Alternative data sources to deal with innovation dynamics

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Team work

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The “menu” of the day

1. Innovation landscape and the rise of collaborative innovation

2. Business “angel-ing”

3. Theoretical issues and empirical challenges

4. TV programmes as a source of information/data

5. Discussion on research strategy and methods

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Collaborative innovation is the “new mantra” for many firms, entrepreneurs and policy-makers

“increasingly using inflows and outflows of knowledge to accelerate the internal innovation process, and expand the markets for external use of innovation” (Chesbrough, 2006)

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Several stakeholders are active, and substantial (financial) resources are used to design and set-up business incubators

1. In 2012 there were over 1,250 incubators in the United States, up from only 12 in 1980. NBIA estimates that there are about 7,000 business incubators worldwide.
2. About 32 percent of North American business incubators are sponsored by academic institutions. 25 percent are sponsored by economic development organizations. 16 percent are sponsored by government entities.
3. Only 4 percent are sponsored by for-profit entities.

Source: 2012 State of the Business Incubation Industry
“Start-up-ization”

Massachusetts Association of Business Incubators

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Threadless: The Business of Community

Threadless is a creative community that makes, supports, and buys great art.
Giffgaff: Community-driven business model

The Man’s sweaty little hands like to take, take, take.

giffgaff gives cash to our members who help out.
The more they do, the more they’re given.
CA wanted to reinvent customer relationships in the digital world and boost their mobile channel

- Crédit Agricole saw strong growth in mobile
- Realized that they were behind the competition. The competition introduced ‘apps’ already.
- Internal develop capability was insufficient resulting in long lead-times and too high costs
- Needed to boost their innovation strength while keeping it a self-funding project, close to their cooperative DNA
The project’s aim was to link CA’s customers with developers for the co-creation of applications.
However when it comes to engage in collaboration with actors operating in specific sectors (e.g. agribusiness) or types of innovation (e.g. radical) investors may be more reluctant
For example investors do not see venturing in farming like this

But rather like this
And investing in radical innovation not like this

But rather like this
Think about the business perfect storm:

1) Support new companies (venture creation)...

2) ... Dealing with (radical) innovations...

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Challenge 1

Venture creation (Gundry and Kickul 2007):

(i) Team dynamics, cooperation and trust;
(ii) Resource availability;
(iii) Acquire knowledge and information;
(iv) Ability to generate revenue.
Challenge 2

Radical innovation --> New to the world products (Markides and Geroski, 2005):

i) They offer new value propositions that radically change existing consumer habits and behaviour.

ii) The markets they create undermine the competences and complementary assets on which competitors built their success.
Two (challenging) dimensions ➔ The storms

Type of engagements

<table>
<thead>
<tr>
<th>Open</th>
<th>Close</th>
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<tbody>
<tr>
<td>Engagement(s) with start-ups</td>
<td>Techno-based (IPR) Engagement(s)</td>
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<tr>
<td>Knowledge-based Engagement(s)</td>
<td>Business as usual (R&amp;D based)</td>
</tr>
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Type of innovation

- Incremental
- Radical
Objective

Understand “engagements” between professional investors and entrepreneurs (start-uppers) from an organizational economics point of view

Organizations of professionals
(type of hybrid form)

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Organizations of professionals
Specific issues to consider (and discuss):

1) Co-development competence and manage appropriability

2) Collaboration through IPR protection (i.e. JV and patenting)

3) Develop/implement “business angel-ing”
What is a Business Angel?

- Reported 726,000 active in the USA today
- $100 billion Market
### Peter Thiel

#### Real Time Net Worth

$2.2 \text{ Billion}

$886 \text{ K} \mid 0\%

As of 12/8/2014 @ 12:00PM *

**Partner, Founders Fund**

<table>
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<tr>
<th>Age</th>
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<tr>
<td>Source Of Wealth</td>
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<tr>
<td>Self-Made Score</td>
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<td>Residence</td>
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<td>Citizenship</td>
<td>United States</td>
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</table>
Any others?
Novelty/relevance of “business angeling”

- New venture creation generally benefits economy and offers stage for innovative products/services

- Investor-investee dyad generally focuses on VC-entrepreneur relationship instead of angel-entrepreneur relationship

- Either demand- or supply side oriented research

- Agency risk is more a threat than market risk ⇒ important to review BA-entrepreneur relationship (Fiet, 1995)

- BA-entrepreneur relationship is also important for exit strategies
In the screening stage “angel” investors and entrepreneurs try to set up a “trust-based” contract eventually leading to formation of an organization of professionals.

