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PUBLIC PROCUREMENT AS A DRIVER FOR INNOVATION AND CHANGE

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About VINNOVA

VINNOVA, the Swedish Governmental Agency for Innovation Systems, integrates research and development in technology, transport, communication and working life.

VINNOVA´s mission is to *promote sustainable growth* by funding *needs-driven research* and developing *effective innovation systems*.

Through its activities in this field, VINNOVA aims to make a significant contribution to Sweden´s development into a leading centre of economic growth.

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Public procurement as a driver for innovation and change

Report on government commission to Nutek and VINNOVA

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Foreword

In May 2006, the Swedish government commissioned Nutek and VINNOVA, in consultation with the *Nämnden för offentlig upphandling* (NOU) (the Swedish National Board for Public Procurement), to:

> *"examine how public procurement can contribute to developing innovation and creative renewal. The study is to include investigation as to how procurements may be structured in such a way that, to a greater extent, they drive forward technological development and business opportunities."* [1]

The study was conducted as a close collaboration between Nutek and VINNOVA. NOU contributed a certain amount of support during the study, but no other consultation took place.

Nutek and VINNOVA concur to a major extent in their view of public procurement in Sweden and on what is important in order to develop it. However, the differing functions of each agency as a public authority, where VINNOVA is responsible for research, development and innovation in growth, led to proposals with differing areas of focus in terms of how innovation and renewal may be promoted via public procurement. This is VINNOVA's analysis and proposals. The project manager was Göran Marklund. Nina Widmark and Jennie Granat Thorslund also took part in the project.

Per Eriksson

Director-General, VINNOVA

[1] Government decision dated 6 April 2006, page 1.

Abstract

The Swedish Government in May 2006 assigned the Swedish Agency for Economic and Regional Growth (NUTEK) and the Swedish Governmental Agency for Innovation Systems (VINNOVA), in collaboration with the National Board for Public Procurement (NOU), to investigate how public procurement can stimulate innovation, including technological development and business opportunities.

To spur innovation, i.e. the development of innovative products, processes or services through public procurement, VINNOVA recommends the following:

1. Introduce public procurement of innovation, i.e. procurement that includes R&D, as a general procurement form in Sweden. This does not violate the existing regulations for public procurement and R&D. Create supporting structures of expertise with the help of public authorities that have R&D-review as core business. Introduce clear incentives to procuring public authorities (the procuring entity) by stating that one percent of the total volume of procurements should be allocated to innovation procurements. In addition, highlight successful procurements and reward them. In this manner, public innovation procurement can become a strategic issue for Swedish public authorities.

2. Strengthen the organisation and simplify the process for public procurement to enable coordination of demand. Thus, critical mass regarding methodological expertise can be achieved. This should be done in consideration of how to utilize the innovation potential and increased efficiency of small and medium enterprises (SME).

3. Create reliable information for follow-up and statistics on public procurement. Evaluate the scope of public procurement and distribution as well as its effects on public organisations regarding organisational renewal and increased efficiency. Also, evaluate its effects on innovation in the private sector.

Innovation is always preceded by development and at times even by research, in other words R&D. Thus, public procurement processes that endeavour innovative solutions encompass R&D. Such public procurement should be denoted as procurement of innovation, as the focus is on novel

solutions, i.e. innovation. Historically, Sweden boasts numerous successful procurer-producer examples that occurred before the deregulation of different state monopolies. Well-known cases are the collaboration between Televerket (the Swedish Agency for Telecommunications) and Ericsson, which led to the AXE switching system and NMT, Nordic Mobile Telephony. Also, the collaboration between Swedish energy company Vattenfall and electrical engineering company ABB led to advanced power generators. Public innovation procurement can also be applied to promote innovation processes in smaller scales, for instance, procurement to boost software development, energy conservation techniques, and new telephony solutions in the public sector.

Public authorities dealing with R&D-funding as a core activity should be in a position to review the quality of R&D in public innovation procurements. Such authorities include VINNOVA, Swedish Research Council (VR), Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning (FORMAS), Swedish Council for Working Life and Social Research (FAS), Swedish Energy Agency and others. Procuring authorities should make such R&D reviews a part of the final assessment of tenders received. If necessary, R&D-funding authorities can assist in preparing the R&D content in the invitations to tender documents.

Innovation procurement should be an integral part of an authority's long-term organisational development and therefore every public authority must have both incentives to pursue innovation procurement as well as ownership of innovation procurement contents and processes. It is thus essential that there are clear incentives to promote innovative public purchases for all public authorities. As the encouragement to conduct such procurements are currently quite weak, it is suggested that special incentives be created. It is therefore put forward as a suggestion that the Swedish Government set up a target of at least one percent of the total procurement volume of public authorities be innovation procurement.

To stimulate innovation procurement as a general form of public procurement, development of methods and structures to coordinate processes dealing with such procurements should be devised, so that:

- Critical mass regarding demand and methodological expertise and requirements for innovation procurement is attained, and
- Small and medium enterprises' potential for innovation and job creation are considered and encouraged.

Coordination of demand and expertise are critical for the quality in the requests for proposals and for the evaluation of submitted bids. Special

venues should be developed to coordinate between public authorities and organisations with similar functional requirements and procurement procedures. Critical mass can be attained through such venues of collaboration, regarding function oriented demand and methodological skills.

The suggestion above should encompass all public authorities and thereby all the sectors these authorities represent. Each public authority should decide on its own if any adjustment of its organisation, as well as its role within its specific sector, is necessary. Municipalities and county councils should also be able to use the principle of the suggestion, as part of their strategies for innovation and renewal. If so, public authorities must be given assignments to methodologically support the municipalities and county councils and thereby serve as necessary coordinators. In the latter case, financial support from EU's structural funds may be applicable.

It is not evident whether the directives for procurement require public authorities to focus on the development of their organisations for improved quality and efficiency. Given this ambiguity, it is suggested, that a general review of Sweden's national policy for procurement be conducted. The purpose should be to develop the principles and structures of a national procurement policy so that the organisational developments of public authorities are strengthened and positive socio-economic outcomes are promoted. Three central functions should be part of an updated national procurement policy:

- Fundamental objectives and principles for prioritisation in public procurements
- Clarification of the responsibilities of central/national public authorities and their public relations so that the policy can have a high impact
- Resources for further development of principles and methodologies as well as measures for follow-up of public procurements should be secured

For a goal-oriented, innovation friendly and efficient public procurement it is essential that there are strong stimulants and responsibility for a continual development of policy, methodologies and performance metrics. This must be steered politically and be based upon a clear leadership from the Government's side. To support the political objectives, the functions and roles of assisting public authorities must be clarified and distributed among the authorities. This requires a detailed review of the strengths among public authority roles, as well as the collaboration between them that exist today.

At the moment it is difficult to get a picture of the total volume of public procurement, its size in different markets and its content regarding general procurement as compared to innovation procurement. The level of ambition to follow-up, collect data and analyse public procurement to spur innovation, increase efficiency and structures should be raised. If the requirements for audit and follow-up on public procurement increase, in regard to both the general impact on efficiency as well as promoting innovation, it will have positive bearings on the incentives for efficient and innovation friendly procurement.

Contents

1 Introduction

In May 2006, the Swedish government commissioned Nutek and VINNOVA, in consultation with the *Nämnden för offentlig upphandling* (NOU, the Swedish National Board for Public Procurement):

> *"to examine how public procurement can contribute to developing innovation and creative renewal. The study is to include investigation as to how procurements may be structured in such a way that, to a greater extent, they drive forward technological development and business opportunities."* [2]

The commission included assessing:

- which methods are the most appropriate to an innovation-promoting procurement process
- the sectors in which the need is most urgent for establishing conditions to enable public procurement to become a driver of innovation and renewal; and
- the extent to which the development of public procurement may have an important role to play in implementing the strategic programmes formulated for key sectors in Sweden.

The report from the agencies was to be structured in such a way that it could serve as the basis of a policy including guidelines for public procurement as a driver of innovation and renewal.

In motivation of its decision, the government states that:

> *"the government's objective is, in line with its innovation strategy, that procurements shall become more stimulating of innovation. This implies* inter alia *a need to structure procurements such that they can promote creative renewal and innovation, while at the same time the requirements for cost efficiency must not be compromised*

Sweden's innovation strategy "*Innovativa Sverige – en strategi för tillväxt genom förnyelse* (Ds 2004:36) ("Innovative Sweden – a strategy for growth through renewal") is the government's platform for its efforts to strengthen the country's competitiveness. One aspect of the strategy concerns innovative public investment. There it is emphasised that, for

[2] Government decision dated 6 April 2006, page 1.

example, public organisations must in their role as procurement agencies be more active in driving forward technological development and exploiting business opportunities, while at the same time fulfilling the needs of the community at large.

Purpose and objective

VINNOVA has interpreted that the primary purpose of the commission is to establish facts and produce proposals that may form the basis of principles of a national policy on how public procurement may be used as a driver of innovation and renewal.

The objective of a national policy to this effect should be to contribute towards greater use of innovation-promoting public procurement processes, that is, procurement processes that lead to:

- development of new and more functional – i.e. organisationally better – solutions to the needs of public organisations; and
- development of new, more internationally competitive products (goods and services) and processes for the Swedish business sector.

Scope of the study

The focus of this work has been on identifying principles for a greater use of public procurement as a driver of innovation. Further initiatives are needed in connection with the development of a national policy, to narrow down how the principles proposed should be applied.

The study did not in any depth look at general problems relating to the participation by small enterprises in public procurement, since this issue was addressed in detail in a recently completed report.[3] Neither did it analyse the importance of standardisation and the use of e-services during procurement, since these issues are being considered within the scope of other studies currently in progress.

[3] See Nutek report, *Småföretag och offentlig upphandling. Hinder och möjligheter för små företag att delta i offentliga upphandlingar* (Small enterprises and public procurement. Obstacles to and opportunities for participation by small enterprises in public procurements), Nutek R 2005:21.

Methodology

The commission was conducted during May-October 2006. The report comprises three sections; documentary studies in the form of a review of Swedish and international analysis reports and proposals, facts and information provided to the investigation on the basis of assignments to external experts and a large number of interviews with public procurement officials and procurement experts.

The process began with a collection and review of current reports, national and international, on the theme of innovation-promoting public procurement. This showed clearly that this is a major, complex subject of topical relevance that is currently undergoing a wide-ranging study at EU level. (See the attached list of references.)

External assignments

Because the time allowed for completion was short, use was made of the possibility to contract assignments to four external suppliers. Parts of the material assembled are used in this report.

Opic AB was contracted to survey all public procurements advertised in Sweden during 2005. The survey drew from material in Opic's own database, which brings together essentially all information on procurements that are published in generally available databases. The material was used to provide breakdowns of Swedish procurements by product sector, geographically, the procedure used and how procurements are apportioned among different procuring entities.

The commission also included a reasonably detailed review of a number of invitations to tender documents to assess what proportion of the procurements contained scope for innovation. The survey initially comprised advertising in three product sectors: medical equipment, IT services and telecommunication services. In the report, the latter two categories were merged into one, IT and telecommunication services.

The company Faugert & Co. was contracted to compile international experiences of implementing public procurement as a driver of innovation and renewal. This part of the project was conducted as a literature study, supplemented by the experiences of personnel from the Technopolis Group and Swedish researchers.

Torbjörn Stenbeck, of KTH (the Royal Institute of Technology), was requested to undertake an in-depth analysis of innovation-promoting aspect of public procurement in the infrastructure sector. This analysis is

based on case studies and reviews of the construction sector that Torbjörn Stenbeck performed within the scope of his completed licentiate degree thesis and within the scope of his current doctoral thesis.

Göran T. Andersson was requested to analyse how public procurements may, methodologically, be performed in practice in order to include development work. This work is based on Göran T. Andersson's extensive experience as a procurement official in various organisations of projects that were development-based.

Interviews and seminars

According to the commission, the study was to be conducted after consultation with the Swedish Administrative Development Agency, the Swedish National Financial Management Authority and the Swedish National Post and Telecom Agency, as well as the Swedish Defence Materiel Administration, the Swedish Energy Agency, the Swedish National Road Administration, Banverket (Sweden's national rail authority) and Luftfartsverket (Sweden's civil aviation administration authority). In addition, Sweden's municipalities and county councils were to be offered the opportunity of stating their views. The commission also included consultation with representatives of the business sector, including the Confederation of Swedish Enterprise and *IT-företagen* (the organisation representing the IT industry in Sweden).

Alongside interviews with selected individuals at the above-mentioned public authorities and organisations, consultation took place in two forms. The first was via three consultation meetings, two with representatives of the business sector and public authorities and one with representatives of other public organisations. Then certain individuals were given the chance to comment on a provisional draft of this report. (See appended list of contacts.)

In parallel with this process, a large number of interviews were conducted and two group discussions took place with individuals with experience of public procurement. The interviews mainly followed a structured interview guide (see appendix), supplemented by open questions. Group discussions were held on two occasions. The first one was attended by researchers and representatives of public authorities in the transport sector. The second was attended by a number of participants from Sweden's municipalities and county councils.

Terms and definitions

"Public procurement" refers generally to all forms of acquisition on behalf of a public authority, for example, purchasing, leasing, renting or hire purchase of goods, building contracts or services.[4] (See more detailed definition in Section 2.) Public procurement is one of several mechanisms that may be used to stimulate the development of new or improved goods, services or processes that meet the needs of the public sector.

