

Demand-driven innovation policy: the case Finland

GRIPS seminar

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Outline

I – Demand-driven innovation policy

II – Policy developments

III – Innovation impacts of public procurement

IV – Conclusions

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Demand-driven innovation policy

- “A set of public measures to increase demand for innovations, to improve conditions for the uptake of innovations or to improve the articulation of demand in order to spur innovations and allow their diffusion.” (OECD 2011)
- “All public action to induce innovation and/or speed up the diffusion of innovation through increasing the demand for innovation, defining new functional requirements for products and services and/or improving user involvement in innovation production (user-driven innovation).” (Edler 2013)

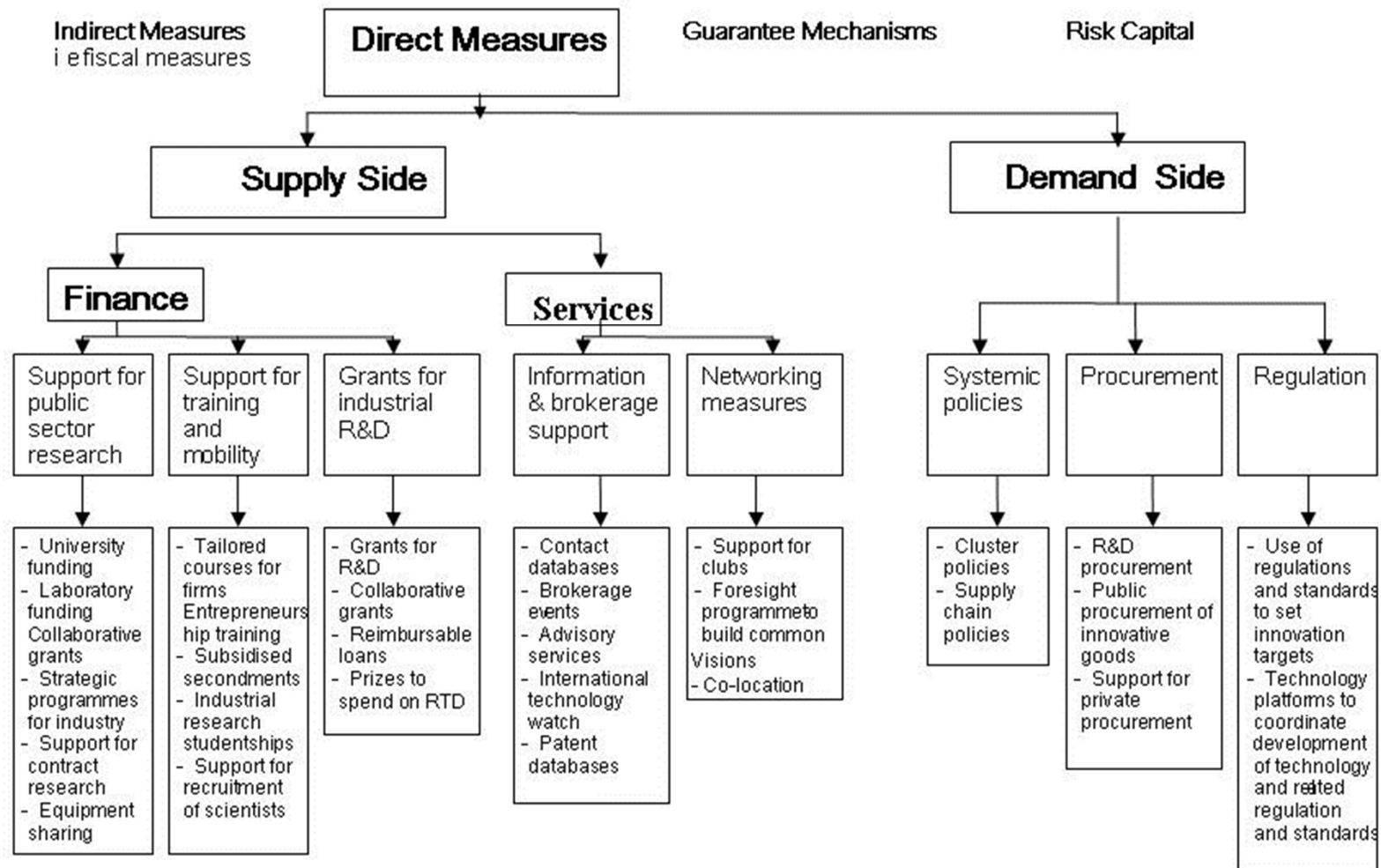
Demand for innovation

- Debate in innovation research (1960's-1980's) to what extent the rate and direction of technological change is influenced
 - by changes in market **demand** or
 - by **push** created by advances in science and technology
- Demand guides firms to work on certain **problems** (Rosenberg, 1969)
- **Users** as sources for innovation (von Hippel 1986)
- Innovation as an outcome of a collision between technological opportunities and user needs, mediated by the **interaction** between producers and users of innovation (Lundvall 1985)
- **Interplay** of demand and supply (Metcalfe 1995)

