

# Determinants of commercialisation and break-even times of innovations\*

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This presentation is based on VTT Publications no. 486: Palmberg, C. 2002. Successful innovation – The determinants of commercialization and break-even times of innovations.

# Background

- 'Successful innovation' basis for technological change, competitiveness, industrial renewal and growth
- How should 'successful innovation' be defined?
  - Usually defined at firm level: market shares, productivity, profitability etc.
  - ...but firms are multi-product
- How should 'successful innovation' be promoted?
  - Innovations differ
  - Firms differ
  - Technologies/industries differ

# Focus of research

- Timeliness as one dimension of success
- Two interrelated definitions of 'successful innovation':
  - 1) Shortest possible commercialisation duration from year of basic idea, i.e first-mover advantages/efficiency
  - 2) Shortest possible break-even duration from year of commercialisation i.e commercial dimension
- Analysis of the relationships between sources and success of innovations
  - Can we identify general success factors?
  - Managerial and policy implications?

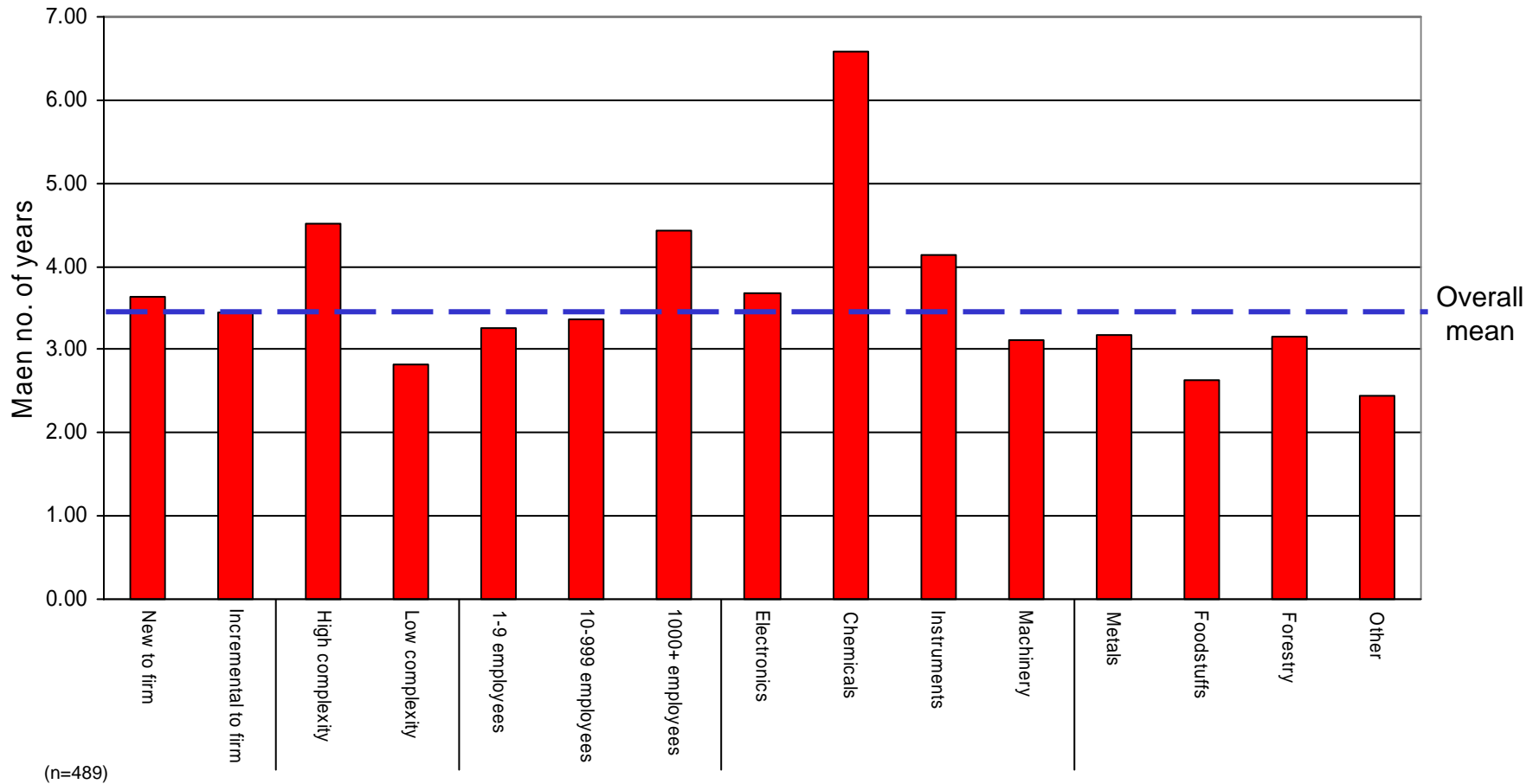
# A note on the data/methodology

- Sfinno-project/VTT Technology Studies, funded by Tekes
  - 'Literature-based/expert opinion innovation counting' covering Finnish innovations 1985-1998
  - Survey during 1998-1999 sent to individual innovators
  - 521 commercialisation durations and 511 break-even durations
- Econometric duration analysis
  - Models the lengths, or durations, of particular states in terms of hazard rates/conditional probabilities
- Set-up: the effects of different sources of innovation on the durations when controlling for heterogeneity:
  - Nature of innovations
  - Firm size
  - Industry affiliation