"Innovation" is the transformation of ideas into practical benefit in the form of new products or new production and distribution processes. A product consists of an item of goods or a service. Thus, innovation occurs when knowledge and expertise is transformed into benefit by being developed commercially in a market or by being used in public organisations. Innovations may be intangible, i.e. of a technical/physical nature, or intangible, i.e. of a conceptual/organisational nature. In many cases, different innovations depend on each other for commercial and production success. (See Section 3 for further discussion of this point.)

"Renewal" refers to the lasting effects, on the activities of both enterprises and public authorities, that occur in connection with innovation *or* when new processes are disseminated to enterprises and public organisations that had not previously used them.

"Innovation-promoting procurement" refers to public procurement that stimulates innovation, i.e. the development of goods or services that, at the time of procurement, do not yet exist. Procurements may promote or hinder innovation without this being a specific purpose of the procurement.

Innovation may also be promoted as a result of conscious procurement strategies. Procurement of innovation(s) falls within this category. "Procurement of innovation(s)" refers to the purchase of a development activity or research (R&D) that leads to innovation, i.e. to goods or services that at the time of procurement do not yet exist or need to be improved. Procurement methods that are often used in procurement of innovations are "pre-commercial procurement" or "technology procurement. (See Section 5 for further discussion of this point.)

[4] LOU (Law on public procurement), section 1, articles 5 and 6.

2 Background to public procurement in Sweden

The bearing theme of this report concerns how public authorities, by virtue of their size and market dominance, can act to stimulate innovations and new processes in connection with procurements. On that basis, this section aims to provide an overall background to public procurement in Sweden: the rules that circumscribe a procurement, how a procurement takes pace and what is procured and by which authorities.

Public procurement and the system of regulation

What is public procurement?

"Public procurement" basically refers to all forms of acquisition for a public authority, for example purchasing, leasing, renting or hire-purchase of goods, building contracts or services. Sweden's *Lagen om offentlig upphandling* (Law on public procurement, in the following referred to by its Swedish abbreviation, LOU) governs practically all public procurement. The purpose of the law is to promote efficiency and competitive neutrality in connection with procurement by public authorities.

> "*The award of public contracts should be so arranged as to take advantage of existing competition and should also in other respects accord with the conventions of good business practice. No unwarranted considerations should affect the treatment of tenderers, candidates or tenders.*"[5]

In LOU, the term "*contracting authority*" is used to describe the organisations encompassed by the rules. In addition to central government authorities, these are municipalities and county councils, companies, associations, cooperatives and foundations established to meets needs in the interests of the public and financed by public funds, or where procurement is subject to central government or municipal supervision, or where more than half of the members of the board of directors are appointed by another contracting authority.

Special rules apply to the *utilities sector* (including water, energy, transport and telecommunications). These rules also apply to private enterprises that via special licences conduct business in the utilities sector. Examples of

[5] LOU (Law on public procurement), section 1, article 4.

organisations in the utilities sector that fall within the scope of LOU are SL AB, Banverket, AB Fortum Värme, Göteborgs hamn AB, Jönköpings Energi AB, Vattenfall AB and Stockholm Vatten AB.

Every organisation must itself judge whether it falls within the scope of LOU or not. The question of whether an organisation is a contracting authority may be decided by a court of law in connection with an appeal or claim for damages.

Principles of EU law must be observed

LOU incorporates the EU Directive on Public Procurement. The directive allows Member States to adapt the wording of the EU law to their national law, but the essential elements of the EU law must be retained.

All procurement is bound to observe the fundamental principles of the EU.[6] The following principles in particular are relevant to innovation policy.

- The *principle of equal treatment* requires all suppliers to be offered equal conditions; for example, all suppliers must receive the same information at the same time.

- It follows from the *principle of proportionality* that the requirements set must relate in a logical way, and be reasonably proportionate, to what is being procured.

- The *principle of transparency* means that the invitation to tender document must include all requirements as to what is being procured and that no deviation is permitted from the requirements set.

- It follows from the *principle of non-discrimination* that no discrimination, direct or indirect, against suppliers is permitted. A contracting authority may not, for example, give preference to a local enterprise because of its geographical location.

Public procurements must be advertised

Procurements exceeding a "low value" fall within the compass of the EU Directive on Public Procurement and must be advertised in the EU's central database TED. How this advertising is to be a conducted, and other procedural rule, are determined by the value and nature of the

[6] This also applies to procurement below the "threshold values" and other procurement not governed by the EU Directive.

procurement. This means that a contracting authority must calculate the total value of each procurement, to decide which rules apply. Normally, the value is to be estimated for the entire term of the agreement, including any options, and repeat procurements for the same category of goods and services during a budget year are to be added together in the calculation.

Table 2.1 Current threshold values, effective 1 January 2006

Goods and services	Euros	SEK
Utilities sector (excl. telecom sector)	400 000	3 653 000
Telecom sector	600 000	5 480 000
Central government authorities	130 000	1 253 000
Other procuring entities	200 000	1 826 000
Advance advertising	750 000	6 850 000
Building contracts	5 000 000	45 670 000

Source: NOU

Depending on the value of the procurement, LOU refers mainly to six separate types of procurement procedure: simplified procurement, restricted procurement, direct procurement, open procurement, selective procurement and negotiated procurement.

Procurement procedures below the threshold values

The commonest procedure for procurements below the threshold values is called *simplified procurement.* Simplified procurements must be advertised in an electronic database that is generally accessible or via another form of advertising that creates effective competition, for example, the national press or a trade periodical. Simplified procurement offers somewhat greater scope for negotiation than procurements above the threshold value.

In *selective procurement,* the contracting authority is required through an advertisement to invite suppliers to apply for participation in the procurement. Here, too, the invitation to tender must be advertised in an electronic database that is generally accessible.

Moreover, much procurement takes place in the form of *direct procurement,* without prior advertising. For this, the procurement value must be below a certain “low value”, or particular circumstances must be present. A major problem is that non-legitimate direct procurement also occurs.

Procurement procedures above the threshold values

Open procurement is the commonest procedure for purchases above the threshold values. Here, the advertisement must be published in the EU database of advertisements for public procurement. *Restrictive procurement*, too, only occurs for procurements above the threshold values. This consists of a two-stage procedure in which the suppliers first have to apply to submit a tender.

Above the threshold value, *negotiated procurement* is permitted in all situations in the utilities sector, although on an extremely restrictive basis in the case of other procuring entities. The procedure may be divided into two categories: with and without prior advertising.

Exemption from LOU in the field of innovation

LOU allows certain exemptions defining when the law does not apply. These vary from sector to sector, depending on whether the procurement is for goods, services or building contracts. One example consists of exemptions from contracts for *research and development services*, where the directive allows exemptions for:

> *"...research and development in cases other than those where the service is one solely concerning the conduct of the contracting authority's own affairs and is wholly remunerated by the contracting authority"*[7]

The effect of this is an exemption for research and development services, where the benefit accrues wholly or in part to *a party other* than the contracting authority, or where the services are *financed* to a greater or lesser extent by an external organisation.

The EU Directive states the following grounds for the exemption:

> *"Pursuant to Article 163 of the Treaty, the encouragement of research and technological development is a means of strengthening the scientific and technological basis of Community industry, and the opening-up of public service contracts contributes to this end. This Directive should not cover the co-financing of research and development programmes"*[8]

In procurement of *goods and services*, there is no equivalent exemption in LOU for contracts for research and development. On the other hand, certain scope is allowed for negotiated procurement. In such cases, a contracting authority may be released from the obligation to advertise in

[7] LOU, (Law on public procurement), section 5, article 1.
[8] Citation clause 23, Directive 2004/18/EU.

the procurement of goods and category “B” services, as well as below the threshold values in the following situations:

1. what is being procured concerns research, development, studies or experiments, provided that the procurement is not for profit, or is intended to cover research and development costs, or restricts the possibilities for competition in subsequent procurement with a similar purpose; and

2. what is being procured may be supplied only by a particular supplier for technical or artistic reasons, or due to a sole right.

In the “*utilities sector*”, the rules comprise separate provisions and similar exemptions from the requirement to advertise.

The first exemption is considered to apply only if the acquisition is limited to development of a pure prototype that is not intended for commercial use. The second exemption may be applicable if a contracting authority is seeking a specialist knowledge or technology that demonstrably is only in the possession of a certain supplier.

Even if the procurement does not need to be advertised, the invitation to tender document must be drawn up, tender qualification and examination carried out and procurement contracts signed. Other suppliers who learn of the procurement may be entitled to submit tenders or to apply to submit tenders and have them examined.

In the case of building contracts, the above-mentioned exemptions may be cited as grounds for applying the negotiated procurement procedure with prior advertising.

The procurement process

The actual performance of a procurement may be described as a process in several stages.

Preparation

A fundamental principle of procurement legislation is that a contracting authority that intends to make a purchase must first identify and formulate its purchasing needs. Especially in the case of large-scale procurements, this may mean extensive preparation, partly to acquire information on the market concerned and to involve various stakeholders within the organisation in this work. Most major public authorities have particular experts specialising in procurement issues. Part of their role lies in assessing whether the procurement is possible within existing framework

agreements, or whether a new procurement is necessary and, if so, what procurement procedure is the most appropriate.

Formulation of invitation to tender

The next step is to formulate an invitation to tender in writing. From this document, it must be clear what is to be procured, what requirements apply and what the procedure is for evaluating the tenders. The terms and conditions stated in the invitation to tender must as a rule apply throughout the period of the agreement, including any options for renewal. If a contracting authority finds it necessary, during the procurement, to amend its requirements, the procurement must normally be restarted from the beginning. A properly formulated invitation to tender document thus plays an important role in determining the quality of the procurement process as it progresses.

Advertising

In normal circumstances, the procurement must then be advertised (see above). Depending on the type of procurement process chosen, different rules apply as to where the advertisement is to be published and how long the period must be between when the advertisement is published and when the tendering period expires.

Examination of tenders

When the tendering period expires, the tenders received are opened. In many cases, minutes of the opening of tender procedure and the subsequent processing are taken, to prevent areas of uncertainty, should any supplier later appeal against the decision. The tenders received are then examined to check whether they meet the requirements set in the invitation to tender. If any tender fails to meet all requirements, it is rejected. There is no opportunity for subsequently adding to or correcting tenders.

Finally, the tenders remaining are to be evaluated. This may be done in one of two ways: either the tender that is the *most economically advantageous* on the basis of the evaluation criteria stated – such as price, operating costs, quality, aesthetic and functional qualities, service and maintenance, environmental impact etc. – is accepted, or the one with the *lowest price*. Any offer not requested in the invitation to tender document may not be taken into account in the choice of supplier.

Award of contract decision and contract

Following the evaluation, the contracting authority takes an *award of contract decision* as to whether it intends accepting the winning tender in the tendering process. The contracting authority must wait at least ten

days before concluding a procurement contract, from the point in time when an announcement of the award of contract decision has been circulated to the participating tenderers.

If a supplier appeals against the decision within the period allowed, the county administrative court may rule that the procurement should be restarted, or that it may only be concluded once any fault has been remedied. The court may also rule with immediate effect that the procurement may not be concluded while a court hearing is pending. Once the procurement is concluded, any supplier that considers it has incurred damage or loss may sue the contracting authority for damages at a district court in Sweden.

Follow-up

Once deliveries have begun, it is important for continuous follow-up to be maintained to ensure that the supplier actually fulfils what is agreed in the contract.

Procurement in Sweden

Lack of statistics on public procurements

Despite the fact that public procurement involves very large sums of money and thus has major impact on both the business sector and the public sector, basic information about the scale of public procurement is largely lacking. For example, not even a list of the organisations subject to the legislation exists. Also lacking are reliable data on both what, and how much, is procured and what supplier enterprises are concerned.

According to Statistics Sweden's national accounts, the public sector bought goods and services at a cost of SEK 279 billion and invested SEK 80 billion in 2005. This represents a total of around SEK 359 billion, or 13.4 percent of GDP. However, the figure does not include purchases by public-service corporations and state-owned and municipal enterprises, although they fall within the scope of LOU. On the other hand, certain procurements that are not covered by LOU are included, for example rental payments for premises and certain defence products.

On behalf of NOU, SCB compiles statistics on procurements in Sweden. The procurements that are included in NOU's statistics comprised nearly SEK 128 billion in 2004. However, the statistics only include procurements performed by central government authorities and procurements in the utilities sector, as well as procurements above the threshold values conducted by municipalities and county councils etc., and associated

enterprises. An oft-quoted statistic from the European Commission is that public procurements in Sweden in 2002 represented 20.5 percent of GDP. It is not clear what this calculation is based on. In 2005, 20.5 percent of GDP was equivalent to around SEK 550 billion. All in all, there is much to suggest that the Commission's figure may be an over-estimate.

Estimated 20,000 advertisements annually

On behalf of Nutek, Opic AB carried out a survey of advertisements for public procurements published in Sweden in 2005. Direct procurement – permitted or not – is thus not included.

Opic's survey reveals that some 20,000 public procurement advertisements were published in 2005. The calculation does not take into account the fact that procuring entities can conduct coordinated procurements, in which they produce a joint invitation to tender document and a joint advertisement, but each of them takes its own award of contract decision. One advertisement can thus lead to several procurements. In some cases, more than 100 procuring entities may be behind a single advertisement.

The table below shows that 82 percent of procurement advertisements refer to simplified procurement or selective procurement. These two forms of procurement are only possible for procurements that are within the EU's threshold values and are thus outside the scope of the EU Directive on Public Procurement. The procedural rules mainly affect Sweden's national rules, even if the fundamental principles of EU law must be observed.

Only 15 percent of the advertisements refer to open procurements, i.e. the main rule in the EU's rules on procurement.

