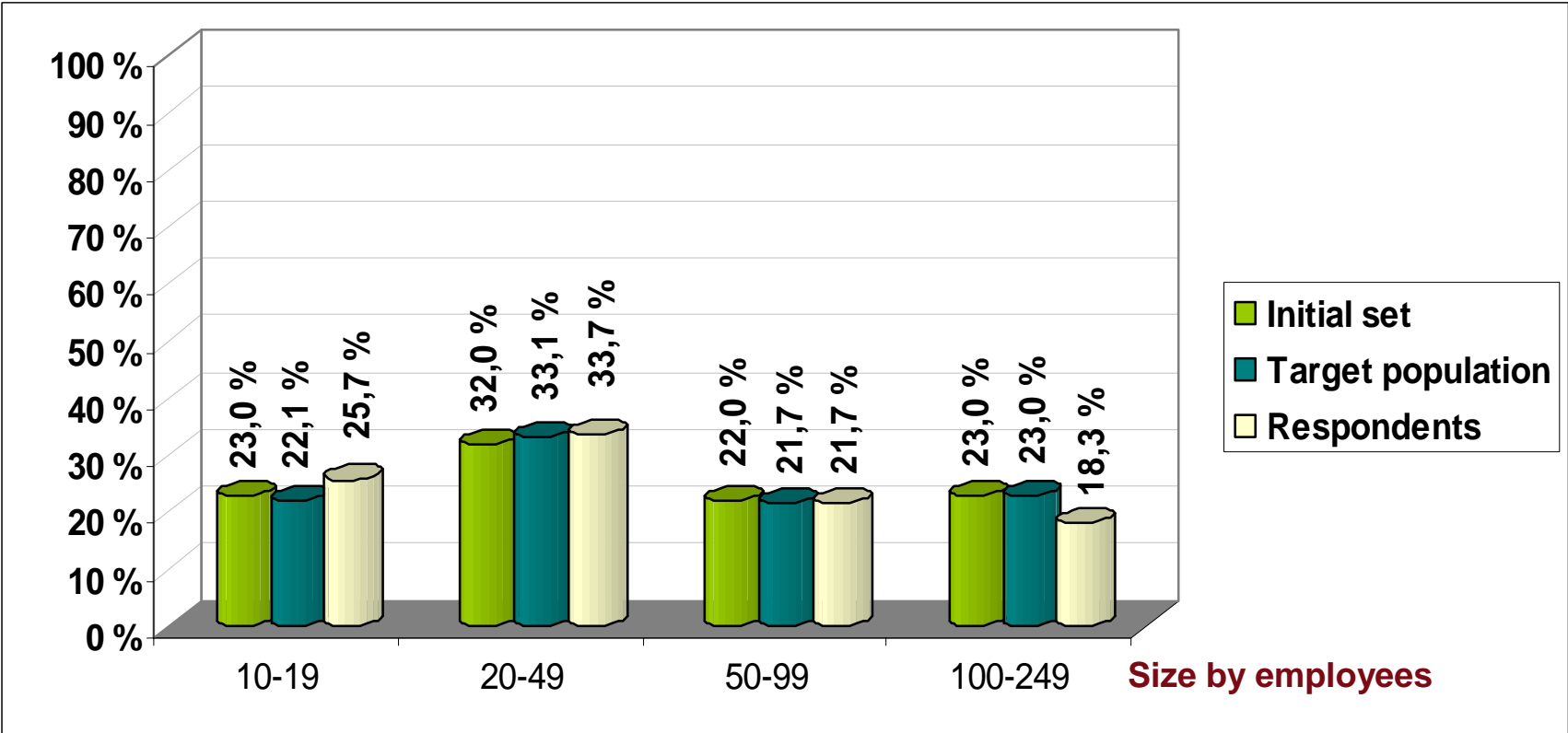
Prior VTT collaboration (2002 – 2004)

Financials, employee figures, (2000 – 2005), SIC-classification, number of business units, birth + exit -data of firm, geographical data

(source: Asiakastieto Ltd.)