Rationale for demand-side policy

- **Government need** for new products and services can be exploited to boost demand for innovation (16% of GDP in EU).
- **Market and system failures** hamper market entry and diffusion:
 - Insufficient interaction and communication between users and producers (institutional failure)
 - Adoption risks for first users, high switching costs under technology lock in and network effects
 - Insufficient rate of adoption for societally desirable innovation due to externality problems (particularly for eco-innovation)
- **Promote** entrepreneurship, industry diversification, growth and location.

Innovation policy instruments



Framework conditions: Science base - Contract research - Human resources - IPR - State Aid Regulations

Demand-side policy instruments

(adopted from Edler 2013)

1. Public Demand

- General procurement
- Strategic procurement (technology-specific)
- Co-operative procurement

2. Regulation

- Regulation of product performance and product information
- Usage norms
- Support for standardisation and innovation-friendly self-regulation

3. Financial Support for private demand

- Demand subsidies
- Tax incentives

4. Non-financial support for private demand

- Awareness building, demonstration projects
- Voluntary labels or information campaigns
- Training & further education
- Demand articulation

I – Demand-driven innovation policy

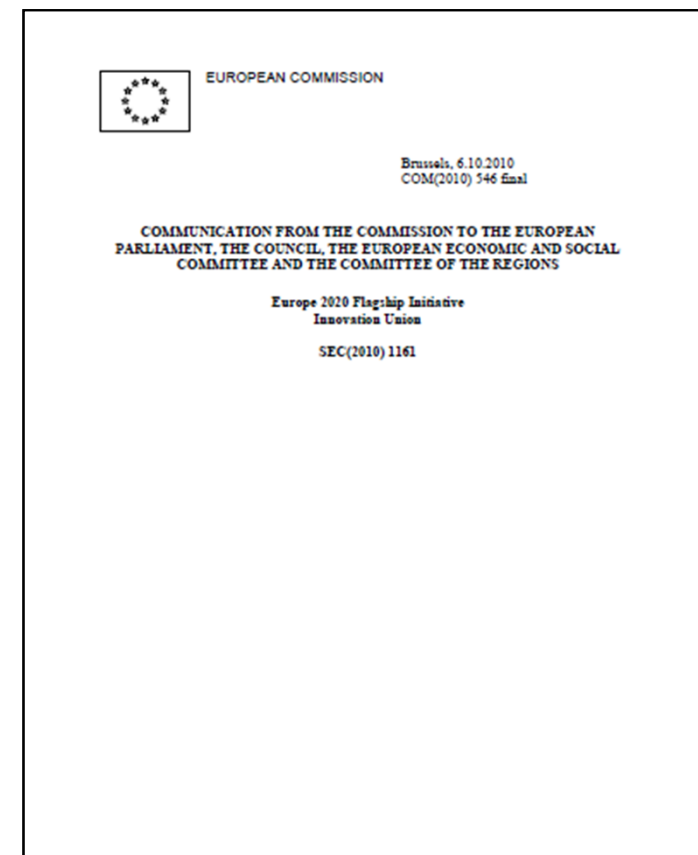
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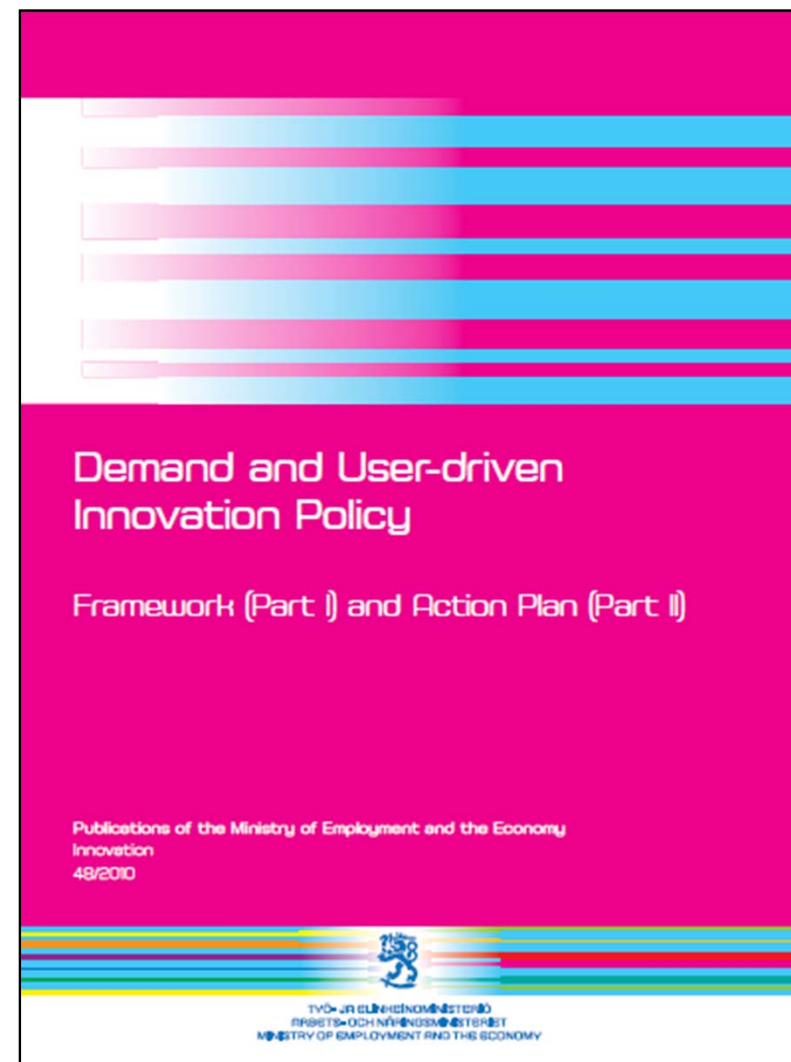
European Union policy milestones