Table 2.2: Procurement procedure for advertised procurements in 2005

Procurement procedure	Percentage	Number
Simplified procurement	78 %	
Selective procurement	4 %	
Open procurement	15 %	
Restricted procurement	1 %	
Negotiated procurement	2 %	
Total	**100 %**	**19 544**

Source: Opic AB

Municipalities and county councils account for 75 percent of procurements

Public procurement is dominated by the municipal and county council sector. Municipalities are behind 43 percent of all public procurement advertisements, with municipal enterprises accounting for a further 20 percent. Procuring entities in the municipal and county council sector (i.e. municipalities, municipal enterprises and foundations, county councils, county council and municipal federations and county council owned enterprises and foundations) represent around 75 percent of all public procurement advertisements.

As mentioned above, it is also common for municipalities to coordinate procurements, i.e. a joint advertisement is formulated but separate award of contract decisions are taken. The implication is that the municipalities probably represent an even higher share of the total number of procurements.

Table 2.3: Major procuring entities in 2005

Type of contracting authority	Percentage of total advertisements	Number of advertisements
Municipalities	43 %	8 471
Municipal enterprises	20 %	3 991
Central government authorities	18 %	3 595
County councils	9 %	1 704
Universities/university colleges	2 %	458
State-owned enterprises	2 %	434

Source: Opic AB

NOU's statistics also suggest that the municipalities and the county councils account for the major share of all procurements, in both volume and value. Municipalities and county councils are behind 60 percent of the number of procurements above the threshold values and 54 percent of the value.

Highest number of procurements advertised by the Swedish National Road Administration

According to Opic's survey, in all 1,205 different procuring entities advertised at least one public procurement in 2005. The Swedish National Road Administration is the contracting authority responsible for the highest number of advertisements, 673, followed by the Municipality of Gothenburg and Banverket (Sweden's national rail authority). The table shows that certain procuring entities are behind a large number of

procurements. 24 procuring entities published more than 100 public procurement advertisements during 2005.

Other procuring entities account for only a small number of procurements. Half of all procuring entities that advertised procurements in 2005 advertised only 1-4 procurements over the whole year. Of these 600 entitles, more than half are municipal enterprises, foundations or associations.

Table2.4: Highest number of advertised public procurements in 2005

Contracting authority	Percentage	Number
Swedish National Road Administration	%	673
Municipality of Gothenburg	%	505
Banverket	%	447
County Employment Board	%	386
Municipality of Stockholm	%	370
National Fortifications Administration	%	352
Region of Skåne		213

Source: Opic AB

42 percent of advertisements for construction

To make it possible to describe what is being procured, the EU has created a list of codes for different product sectors. These are the CPV (Common Procurement Vocabulary) codes. The contracting authority states which codes are relevant. In many cases, more than one code is stated.

The results show that the dominant product category was “Construction”, which was quoted in 42 percent of all procurements. In second place – with 18 percent – came “Architecture, engineering, construction, legal, accounting and other professional services”. (See table below.)

Table 2.5: The ten most common CPV codes in public procurement advertisements in 2005

Main code	Description	Number of occurrences in advertise-ments	Percentage of all advertise-ments
45	Construction work	8 108	42 %
74	Architecture, engineering, construction, legal, accounting and other professional services	3 521	18 %
29	Machinery, equipment, appliances, apparatus and associated products	1 913	10 %
28	Fabricated products and materials	1 454	7 %
50	Repair, maintenance and installation services	1 360	7 %
33	Medical and laboratory devices, optical and precision devices, watches and clocks, pharmaceuticals and related medical consumables	1 173	6 %
31	Electrical machinery, apparatus, equipment and consumables	1 024	5 %
80	Education services	817	4 %
90	Sewage- and refuse-disposal services, sanitation and environmental services	748	4 %
34	Motor vehicles, trailers and vehicle parts	683	3 %

Source: Opic AB 2006. (Note that every advertisement may contain several CPV codes and the percentages may therefore add up to more than 100 %.)

3 Public procurement as a driver of innovation

"Innovation" refers to the practical utilisation of knowledge and expertise in the form of new business models, new products (goods or services) or new processes. New business models concern how economic value or organisational benefit is created. Product innovation concerns what is to be produced, i.e. new tangible goods or new intangible services. Process innovations concern how goods and services are produced, for example in the form of a new or improved production or distribution process.

The *"degree of innovation"*, or novelty value, is an important aspect of the commercial significance of the innovation. A distinction is often drawn between radical and incremental innovations.

- A radical innovation, i.e. an innovation with a high novelty value, may form the basis of competitive advantages over a long period, because it is difficult to copy. Such innovations often require a high degree of development and also often research activities. Initially, there will be considerable uncertainty as to future results.

- Incremental, or gradual, innovations may concern an improvement of or efficiency enhancement to a business model product or process. This will be achieved mainly through various development measures, and the degree of uncertainty will be more limited.

In this report, *renewal* refers to the effects on the activities of both customers and suppliers, in connection with innovations or when existing business models, products or processes are distributed to customers who previously had no knowledge or requirement for them.

Innovation – a driver of growth and new jobs

The renewal that innovation generates in the business and public sectors plays a decisive role in the business development of enterprises and in the development of quality and efficiency in public sector organisations. Thus, innovativity in the business and public sectors is fundamentally important to the development of long-term productivity, which brings improved competitiveness and in the long run economic growth. It follows from this that the conditions for innovation and innovative activities represent one of the most important issues of economic policy nationally and regionally.

The climate of innovation, or the efficiency of innovation systems, has become a central element of long-term growth policy in most countries. In Sweden, it has been expressed in the national innovation strategy *Innovative Sweden.*

Many different factors affect the efficiency of any innovation system. This means that focusing narrowly on single drivers, resources or participants is not enough. In any context, both quality and interplay between different participants, resources and drivers, have to be taken into account. One important factor that, however, is often neglected in connection with innovation policy, is the importance of demand, or the development of markets, for innovation. The development of markets is the most fundamental of economic drivers – or the incentive – for innovation and entrepreneurship.

Innovation research indicates that the interaction between customers/users and suppliers/producers is very often the single most important factor to both volume and success of innovation processes.[9] Prospective customers play in many cases a decisive role in determining the direction and nature of an innovation. While being the first buyers and users, they may also provide the foundation for a greater market potential. Certain leading researchers go so far as to claim that it is often the customers, rather than the producers, who are the most important source of innovation.[10]

Against this background, public-sector needs for goods and services play an important role in the innovation climate in all innovation systems. In many sectors, the needs and demand in public organisations form an important market for enterprises. In certain sectors, public customers even dominate total demand. Depending on how these needs are translated into demand, they may either act as a driver of innovation and renewal, or they may exert a conservative influence. The innovation-stimulating or conservative effects of public-sector demand are especially important in economies with a large public sector, such as in Sweden and the EU.

A positive interaction between public-sector needs and demand, and creativity and innovativity in the business sector, can contribute strongly to renewal in the public sector and innovation and international competitiveness in the business sector. Historically, dynamic development

[9] Lundvall (1985), "Product innovation and user-producer interaction".

[10] Von Hippel (1988), *The sources of innovation* och Sörlin och Törnqvist (2000), *Kunskap för välstånd - Universiteten och omvandlingen av Sverige*. (Knowledge for prosperity – the universities and the transformation of Sweden.)

blocs have played a significant role in the development of countries.[11] A public-sector demand that focuses only on existing goods and services does not generate any drivers of development or innovation. It will also result in a low degree of development and renewal in public organisations.

Against that background, it is important – to both the long-term quality of public organisations and the long-term development of competitiveness in the Swedish business sector – to monitor how public organisations conduct their renewal and how this affects the demand for goods and services. Regular analysis, follow-ups, and evaluation of the above are necessary elements of any ambitious innovation policy.

Innovation and R&D

Innovation consists of the development and commercial exploitation of previously non-existent goods and services or new production and distribution processes. On that basis, it is important to emphasise that for innovation to come about, a certain measure of development is always necessary. In the case of incremental innovation, the degree of development is often limited in scope. More radical innovation generally requires considerable development and often research too. Innovations therefore require development or research, often both. This process is generally known as research and development, or R&D.

It should be emphasised that official R&D statistics, both in Sweden and internationally, underestimate the total volume of development conducted in the business and public sectors. There are several reasons for this. The most important one is that R&D is an activity that above all generates intangible assets in the form of knowledge and expertise. This makes it generally difficult to quantify. As a result, what the statistics reflect is above all the activities that are formalised in organisational terms, for example via R&D units or R&D processes.

Against that background, the picture presented by R&D statistics for the development invested in innovation processes is far too limited. However, R&D statistics are in important indicator of innovation investments, since the organisationally formalised R&D processes often play a particularly important role in innovation processes and innovation systems.

Public-sector demand that is expressed in demand via public procurements can promote innovation by stimulating development or research invest-

[11] IVA (2005), *Utmaningar för staten, näringslivet och forskningen. Om kunskap, strategier och tillväxtfrämjande aktiviteter på avreglerade marknader*. (Challenges for the State, the business sector and the research sector. About knowledge, strategies and growth-promoting activities in deregulated markets.)

ments intended to create innovations. When this happens, it means that public organisations are calling for as yet non-existent solutions for public-sector needs.

The introduction of new solutions, innovations, into organisations generally requires additional changes to the activities of the organisations. Renewal processes of this kind demand major resources of decisiveness and creativity. If technical innovations are to deliver a benefit to organisations, both organisational and process renewal is often necessary. Suppliers of new solutions, too, must normally introduce process and organisational changes if they are to be able efficiently to produce new goods or services.

Time horizon and degree of renewal

Organisations have both short- and long-term needs. Short-term needs often centre on increasing the *efficiency* of a relatively clearly defined activity. Long-term needs focus to a large extent on reviewing the *qualitative content* of different activities.

Organisations, both private- and public-sector, and the people who work in them, nearly always find it greatly easier to identify and define precisely immediate – or short-term – needs, rather than long-term ones. In commercial markets, this means that established business activities are constantly renewed by being transformed or replaced by others. This takes place mainly via competition between different enterprises, but also via competition between different business operations within different enterprises. One important consequence of this phenomenon is that some enterprises become established and grow while others contract or are driven out of business. It is this dynamic competition and continuous renewal in the creation of economic gain that fuels long-term growth.

Public organisations are not exposed to competition in the same way as private-sector enterprises. This means that mechanisms for long-term renewal in the content and quality of operations – other than the pressure of market competition – are required in public organisations. If such mechanisms are not in place and working effectively, renewal will be low, with the risk of stagnation in the long-term quality of operations. The goods and services purchased by public organisations are part of the balance between the short-and long-term functions and needs of these organisations.

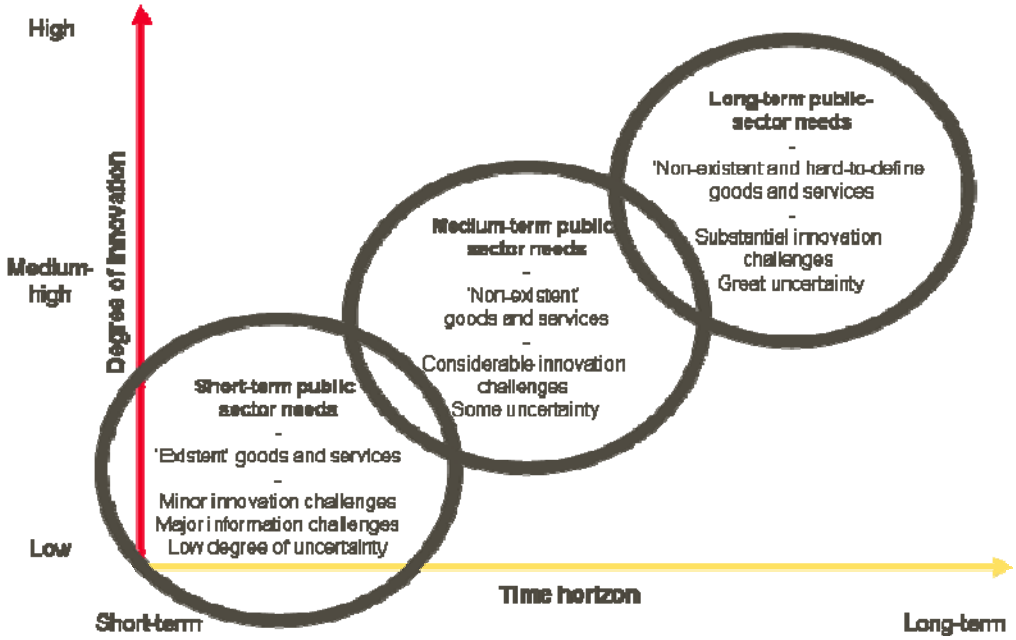
A factor fundamental to all human activities and to all human development is the drivers that exist for human creativity. For economic purposes, these are generally referred to as incentives. In organisations and communities there are often many types of incentives that form different patterns, often

described as incentive structures. Different types of incentive can interact in a way that strongly influences human and organisational behaviour in certain directions. On occasion, incentives work against each other.

Incentive structures are equally important in public and private organisations. Without clear incentives to drive an activity, there is little likelihood that it will move in the desired direction. Therefore, if it is desired that public authorities should renew their activities, it is important that they should be given clear incentives for doing so. If, in addition, public organisations are required to conduct their work of renewal in such a way as to promote innovation and renewal in the business sector, this should also be made clear in their incentive structures.

A policy aimed at promoting renewal in public organisations and in the business sector via public procurement, should be based on an understanding of how the incentive structures of public authorities affect their processes of renewal. Ordinarily, these differ from sector to sector and from one type of public authority to another, but certain elements of the incentive structures are standard. One is the degree of innovation and the other is the time horizon. As in most innovation processes, the general rule is that the higher the novelty value – i.e. the more radical the innovation – the more advanced is the development work required. At the same time, the longer the time horizon that is allowed for the organisational development, the greater the uncertainty becomes in relation to important quality variables. See Figure 3.1.