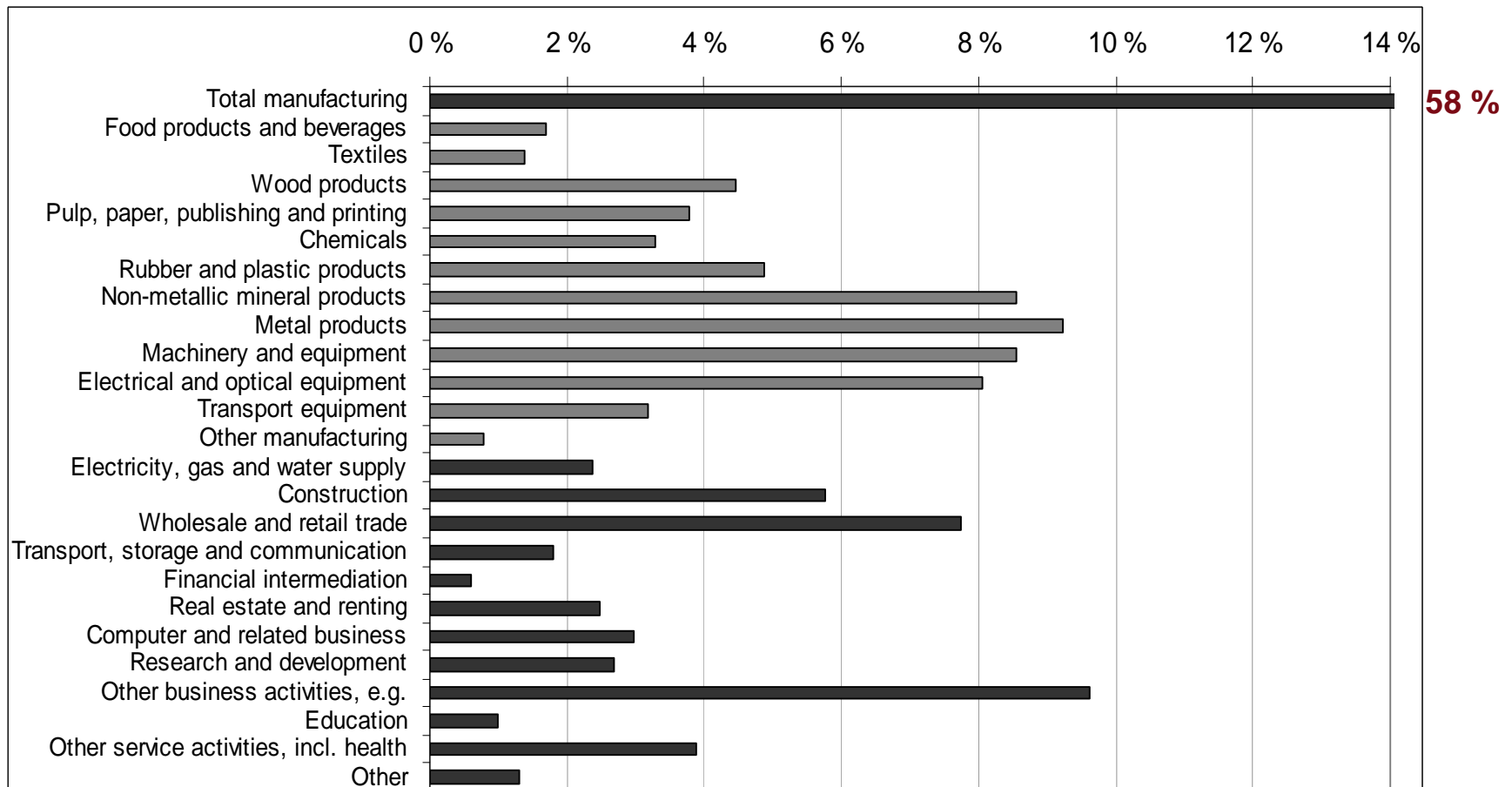
Descriptives

# Sample distributions by size



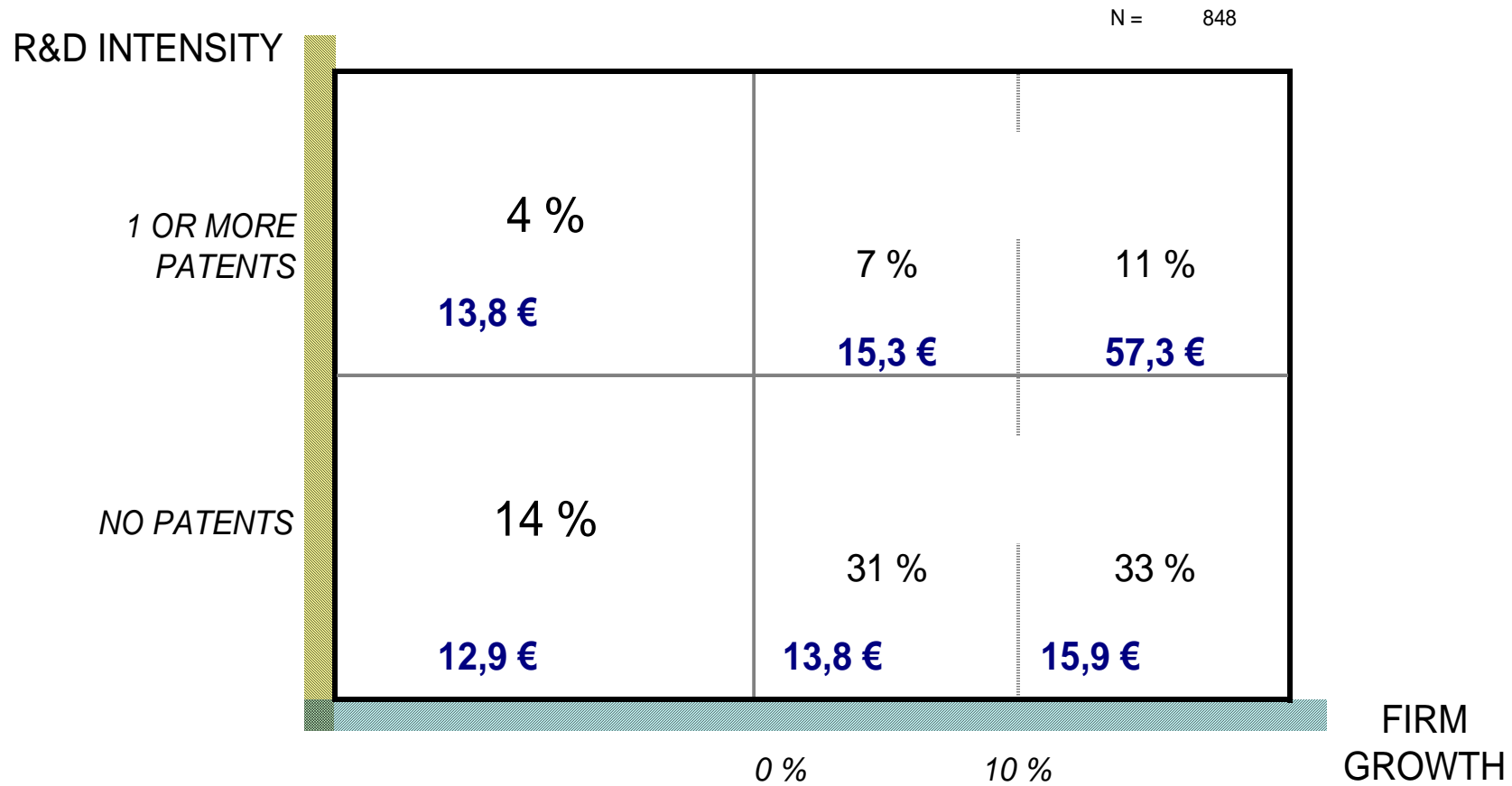
## Descriptives

# Final sample distribution by industry



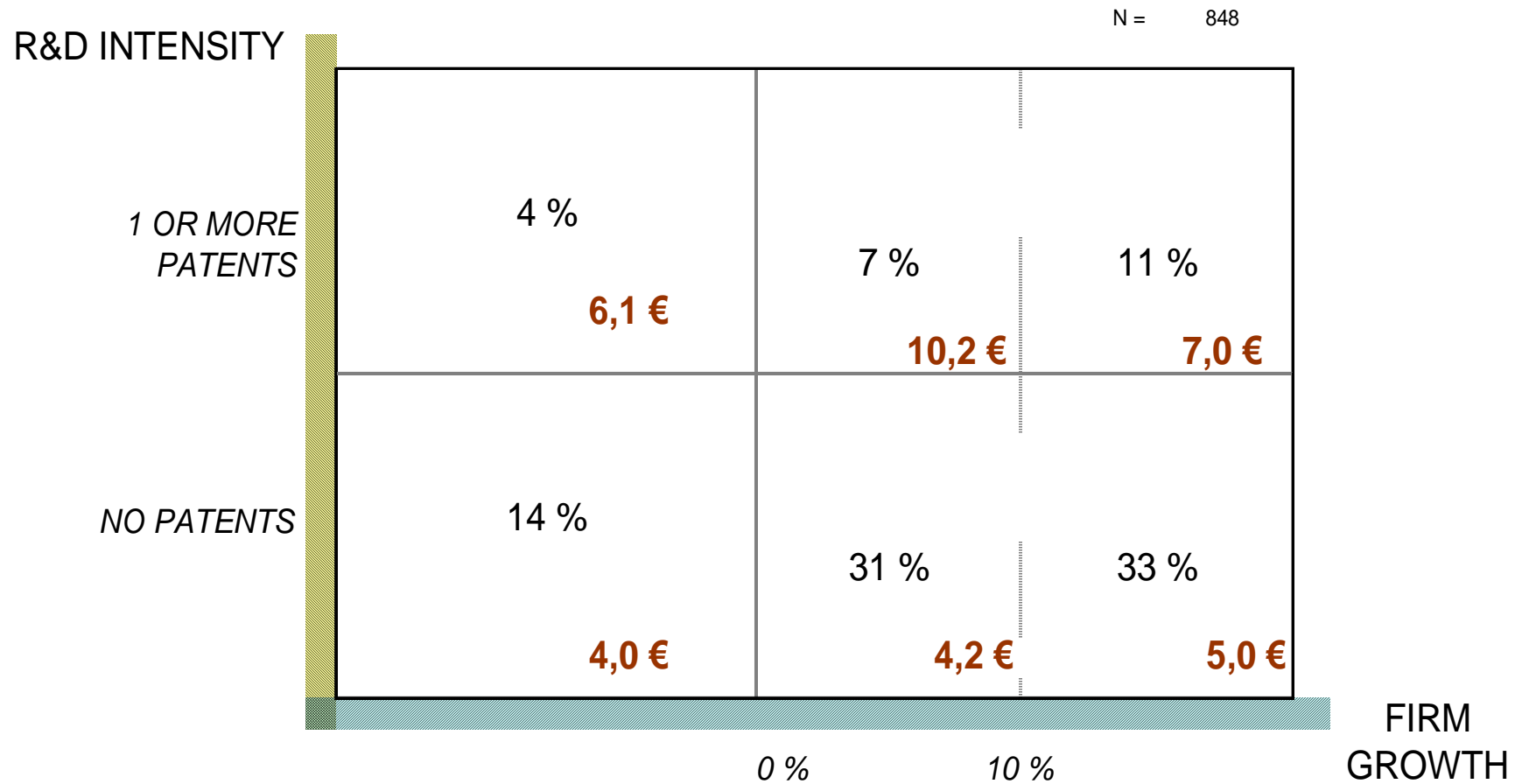
## Descriptives

### SME distribution and *average project size* (1000€)



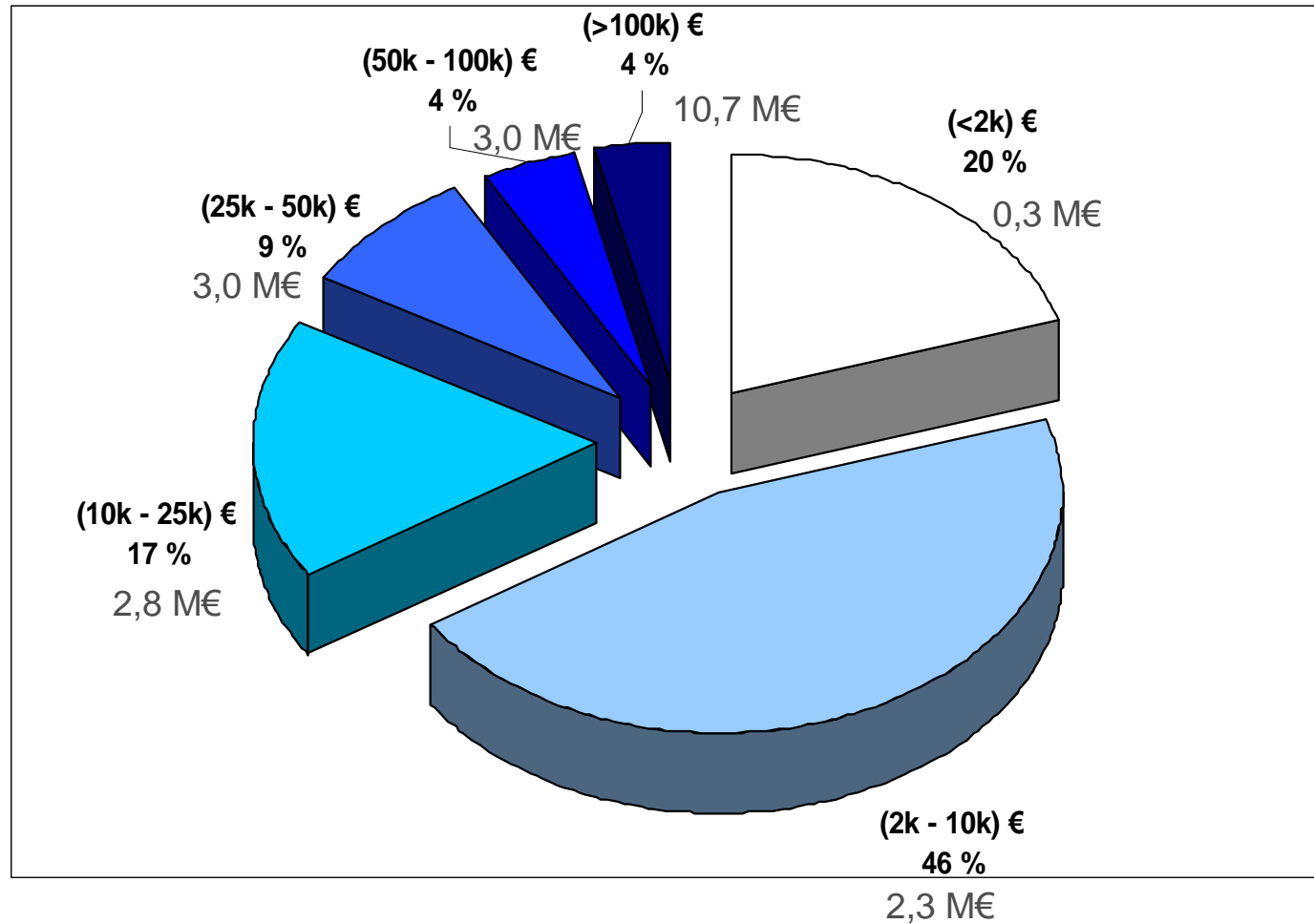
## Descriptives

### SME distribution and *median project size* (1000€)



## Descriptives

# SMEs by project size



Total of 1007  
projects: 22,1 M€

## Descriptives

# The Daters and The Maters: Occasional and Continuous collaborators

Consecutive duration of SME-VTT collaboration in 2005 (years)

