Innovation-Enhancing Public Procurement: Describe functions instead of products!

Presentation by

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at

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The Extent of Public Procurement (PP)

PP is when public agencies (national, regional, local) buy goods and services

Very large:
- PP in Sweden = 700 billion SEK = 19 % of GDP
- PP in the EU = 2,3 trillion Euros = 19 % of GDP

Questions:
- Can PP enhance innovation? How?
- If 10 % of PP stimulates innovation in Sweden = 70 billion SEK (Public research budget is 35 billion) – Can that be achieved?

Properly used PP can have enormous effects on innovation – at very low or zero cost.
Innovations =

• New creations of economic and societal significance primarily carried out by firms (but not in isolation). They include new **products** and new **processes**.

• To be an innovation, the product or process must be commercialized or diffused in other ways. Otherwise it is a prototype. A tested prototype is not an innovation (Acc. to the Oslo Manual)
Main types of public procurement

• 1. Public regular (general) procurement

  Is working from the demand side.

• 2. Public innovation procurement (PPI)

  Public innovation procurement takes place when a public agency or unit prepares and places an order for a product to fulfil certain functions within a given time period, but for which a product does not exist at the time of the order. This type of procurement must result in some form of product innovation before delivery can occur.
2. Public innovation procurement (PPI)

2.1. **Direct public innovation procurement** = the procuring organization is also the end user of the product and the tender documentation is formulated in terms of problems that shall be solved or in terms of functions.

2.2. **Catalytic public innovation procurement** = the procuring agency is acting on behalf of other actors and the tender documentation is formulated in terms of problems that shall be solved or in terms of functions.
2a. Direct PPI

• This is the "classical" form of innovation procurement

• Some Swedish examples
  – 400 000 volt electricity transmission (Vattenfall- ASEA)
  – AXE: the first electronic telecom switch (Telia-Ericsson)
  – X2000- a tilting train (SJ-ABB)

• The first two were technical breakthroughs that resulted in hundreds of billions of Euros in export sales and tens of thousands of jobs.
2b. Catalytic PPI

• The Swedish Energy Agency has been a pioneer, both in Sweden and internationally: about 60 cases over 30 years. Example: refrigerators.

• The Agency meets a "purchaser group" and a functional specification is formulated. There is a new product (innovation) being sold and bought.

• The Energy Agency is formally required to perform catalytic PPI by the Ministry. No other state agency is subject to such a requirement.
1. Public regular procurement

1.1. *Product procurement* = the tender documentation is formulated in terms of description of desired products

1.2. *Functional procurement* = the tender documentation is formulated in terms of problems that shall be solved or in terms of functions: the decibel example
Table 1: Main types of public procurement - and their corresponding sub-types

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Source: Edquist (2017)
Detour: Activities in Innovation Systems:

1. R&D
2. Education and training
3. Formation of new product markets
4. Articulation of quality requirements
5. Creation and changing organizations
6. Interactive learning
7. Creating and changing institutions
8. Incubation
9. Financing of innovation processes
10. Consultancy services

TOGETHER THESE ACTIVITIES DEFINE AN INNOVATION SYSTEM

THIS SYSTEMIC VIEW HAS REPLACED THE LINEAR VIEW IN
INNOVATION RESEARCH – BUT NOT IN INNOVATION POLICY!
Currently: procurement of **products**

- Most public procurement is done in a routine-like manner: the same product as last is demanded and described: cut-and-paste.

- Even **obsolete** products are demanded, although better alternatives already exist. Simply describing the previously procured product makes it **difficult or impossible for new products (innovations) to be accepted.**

- This is a **major obstacle** to innovation.
Increasingly: Procurement of **functions**

- **Functional procurement** is when the procuring organization *describes a function* that shall be performed *instead of the product* that shall perform it.

- It is a matter of *what* shall be achieved rather than *how* it shall be done.

- This means **larger flexibility** for a potential supplier.
How much innovation-enhancing procurement – and how?

• **All** regular public procurement can, in principle, become functional!

• The question is **how** it can be achieved!

• Example: The Transportation agency buys a decibel level instead of a sound barrier or quiet asphalt
Prescribing functional procurement

• The most important and powerful action to make regular public procurement enhance innovation is to prescribe that regular procurement shall be formulated in functional terms.

• It would also open up for substitutions between, for example, spending on medicines and other health spending, e.g. drugs vs surgery
Experience:

• We know that all Public Procurement for Innovation (PPI), direct as well as catalytic, must be performed through functional specification to operate well.

• In addition the degree of specification must decrease: the demands must be fewer

• The case of X2000 – a relative failure because of overspecification
Proposal

• The proportion of the regular procurement that is performed in functional terms shall increase by 5 percentage points per year during the next 5 years.

• When 25 % has been achieved after these 5 years, the programme should be evaluated and new decisions taken.