- Demand orientation first introduced in *Broad-based Innovation Strategy* 2006.
- Policy consolidated in the *Innovation Union* flagship initiative 2010.
- Demand-side instruments incorporated in a number of policy programmes, most notably the EU *Horizon 2020* R&D funding programme (2014-2020).
- New *directive on public procurement* 2014



Finland

- Triggered by an international evaluation of innovation policy 2003
- New funding instrument for innovation procurement introduced by Tekes 2008
- Demand and User-driven Innovation Policy 2010
- Roll-out through various thematic programmes: Sustainable community, smart city, health care, green growth etc.



Innovative Public Procurement funding

- New funding instrument introduced by Tekes in 2008.
- Eligible recipients are public authorities with
 - Opportunity and need for service development
 - Capacity to execute an innovative procurement
 - Commitment to strategic renewal of public procurement practice
- Matching funding typically covers 50 % of costs
- The volume of the procurement must be large enough to generate significant economic impacts at least on the regional scale.

The logo for Tekes, the Finnish Innovation Centre, consists of the word 'Tekes' in a bold, blue, sans-serif font.

Innovative Public Procurement funding – 2

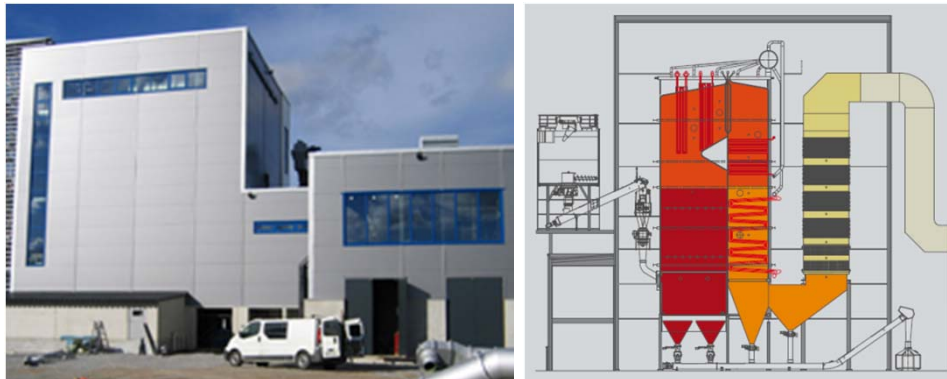
- Planning of procurement:
 - Market analysis
 - Supplier engagement
 - User involvement
 - Definition of functional requirements
- Sharing risks and costs associated with purchasing innovative products and services.
- Building government procurement capacity.

