

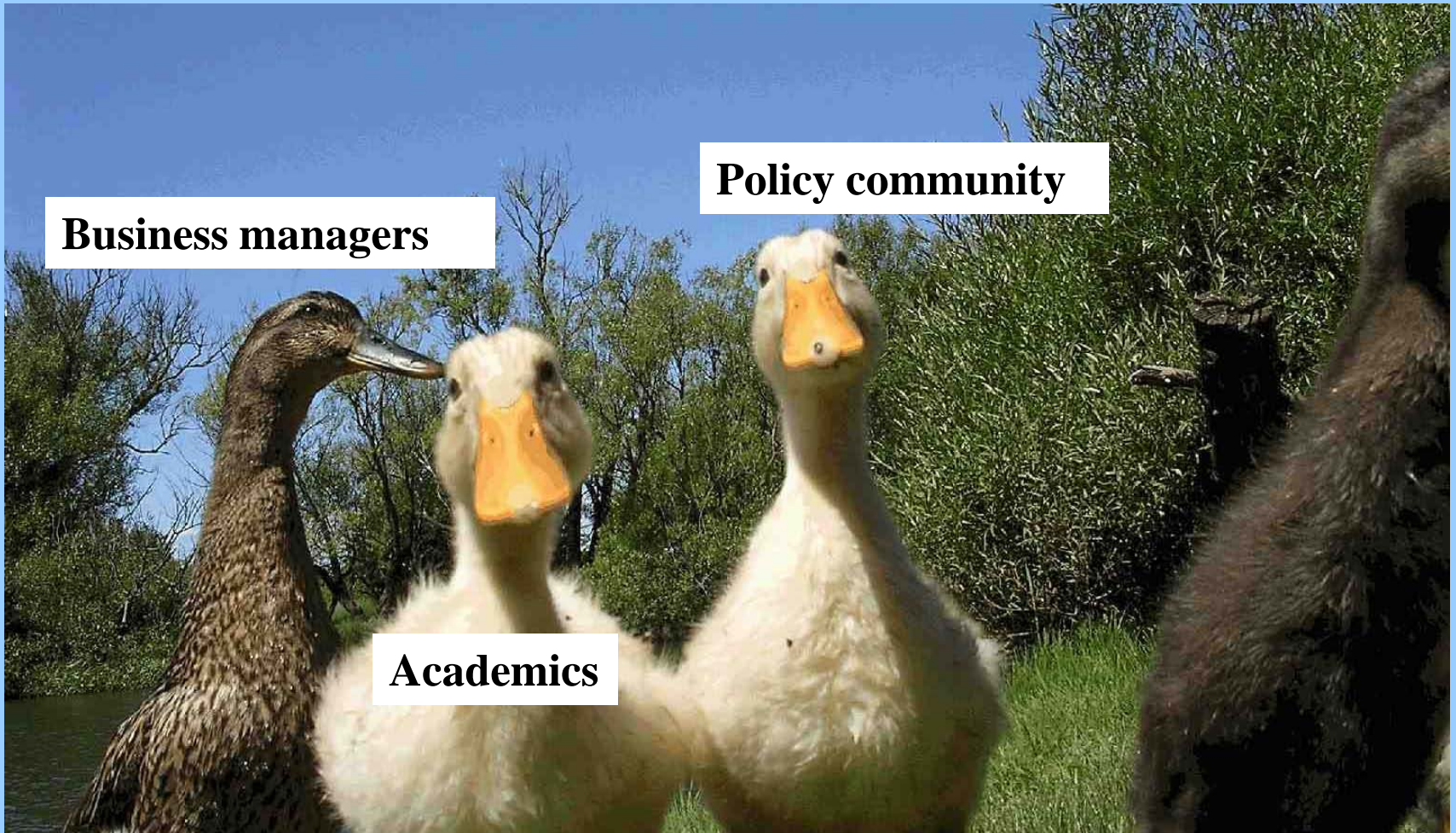
Innovation surveys for innovation policy



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Montevideo, September 17-18,
2009

Who is innovation survey data for?



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What data did European innovation policy analysts use between 2005 - 2006?