Figure 3.1: General elements of analysis and policy in innovation-promoting public procurement



Source: Göran Marklund, VINNOVA

While organisations normally undergo major renewal over the long term, the problems lie in anticipating how such changes may and should present themselves. Generally speaking, the degree of unpredictability increases according to the length of the time horizon sought for the activity. Thus, an effective renewal activity cannot be built on predictions for the future or on linear projections for the activity on the basis of the current situation. Instead, the aim should be for a reasonable balance between short-term efficiency and measures for organisational renewal.

Normally, the incentives for satisfying immediate or short-term needs strongly dominate all human activities. This also applies to public organisations and in particular to the acquisition of goods and services by such organisations. In the case of slightly longer-term needs, it is often difficult for an organisation to define exactly what its demand is. Generally speaking, more is generally known about the function for which a solution is required than how to go about finding one. The product that needs to be purchased may not be available or may need to be developed. This means that, in general, considerable uncertainties will be associated with the procurement of goods and services needed to meet long-term requirements. The risk of investment errors increases in the context of hard-to-predict renewal processes in public organisations.

Even if people are aware that renewal processes, linked to innovations, are necessary to the long-term quality of public organisations, the incentives for these kinds of investment are generally weak. In other words, the risks to management and personnel mostly far outweigh the rewards that may be expected if the work of renewal is successful.

In the even longer term, these needs may be genuinely difficult to predict. The task of formulating in specific terms how new solutions should be framed is complex. In processes to develop solutions of this type, there is a major risk that new solutions will not be implemented.

Private- and public procurement

In a modern, market-based economy, many attempted innovations will be in progress at the same time, with competition screening out the most financially profitable solutions. In these processes, there are will be major differences in how screening is performed in private enterprises and at public authorities.

Private-sector purchasing is not governed by the same procedural rules that control the activities of public authorities. On the other hand, private enterprises normally face competition in the markets in which their products exist. These products are constantly exposed to the pressure of

competition. If they are to remain competitive in the long term, enterprises must maintain product renewal i.e. continual improvements, and introduce wholly new products or processes in the form of innovations.

Generally speaking, enterprises can change suppliers whenever they wish, but may also choose to cultivate long-term relationships with suppliers and customers when they consider that it benefits the enterprise. Successful innovation processes often need long-term investments, in which case similarly long-term development relationships between customers and suppliers are important. Patterns of long-term relationships between different players develop, to the mutual benefit of both, enabling effective investments in innovation and renewal to take place. Development relationships of this type are sometimes referred to as development blocs.[12]

Public authorities can also, generally speaking, change suppliers when they want. However they cannot enter into long-term relationships with individual private enterprises, in the same way as public enterprises. Such relationships are not allowed for competition reasons, under the regulatory systems governing the activities of public authorities. This is especially true of the relationships comprising the procurement of goods and services, which are encompassed by LOU, the law on public procurement.

In the case of products for which the main demand comes from public authorities, the dynamic competition that exists in most markets typified by strong private-sector demand and supply is absent. Against that background, innovation and renewal of products for which the main demand is from the public sector depends on developments being driven by the authorities themselves. Public authorities must not solely demand products that already exist, and procurement processes must be structured in such a way that they provide scope for suppliers to be innovative.

Innovation depends on dynamic competition. Another condition is that buyers should exist for the new solutions that are developed. From the suppliers' viewpoint, the existence of an initial buyer is critical to the initial introduction of an innovation. At the same time, the possibility for finding more buyers after the initial launch is also important to the incentives to enterprises to carry out the necessary development work. Development of markets for innovative solutions forms the basis of the creation of economic value and jobs that may be generated in the business sector.

If public authorities only procure products that already exist, and do not request new innovative solutions, the drivers of innovation and renewal in

[12] Dahmén (1950), *Svensk industriell företagarverksamhet 1919-1939.* (Swedish industrial enterprise 1919-1939.)

large parts of public-sector dominated areas will be weak. This may lead to stagnation in quality and efficiency in the activities of public authorities. As a result, an important potential market driver of innovation in the business sector will also be constrained, in turn restricting competitiveness, growth and job creation in the business sector.

International and historical background

Many studies show that public-sector demand may impact very strongly on innovation and technological development at enterprises, and that this impact may be more important to growth in innovation than various forms of R&D support. Several explanations for this have been identified:

- many public organisations are demanding customers, often more demanding than private-sector ones
- in certain situations, public organisations are prepared to pay the higher prices that in many cases prevail at the start of an innovation cycle
- public-sector demand may quickly create a critical mass in demand, if new solutions are spread across to other public authorities
- public-sector demand may send out strong user signals on a demonstration level to private-sector users;
- public-sector demand creates direct links to demand and the market, unlike pure R&D subsidies.

All in all, public procurement offers considerable potential for promoting innovation. Public procurement is a market-based tool that may be used in a complementary way with other forms of public R&D investment.

Public-sector demand as a driver of innovation and renewal is a type of demand-based innovation-promotion that historically has played an important part in economic renewal in Sweden and elsewhere in Europe. However, the importance of this type of innovation-promotion has declined in Sweden as the former public-private development bloc has been re-regulated within the scope of EU membership.

One important factor in Sweden's successful technological-industrial economic history is that public-sector demand in sectors such as tele-communications, electricity generation and power distribution has created

exports, good growth and better delivery of public services to its citizens.[13] However, there are indications that the legislation on public procurement that was introduced in 1994 and the commissioning/ contracting models that became common during the 1990s created a situation in which innovation and technological development arising through procurement by public authorities declined considerably.

A study by Stenbeck (2004) examines the incentives for innovation within the commissioning/contracting model. When, in 1992, the Swedish National Road Administration introduced the commissioning/contracting model in operations and maintenance, one motive was to introduce function-based contracts and thereby to set creative resources free. Ten years later, the price for operating and maintaining roads and railways had fallen by 22-27 percent. However, profits and savings seem to have been achieved by reorganisation rather than technological development. This has led commissioning and contracting parties to express disappointment at the results in technological terms, and express a certain degree of inability with regard to achieving innovation and renewal in the sector.

The change noted may be because the new model focuses more on relatively short-term outcome goals, allowing little scope for developing new products and processes. This leads to savings over limited periods, but in the longer term, it brings a conservative influence to the activities of the public authorities and the competitiveness of the business sector.

The report *Innovation-promoting public procurement – a preliminary study of international experiences* describes how discussions on the use of procurement for innovation-promoting purposes have begun in recent years.[14] Academic literature on the subject began to emerge in the 1980s, but the public debate at European level took longer to get going. However, over the past year (since mid-year 2005), major political discussions have surfaced. As part of these discussions, several ambitious reports have been produced and international workshops arranged, both at EU level and within a number of individual countries.[15]

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[13] IVA (2005), *Utmaningar för staten, näringslivet och forskningen. Om kunskap, strategier och tillväxtfrämjande aktiviteter på avreglerade marknader* (Challenges to the State, the business and the research sector. Knowledge, strategies and growth-promoting activities in de-regulated markets) and Marklund et al, (2004), *The Swedish National Innovation System 1970-2003*.

[14] Åström (2006), *Innovationsfrämjande offentlig upphandling. En förstudie av internationella erfarenheter*. The remainder of this section is based on this study.

[15] The most important reports include *More Research and Innovation – Investing for Growth and Employment: A Common Approach*, COM(2005) 488 final, 2005, *Public Procurement for Research and Innovation – Developing Procurement Practices Favourable to R&D and Innovation*, Expert Group Report, European

All these reports point in the same direction: that public procurements today offer a large unexploited area of potential to promote innovation in the private business sector and thereby to strengthen European competitiveness. According to the reports, public procurement accounts for 16% of the GDP in the EU, and so public authorities, as major customers, should have good opportunities to stimulate R&D and innovation in the business sector.

Europe is generally considered weak in procurement of innovations, compared to the USA, Japan and South Korea. Europe is seen as traditionally having relied on the supply side for innovation promotion, i.e. major ventures have been performed in the form of direct public investments in research and development, or in the form of subsidisation of industrial R&D projects.[16]

The USA, Japan and South Korea are cited as good examples of innovation-promoting public procurement. Of these, the USA appears to be the world leader. In the USA, procurements of this type are conducted at both Federal and State level. At Federal level, the Department of Defense dominates, but the States also conduct major procurement of innovations. All States have a central procurement function and coordination between procurement agencies in the USA is generally high. On the policy side, all Federal authorities are subject to a system of regulation as to how procurement may be conducted: the *Federal Acquisition Regulation.* This stipulates, for example, that small and medium-sized enterprises are to be given special and favourable consideration. Enterprises owned by women and minority groups are also given scope for certain special treatment. Innovation in itself is not highlighted for its intrinsic value, but is encouraged as a means of achieving social objectives.

In Japan, the Ministry for Economics Trade and Industry (METI, formerly MITI) has developed an integrated and horizontal procurement strategy, under which several technology procurements have been conducted (for example, 3G, introduction of the Internet, introduction of fuel cells). In South Korea, the Ministry of Science and Technology has a similar function. All three countries use pre-commercial procurement of innovations as a strategic tool to create a strong domestic economy for domestic suppliers in areas of national strength.

Commission, 2005, *Pre-commercial Procurement of innovation: A Missing Link in the Innovation Cycle*, report by an ad-hoc National IST Directors Forum Working Group, 2006 och Jakob Edler et al., *Innovation and Public Procurement – Review of Issues at Stake*, Fraunhofer ISI, 2005.

[16] *Pre-commercial procurement – Public sector needs as a driver of innovation*.

The UK is seen as something of an exception among EU States, since there innovation-promoting procurement is used systematically. In the Department of Trade and Industry's (DTI) innovation strategy, procurement is seen as a tool. The DTI also stipulates that procurements are to be based on "value for money", defined as the optimal combination of life-cycle cost and quality. The UK also has a centralised procurement system which is viewed as a model at European level. The UK approach to innovation-promoting public procurement has only existed for a few years, but the results can already be seen, even if they are not of the order anticipated.

There are many reasons why the UK's procurement policy is considered successful from the point of view of innovation and renewal[17]:

- support from the highest level (Minister of Trade);
- all public procurement is seen also as a instrument of innovation policy;
- activities are co-ordinated at the highest level between ministries;
- integration of OGC and DTI activities;
- there is a link between strategic and operational activities, and clear plans of implementation are implemented;
- procurement officials received continuous training; and
- illustrative pilot cases used.

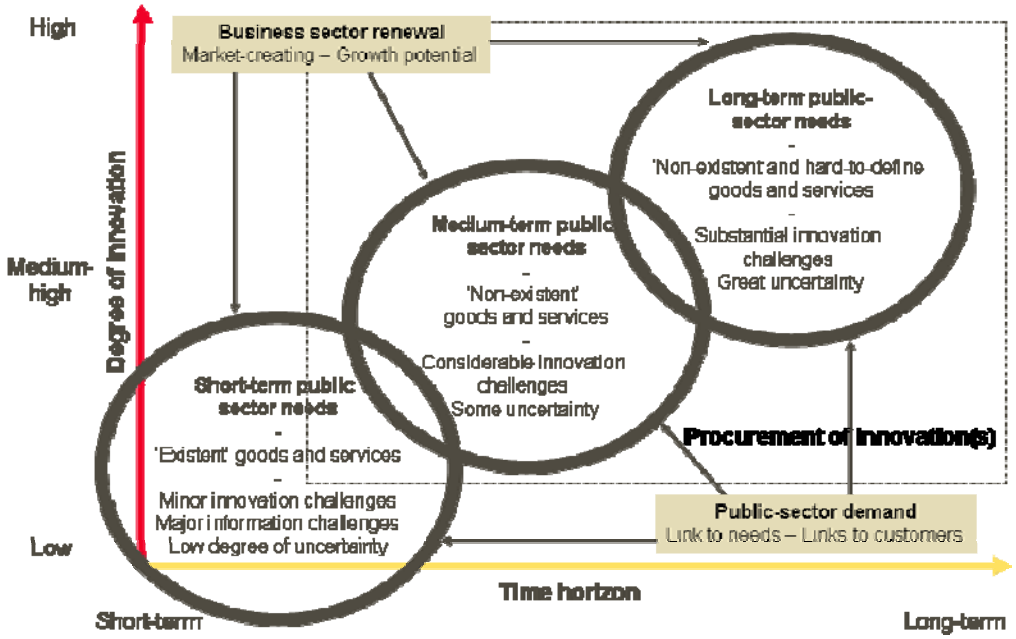
Elsewhere in Europe, Germany and the Netherlands show signs of wanting to move in the same direction as the UK. Examples of innovative policy instruments that have been successfully used are described in more detail in section 6.

Incentives for procurement of innovation

Innovation is always preceded by development and is some cases also by research; this is R&D. Thus, public procurement that strives for new innovative solutions always has an element of R&D. Such public procurement should be referred to as "procurement of innovation(s)", as the focus is directed towards new solutions. Procurement of innovation(s) should be used in public organisations requiring new innovative solutions to increase the effects of, quality of or efficiency in its services, see Figure 3.2.

[17] Åström (2006), *Innovationsfrämjande offentlig upphandling. En förstudie av internationella erfarenheter*. (Innovation-promoting procurement. A preliminary study of international experiences.)

