

# **What Shapes Successful Technology Transfer? Evidence from the University of Melbourne**

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**(based on research with Beth Webster)**

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**“When the facts change, I change my mind. What do you do, sir?”**

Attributed to John Maynard Keynes

## Introduction

- Recent telephone survey of 66 UoM inventors
  - Population of patent applications where UoM was listed as an assignee since 1986 (252 inventions; 159 inventors)
  - Survey sample: 108 inventions; 66 inventors
  - The residual had either moved on, died, could not remember, or did not want to participate
  - Response rate: 42% of inventors
  - Supplemented survey with a series of interviews

## Questions

- We asked a range of questions relating to commercialization outcomes *for each invention*:
  - Sources of funding (public or private)
  - Licensing activity (including exclusivity conditions)
  - Commercialization stage attempted
  - Commercialization partners (if any)
  - Demand for invention
  - Organizations assisting in commercialization process
  - Problems encountered in commercialization process

## Summary Statistics

- Increasing trend in both patent application rate and response rate (46% of responses related to patent applications since 2000)
- 58% of inventions make it to the “prototype” stage, but only 8% end up in product market launch (truncation issues?)
- ~50% of funding is from the public purse (ARC or NHMRC); <20% is private funding
- Melbourne TTO is the most commonly-used (25%) agency in helping to find a commercialization partner

# Invention Demand

<i>Number of interested parties</i>	<i>Looked at a contract</i>
0	21.9
1	43.8
2	9.6
3+	2.8
Tied to one company	6.9
NA/don't know	15.1
Total	100.0

## Observations

- 21.9% of all instances involved no interested party looking at a contract
- 50.7% of all instances involved just one interested party looking at a contract
- 12.4% of all instances involved 2 or more interested parties looking at a contract
- So, these “markets” are very idiosyncratic – there are very few potential buyers
- Of course, “latent demand” is difficult to observe

# Licensing Trends

<i>Whether licensed?</i>	<i>1980s</i>	<i>1990s</i>	<i>2000s</i>	<i>Total</i>
Licensed to one company	53.9	43.8	39.5	43.4
Licensed to several companies	0.0	6.3	2.6	3.6
Sold to an existing company	15.4	3.1	0.0	3.6
None of the above	23.1	46.9	47.4	43.4
Don't know	7.7	0.0	10.5	6.0
Total	100.0	100.0	100.0	100.0

## Observations

- 47.0% of all instances involved licensing to one or more companies
- 43.4% involved no licensing activity
- This supports the contention that the market is very “thin”, which has potential implications for market efficiency :
  - How are prices formed?
  - Are exclusivity conditions really required for licensing?
  - In what sense is there a “market” for technology?
- These issues are the subject of a new ARC Linkage Grant with AIC and Watermark

# Development Problems

<i>Industry partners...</i>	<i>%</i>
...were unsure about the technical feasibility	18.8
...were unsure about the market for the end product	38.3
...were unsure about the cost of production and further development	20.7
...were unsure about whether the patent would stop imitation	13.6
...did not have the funds to commercialize	14.8
...did not have the funds to get an overseas patent	2.5
...had access to alternate technology so they did not need this one	22.5

## Implications

- **Objective:** knowledge diffusion *not* revenue generation
- Time lags can be very long (~20yrs):
  - Focus on long-term objectives, *not* short-term indicators
- Markets for technology are “thin”: typically few buyers
  - Nurture long-term relationships (and synergies) with industry
- Greater flexibility in research opportunities
  - More downstream-focused research institutes (with some reliance on commercial funds and contract research)
  - Not at the expense of basic research, rather to complement it
- Skills development crucial to success
  - “Hot-house” entrepreneurial skill development