Smart Procurement Programme 2013-2016



Examples of funded projects

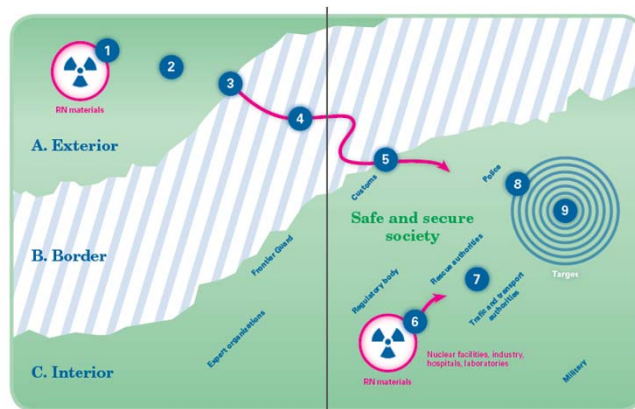
Novel small-scale CHP plant



Real-time situation awareness for city transport



Functional requirements for mobile radiation detection devices



Energy-efficient childcare centre with PPP contract



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VTT surveys

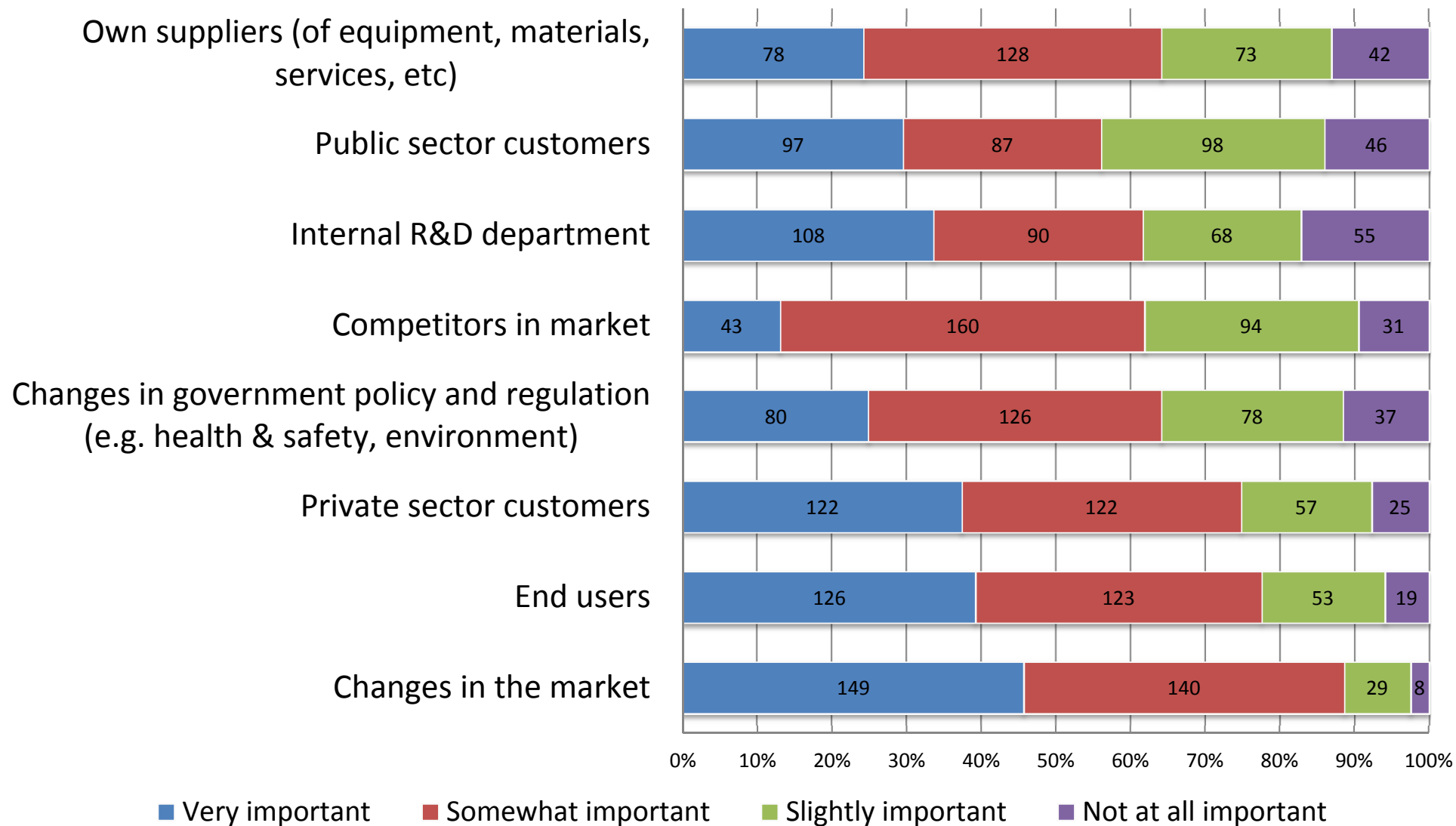
Company survey

- A random sample of 9313 firms operating in Finland drawn from a business database.
- Survey implemented in two rounds between 11/2012 – 3/2013
- 514 responses (5,5% resp. rate), of which 349 have delivered products or services to public sector during past three years.