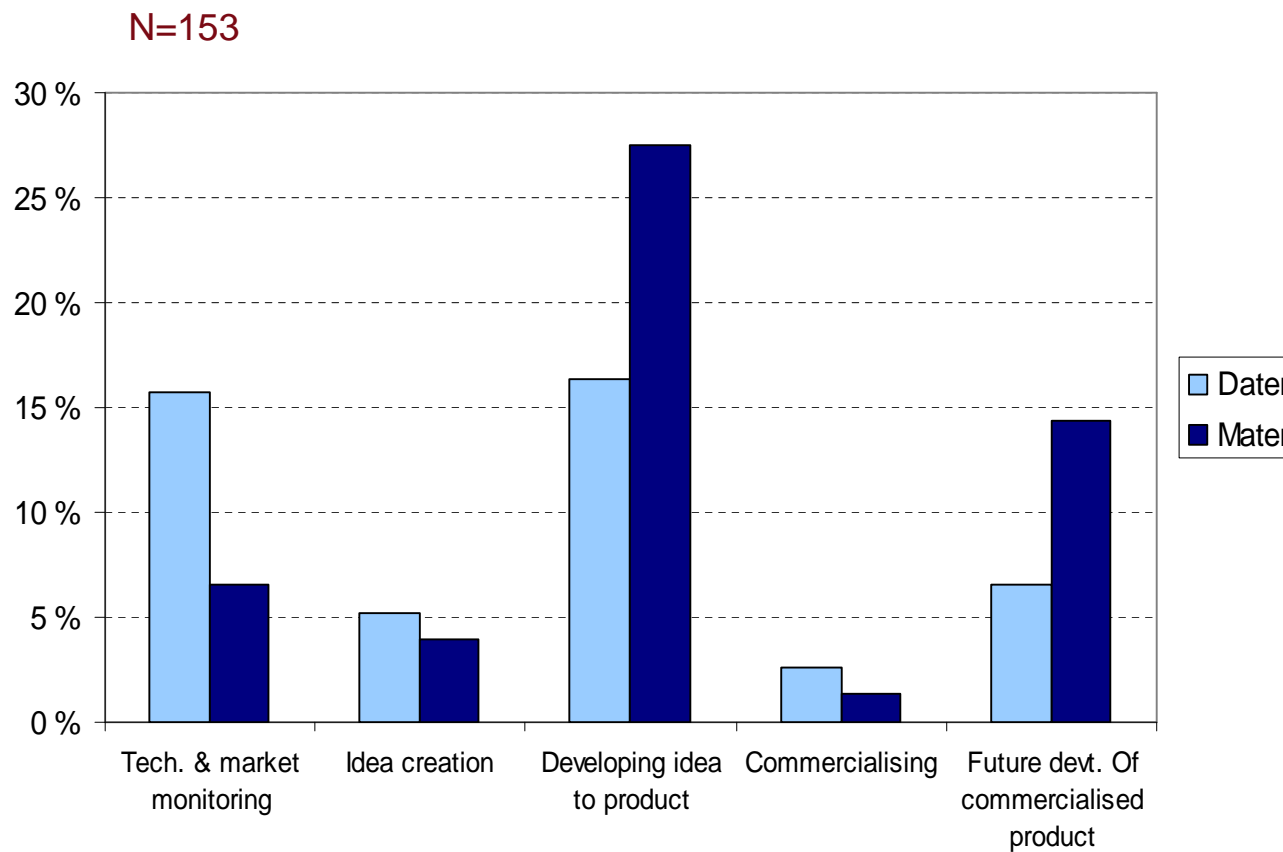
	1	2	3	>=4	Total
Target population (N=1007)	28 %	13 %	8 %	51 %	100 %

Maters = SMEs that have had collaboration with VTT every year for the last four years (Consecutive collaborators)

Daters = SMEs that have had more temporary collaboration with VTT over the last four years (Occasional collaborators)