Figure 3.2: Procurement of innovation for interaction between the organisational development of public authorities and innovation in the business sector



Source: Göran Marklund, VINNOVA

As pointed out above, procurement of innovation(s) involves a higher degree of uncertainty and risk than the purchasing of existing goods and services, where it is relatively easy to compare and assess the value of different products. At the same time, innovation processes are necessary to the development of organisations if their quality and efficiency are not to stagnate in the long term. The nature of procurements is, in fact, such that they either promote innovation and renewal, or tend to reinforce existing structures. This is true irrespective of whether an organisation has observed the correlation or not. Organisations thus need to strike a balance between on the one hand efficiently satisfying immediate needs through efficient procurement of existing goods and services, and on the other demanding and procuring processes for the development of goods and services to meet the needs of the future.

To achieve this, procurement needs to be addressed as a strategic issue. Today, this rarely happens in public organisations; as a result procurement often plays a limited role in the organisational development of public authorities, both in the short-and long-term. The effects show through most strongly in connection with the investments needed for long-term development. Procurement therefore needs to be prioritised on the basis of the management's strategies for organisational development.

The fact that strategies and decisions on procurements are rarely addressed and resolved at management level in public authorities, and that it is unusual for those in charge of procurement processes at public authorities to be included in the management structure at different levels, contrasts sharply to the private business sector. There, purchasing executives are often part of the corporate management team and procurements form an integral part of the business strategies for both short-term efficiency and long-term renewal.

If procurement is to have the same effect on organisational development at public authorities, the status of public procurement processes must be upgraded to a central management issue. From this, it also follows that the status of those heading procurement processes must be raised. Today, this status is often low, especially compared to equivalent roles in the private business sector. A higher degree of management expertise will also have to be introduced into the procurement processes in public authorities.

The level of expertise among procurement officials may also have to be raised. Today, the incentives are very weak for committing resources and expertise to development that is typified by a higher level of uncertainty and risk. There is a fear of making formal errors in procurements, in terms of what is often seen as a complex system of regulation. Public procurement processes are thus dominated to a large extent by proficiency in formal procedures and in the regulatory system for procurements. The level of innovation and renewal at public authorities is likely to be strongly restricted by the strong emphasis on formal procedures in combination with a generally weak strategic focus on the content of the procurements. The result is that the nature of public procurements is often defensive.

If a higher degree of procurement of innovation is to be achieved, a fundamental change to the structure of incentives in procurement by public authorities will be necessary. This will have to be based on the marking out of clear positions and a clear commitment from government and Parliament, as mandators of public sector activities. The thrust of policy must be expressed via directives and follow-up of the activities of individual public authorities. Innovation promotion through public procurements needs to become a clearly defined function of the public authorities that conduct commissions on behalf of society.

Incentives that affect the content and processes of procurements exist at all levels of public authorities. The driving motives of individuals do not always match those of the ones who control the organisation, and these in turn vary, normally according to organisational level. The figure below is a diagrammatical representation of different categories of factor that control the structures of incentives at different levels of an organisation.

Figure 3.3: Interaction between incentives at different levels

	Procuring side influenced inter alia *by*	*Supplier side influenced* inter alia *by*
National/ EU level	Development strategies (to achieve political objectives)	
Central manage-ment	Organisational development, external parameters, national systems of regulation	Organisational development, external parameters
Central unit	Demands from subordinated departments, rules, organisational strategies	Demand from subordinated departments, rules, strategies
Local unit	Rules, organisational culture	Rules, organisational culture
Individual level	Rules, organisational culture, career issues, own visions	Rules, organisational culture, career issues, own visions

Source: Nina Widmark, VINNOVA

The actual procurement is basically controlled by the priorities and control signals established at higher levels of organisations. If these signals are weak, the driving motives of individuals have greater impact. Factors that are perceived as important within the business/organisational environment analysis of individuals will then acquire greater impact on priorities and processes. The higher the organisational level that sets these priorities, the higher is the strategic content that may be expected.

Today, it is difficult for management at all levels to fully exploit the potential that exists for using procurement as a strategic tool. A major knowledge deficit exists in public procurement: procurements are not followed up, and statistics are inadequate. It is common for public sector organisations not to analyse systematically even the direct economic consequences of procurements (for example, in terms of ROI, return on Investment). In addition, it is very rare for the long-term effects on the development of organisations to be evaluated.

4 Challenges for greater innovation and renewal via public procurement

Both nationally and internationally, attention has focused in recent years on the issue of how to make greater use of the huge public procurement volumes as a driver for innovation and renewal, in both the public and the business sectors.

Within the scope of the present study, VINNOVA has identified three closely related problem complexes in innovation-promoting public procurement:

- incentives and strategic focus;
- methodology development and expertise; and
- reporting and statistics.

In each and every one of these areas, shortcomings exist that not only restrict the innovation-promotion impact of procurements, but also detract from the general efficiency and effects of public procurement.

The incentives for innovation-promoting public procurement are generally very weak, but they are particularly so in the case of procurement of innovations. Such procurements include an element of development or research. Public procurement is rarely addressed as a strategic issue within the scope of organisational development in public authorities. Because innovation and innovation processes centre on new solutions for needs associated with organisational development, the lack of a strategic focus is a serious obstacle to innovation-promoting procurements.

The shortcomings found in the three areas mentioned above are mutually influential, i.e. the quality in each is dependent on the quality in the others. Firstly, lack of strategic focus in public sector procurements is often due to there being few incentives for such focus and to imperfect methodology expertise. Secondly, both strategic and methodological developments are hampered by the fact that effective reporting and follow-up routines are often non-existent. In short, there is a mutual interaction between wanting, being able and following-up. In public procurement of innovation the interaction between these problem complexes is of a particular nature and is in several respects particularly strong.

The results may basically be summarised as three challenges.

- *Strengthening the incentives for innovation-promoting public procurement and developing a strategic agenda in the area.*
  This will boost the interest in innovation, in the area of procurement in the public sector. Part of the challenge here is to create a political vision (in the form of a national policy) and to develop commitment on the part of the business sector.

- *Developing methods for increasing the efficiency of innovation-promoting public procurement.*
  This will strengthen the organisation of, and simplify procedures for, innovation-promoting public procurement, to enable demand to be coordinated and a critical mass in methodological expertise to be achieved. Part of the challenge here is to develop methods and expertise by using function-based procurement, increasing coordination of purchasing, reviewing the structure of public responsibilities in the area, clarifying regulation and developing the potential for innovativity at small and medium-sized enterprises.

- *Following up and evaluating results of innovation-promoting public-sector procurement.*
  This will produce provide the managements of public authorities with a basis of decisions and feedback on policy in the area. Part of the challenge here is to establish reliable statistics and information, plus a methodology for how these may be used to increase learning.

Incentives and strategic focus

Purchases of goods and services by organisations affect to a major degree the organisational development of these organisations, in both the short and the long terms. Purchasing and procurement functions should therefore be an important management issue. Generally speaking, that is what they are in private-sector enterprises. However, they are less likely to be so at public authorities. What is required involves understanding, attitudes and a willingness to set aside resources for procurement.

The interviews performed within the framework of this study indicate that procurement is primarily regarded as an administrative function, rather than one of several strategic functions in the organisational development of the public sector. Unlike in the private business sector, procurement managers in the public sector are rarely included in the management team. One explanation advanced is that public authorities do not have the same view of the importance of costs as private-sector operators. As long as public procurement is not seen as a strategic issue in the organisation

itself, it probably has far to go before it becomes a driver of economic development.

The procurement process differs considerably from one type of public sector organisation to another, as well as across sectors. The structure of administration in Sweden is relatively fragmented, above all within municipalities and county councils, but also in terms of certain administration issues, where there is no central agency with a dominant role. As a result procurement in health care and waste disposal etc. is spread over a large number of entities, where no single unit is of sufficient volume to assume any major responsibility for development and innovation in the sector. In such cases, the scope for bearing the costs and risks associated with developing and testing new and innovative solutions is limited.

The situation is different for the public authorities that have a dominant role in a sector. Public authorities and other procuring entities that are large customers in a market have their own interests in driving product development and supporting innovations. One such example is Affärsverket Svenska Kraftnät (the Swedish Power Network Agency), which has an ambition to develop power distribution innovations and products, being responsible for operation and maintenance of Sweden's high-voltage grid. Other examples include the Swedish National Road Administration and Banverket (the authority responsible for rail traffic in Sweden). In most cases, these authorities also have a specific development role written into their terms of reference.

As a result, the conditions for use of different tools and methods in innovation-promoting procurement vary from one authority to another. What is also needed, probably, are different types of control signals. Today, certain Swedish public authorities already work under governmental appropriation directions or ordinances that require the agency to become engaged in some form of innovation-promoting activity. One example is the Swedish Energy Agency, where the ordinance on market introductions and technology procurement requires the agency to provide specific support for technology procurement as well as support for environmental technology and the introduction of new technology into the market according to the conditions stated in the EU's rules on State aid.[18]

Another important issue centres on reducing the adverse consequences of any failure in connection with public procurements of innovation. Methods discussed include innovation funds, insurance schemes and risk-sharing.

[18] Interview with Anna Forsberg, Swedish Energy Agency, 1 September 2006.

Need for political visions and a co-ordinated national policy

Today, no co-ordinated national policy on procurement in Sweden exists, perhaps due to the lack of a clear vision for the issue at a political level. Government authorities currently make a series of separate political demands – some of them conflicting – upon the procurement process. It must fulfil with the value for money requirement, as well as fit with public procurement regulations. The procurement process should also contribute to better integration, environmental awareness, promotion of small enterprises, innovation and other political ambitions.

Today, ambitions also exist for increasing the role of public procurement as a driver of innovation. Sweden's innovation strategy "*Innovative Sweden*" brings innovative public-sector investment to the foreground as one of several priority areas for increasing innovation. One consequence of this is the present report, which aims to serve as a basis for a policy in the area. This would then be used to formulate a clear strategy for how the government should highlight the value of innovation in procurements, as well as create the control signals needed to stimulate interest in procurement as a driver of innovation and renewal among procuring entities.

There is a risk that the political demands upon the public procurement process will drive up costs as objectives for innovation, the environment, integration etc. are aligned with each other. Increased costs, in combination with grey areas in interpreting the regulation system, will limit the scope for innovation. For that reason, it is important to look at how different political objectives may be co-ordinated into a common policy.

Importance of commitment from business sector

If one wishes to increase innovation and renewal via public procurement, it is important to not only to look at public authorities, but also to take potential suppliers into account. On that basis, it is necessary to analyse the incentives to the business sector to participate in innovation-promoting public procurements. This involves several challenges.

Size of potential market

If enterprises are to show interest in investing in the development of innovations, it is important that they should be in a position to sell their innovations to several purchasers. Sweden's decentralised administrative system means that the organisations of municipalities and those of central government authorities differ from each other, and use different technical solutions for administrative systems etc. The authorities also draw up their own invitation to tender documents. As a result, the requirements and criteria for evaluation varies, which limits the ability of enterprises to sell

one product to several public authorities. Although several public authorities work in a similar way and need similar products, a new product may need to be adapted or developed if it is to be sold to several public purchasers.

If public authorities with similar activities coordinate their procurements and formulate invitation to tender document in a more standardised way, it will become more possible for suppliers to achieve the critical mass needed to cover the costs of product development and adaptation.

Need for legal protection

In order to stimulate the suppliers' interest in offering innovative products and solutions, it is important that different forms exist of collaboration between commissioning public authorities and the business sector. Areas being discussed today include the development of regulation systems for PPPs (Public Private Partnerships) and investigating the consequences of different methods of risk-sharing between mandator and supplier. This will require, for example, better intellectual property rights (IPR) agreements and examination of the consequences of greater use of various forms of voluntary systems. Today, there is a lack of clear rules on certification, compensation etc.

As regards solutions where enterprises identify more efficient ways of organising public bodies, they may need to describe their solutions in the tender. Because it is difficult to *protect* innovations of this kind, it is possible for the procuring authority to use a described solution in its organisation without contracting the enterprise that developed the innovation. In that case, the enterprise is not paid for its development work. A development of a methodology to prevent innovations from becoming known to competitors would be an important incentive to enterprises.

In earlier studies, many entrepreneurs said that they had offered sub-tenders or innovative proposals to a procuring authority. However, shortly after proposing the innovation, they had seen it offered to competitors or included in the procurement documents. As a result, all the competitors had been able to tender for it. One possible explanation is that the innovation was not as extraordinary as the tenderer thought – in fact, the idea was more likely to have come about through a general trend, arising in several places at about the same time. On the other hand, it cannot be ruled out that the contracting authority's expectations were too high as to what constitutes an innovation and so was over-critical, or overestimated its own creativity.

Methodological development and rationalisation

To address the considerable uncertainty that characterises public procurement, the trend today is towards more centralised procurement within each public authority, and more highly trained procurement personnel. The focus of expertise lies primarily in the legal and economic fields, in order to deal with the legal implications of the system of regulation.

On the other hand, expertise in strategic business development is often lacking. Networks of contacts, which are necessary to reach out among users and suppliers to get wind of new opportunities and potential for innovation in future procurements, as well as method knowledge is rarely found.

> *"We need to reclaim the scope for "good business" for both customer and supplier in public procurement. Today, this possibility is overshadowed by the focus on requirements and regulation. What is needed instead is a feeling for needs and markets."*

To reduce the level of uncertainty and the workload, and to increase the opportunities for setting aside resources for more strategic procurement activities, many procuring organisations call for better information about possible solutions, support and advice for specific situations, quality assured standard documents and checklists, as well as expertise development to raise the level of professionalism.

Procurement by function and performance

There is a large measure of consensus that procurement based on function and performance criteria would be welcome, but that this is difficult in practice and demands more resources and expertise development from all concerned, including users, procurement officials, public authority management, suppliers and politicians.