- R&D data

- Patent data

- Innovation survey data

How do we know this?

- Analysis of major national and European policy documents (innovation = R&D)
- Three series of interviews with 69 members of the policy community:
 - 25 interviews in 2005
 - 25 interviews in 2006
 - 19 interviews in 2007
- Interviews conducted with policy analysts from 13 European countries plus from Canada, Australia, New Zealand, Japan and the US.

Overview

1. History of innovation surveys.
2. Why innovation data are underused.
3. Solving problems.
4. Next steps.

1. Learning from the history of innovation surveys

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Progress to date

- 16 years of experience:
 - Five European innovation surveys completed and available for analysis.
 - One survey in the field this year (CIS 2008)
 - One survey in the planning stage (CIS 2010)

The comparator: R&D surveys

- **1917:** First R&D survey, with further experimentation up until the late 1930s.
- **1953:** First large American R&D survey.
- **1963:** First international R&D survey.
- **1981:** OECD considers R&D data quality and international comparability acceptable.

It took 18 years since 1963 and over a dozen surveys before R&D data were considered to be of 'acceptable' quality.

2. Why innovation data are underused

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2.1 Blame the academics...

- MERIT analyzed 176 academic papers that analyzed the CIS surveys.
 - Only **5%** focused on firms that did not perform R&D.
 - Only **21%** made any policy recommendations or included a discussion of the policy relevance of the study results.

Example 1

Galia et al, Complementarities between obstacles to innovation: Evidence from France, 2004.

- Obstacles are complementary (occur together), *'implies a need to adopt a package of policies in order to help firms'*.

Example 2

Veugelers & Cassiman, R&D cooperation between firms and universities: Some empirical evidence from Belgium, 2005.

- Notes low rate of cooperation between Belgian firms and universities – *‘consider the framework conditions for firms to develop a wider portfolio of innovation activities, such as other public sourcing strategies [to] stimulate firms to [cooperate] with universities.*

2.2 Policy instruments focus on R&D

- **95%** of financial support in Europe for ‘innovation’ is for R&D.
- Estimate based on 2006 expenditure data for 54 programs that did *not require* R&D. These programmes included:
 - Training SME staff on innovation.
 - Technology adoption subsidies.
 - Subsidies to acquire licences to new technology.
 - Subsidies for SMEs to hire scientists and engineers
 - Manufacturing extension services

2.3 How policy analysts use data

“Policy develops a head of steam of its own. All the negative results in the world won’t change it”.

“Policy makers have many pre-conceived ideas – they want indicators that are related to and support their ideas”

2.4 Low perceptions of relevance and reliability to policy needs

1. Concern over reliability of the data.
2. Indicators often outdated – not timely.
3. Lack of adequate detail and trend data.
4. Low awareness of innovation indicators.
5. Innovation survey questions determined by academics – ‘no one asked us what we want’ (meet policy needs)

Result – limited impact

Results of interviews with policy analysts:

1. Impact of CIS was general – ‘innovation more than R&D’.
2. Only a small number of indicators in wide use.
3. Main policy use of innovation indicators is for **benchmarking**.
 1. Rarely used to develop specific instruments.
 2. Occasional use for policy evaluation (collaboration)

3. Solving the problems

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3.1 Improving relevance of academic research

- **Academics:** in return for access to data, require them to produce short reports evaluating the policy relevance of their results.
 - *Not done to date*
- BUT: greater academic interest in firms that innovate without performing R&D

2007 Innobarometer survey: 4,395 innovative firm responses

	Count (unweighted)	Percent (weighted)
Non-R&D innovators	1,996	52.5%
In-house R&D	2,093	40.0%
Contract R&D only	306	7.5%
	<i>4,395</i>	<i>100%</i>

3.2 'science' of innovation policy

- Problem of lack of interest in results that contradict 'perceived wisdom'
 - A long, slow process of careful empirical work to change policy views.
 - Support a 'science' of innovation policy
 - Replication of results (increases credibility)
 - More evaluation of policy relevance

3.3 Improve data reliability

- Since CIS 2006, all new or changed CIS questions are extensively tested using cognitive testing techniques
 - Questions are understood as intended.
 - Respondents can answer the questions.
- Eurostat now requires extensive Quality Reports from EU member states.
- Reliability of each survey is assessed, with the results fed into the design of the next survey.
- Improved indicators (discussed below)

1. Between 2006 and 2008, did your enterprise introduce a product (good or service), process, or organisational innovation with the following expected or observed environmental benefits?