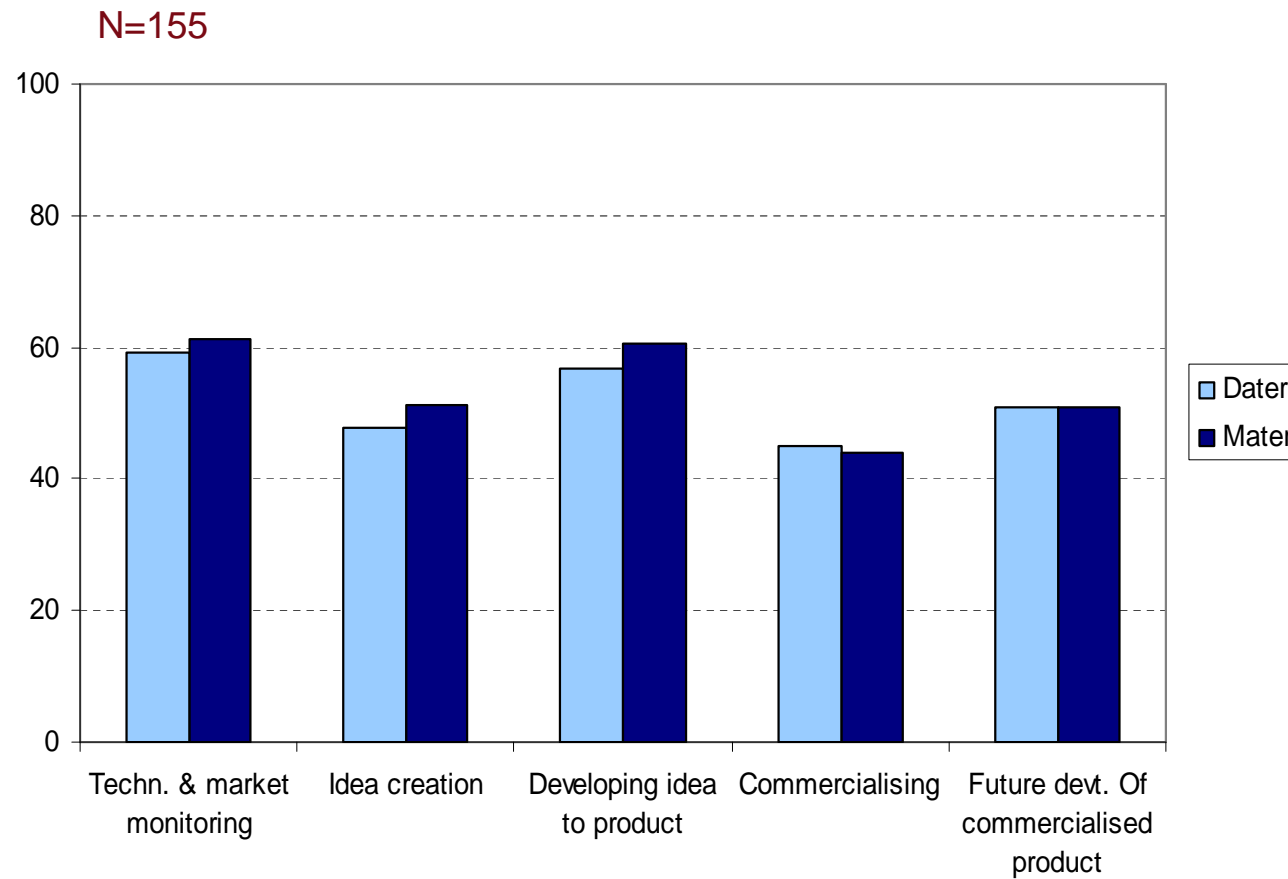
## Results

In which phase of the innovation process do SMEs collaborate most with VTT?