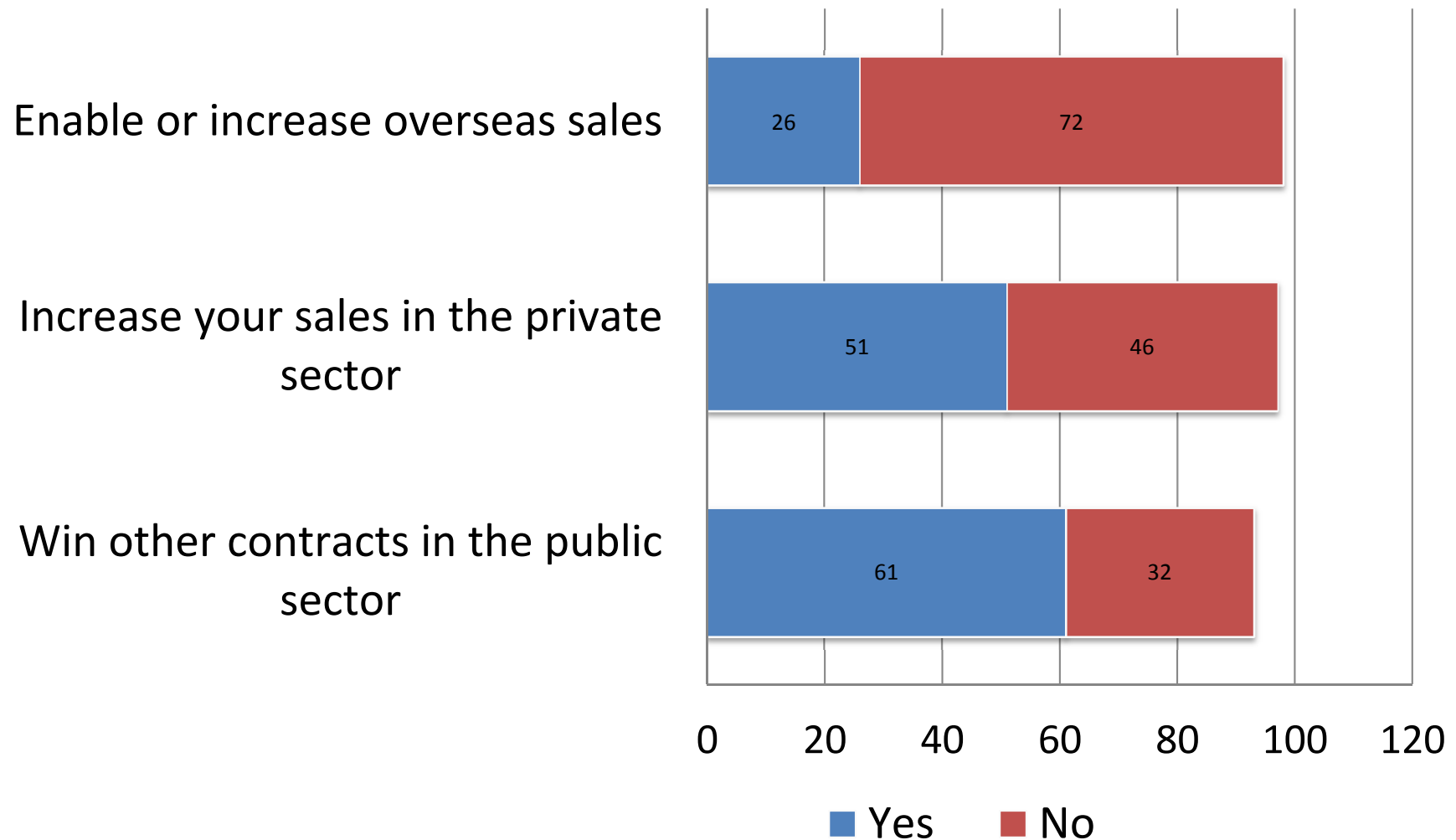
Survey to public procurers

- A sample of 5500 respondents compiled from tenders published in HILMA (online portal for public procurement) in 2008-2011 and a business database which covers public sector strategic decision-makers.
- Survey implemented in 8-9/2013
- 374 responses (circa 7% response rate).