• This would liberate creativity and innovation in a very large part of the economy, since it would concern 5 % of GDP!!!

• It would also increase competition – not only between suppliers, but also between products (solving similar problems)
Demands are crucial

• To require functional procurement can be a very powerful instrument to increase the proportion of innovations in public procurement.

• It may seem like a self-evident thing to do. But it does, obviously, not happen spontaneously.

• Procuring organizations must be instructed to perform procurement as functional procurement.
Give advantages to new products!

• It should also be written into the procurement specifications that it will be taken into account if the product offered constitutes an innovation.

• If this leads to a higher degree of fulfillment of the functions or to lower costs in the long run – then it shall be clear from the beginning that new products (= innovations) are given preference.
The EU procurement regulations

• The term “functional requirement” is in the regulations: ”A procuring agency may express the technical specifications as performance demands or functional demands.”

• Hence, the procurer can always choose between describing a product or a function. No changes of rules are needed.

• ”Noone” was aware of this in Sweden two years ago.
Seemingly paradoxical:

To enhance/achieve **innovation** by means of procurement we should mainly pursue **functional** procurement (*rather than* concentrate only on **innovation** procurement).

- A small part can be innovation procurement – which demands innovations

- Most of it can be functional (regular) procurement which makes innovations possible – but does not require them
Pre-Commercial Procurement (PCP)

- **Pre-commercial Procurement** (PCP) is often *called* innovation procurement and receives large attention in many countries and by the European Commission.

- PCP concerns procurement of (expected) *research results* - in an extremely *targetted* way. However, the commercialization of new products is *not* a part of PCP as such. Neither is a *buyer* of a product.

- So, PCP is not innovation procurement, or procurement of products at all and no buyers of products are involved.

- Commercialisation *must not* be a part of the PCP process. PCP is *excepted* from the public procurement regulation. Procurement of new products are not allowed in PCP.
The role of PCP

• Hence, PCP is not an innovation policy instrument working from the demand side, such as innovation-enhancing procurement. PCP is a supply side policy instrument in relation to innovation!

• However, it may still be a very important R&D policy instrument in attempts to meet global challenges, solve societal problems and satisfy human needs.

• Hence it is important that PCP is given an important role as a part of a holistic mix of policy instruments, as a supplement to innovation-enhancing procurement (and other innovation policy instruments).
Very little innovation-enhancing public procurement is performed in Sweden!

- The total volume of the different kinds of innovation-enhancing public procurement is not known in detail.

- My estimate is that at most 0.05 % of all public procurement in Sweden is innovation-enhancing.

- This is a gigantic neglect – but it also constitutes a gigantic opportunity.
We can see things that we have tools to see!

• There are many **cases of functional procurement in Sweden:**
  – All the cases of innovation procurement (reported in books and articles)
  – Many “unknown” cases of functional regular procurement
    • Wound care – not bandages, Plastic aprons for surgery (Region Skåne)
    • 7 case descriptions recently published by the Swedish Procurement Agency
    • Many unrecorded cases
• Likely cases also **in other countries**
Current Potential

• **Direct** Public Procurement for Innovation: *Limited* potential, but should be enhanced.

• **Catalytic** Public Procurement for Innovation: A *lot* can be done.

• **Functional procurement**: *Enormous* possibilities.

• **Pre-Commercial** Procurement: Has a potential as a preparation or an alternative to innovation-enhancing procurement. (But so has many other innovation policy instruements that are not innovation-enhancing procurement.)
What needs to be done?

• Political action is necessary for all kinds of innovation-enhancing public procurement. Demands from politicians are necessary. Public organizations are the market.

• For administrators it means taking a risk to carry out innovation-enhancing public procurement. Elected politicians must absorb the risks and take responsibility. They must “protect” the administrators.

• Innovation procurement and functional procurement require no legal changes.

• To “complain” must be made more difficult - a fee.
Advantages

• Action would mean a competitive **advantage** for the country pursuing it.
• It would mean **no large additional costs** – huge budgets for procurement already exist.
• However, some initial economic incentives may be called for.
• But these budgets would partly be used to buy products of a **higher quality** (better problem solving and needs satisfaction) and at a **lower cost in the long run**.
• At the same time it would **create salaries, profits and tax income** = welfare.
Recent general innovation policy initiatives in Sweden

• In 2014, the new Prime Minister appointed a Minister of enterprise and Innovation (for the first time).

• In 2015 he also created a National Innovation Council with himself as the chairman.

• = an ”innovation drive” in politics!

• This also includes actions in the field of innovation-enhancing procurement:
Current policy initiatives in Sweden on public procurement

• The Prime Minister from September 2014 also appointed a minister responsible for procurement.

• He created a new separate public agency for “procurement support” in operation from September 2015. To support innovation-enhancing procurement is an important task for the agency.

• He has also developed a National Procurement Strategy, which was decided upon by the government in June 2016.