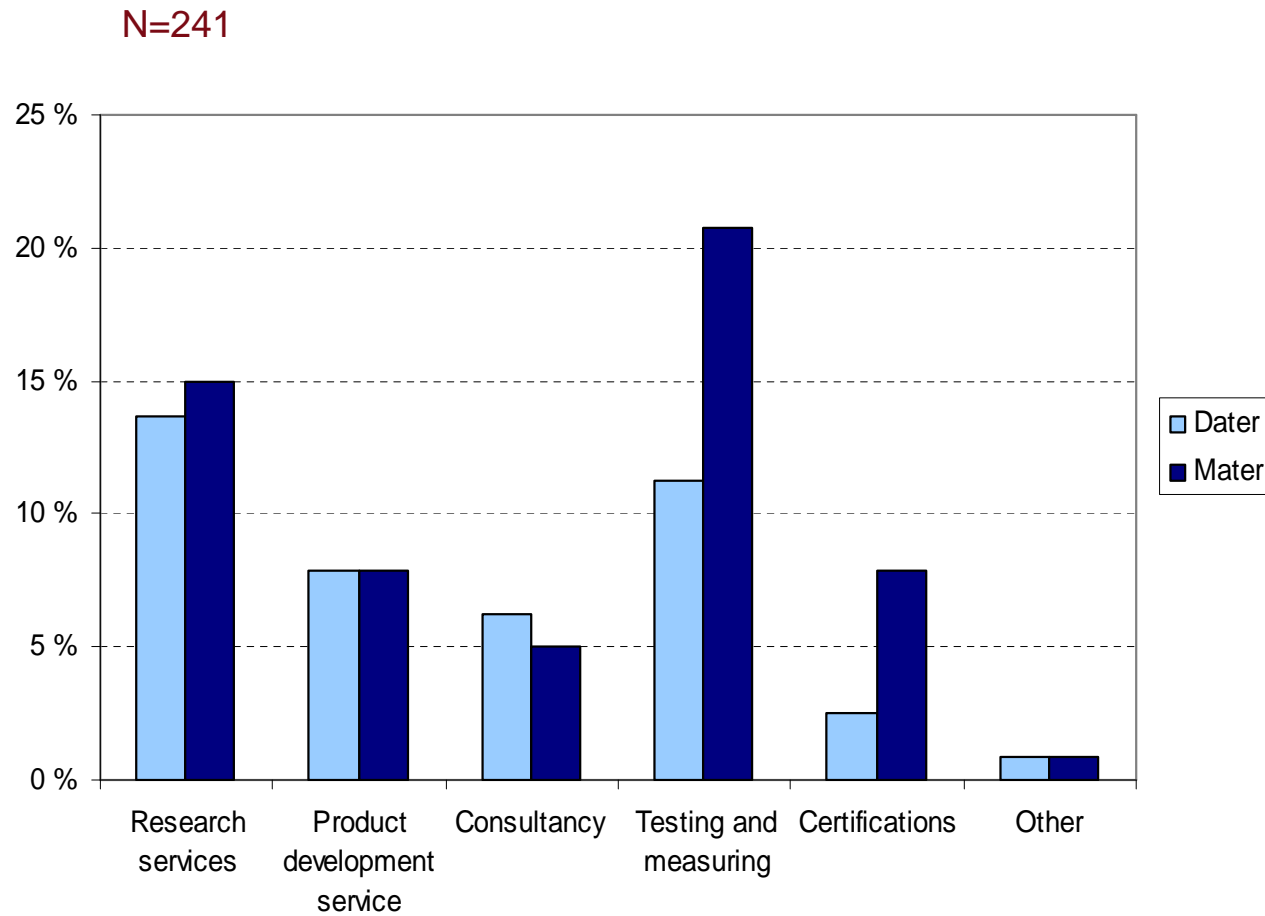
## Results

# Impacts of VTT in different phases of innovation process (0-100)



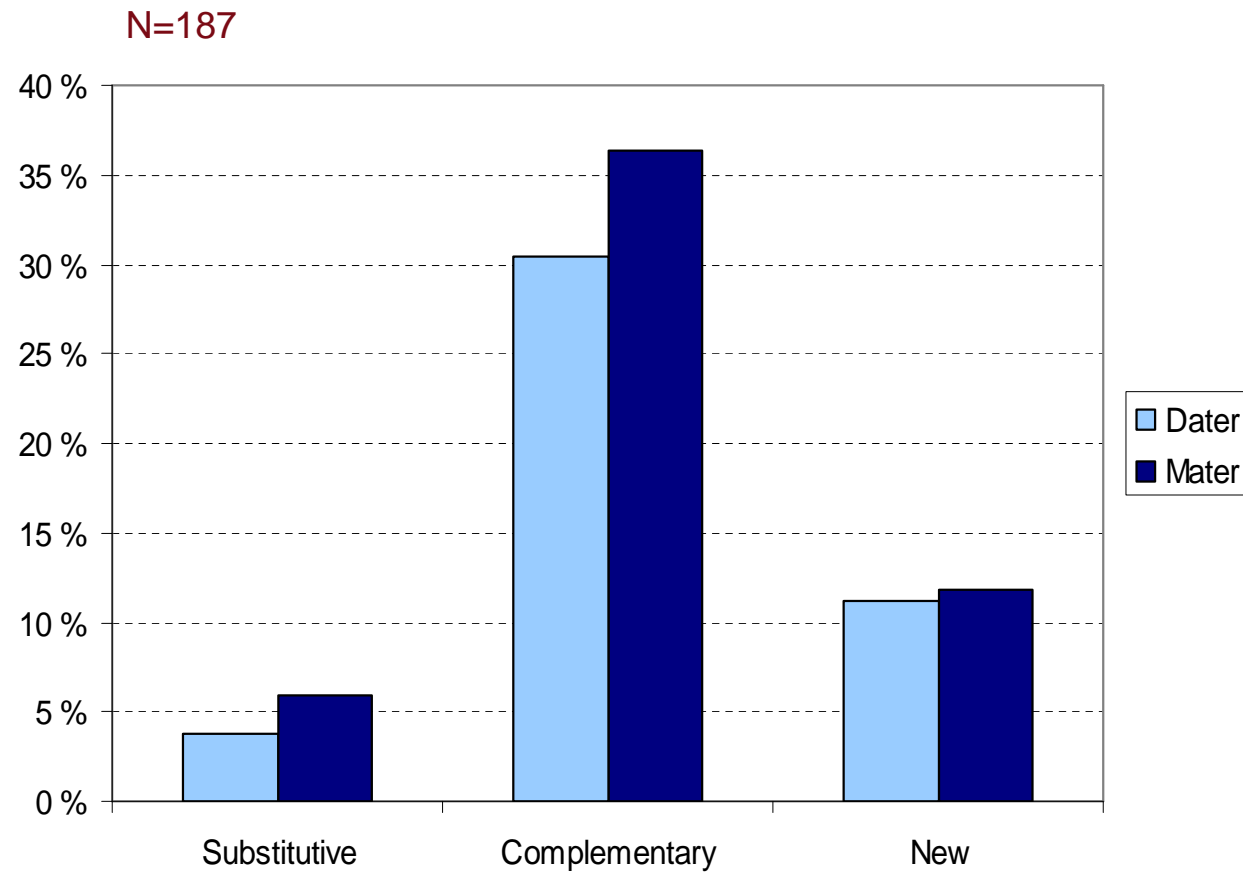
## Results

# What services do SMEs look for from VTT?