If yes, was this one of the objectives for the innovation?

	Yes	Yes	No
Reduced material use per unit output	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reduced energy use per unit output / during intended use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Replaced energy consumption with renewable energy sources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reduced water pollution during production /intended use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reduced air pollution during production /intended use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reduced noise pollution during production /intended use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reduced soil pollution during production /intended use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Recycling of waste, water, or materials	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None of the above	<input type="checkbox"/>		

Other (please describe)_____

10.1 During the three years 2006 to 2008, did your enterprise introduce a product (good or service), process, organisational or marketing innovation with any of the following environmental benefits?

	Yes	No
<i>Environmental benefits from the production of goods or services within your enterprise</i>		
Reduced material use per unit of output	<input type="checkbox"/>	<input type="checkbox"/>
Reduced energy use per unit of output	<input type="checkbox"/>	<input type="checkbox"/>
Reduced CO ₂ 'footprint' (total CO ₂ production) by your enterprise	<input type="checkbox"/>	<input type="checkbox"/>
Replaced materials with less polluting or hazardous substitutes	<input type="checkbox"/>	<input type="checkbox"/>
Reduced soil, water, noise, or air pollution	<input type="checkbox"/>	<input type="checkbox"/>
Recycled waste, water, or materials	<input type="checkbox"/>	<input type="checkbox"/>
<i>Environmental benefits from the after sales use of a good or service by the end user</i>		
Reduced energy use	<input type="checkbox"/>	<input type="checkbox"/>
Reduced air, water, soil or noise pollution	<input type="checkbox"/>	<input type="checkbox"/>
Improved recycling of product after use	<input type="checkbox"/>	<input type="checkbox"/>

3.4 Improve data timeliness

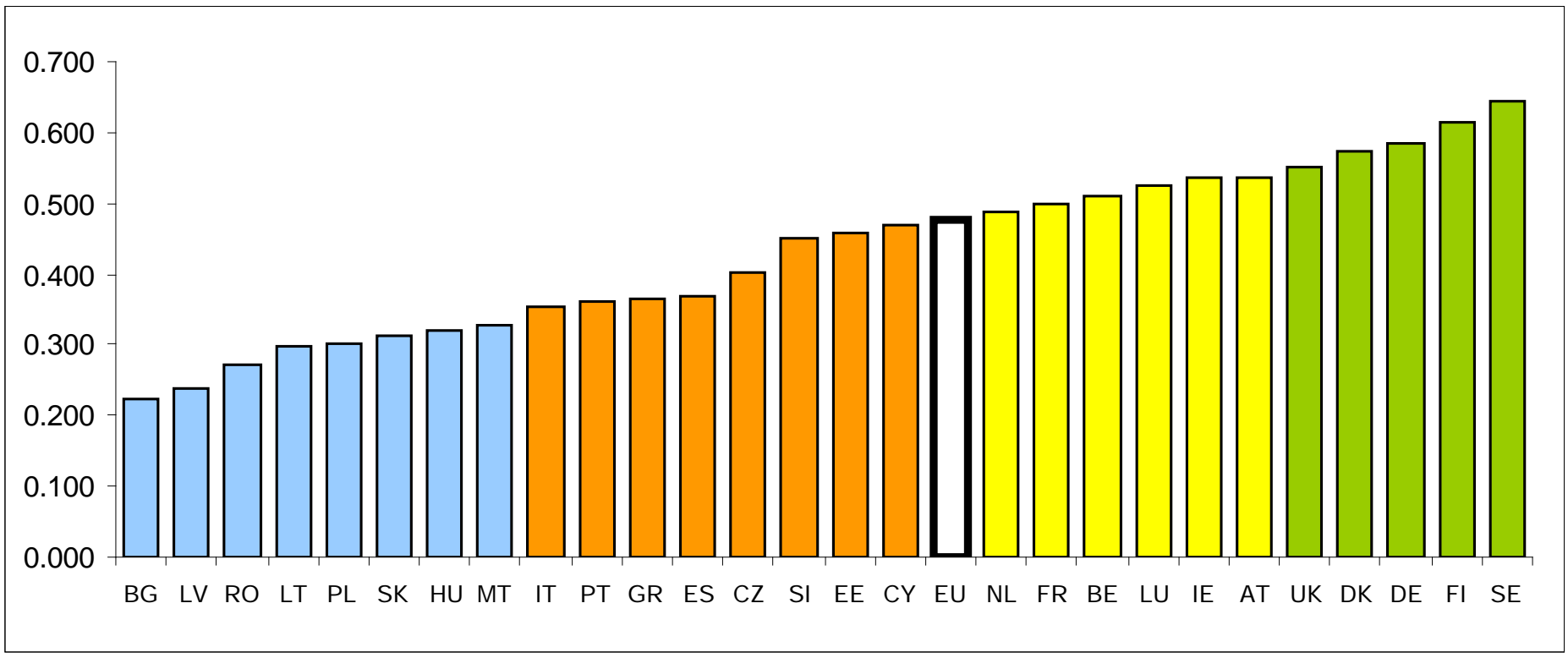
- CIS survey frequency increased from every four to every two years.
- Eurostat has reduced the time member states have to deliver data.
- (Australia surveys every year)
- *A lot still needs to be done – should not take more than 1 year to provide data.*