> *"Following political decisions to expose the activities of the municipalities to competition, it was found that this would be difficult. There were ambitions to procure a number of functions (for example, school meals) but it often ended up in a description of the whole solution."*

One reason why procurements do not stimulate innovations may be that the public authority intending to undertake a procurement, must define its purchasing requirements as early as in the invitation to tender document, and that these conditions will basically apply throughout the contract period. If the invitation to tender document is based on earlier procurements or existing knowledge at the procuring unit, there is a considerable risk that the scope for innovation and change during the period of the agreement

will be limited. If earlier documents are copied, or detailed requirements are set, it will in reality be difficult for the supplier to offer anything other than existing solutions.

A major potential for innovation thus lies in better quality *preparation* ahead of a planned procurement. By systematically analysing the needs of users and the expertise of suppliers, the procuring function can formulate better invitation to tender documents based on desired function and performance, stimulating creativity and innovation on the part of suppliers. In many cases, this requires a direct dialogue and development of relationships with the suppliers. Today, many procuring entities are concerned about whether this is permitted under the system of regulation.

At the same time, there are several examples of public authorities that use different solutions to develop their direct contacts with users and suppliers. One option is to form reference groups in connection with a particular procurement. Another is to maintain long-term groups of buyers and users, to identify future needs.

The Swedish Energy Agency has served as a model in the latter category, through its systematic use of technology procurement. The agency organises regular meetings to identify and discuss needs and external trends with various groups of buyers (such as business property owners, people from tenant-owner's associations, single-family home-owners and representatives of the everyday commodity sector). To reinforce the role of the buyers and users in procurement, participants are given the chance to visit and learn from each other, to make study visits etc. The agency finds that this is appreciated, since many procurers act alone in their role. It also tries to exercise influence and to act co-operatively via various sector organisations.

In order to develop and improve central government framework agreements, the Swedish National Financial Management Authority and Verva have arranged various seminars etc., to establish dialogue between procuring authorities and suppliers. Within the county councils, a similar dialogue takes place on medical technology and IT systems.

During a procurement of school transport in the municipality of Huddinge, it was difficult to obtain a clear order from the schools. The procurement department then stepped in and formulated requirements that specified implementing new technical solutions regarding, among other things, the environment and safety. A dialogue was initially conducted with a number of suppliers as to how environmental conservation could be maximised and alcohol locks introduced. A survey was then conducted among all suppliers in the Stockholm region regarding their abilities to meet the requirements.

Study visits were made to, and discussions conducted with, various organisations (including the Swedish National Road Administration and environmental organisations) to ensure that the requirements stated in the invitation to tender documents were realistic. On that basis, various types of solutions were categorised and requirements for the invitation to tender document defined. One problem that was raised by the procurement department was that it lacked the resources to perform this sort of procurement in all areas, due to insufficient market and technological expertise.

An increase in the use of functional and performance requirements also involves greater demands on expertise in the *evaluation* of tenders received. If technical expertise does not exist within the organisation itself, it is important to obtain it from elsewhere, for example from consultants, researchers, other authorities or groups of buyers. Internationally, the possibility is being discussed of moving towards life cycle evaluation, i.e. the principle of accepting the tender that is economically most advantageous over the entire lifecycle of the product. This means that a product that is offered at a low purchasing cost at the time of purchasing may be less advantageous if it involves higher operating and maintenance costs than other alternatives.

Coordination for critical mass in demand and expertise

The Swedish structure, comprising a large number of central government authorities, independent municipalities and county councils, plus a large number of municipal and county council owned enterprises, means that the procurement function is splintered. Many small procuring entities have difficulty in building up an expertise in conducting innovation-promoting procurements in the sectors concerned.

Procurement in the health care sector has always been problematical. Decision-taking is decentralised to a large number of procuring entities, resulting in fragmentation and lack of coordination. One example of this is the large number of different journal systems in the health care sector. Other areas where expertise is often lacking is within business administration and procurement. Furthermore, technological and political developments are not continuously monitored, which often makes it difficult to formulate specifications of requirements. In addition, there is no central research institution for procurement studies, partly because the area is so diversified. The issue of personal responsibility may also affect the willingness of decision-makers to take the risk that developing new products represents.

Certain municipalities have, on a voluntary basis, established central procurement functions to coordinate their purchasing, and as a result have achieved a higher level of professionalism in their procurement functions. In healthcare, too, several agencies have combined to coordinate development and procurement. Two examples are Carelink and LFTP (*Landstingets fond för teknikupphandling och produktutveckling*, the County Council Fund for Technology Procurement and Product Development). In the past, the predecessors of Sweden's municipalities and county councils also entertained ambitions to coordinate procurement in certain sectors, but today this is practised mainly in the area of medical technology. There are other organisations working with coordinating procurement, including Verva, the Swedish National Financial Management Authority and EKU (the Swedish Instrument for Ecologically Sustainable Procurement). In practice, such work takes the form of an offer to various public authorities to take an active part in developing coordinated procurement and use the results on a voluntary basis.

There are many advantages of increasing co-operation. One area for co-ordination may be to develop shared tools, advice and electronic platforms to ease the work of the individual procurement official. Another may be to offer the possibility of joint market surveys to define appropriate function and performance requirements for invitation to tender documents. A third possibility is to offer procurement entities access to a database containing formulations and definitions that experience has shown to work well during procurement. Standardisation and common definitions also facilitate the use of electronic purchasing systems and certain types of procurement method, such as combined procurement. Standardisation work requires the presence of a central authority that assumes responsibility for bringing central and local government authorities together.

Coordination may also ease the work of suppliers, who then do not need to adapt their tenders for every single tendering process. However, the business sector has expressed certain apprehensions that increased co-ordination and larger procurement volumes, for example in the form of the central government framework agreements. It is feared that this might exert a conservative influence and exclude small enterprises. Against that background, the Swedish National Financial Management Authority has decided not to use framework agreements in certain sectors characterised by the existence of many small enterprises, such as the travel agency business, to avoid the possibility of restricting competition. It is important to increase the understanding of which situations that lend themselves to coordination.

One problem today is that procurement procedures are *administrative burdensome* to both enterprises and public procurement entities. Some procurers are calling for better correlation between the work input required to manage a procurement and the value of the procurement.

> *"One problem is that such a large share of all purchases made is below the threshold value and that the Swedish rules on procurement below the threshold value are too strict. Today, a disproportionately high amount of time/administration is spent on small procurement relative to the value of the procurement. This takes time and resources away from major procurements and detracts from the ability to develop relationships with suppliers. The result is that procurers choose secure/safe solutions, rather than trying out new ones."*

The endeavour to increase the efficiency of the procurement process and achieve *benefits of scale* may lead to "lock-ins" that does not encourage renewal. It is not uncommon for procuring entities to procure the largest volume possible, which may hamper renewal and reduce the scope for new players – for example small and medium-sized enterprises – to be considered. This may happen at several levels:

- via coordination of purchasing requirements within a public authority (for example, framework agreements), the effect of which is for all purchasing to be targeted at one or a few suppliers;
- by several authorities conducting coordinated procurements via shared invitation to tender documents, but where each entity is responsible for its own award of contract decision; or
- via centralised framework agreements where several public authorities are given the opportunity of making call-offs from a contract signed by one authority.

The procurement process takes time and therefore, many public authorities strive to make procurements relatively infrequently. Even within the scope of centralised framework agreements, e.g. central government coordination of purchasing or centrally coordinated procurements via the Kommentus organisation, procurements in each particular product area are made relatively infrequent, for example every three years.

To enterprises, coordinated procurements may reduce opportunities to propose innovative solutions, particularly in connection with technology that has not yet undergone full-scale testing. Above all, the conditions in the invitation to tender documents may quite simply mean that the enterprise does not have capacity (or does not have the time to build up

capacity) to deliver the volumes required. In coordinated procurements, the possibility exists that enterprises will not dare to submit several tenders, because they must be prepared to deliver the volumes demanded. If the tenders had been spread over a longer period of time, the enterprise might have been able to submit more tenders.

Structure of responsibilities in procurement sector

At *national level*, several authorities operate with different remits in public procurement. The Swedish National Financial Management Authority is responsible for coordinating central government framework agreements. Verva is separately mandated to coordinate the public sector's procurement of IT equipment and services. NOU have a mission comprising supervision, communication and governmental support. The Swedish Competition Authority deals with competition issues. In addition, several other governmental authorities have various related remits, for example, within the legal system and among sector supervisory authorities.

At the same time, the resources for procurement issues in each organisation seem inadequate, their roles are in some cases unclear, and coordination is limited. A certain amount of cooperation occurs, for example in the discussion of interpretations of new EU rules, but systematic coordination is lacking. There is no designated agency either with a broader responsibility for supporting functions in practical aspects of procurement, such as supplying competence, methodological development, consultation, communication and follow-up.

In the legal area, too, a greater need is recognised for coordination, clearly defined rules of play and communication on current case law. In order to bring expertise resources together, create a critical mass and accelerate the administrative process for *appeals*, the possibility of allowing certain county courts to specialise in procurement issues has been discussed. Another option that has been discussed is a board for preliminary review.

Clarification of rules

The fundamental principle of LOU, the law on public procurement, talks of non-discrimination, objectivity, openness etc, to assure competition on equal terms. At the same time, it emerges from the interviews that the *system of regulation is not clear-cut*. Certain types of action are not allowed, other approved, while in between a grey area exists that leaves room for interpretation. This creates uncertainty for both procurement entities and suppliers. Here, more information is needed about the rules of play.

At the same time, enterprises have considerable scope for appealing if they consider that formal errors have been made during the procurement, for example, if a contract is awarded to an enterprise that does not meet all the requirements in the invitation to tender document, or if account is taken of factors that are not stated in the invitation to tender document. Even if the courts mostly reject the appeals put before them, the legal processes may lead to not only considerable delays, but also extra work for the procuring entities. In recent years, the number of appeals received by the county administrative court has risen from 343 in 2002 to 1,280 in 2005.[19]

There is reason to assume that the view of the procurement experts on what is a successful procurement will be highly coloured by this, i.e. the most important thing to avoid appears to be an appeal against the decision. Once the time allowed for appeals has expired, the procurement experts can breathe again and turn their attention to other business. Because the responsibility for checking that deliveries take place in accordance with the agreement in most cases does not rest with the procurement experts but with the person responsible for operations, it is reasonable to assume that feedback is rarely obtained on which requirements and conditions proved to provide good incentives and which may be perceived as obstacles to development of the activities.

This seems to create *uncertainty,* among both procuring entities and suppliers. As a rule, all changes in the procurement process or use of criteria of the evaluation other than price (for example, quality, function or performance) represent an increased risk of appeals. This often results in over-processed tenders, a fear of engaging in dialogue with suppliers and the lowest price combined with mandatory requirements being chosen.

> *"Many restrictions lie more in what people dare to do than in what they are allowed to do. In procurement circles, "caution is a virtue". People do not dare to rely on common sense because of rules and bureaucracy, both in the innovation phase and in dialogue with the supplier. Today, focus is often on ensuring a correct, transparent process that does not point in the direction of any specific supplier, rather than on innovation and renewal."*

Bringing out the potential of SMEs

Small enterprises may often be innovative and a source of new solutions. For that reason, it is of the utmost importance that small enterprises, too, participate in public procurements. This is necessary to establish effective competition between suppliers, and to ensure that procuring entities have access to a broad range of possible solutions to their needs.

[19] Interview with Carina Johansson, Swedish National Courts Administration.

If public authorities are increasingly demanding innovative solutions that are not delivered within the framework of the existing offering of goods and services, the likelihood is that small enterprises will get special opportunities to deliver to public organisations. Because growth in small enterprises is very often closely associated with growth in employment, in a way that does not occur in major enterprises, this may be an important source of new job creation. To small enterprises, a public-sector contract may be the signal to take the bold step to grow and recruit more employees.

At the same time, many small enterprises state that they face difficulties in participating in public procurements. Some of the reasons for this include large contracts with long contract periods, complex requirements linked to administrative processes, costs associated with producing tenders and lack of predictability in master agreement structures, as well as problems in meeting what are often far-reaching requirements for quality management systems. If the benefits to growth and employment that the participation of small enterprises could deliver are to be achieved, rules, conditions and procedures must not discriminate against small enterprises.

Follow-up and evaluation

Today, routines are often lacking to enable a contracting authority to decide whether a procured innovation represents an improvement or an enhancement of efficiency of the organisation. For this to be possible, status descriptions are necessary, in which the results of the procurement can be measured and documented before and after it took place, preferably on a regular and continuous basis.

Another complication consists of the possibilities for conducting follow-ups on the volume and products procured, as well as the methods used by the procuring entities. This is because today basic reporting and statistical routines are lacking for Swedish procurements, for example, as regards which procuring authorities conduct procurements, what is procured and the amounts involved. Without clearly stated requirements, interest in changing reporting routines at the authorities concerned is likely to be limited.

5 Methods to stimulate innovation in public procurement

This section discusses various methods for public procurement and their usefulness in terms of promoting innovation and renewal. The section focuses on methods particularly relevant to "*procurement of innovations*", i.e. public procurement that has an element of R&D. In addition, a list is provided of methods that are generally available to develop the management of objectives and improve efficiency in public procurements, and that as a result can deliver innovation-promoting effects.

We would like to stress that this is not a comprehensive review, and that opinions on certain methods may sometimes differ. Our judgement, which, however, is not based on an in-depth legal analysis, is that these methods are within the financial and risk limits that apply to public procurements.