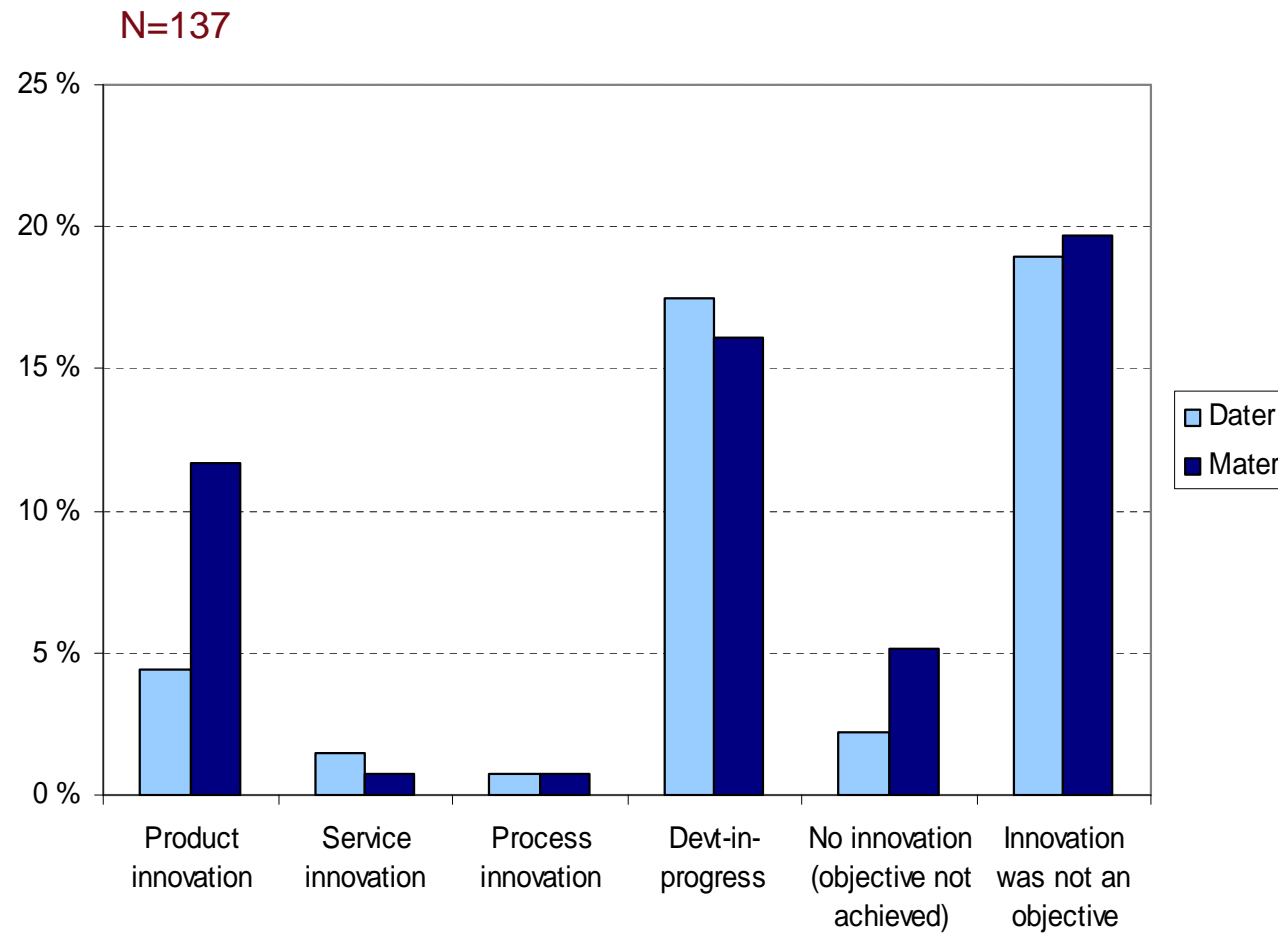
## Results

# What type of knowledge or know-how do SMEs seek from VTT?



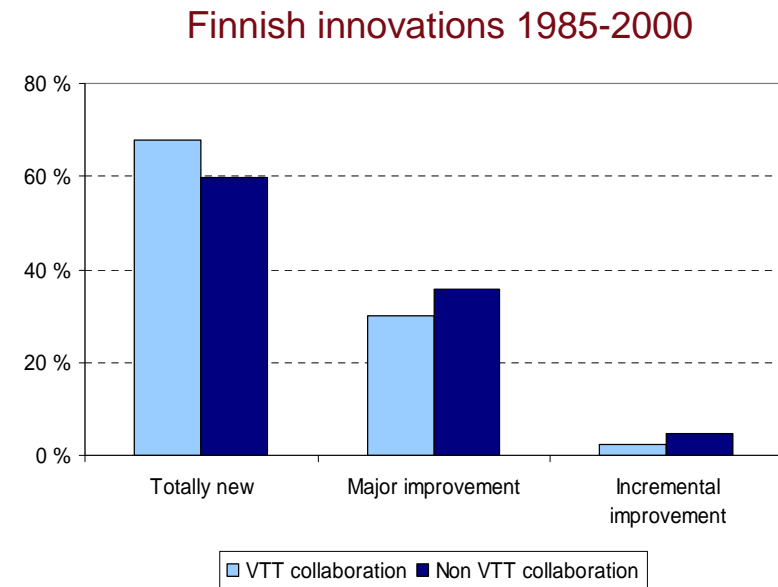
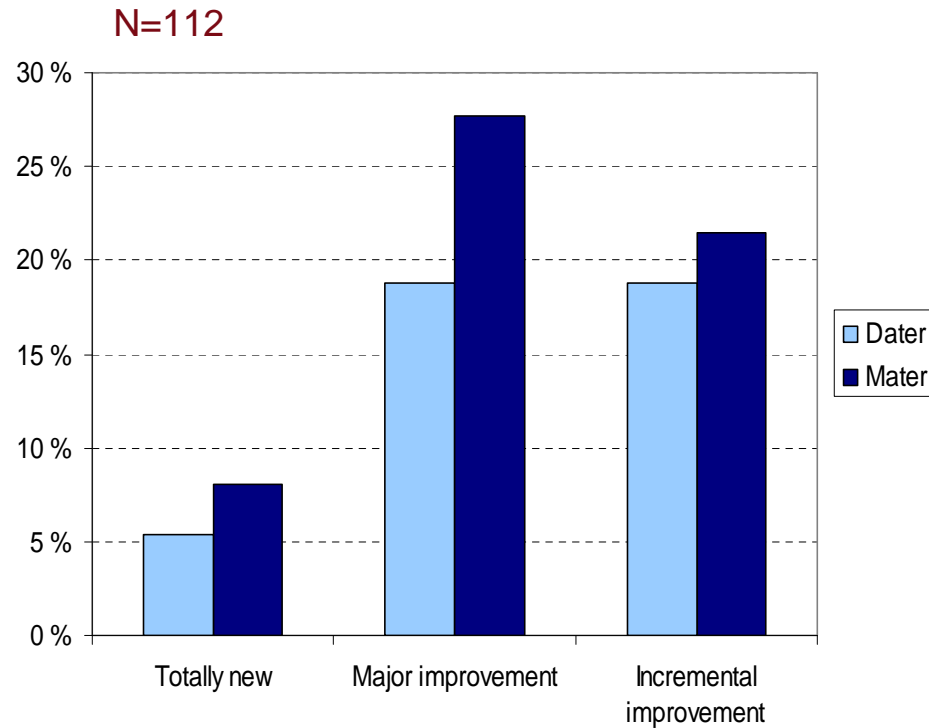
## Results