• Functional procurement is a very important element in that strategy.
The Swedish government took a decision to adopt the **National Procurement Strategy** in late June 2016. **Functional procurement** is an important element in that strategy. One of the seven parts of that strategy has the title “**Public procurement that enhances innovations and alternative solutions**”.
Quotes from the procurement strategy (1)

• “There is a large potential in using procurement as an instrument to enhance development and innovation.”

• “The public sector can also enhance innovation in suppliers by, in procurement, demand functions rather than ready solutions.”

• “By requiring functions instead of having specific requirements with regard to goods and services, the creativity and ability to innovate of the potential suppliers are enhanced.”
Quotes from the procurement strategy (2)

• “To demand functions can increase competition in the procurement, since a larger number of firms and organizations can respond to the tenders, which is beneficial particularly for small and medium-sized firms.”

• “… your agency formulates functional requirements and emphasizes the result that shall be achieved instead of specific requirements with regard to the goods and services.”

• “… your agency uses assistance from the initiatives and means of support that The National Agency for Public Procurement has developed to formulate functional requirements in procurement.”
A holistic innovation policy

• Defined as a policy that explicitly integrates all public actions that influence or may influence innovation processes (for example by addressing all the ten activities in a coordinated manner)

• It requires a very broad view of innovation systems, including all the determinants of innovation processes.

• It must include demand-side innovation policy instruments, such as innovation-enhancing procurement
Mix of policy instruments

• **PCP** and *regular* procurement can be combined.

• **PPI, Innovation-enhancing/functional** and **PCP** (targeted R&D funding) may supplement each other as parts of a policy mix, but they should not be mixed up!

• All of them may be combined with *other* innovation policy instruments.

• For example, combined with generic R&D, risk financing or subsidies to users (e.g. of solar cells) to increase the market.
Finally – back to procurement

• Innovation-enhancing public procurement and public procurement for innovation could constitute the most powerful innovation policy instruments available – if political initiatives are taken.

• It would be a major step in the direction of a holistic innovation policy (since it is a demand-side instrument)
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All innovation-enhancing procurement is functional – the Summary Taxonomy turned “upside down”

**Functional procurement** = Problems to be solved or functions are described in the tender documentation. (Desired products are not described.)

Two sub-categories:

- **Innovation procurement** (must always be functional, since products do not exist) – requires innovations. (Both direct and catalytic.)

- **Functional regular procurement** – allows/encourages innovations

However, in **most regular procurement** the desired products are (still) described in the tender documentation = it is not innovation-enhancing, but constitutes **an obstacle to innovation**.
Conclusion

• This MLE should essentially consider public innovation procurement (direct and catalytic) and regular functional procurement as specified above, since they are the three types of procurement that can directly and significantly enhance innovations. Of these, regular functional procurement is considered to have the largest potential
References

• Edquist, C, **Innovation-related Public Procurement as a Demand-oriented Innovation Policy Instrument**, *Papers in Innovation Studies, No 2015/28, CIRCLE, Lund University*. (Currently under revision)


• Edquist, C., 2011. Design of innovation policy through diagnostic analysis: identification of systemic problems (or failures), *Industrial and corporate change* no 20/6, pp. 1725-1753.


Summary Taxonomy: Main types of public procurement - and their sub-types

Perhaps make the same picture as we did in the Modus Operandi ask for help

Place as picture 10!
Characteristics of a holistic innovation policy

- Take all determinants of innovation into account (ten activities).
- **Division of labour** between what private and public organizations do is important – **additionality** is key.
- **Coordination** with other policy areas is important.
- Innovation policy must be given **priority** over some other policy areas.
But policy is still linear!

- Innovation researchers have abandoned the linear view since decades.
- But innovation policies in practically all countries are still linear
  - Indicated by the dominance of the expression "science and technology policy" and/or "research and innovation policies"
  - Provision of R&D results is the most important innovation policy instrument
- Innovation policy is far behind innovation research
Is European Innovation Policy Holistic?

• Innovation researchers have abandoned the linear view

• Through ERAC, we sent out a questionnaire to 23 EU Member States
  19 of 23 (83%) Member States responded
  16 of 19 countries (84%) strive to develop innovation policy into a more holistic one
  However, only 4 countries (21%) use demand policy instruments to a considerable degree – but still not a holistic policy
  And provision of R&D results is the most important innovation policy instrument in 10 of 19 countries (53%)

• Answer: Innovation policy is dominantly linear, i.e. far behind innovation research!
WHY is innovation policy (still) linear?

- Policy-makers who come to innovation research conferences have completely abandoned the linear view.
- Conclusion: The division line is within the policy realm! Governance matters!
- Community: policy-makers (adm/bureaucrats) and elected politicians
- Perhaps the dividing line is between these two categories? (Elected politicians take final decisions.)
- And different views in finance ministries and other ministries? Or between ministries of research and ministries of Industries?