Methods for procurement of innovations

As discussed in section 3, "procurement of innovations" refers to public procurement that has an element of R&D.[20] Procurement of innovations always focuses on functions of public organisations that demand new innovative solutions to increase effects, quality or efficiency of these functions. Against this background, the fundamental methodological challenges in "procurement of innovations" are to combine:

- a focus on, and clearer definition of, functional requirements in public organisations, where the requirements correspond to performance levels or effects that the public authority wants to achieve within the framework of the activity; and
- development, and in some cases also research, i.e. R&D, in public procurement processes so that the process towards solution satisfying the functional needs achieve high quality and efficiency.

[20] In Sweden, this applies today above all to public authorities with a specific remit to promote development and commercial production of new technology or innovations (for example, the Swedish Energy Agency and VINNOVA) or that fulfil a sectoral responsibility and have a need for development of their own activities (for example FMV, the Swedish National Road Administration, Banverket and Affärsverket Svenska Kraftnät). In many cases, such forms of procurement are exempt from LOU, since a large proportion of the investment is expended on research and development.

Because such solutions do not exist when the procurement process begins, procurement of innovations is about procuring functions that are not yet commercialised. In most processes of this type, it is not possible to determine in advance which solutions best meet the functional requirements. This means that suitable processes are those that generate competitiveness between different lines of development, and thereby gradually make clear which of these seems most appropriate. In such processes, procurement of research and development may be conducted as step-by-step procedures, which gradually sift out alternative solutions.

Pre-commercial procurement

The objective of "pre-commercial procurement" is to create new, innovative solutions in areas where no existing solutions are available today. This requires the contracting authority to be aware of its long-term needs. The authority also needs the skills to conduct a development process that involves several possible suppliers, to ensure that one or more of the finished solutions can match the functional requirements of the authority. Because the development of new solutions involves uncertainty as to future results, the costs of the development process may be high. Being the first customer can be expensive, and there is a risk that the finished product may not fulfil expectations. The total risk is considerable, in terms both of usability and financial commitment. The supplier is also exposed to a high degree of risk. This may however be offset by the emergence of a market for the product after the development phase.

Internationally, the term "pre-commercial procurement" is generally used to describe step-by-step processes for public procurement that comprise R&D. Methods for such processes have long been used in the USA, as well as in Asia. Similar methods have also been practised in Europe and Sweden, although often under the term "technology procurement". One current Swedish example of an authority using technology procurement in step-by-step competitive phases based on R&D is the Swedish Energy Agency.[21]

Over recent years, a major process has been conducted at the EU Commission, aimed at strengthening the drivers of innovation and renewal via public procurement. As a result, "pre-commercial procurement" – i.e. what is referred to in this study as "procurement of innovations" – has become an important part of the Commission's new innovation strategy.[22] To this end, methodological principles have been developed for this type of procurement, which principles are largely based on the methodological

[21] Interview with Anna Forsberg, Swedish Energy Agency, 1 September 2006.

[22] European Commission (2006:4), *Putting knowledge into practice: a broad-based innovation strategy for the EU*.

principles used in the same type of procurement processes in the USA.[23] This process will shortly be followed by a communication from the EU Commission and a handbook of "pre-commercial procurement".[24]

The main method discussed is based on a three-stage procedure. In the first, exploratory, phase, a selection is made among competing suppliers who have submitted proposals for possible solutions. A prototype phase follows, in which selected suppliers are offered the opportunity of developing parallel prototypes. These are evaluated step-by-step, and the number of suppliers is reduced. In the final phase, a least two competing suppliers should remain in order to secure future competition in the market.[25]

It should be emphasised that the three-phase model, which is in many cases the basic starting point, should be regarded more or less as a kind of "ideal" that is not intended to be followed slavishly. The basic principle may instead be adapted as appropriate to the specific processes in which they are to be used. For example, it may in certain cases be more suitable to use a two-stage procedure, where knowledge of possible solutions is greater than in the cases where such knowledge is little or non-existent. It is also feasible that in certain circumstances, a single R&D phase may be allowed where more gradual R&D investments may solve the development challenge that remains before a functional solution is achieved. However, the process must always be based on open competition. This is both an issue of fairness and a condition for the best solutions to be developed. The process in itself represents an important learning opportunity for customers – i.e. the procuring authorities – and suppliers alike.

Within the scope of the EU Commission's process for focusing on, and developing methods for, "pre-commercial procurement", a legal analysis has been performed. This analysis illustrates clearly how the methods proposed may be applied so as not to conflict with the EC's procurement directives and the WTO's rules on State subsidies. These rules in turn form the basis of LOU and the rules on State subsidies. The conclusions are that pre-commercial procurement processes aimed at developing innovation and renewal does not conflict in any way with current regulations, provided that the processes are based on open and free competition, transparency and equal treatment of operators and tenders.[26]

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[23] European Commission (2006:2), *Pre-Commercial Procurement - Public sector needs as a driver of innovation.*

[24] Expected to be published in December 2006.

[25] European Commission (2006:2), *Pre-Commercial Procurement - Public sector needs as a driver of innovation.*

[26] European Commission, 2006:3, *Preliminary paper on the Community Law applicable to Pre-commercial Public Procurement*. See appendix.

Processes for "pre-commercial procurement" may be used in cooperation with other authorities in different regions and countries, as well as across national borders. In that connection, the EU's structural funds may serve as an important instrument. One example of a trans-national regional partnership of this kind is a recently established collaborative programme between the Copenhagen Region and Region Skåne within the healthcare sector.[27] Cooperation between different authorities and regions may reduce the fragmentation on the procurement side and create a critical mass in the pressure of demand and the expertise in terms of markets, technical solutions and procurement methods.

In the longer term, cooperation on "pre-commercial procurement" may be initiated at EU level between similar authorities in different member countries.[28] This could enable major competition-driving development processes to take place. Broadly-based cooperation in such procurements of innovations would prepare the ground for standardisation processes that may promote both the development of both public organisations and the business sector.

Technology procurement and technology competition

Technology procurement is a tendering process that is intended to stimulate and accelerate the development of new technology. The aim of technology procurement is to bring out new products, systems or processes that meet purchasers' requirements better than the products already available in the market. However, it is not enough simply to develop new technology. This development must be followed by a series of separate measures for distribution and application of the new products, systems or processes, and those conducting the technology procurement must have good knowledge of the market and good market contacts.

The Swedish Energy Agency, which since the early 1990s has initiated, co-funded and participated in nearly 60 separate technology procurements aimed at accelerating the shift towards more energy-efficient products and systems, is singled out internationally as an example of success in this area. According to EU rules, this is not considered as a procurement, but as support to individual enterprises and is subject to a maximum amount of €100,000 per enterprise over a three-year period.

[27] "European Week of Regions and Cities" Brussels 9-12 October 2006, http://ec.europa.eu/regional_policy/conferences/od2006/documentation.cfm?nmenu=5#.

[28] Ibid.

The Energy Agency has developed a systematic procedure for technology procurement, comprising seven phases. Initially, a feasibility study is conducted to investigate the market and determine the potential for improvement. Then, user and buyer groups are formed. They formulate the requirements they wish the product or system to fulfil, which are developed into specifications of requirements. That phase is followed by the tendering procedure, in which manufacturers that seem to meet the requirements are allowed a period to develop a prototype, which is then evaluated and tested. One or several manufacturers can be nominated as winners. In certain cases, the Energy Agency pays an investment subsidy to the first buyers, in order to stimulate interest. The group of users/ buyers and the manufacturers pass on information on the technology procurement to others, to stimulate demand for the new technology from more buyers. Many products, systems etc. will continue to need further development after the procurement, and those manufacturers in particular who did not fulfil all the requirements may need to improve their products in order to keep up with developments. In the great majority of cases, the technology procurement process results in more efficient solutions.

A similar method is technology competition, which however is terminated after the prototype is produced and does not impose any requirements as to subsequent market launch.

Demonstration installations

An important step in the development of new products is a demonstration of the new technology, which at the same time also serves as a long term test. It is not unusual for modifications to be necessary after installation, to clear up faults and initial troubles. A demonstration project of a new technology may often be regarded as a prototype on a representatively large scale, often with a shorter life span than a finished commercial product. Typical characteristics of a demonstration installation are that:

- conventional equipment or systems exist that meet the basic needs of the system;
- the installation is normally prone to considerably more interruptions in operation and modifications than commercial products; and
- these installations often have a higher degree of technical or financial risk and a shorter life span than a finished commercial product.[29]

[29] Svenska Kraftnät, issue 3:2005 page 55.

A demonstration project is normally preceded by a research phase and a development phase.

Even if the demonstration project is not a fully fledged commercial product, it must be capable of being used in normal operation in a system. This means that the exemption under LOU for prototypes does not apply. However, the second exemption may apply if a particular area of expertise or characteristics of an apparatus (system) are demonstrably available from only one supplier.

Svenska Kraftnät has, on behalf of the government, investigated the extent to which and how they can participate in and support technological research, development and innovation. They conclude that when new technology is to be demonstrated in normal operations, it is probable that only one supplier will be able to offer a finished solution that is ready for demonstration, due to new technology being involved. If it is actually known that only one supplier is available, the second exemption from the duty of advertising applies. In the event of any doubt, it is recommended that procurement should take place with prior advertising to establish whether other suppliers are available. If the advertising only attracts one application to tender (negotiated procurement) from only one supplier, the procurement may be concluded with this applicant alone. Svenska Kraftnät concludes thus that LOU does not hinder a higher level of involvement on their part in R&D activities of this nature.[30]

Methods for innovation-promoting procurement

The following is a list of methods that may be applied by public sector organisations that wish to promote innovation where the main objective is also to procure products for day-to-day operations. This may apply both to internal operations, for example within municipalities, county councils and public authorities, and to public authorities whose function is to coordinate procurements for the operations of others, for example Verva and the Swedish National Financial Management Authority.[31]

- Negotiated procurement
- Alternative tender or sub-tender
- Design competitions

[30] Svenska Kraftnät, issue 3:2005 page 56.

[31] These methods have been identified in various reports and interviews as viable in stimulating or developing maximum advantage from innovations in the public sector procurements.

- Function-based procurement
- Partnership-based solutions and concessions
- Combined procurement
- Split procurements
- Technology and competition-based dialogue.

6 International examples

In this section, a number of examples are presented to illustrate how public procurement is used as a driver of innovation, including the main lessons to be drawn from each particular case. These cases have been compiled by Faugert & Co., and are based mainly on the information in the report *Innovation and Public Procurement*, apart from one example of pre-commercial procurement in the USA. Whether these examples are accommodated within the prevailing system of regulation is not yet clear.

New lighting system in Hamburg (Germany)

The City State of Hamburg procured a new lighting system for all its 1,500 public buildings at a cost of €19 million, to save energy, improve the working environment and reduce life cycle costs. The procurement was aligned with the State's political decision to strive for energy- and resource-efficiency in its activities, and specifically that every investment in energy-consuming equipment must be cost-effective in the long run; i.e. the life cycle cost should be the deciding factor. The aim of the procurement was to deploy a largely existent, yet relatively new technology, but the supplier was nevertheless compelled to conduct a certain amount of product development to meet the specification of requirements.

Via a pilot experiment based on similar technology 10 years earlier, the procuring authority was well aware of the potential for energy-saving and was familiar with the potential suppliers. Because there was no need for consultation with users and the authority responsible had its own budget for the purpose, the authority itself organised the work of specifying requirements. To ensure an innovative and cost-effective solution, the authority conducted informal discussions with all potential suppliers to inform them of the City/State's needs, and in particular to discuss various possibilities for cost reductions. For parts of this process, the authority engaged an external source of technical expertise, but supplier contacts were also facilitated by the knowledge, contacts and experience of the authority's own electricity supplier. These discussions were conducted six weeks before the start of the formal procurement, firstly to ensure that the volume and complexity of the procurement was manageable and secondly to clearly distinguish these discussions from the formal procurement process, so as thereby to reduce the risk of criticism for favouring any particular supplier.

During the preliminary discussions, the authority was completely open to all parties as regards problems and solutions, but maintained strict secrecy concerning price and any special characteristics of the products of individual suppliers. The procurement, which was conducted at EU level on the basis of the MEAT[32] criteria, was divided into several sections (including project design, logistics, lighting systems, recycling etc.) to reduce risk and cost. Because the purpose of the procurement was to deploy (rather than develop) new technology with predefined technological requirements for the system, cost was the most important factor. However, the cost was based on a life cycle calculation, taking into account the cost of purchase, installation, maintenance and energy consumption.

In every part of the procurement, several suppliers were selected to provide a spread of risk and benefit, and so many fairly small enterprises were engaged. This in turn led to demands for professional project management. The combination of global procurement for the lighting system allowed the process to benefit from the efficiency of the global market, while at the same time installation and maintenance were mainly performed by local service enterprises, stimulating the local business sector. However, the fact that installation and maintenance would be performed mainly by local service businesses (despite the fact that the procurement was conducted at EU level) was something that had been neither anticipated nor planned.

The project was criticised both by public opinion and the region's business community, because the initial costs were high (and electricity prices at the time were low) and because the contract for the electric lighting system did not go to a regional supplier. The first problem was resolved by a clear investment plan and the second disarmed through the dominance of local service enterprises in installation and maintenance.