# Is there an innovation as an outcome of the VTT project?



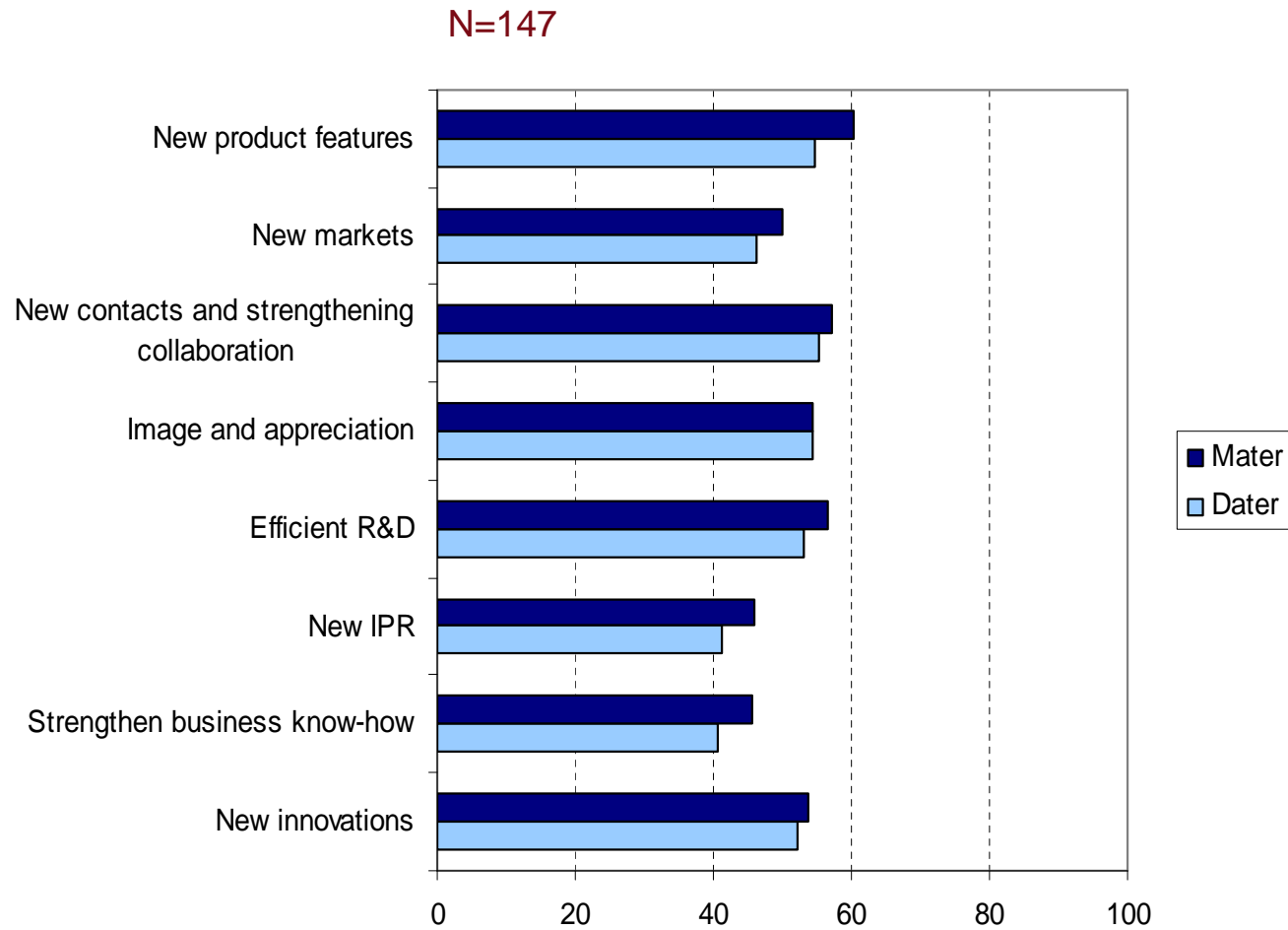
## Results

# (Technical) novelty of the innovation for the SME



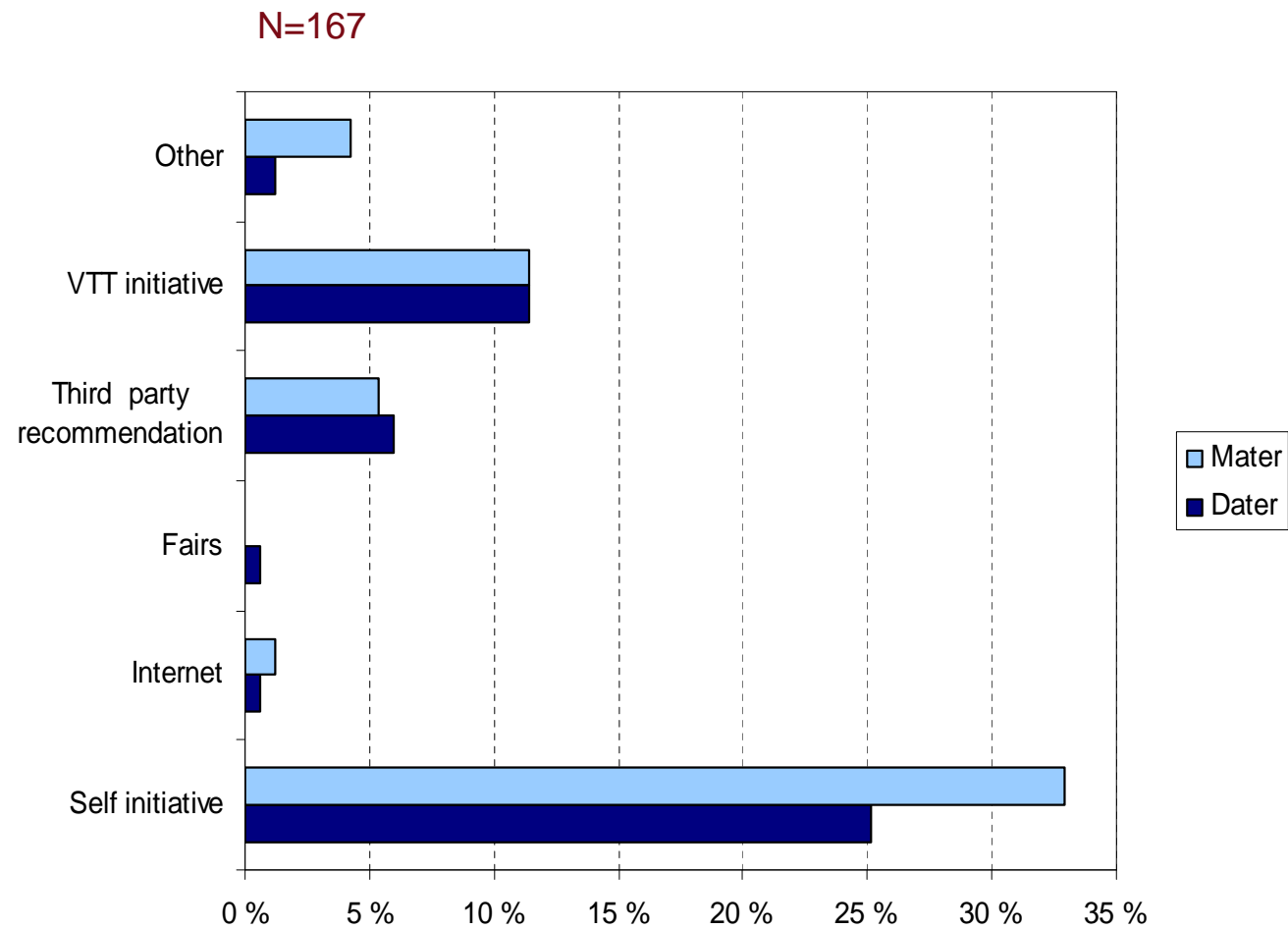
## Results

# Impacts of VTT for SMEs' innovation activity (0-100)



## Results

# How do SMEs contact VTT the first time?



## Conclusions

If VTT would like to grow, we should focus on the patenting & growth firms

- The average project size is 4-times bigger for high-growth patenting SMEs
- Median project size is biggest for the patenting & growing SMEs
- Consecutive collaborators vs Occasional collaborators?  
→ Balance between holding on to old clients and attracting new ones

4 % are big projects, but almost half of money comes from (>100 k€)

- It is uncertain, whether smaller, occasional projects become continuous and/or bigger projects in the future  
→ In half of the cases collaboration has become continuous

## Conclusions

### Conclusions (2)

In half of the cases, the *dating* of SMEs with RTO becomes *mating*

Mating and patenting put together are correlated with firm growth of SMEs

Consecutive RTO-collaboration does not guarantee firm growth

Impact of VTT collaboration is slightly bigger for the Meters

There is a significant correlation with artefactual complexity and technical novelty of innovation

Meters are more involved in the earlier phases of innovation process (tech. & market monitoring, idea creation) and seek new capabilities through the adoption of complementary & new knowledge

Meters are building more on existing knowledge and developing their ideas and commercialised products, i.e. existing capabilities

# Thank You!

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