3.5 Better detail and trend data

- **Trend:** policy to maintain consistency over consecutive surveys, but this can also prevent improvements to the questionnaire.
- **Detail:** added a module on a topic of interest to policy, Innobarometer surveys
- **BUT:** difficult if not impossible to provide enough detail

3.6 Improve awareness

Figure I. Innovation performance EU Member States (2008 SII)



European Innovation Scoreboard: 6 of 29 indicators from CIS

3.7 Better meet policy needs

- Policy analysts now at the table when the CIS is revised (but still not enough of a role).
- Encourage an 'interface' between the policy and statistical communities.
- Research to provide **improved indicators** that better meet policy needs.

Improving indicators: conflicting interests of policy analysts and statistical offices

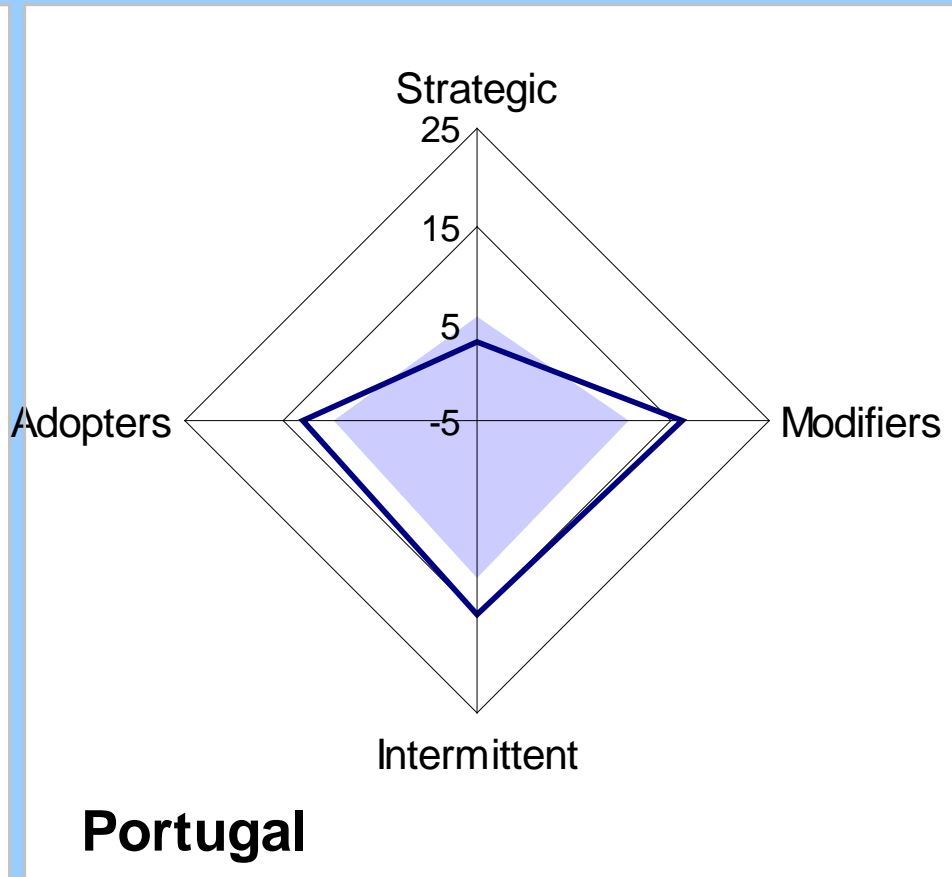
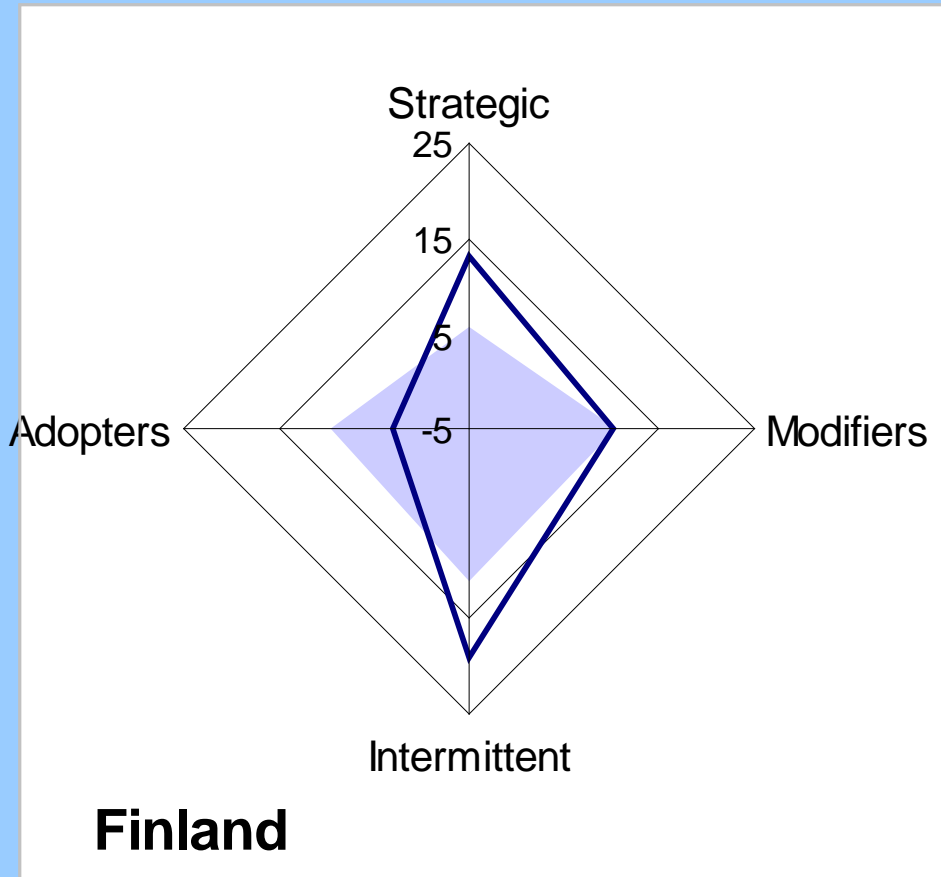
- Questions on innovation expenditures
- **Statistical offices:** Results not reliable and extremely demanding, so only ask in a 'yes' or 'no' form (solution in Australia and Canada).
- **Policy analysts:** Do what it takes – cognitive testing etc, to improve the reliability of the interval level data!!