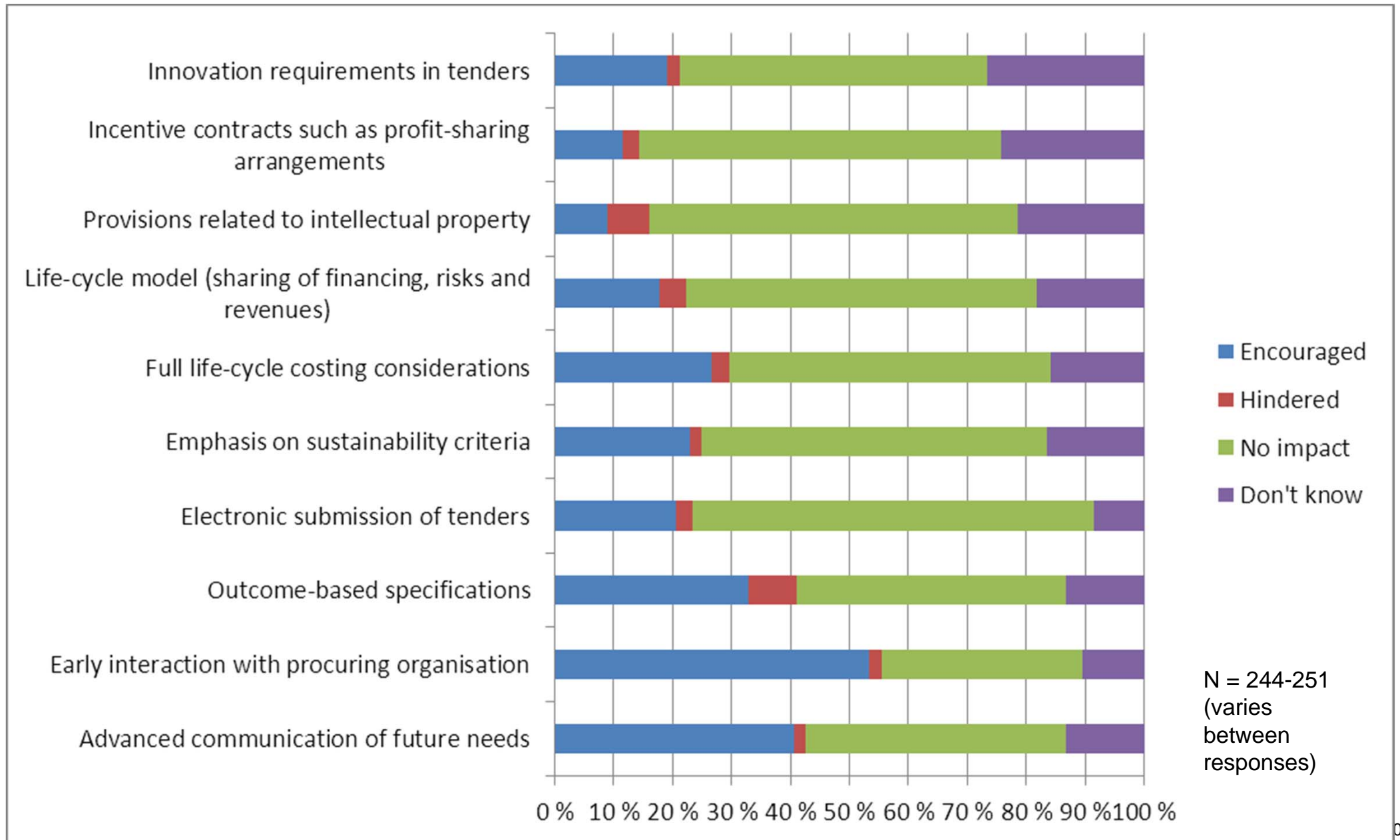
Main sources/drivers for innovation



Effects to sales – Innovations that resulted from bidding for or delivering public sector contracts have subsequently helped to:

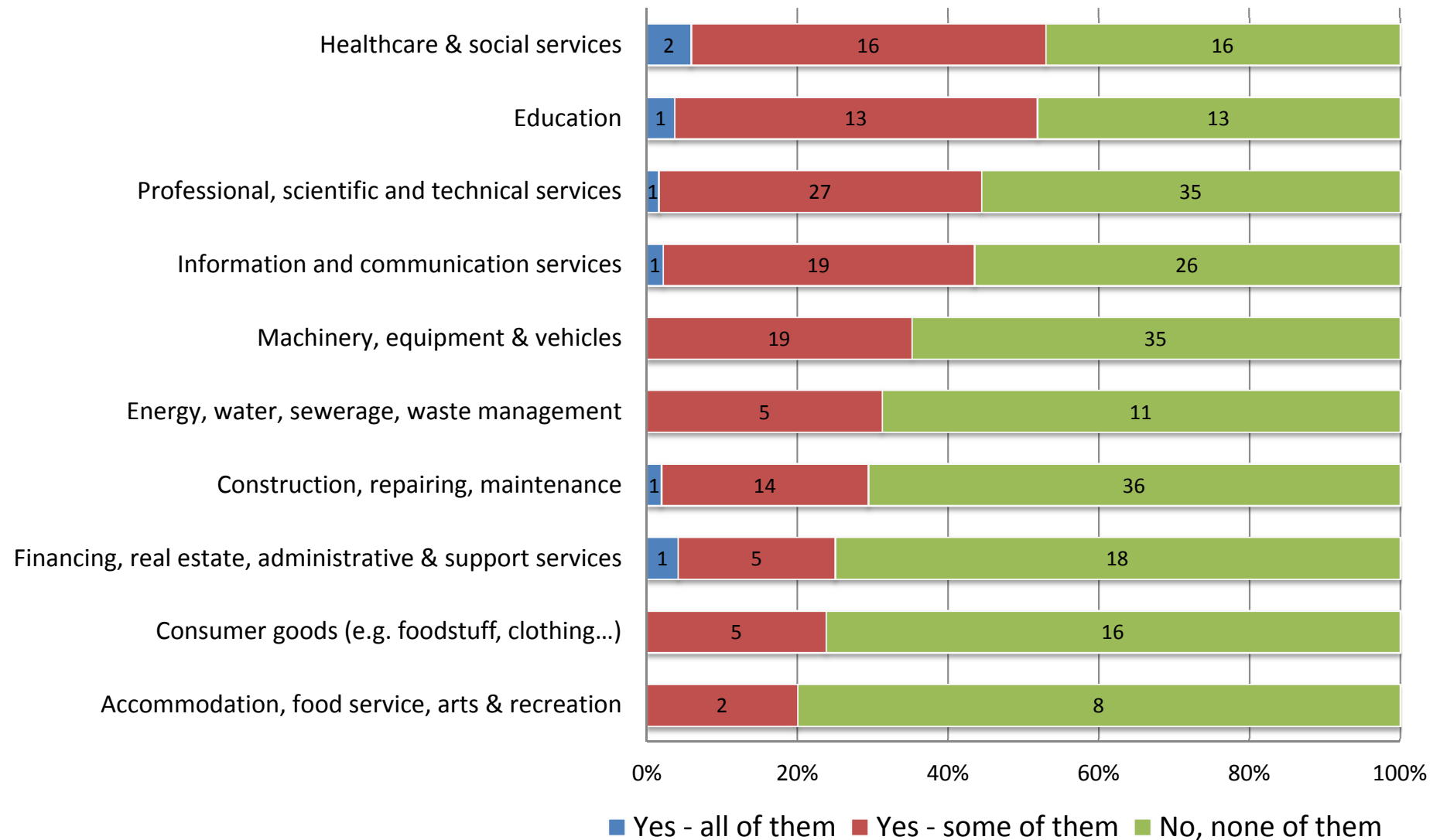


Impact of procurement practises on innovation

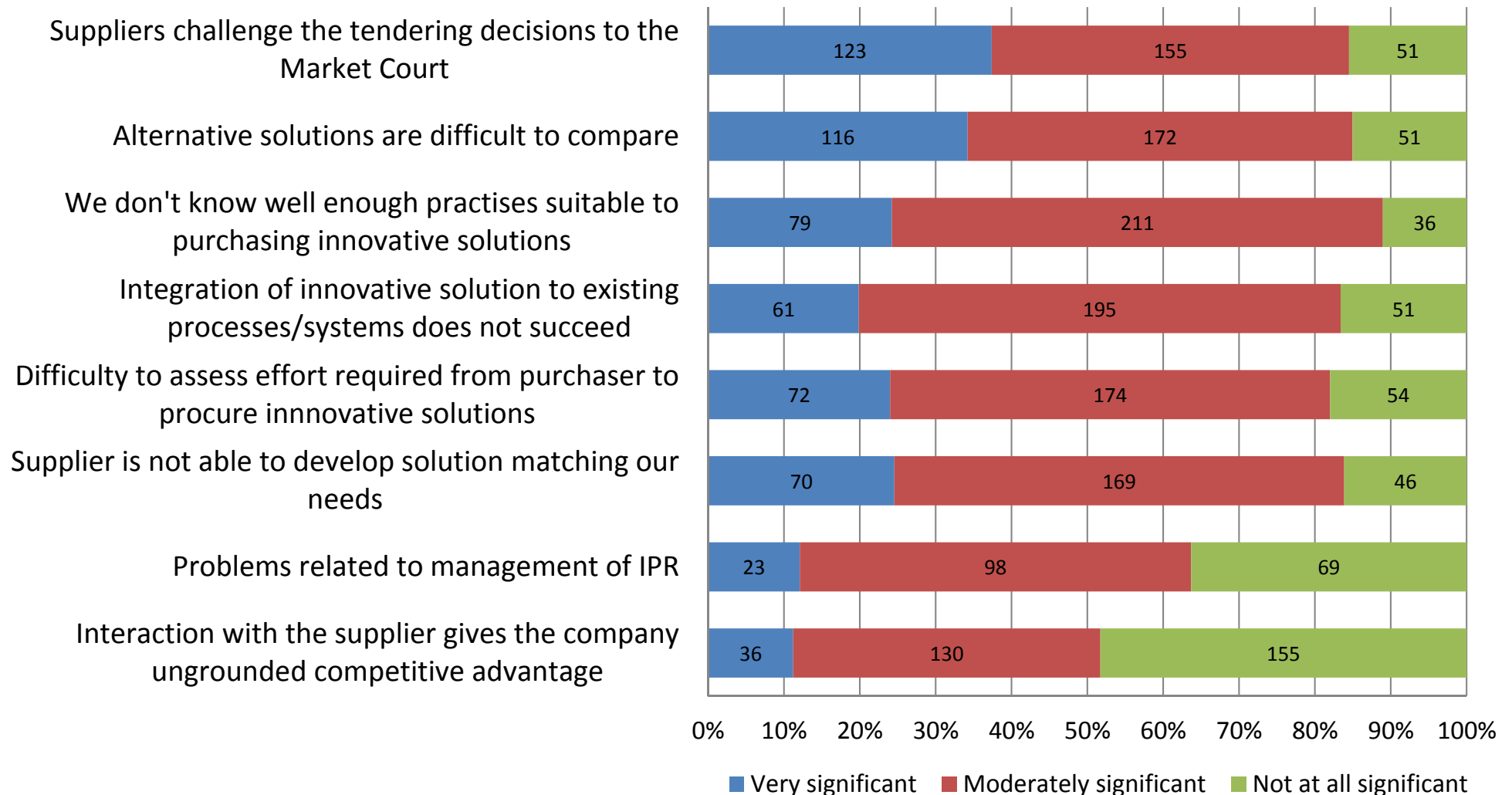


Were innovation(s) result of bidding for or delivering public sector contracts?

By the main category of goods/services supplied



Risks and barriers related to purchasing innovative solutions – Survey to public procurers



Survey findings

- As expected, the impact of public procurement on private innovation is strongest on sectors where government demand accounts for a large share of total demand.
- However, some impact was found on all industrial sectors.
- Public procurement also has catalytic effects on business for private customers, other public sector customers, and export markets.
- Practices related to public procurement with strongest influence on firm innovation are early interaction with procuring organization and advanced communication of future needs.

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Assessment of the Finnish experience

- Capacity building to overcome risk aversion among public authorities involves a long learning process.
- Too early to assess total economic impacts and additionality of demand-driven innovation policy.
- Weak link with sector policy needs favours incremental rather than radical innovation.
- Public procurement of innovation will generate modest impacts unless effectively coupled with an effective policy mix consisting of both demand and supply side instruments.
- Other demand-side policy instruments such as regulation and standardisation are not yet deployed in a systematic manner.

Theoretical remarks

- Policy experimentation and learning.
- Means to enable more effective user-producer interaction for innovation (Lundvall 1985).
- Enhancing not only diffusion of innovation but also value capture from innovation by providing first mover advantage.
- Diffusion rate of some complex product-service systems (e.g. infrastructure, construction) and human services (e.g. elderly care) with low replicability and high dependence of local institutions makes diffusion rate modest.

Theoretical remarks – 2

- Public procurement is not a policy intervention *on* the marketplace, it is an economic transaction *in* the marketplace carried out by a government agency.
- Additionality of innovation policy measures to procurement practice.
- Effective policy implementation requires commitment from sector policy domains.
- Need to contribute simultaneously to both sector policy and innovation policy missions creates a complex governance context.

Steps ahead

- Demand-oriented innovation policy has entered the policy toolbox.
- Challenge 1: Policy scaling-up and accelerated institutional learning
- Challenge 2: Finding effective policy practices to support integration of demand and supply-side measures.
- Challenge 3: Demonstrate impacts:
 - Economic impacts to business firms
 - Societal impacts through public service effectiveness and productivity improvement
 - Market formation and industry diversification



**Thank you for your
attention**

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