**Origination**
- Before interaction between entrepreneur and investor; reference of entrepreneur to investor

**Screening**
- The interaction between entrepreneur and investor, reaching a deal

**Due-diligence**
- Verification of claims made by entrepreneur

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Source: Paul et al., 2007
What can lead to/facilitate its formation?

My giants’ shoulders!!
Challenges when forming “organizations of professionals” in the innovation process/dynamics

- Output of financial capital investment in innovation and invention is (highly) dependent on entrepreneurs’ prior knowledge/skills (unknown to the BAs)
- Receiving return on investments is difficult
- Non re-deployable assets (knowledge- relational- specific investments/ IPRs issues)
- Agency problems (Information asymmetry, moral hazard)
- Limited due diligence insight

TRUST is a key-element

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Decision criteria employed in screening phase
(Maxwell, 2011; Franke et al, 2006; Feeney et al, 1999; Murnieks, 2011; Bengtsson et al, 2010)

Opportunity-investor fit
- Adoption
- Protectability
- Route to market
- Market potential
- Product status
- Financial model
- Customer engagement
- Social desirability

Entrepreneur-investor fit
- Similarity cognitive reasoning
- Relevant experience
- Competences & capabilities
- Personal characteristics
- Similarity professional background
- Commitment

Trust
Organization of professionals (entrepreneurs-BAs)

Mittenes et al, 2010
Complementarity of assets between Bas and entrepreneurs (Madill et al, 2005):

- Advice about management of the business
- Contacts/networking
- Hands-on assistance (legal- and accountancy advice, resources)
- Providing business and marketing intel
- Take a seat on the board
- Prepare firms for raising VC
- Provide credibility and validation (reputation)
Innovation typology

Relevant experience entrepreneur
Similarity cognitive reasoning
Similarity professional background
Commitment

Other opportunity related factors

Innovation typology

Opportunity related

Pitch quality
Relevant experience BA
Competences & capabilities
Personal characteristics

Moderated by factors determining entrepreneur-investor fit
Empirical challenge

How to get empirical evidence to support/develop concepts?

Deductively: for hypothesis testing
Inductively: for theory-building

What would you do?
Empirical challenge

Data gathering strategies:

<table>
<thead>
<tr>
<th></th>
<th>Reductionism</th>
<th>Contextualism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct observation</td>
<td><strong>Experimentalism</strong></td>
<td>Case study analysis</td>
</tr>
<tr>
<td>Remote sensing</td>
<td>Multivariate statistics</td>
<td>Historical analysis</td>
</tr>
</tbody>
</table>

Adapted from: Ingram, Rao and Silverman, 2012
Empirical challenge

• Contextualised approaches:
  
  Case studies based
  Qualitative
  Limited generalizability and replicability

• Multivariate statistics:
  
  Subject to typical “survey” biases:
  Social desirability (among others) ➔ Angels will be less likely to reveal features that are not socially desirable (e.g. gender preferences, etc.)

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Empirical challenge

• Experimentalism:

Pros
Having a “controlled” or “natural” experiment about the formation of an organization of professionals or at least its screening stage

Cons
Complex design
High stakes
Very costly to ensure incentive-compatibility
Empirical challenge

(i) Is designing this type of experiment feasible?

(ii) Do we have experimental data already available?
Alternative data sources: using information from TV programs
Alternative data sources: using information from TV programs

“TV game shows provide a natural avenue to observe real decisions in an environment with high stakes” (Harrison and List, 2004; Journal of Economic Literature, 42(4), p.61)

Few examples:
Berk et al. [1996] and Tenorio and Cason [2002] study contestants’ behavior on The Price Is Right to investigate rational decision theory and whether subjects play the unique subgame perfect Nash equilibrium.

Gertner [1993] and Beetsma and Schotman [2001] make use of data from Card Sharks and Lingo to examine individual risk preferences.

Levitt [2003] and List [2003] use data from The Weakest Link and Friend or Foe to examine the nature and extent of disparate treatment among game show contestants.