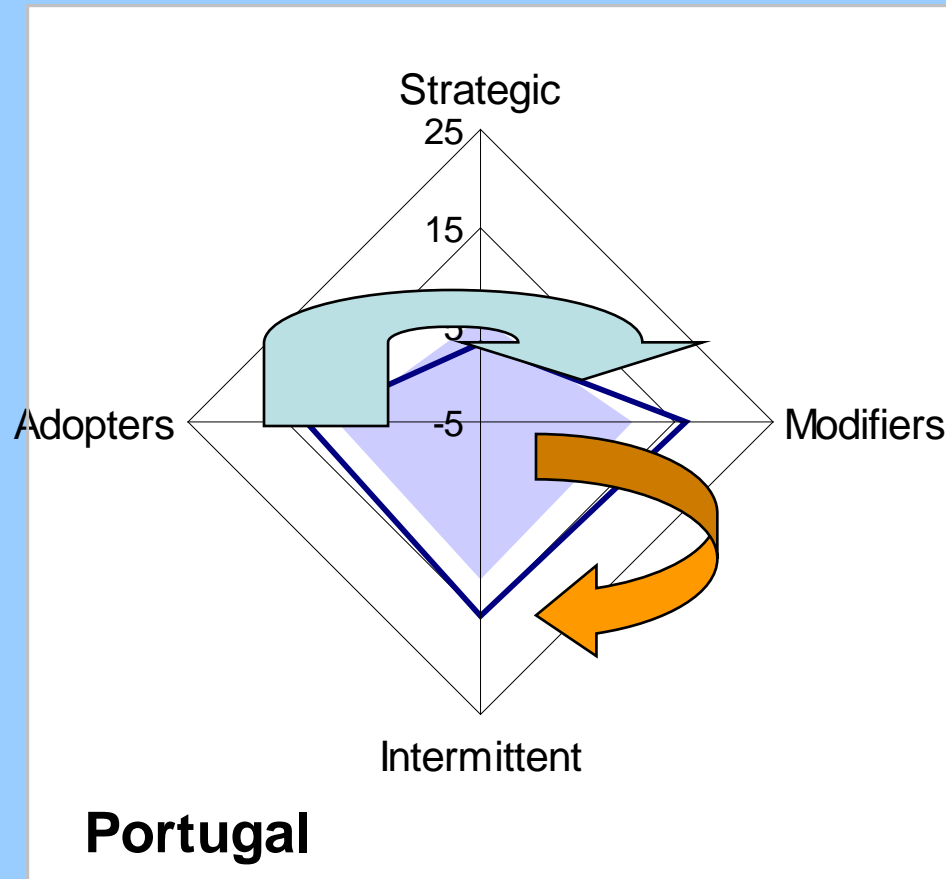
Improving indicators: percent innovative firms

CIS-3:

- Finland: 46%
- Portugal: 45%

Results such as this had a major impact in reducing the confidence of policy analysts in the CIS results





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Next Steps

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4.1 Questionnaire revisions?

- Work on CIS 2010 will start soon:
 - Improve ability to use survey to identify *how* firms innovate.
 - Drivers of innovation versus hampering factors – need more experimentation.
 - Novelty of process innovation?
 - Design and other activities that do not require R&D
- Continue to improve timeliness

1. Mainly your enterprise or enterprise group



A. Developing entirely new processes or significantly improving existing ones in-house

If customized/modified, did your company obtain information, advice or support to help customize or modify these processes from:

2. Mainly your enterprise together with other enterprises or institutions



B. Developing entirely new processes or significantly improving existing ones in collaboration with other companies, consultants, universities etc.

The original developer or supplier

3. Mainly other enterprises or institutions



C. Customizing or modifying processes originally developed by other companies, organizations or individuals

Other companies that use similar processes



D. Acquiring processes developed by other companies, organizations or individuals, with little or no modification by your company

Your customers for these processes

Experts such as consultants, universities, etc.

4.2 What still needs to be done:

- Systematic review of policy implications of innovation survey research, using published papers to date.
- More research on ‘non-R&D’ innovators and innovation that does not require R&D – return to the original purpose of innovation surveys.
- Incentives for academics to conduct careful policy relevant analysis.

Points for discussion

- How to develop a 'science' of innovation policy?
- How to go beyond benchmarking to using innovation survey data to guide policy development or to evaluate policy?
- How to improve the visibility of innovation surveys?
- How to improve the relevance of the results to firm managers?