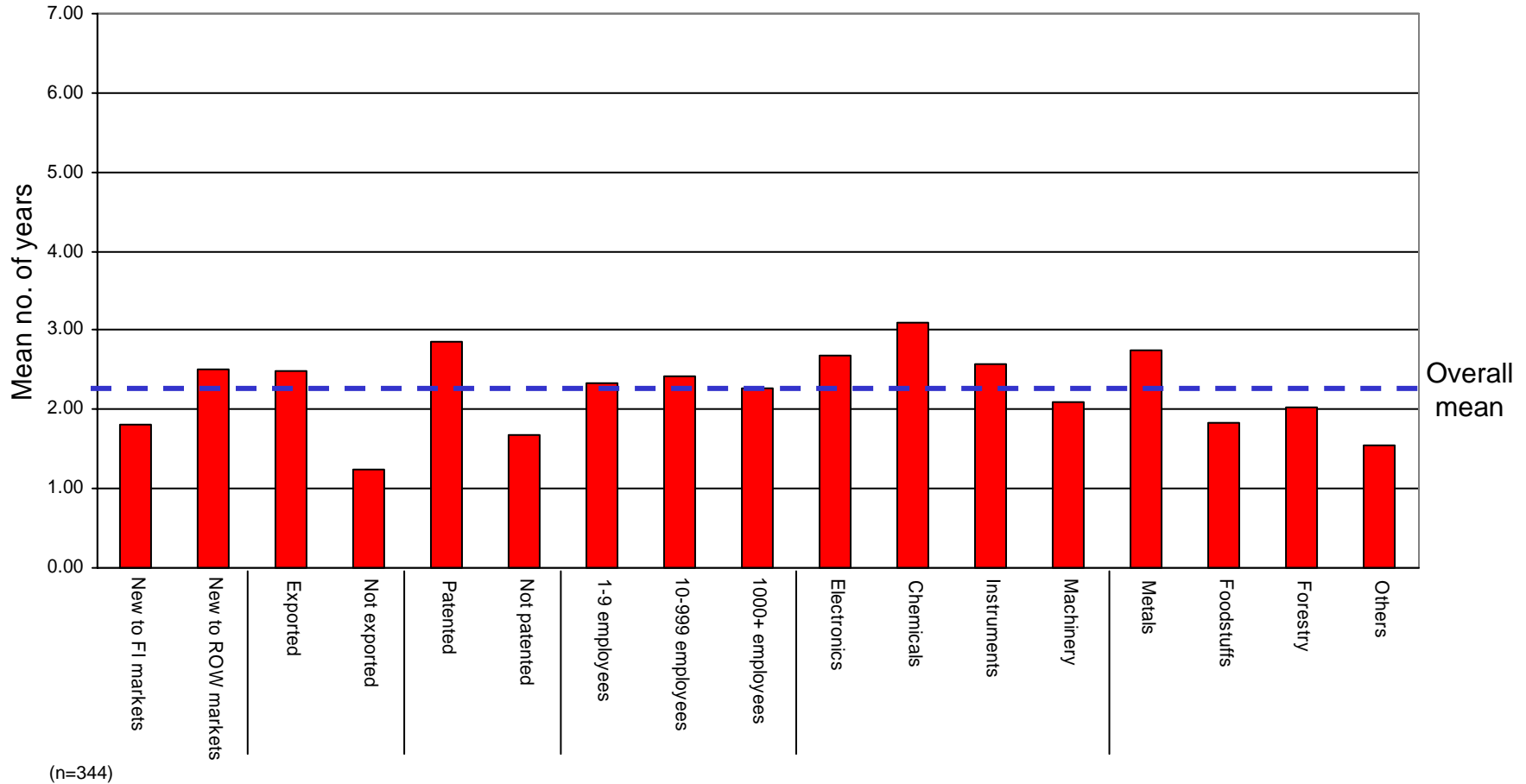
## ...some possible pitfalls

1. Relative measures applicable to short-term viewpoints
2. Assumes away incremental innovation prior to 'year of basic idea'
3. Interpretations of 'break-even' might vary across respondents
4. Some unobserved heterogeneity remains

# Descriptives: commercialisation durations



# Descriptives: break-even durations



# Sources of innovations

- Departure in generalised 'chain-linked model'
- Sources as perceived by survey respondents\*:
  - Customer demand/market niches
  - Collaboration with university/research organization
  - Scientific breakthroughs/new technologies
  - Collaboration with consultancies/suppliers
  - Regulations and standards/environmental issues
  - Intensification of price competition/rival innovations

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All variables are measured on a likert scale denoting their degree of importance for the initiation of the innovation process (0=not important, 1=minor importance, 2=important, 3=very important). Multicollinearity was avoided through principal component analysis.

# Main results

## Nature of durations

- Surprisingly short durations – narrow 'windows of opportunity'
- Correlation between durations
- Probability rates of commercialisation /break-even increases until threshold year
  - Reflects inhibiting forces in innovation processes, dynamics of competition

## Strategic trade-offs

- Complexity vs. success in terms of commercialisation durations
- Exportation/patenting vs. success in terms of break-even durations
- Industry affiliation vs. success in terms of commercialisation and break-even durations
- ...firm size does not seem to matter

## Sources and success: generalisable factors?

- Sources matter despite controlling for heterogeneity!
- Customer demand/market niche shorten durations
- Collaboration with universities/research org. prolongs durations (?)
  - Longer-term effects might be opposite in terms of other success criteria, technology life cycles also matter!
  - Industry affiliations do not sufficiently capture the nature of generic technologies (such as biotech, nanotechnology)
- Competitive pressure shortens break-even durations, no effect on commercialisation durations
  - Longer-term effects might be different (e.g. saturated markets)
- Other sources had no significant effect

# Managerial and policy implications

- 'Successful innovation' a multifaceted issue
  - importance of tailored policies
- Narrow windows of opportunities to innovate
  - narrow windows for policy
- Trade offs between nature of innovations and timeliness/success – different preferences matter
- Importance of customer-orientation, competitive markets for success in the shorter term
- ...BUT acknowledge technology life cycles
  - ...nanotechnology still at an early phase

# Thank you!

**For further details:**

VTT Publications no. 486: Palmberg, C. 2002. Successful innovation –  
The determinants of commercialisation and break-even times of innovations.

Available through VTT Information Services/VTT Technology Studies