And Metrick [1995] uses data from Jeopardy! to analyze behavior under uncertainty and players’ ability to choose strategic best-responses.
Alternative data sources: using information from TV programs

TESTING THEORIES OF DISCRIMINATION: EVIDENCE FROM WEAKEST LINK*

STEVEN D. LEVITT
University of Chicago
Alternative data sources: using information from TV programs

Friend or foe? A natural experiment of the prisoner's dilemma.
Alternative data sources: using information from TV programs

Decision making under risk in Deal or No Deal

Nicolas de Roos and Yianis Sarafidis
Journal of Applied Econometrics
Volume 25, Issue 6, pages 987–1027, September/October 2010
This is the “den”

The show allows several entrepreneurs an opportunity to present their varying business ideas to a panel of five investors (the Dragons) and pitch for financial investment offering a stake of the company in return.
From watching episodes to set-up a database

1) Randomly selected a number of episodes

2) We identify a set of variables and develop a “rubric” based on literature review and iterative observations

3) Rubric and variables identification have been subject to validation → several observers performed the same tasks of “quantify” variables based on observations

4) Extensive collection of information and “datification”

5) Ex-post validation with key-informants
From watching episodes to set-up a database

11 seasons (2005-2014)

1811 interactions

Some 130 variables organized in 7 sub-sets (rubric):

• Episode identification
• Type of idea/innovation (and food-related innovation)
• Entrepreneur(s)
• Pitch
• Investment proposal
• Outcome

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### Table 1: Highest investments per series

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<thead>
<tr>
<th>Series</th>
<th>Single investment</th>
<th>Combined investment</th>
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<tbody>
<tr>
<td>Series 1</td>
<td>£175,000 (Peter Jones)</td>
<td>£150,000 (Duncan Bannatyne &amp; Peter Jones)</td>
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<tr>
<td>Series 2</td>
<td>£75,000 (Peter Jones)</td>
<td>£225,000 (Theo Paphitis &amp; Duncan Bannatyne)</td>
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<tr>
<td>Series 3</td>
<td>£100,000 (Richard Farleigh)</td>
<td>£200,000 (Deborah Meaden &amp; Theo Paphitis)</td>
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<tr>
<td>Series 4</td>
<td>£85,000 (Duncan Bannatyne)</td>
<td>£160,000 (Duncan Bannatyne &amp; Richard Farleigh)</td>
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<tr>
<td>Series 5</td>
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<td>£150,000 (Duncan Bannatyne &amp; James Caan)</td>
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<tr>
<td>Series 6</td>
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<td>£250,000 (Deborah Meaden &amp; Theo Paphitis)</td>
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<tr>
<td>Series 7</td>
<td>£120,000 (James Caan)</td>
<td>£150,000 (Peter Jones &amp; Theo Paphitis)</td>
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<td>Series 8</td>
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<td>Series 9</td>
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<td>£120,000 (Deborah Meaden &amp; Theo Paphitis)</td>
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<td>Series 11</td>
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<td>£100,000 (Deborah Meaden &amp; Peter Jones)</td>
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<tr>
<td>Series 12</td>
<td>£100,000 (Piers Linney)</td>
<td>£200,000 (Duncan Bannatyne &amp; Peter Jones)</td>
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Table 2. Deals per Dragon per series

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<th>Series</th>
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Some preliminary results

Propositions consistent with current academic literature

• The propensity of a BA to invest in a new venture is primarily influenced by the quality of the presentation delivered by the entrepreneur, inadequate preparation and unrealistic business valuations proving detrimental.

• The propensity of a BA investing in a new venture increases by the degree of innovativeness of pitches stimulating BA’s imagination.

• The propensity of a BA to invest in a new venture is directly influenced by their previous experience in that particular field which may exert a positive or negative influence.

• The propensity of an entrepreneur selecting a specific BA to support their project is primarily conditioned by the potential benefit to be gained from the BA’s expertise, relevance of their business contacts along with the degree of financial investment.
Some preliminary results
Propositions *contradictory* with current academic literature

- The propensity of a BA to invest in a new venture is primarily conditioned by the *degree of innovativeness of its product/service and business model* with highly innovative ventures providing a strong incentive for investment.

- The propensity of a BA investing in a new venture decreases with the *degree of social orientation of the project*, as potential investors seem disinclined to invest in those with a charitable status.
Future research opportunities

1) Cross-country comparison (Shark tank – US; DDs Canada)

2) Validation with BAs

3) Long-term effect → “Where Are They Now?”
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http://nl.linkedin.com/pub/stefano-pascucci/21/99b/aa2