The replacement of the lighting system and other public-sector activities to promote energy-and resource-efficiency has impacted on the private business sector in Hamburg. Many businesses have followed the City/State's example and invested in energy-and resource-efficiency improvements – partly persuaded by subsidies. Private enterprises are also being offered the chance of acquiring new lighting systems on the same terms as the City/State while at the same time the local electricity supplier has offered an investment credit, set off by instalments on the customer's electricity bill. The City then initiated an "environmental partnership" to further stimulate energy-and resource-efficiency. Enterprises contributing to efficiency of this kind qualify for an investment subsidy of €1,000–50,000 and a substantial discount when investing in lighting systems

[32] Most Economically Advantageous Tender.

similar to the one procured by the City. The cost of the system is nearly halved and a subsidy of €1 per light bulb is paid by the City. In addition, the City offers a free review of the energy-saving potential of enterprises participating in the environmental partnership. Through these activities, a considerably larger market was created, enabling the suppliers to offer highly competitive prices.

Lessons

- The value of clear political support for environmental and life cycle thinking
- The value of professional, centralised project management
- The value of internal expertise within the procuring authority
- The value of regular industry contacts before and during preparation of the specification of requirements
- The value of being able to make use of the knowledge, contacts and experience of a major local enterprise (the city's electricity supplier)
- Horizontal coordination of needs creates critical mass and benefits of scale
- Splitting of a complex and large-scale procurement into several smaller sections (with clearly defined interfaces between suppliers) reduces the risks to both authority and suppliers
- It is possible both to benefit from the efficiency of the global market and to favour the local service sector
- An authority may via targeted initiatives develop and consolidate a market to the benefit of private enterprises, while at the same time favouring energy-and resource-efficiency in the business sector.

Electronic file management system (Austria)

The electronic file management system ELAK has provided all of Austria's 12 ministries and their 8,500 users with a common, Web-based system for all documents. The system is innovative both as regards software and functionality, and is compatible with several platforms. The procurement originated in the government declaration of 2001, in which the need for an electronic file management system was adopted as a high priority for reasons of internal efficiency and to meet the need for accessibility by the country's citizens.

Because the objective was a single, shared system, a centrally organised procurement procedure was necessary, and this was supervised by the government's communications director, who was assisted in the administration of formal procurement by the central procurement agency. The procurement process, and in particular the preparation of a common

specification of requirements and decision-making process, was headed by a working party including a technical expert and an organisational expert from each ministry. The working parties were chaired by the technical experts and decisions were based on a simple majority.

Once the specification of requirements was final, the central procurement agency took charge of the procurement, which was conducted in two stages with six opportunities for feedback, partly to take maximum advantage of Austria's rigid procurement legislation. This complex process, which gradually led to the optimal solution, is however considered to have been worth the trouble, since that was compensated for terms of in time and cost saved during the implementation phase. The success of ELAK has created a new market in electronic file management systems in the public sector and in so doing has made it clear to suppliers that demand exists, and to public authorities that the concept works.

Lessons

- High-level political support facilitates procurement of radically innovative technology
- Technical experts and users should be involved at an early stage
- Allow professional experts in technology, procurement and project management to manage the process, but do not allow the procurement experts to dominate (other than to ensure compliance with legislation)
- Coordination of the needs of several public authorities can:
- Create critical mass and benefits of scale
- Reduce the disinclination of public authorities vis-à-vis risk
- Reduce exposure of public authorities to risk
- Reduced exposure of suppliers to risk
- A successful procurement of innovative technology can create a new market.

Motorway signalling system (UK)

The Highways Agency (HA) first organised a limited technology competition with a very open specification of requirements for a new generation of variable message signs along motorways, including operation during the first year. Two enterprises took part and the winning design was innovative mainly in the sense that it was graphics- and not text-based.

Stage 2 in the procurement process began with a questionnaire to potential suppliers to determine their qualifications and the financial impact on the enterprise of the award of any contract with HA. In Stage 2, which was to

lead to a complete design for the signs, two potential suppliers took part, with their development work being financed by HA.

Because HA financed this development work, the intellectual property rights accrued to HA and the supplier is paying a nominal licensing charge. One reason for this arrangement is that in the past HA has had problems with suppliers who retained the intellectual property rights and subsequently went bankrupt. The sign design has received design awards and the supplier has since exported the same technology primarily via public procurements.

Lessons

- Technology competitions with paid development work may be used to increase technical understanding within the authority and to verify new technology
- Supplier dominance and risk to the authority may be managed by control of the intellectual property rights
- A successful procurement of innovative technology can create a new market.

Energy conserving procurement (Italy)

The State-owned enterprise Consip has the task of implementing rationalisation programmes for goods and services, and so is in a position to coordinate purchases on behalf of public authorities in administration, healthcare and education. Consip identified a major rationalisation potential in the heating of public buildings and therefore proposed a function-based procurement that eventually extended to all ministries and local authorities, and that was voluntary in the rest of the public sector.

Consip had a good conception of current energy needs, based on historical data. As part of a market study, Consip announced, to all potentially interested suppliers, its plans for the scope of the forthcoming procurement, and the suppliers were offered the opportunity to take part in the process. As a result of the process, Consip acquired good knowledge of existing technological solutions in the national and international markets, which enabled the specification of requirements to be determined. The procurement was divided into 12 sections, corresponding to different geographical areas, with a fixed number of suppliers per area.

For the MEAT evaluation, all that was calculated was the functionality of the heating systems (temperature, volume to be heated and hours per day the systems were to be in use). Innovation was not an evaluation criterion, but because no particular technical solution was specified, innovation was

nevertheless encouraged. The contracts were signed between the suppliers and Consip on behalf of the public authorities, and included operations for five years, which offered the suppliers further incentives for innovative solutions. Once completed, the total value of the procurements will amount to €855 million and the total volume will comprise nearly 5,000 buildings.

Lessons

- The value of a clear political mandate
- A function-based procurement incorporating systems of reward for functionality creates scope for innovations
- A function-based procurement may be used where the degree of market complexity is high and where the authority lacks technical knowledge
- The value of regular industry contacts before and during the preparation of the specification of requirements
- Horizontal coordination of the needs of a large number of authorities, administered by a central procurement agency, creates critical mass and benefits of scale
- Splitting of large-scale procurements into several smaller sections reduces risks to both public authority and suppliers.

Electronic identification system (Netherlands)

The recently introduced electronic identification system provides every citizen and public authority with certificates and electronic signatures. The procurement, valued at €760,000, comprised development, installation and operation of the system for six years. When the procurement was conducted, the basic technology already existed; the innovation lay in the adaptation to European and international standards, and in the scale of the installation.

The specification of requirements was developed over a long period through an analysis of needs in the public sector. Assurance of full compatibility with standards was an absolute requirement. External experts were engaged during finalisation of the specification of requirements. A working party conducted market surveys and worked with the industry to resolve technical and legal issues. The procurement was prepared over nine months by both internal and external experts, and this work focused mainly on legal issues, since the technical specifications were already settled. The procurement was performed at EU level. The most important criterion of evaluation consisted of the guarantees of security in the system, not cost-efficiency.

Lessons

- High-level political support may be critical to success in procuring radically innovative technology – especially when the project is severely criticised. Here, the ministry was prepared to fund the project over a sufficiently long term to give the technology time to mature
- A broad acceptance (preferably on a statutory basis) for a new e-tool at public authorities is necessary to create a market
- When a new e-tool is implemented, it is important that the private-sector market can be established for the technology.

Advanced Tactical Fighter (USA)[33]

After the need for a successor to the till F-15 was announced back in 1981, work started in 1986 on the US Air Force's future Advanced Tactical Fighter (ATF). This work took the form of the establishment of the specification of requirements, partly based on detailed studies of the Soviet Union's Mig 29 and SU-27. These craft showed impressive performance levels which in many respects surpassed those of the F-15.

In September 1985, the US Air Force took an invitation to tender to a number of aircraft manufacturers, and in October 1986, two consortia – Lockheed/Boeing/General Dynamics and Northrop/McDonnell-Douglas – were appointed each to develop, in parallel over 15 months, a prototype capable of flight, in two versions and with different engine options. For this work, each consortium was paid $691 million. The prototypes were code-named YF-22 and YF-23. After 54 months of demonstration/validation, including intensive test flights of the two prototypes, the YF-22 was in August 1991 named the winner of this extremely spectacular pre-commercial procurement, and a design and manufacturing development contract for $11 billion was signed with Lockheed/Boeing/General Dynamics. The first F-22 flew for the first time in September 1997 after a series of budget reductions led to one delay after another in the programme.

Partly due to the loss of the ATF contract, the companies in the losing consortium were weakened, and in 1994 Northrop merged with Grumman to form Northrop Grumman, while McDonnell-Douglas was absorbed by Boeing in 1997.

[33] www.globalsecurity.org/military/systems/aircraft/f-22-history.htm, www.globalsecurity.org/military/systems/aircraft/f-23.htm, en.wikipedia.org/wiki/Northrop, en.wikipedia.org/wiki/McDonnell-Douglas.

Lessons

- Pre-commercial procurement with specification of function may (in part) lead to intense competition, creating a high degree of innovation
- In an important and prestigious competition such as this, the consequences to the loser may be grave
- Many of the innovations may be developed commercially over time in the private-sector market (for example, materials developed and methods of manufacturing).

7 Conclusions

Within the scope of the present study, VINNOVA has identified three closely related problem complexes in innovation-promoting public procurement:

- incentives and strategic focus;
- methodology development and expertise; and
- reporting and statistics.

In each of these areas, shortcomings exist that not only limit the innovation-promoting effect of procurements, but also detract from the general efficiency and effects of public procurement.

The incentives for innovation-promoting procurement are generally very weak in the public sector, but particularly so concerning procurements of innovations. Such procurement is public procurement that has an element of development or research, i.e. R&D. Public procurement is rarely addressed as a strategic issue within the scope of organisational development in public authorities. Because innovation and innovation processes are about new solutions for needs associated with organisational development, the lack of a strategic focus is a serious obstacle to innovation-promoting procurements.

The shortcomings found in the three areas mentioned above are mutually influential, i.e. the quality in each is dependent on the quality in the others. Firstly, weaknesses in strategic focus of public sector procurements are often due to lack of incentives for such focus and imperfect methodology expertise. Secondly, both strategic and methodological developments are hampered by the fact that effective reporting and follow-up routines are often non-existent. In short, there is a mutual interaction between wanting, being able and following-up. In public procurement of innovation the interaction between these problem complexes is of a particular nature and is in several respects particularly strong.

Objectives and principles

Sweden needs a national procurement policy, based on political signals, to serve as guidance and clear leadership from the offices of government. In this context, the focus of public procurements and its impact on innovation

and renewal play an important role, along with the general efficiency and organisation relating to public procurements in Sweden.

Against the background of the analyses performed within the scope of this study, it is proposed that the following comprehensive objectives should serve as guidelines in the development of a national policy on public procurement:

1. Incentives for public authorities should be created to make procurement in general and procurement of innovations in particular into a strategic issue in organisational development at public authorities

2. Processes and structures to develop coordination in public procurement should be made an objective, so that the demand and methodological expertise of public authorities achieve critical mass

3. The bar should be raised for follow-ups, statistics and outcome analysis of the innovation-promoting impact, efficiency and structure of public procurements

Our view is that if these objectives can be achieved, the general efficiency of public procurements will increase and the innovation-promoting impact of public procurements will be reinforced. This will contribute to higher quality and increased long-term efficiency in the public sector, while at the same time favouring economic growth and creating new jobs.

If public authorities are given clear incentives to make procurements into a strategic issue in their organisational development, this will improve both short-and long-term quality and efficiency in these operations. It will also stimulate authorities to ascertain that their employees have the necessary skills for performing innovation-promoting procurement processes. At the same time, the demand of authorities for methodological development and learning in innovation- and renewal-promoting public procurements will increase. As a result, greater resources will be allocated to activities of this type in public authorities, enterprises and research environments.

Another probable effect of procurements becoming a strategic issue in the organisational development of public authorities is that this will improve the opportunities for enterprises to take part in public procurements. This should reduce transaction costs to both enterprises and public authorities and enterprises will find it less necessary to build up separate resources for participating in public procurement processes. This should increase the ability of smaller and younger enterprises to participate in public procurements, which in turn will increase competition, but also raise the potential for innovation in the business sector.

If public authorities create more efficient mutual interaction in procurement processes, sometimes via direct coordination, better use can be made of the collective expertise and the methodological know-how in public procurement. This will enable closer focus, better procedures and improved attractiveness to suppliers. Shared objectives and risk should facilitate specifying ambitious procurement specifications regarding function and performance. Collective methodological know-how and shared financial resources should result in better procurement methods. Finally, it should also lead to a much larger customer base, which will increase attractiveness to procuring entities.

Coordination may improve the quality and efficiency of public procurements, but it is important that it is done in a way that makes use of the innovative potential of small and medium-sized enterprises. Otherwise, both the competition in the business sector, and the conditions for renewal in the public sector, will be negatively affected. In addition, the fundamental principles of LOU, i.e. the principles of transparency, competition, and equal treatment, must not be compromised.

If the requirements for reporting and following-up public procurements are increased, in terms both of general efficiency and innovation-promoting effects, this should in itself affect the incentives for efficient, innovation-promoting procurement in a positive way. Above all, it should represent an important incentive for making procurements into a strategic issue in the organisational development of public authorities, to a much greater extent than is the case today. At the same time, improved reporting would provide government, Parliament and individual public authorities with the input needed to manage public procurements in a strategic way.

Incentives to public authorities for procurement of innovations

The study has shown that the incentives for focusing on innovation and renewal in the public sector are generally very weak, and in the case of public procurement, particularly weak.[34] As a result, if the impact on innovation and renewal is to increase via public procurement, the positive incentives need to be strengthened.

[34] For example, much public procurement involves extensive specifications of tangible or intangible characteristics for the products. In many cases, this is likely to detract from the creative potential. A more open approach and a clearer focus on the functional performance characteristics of goods and services, would probably provide greater scope for creativity and innovation.

The incentives to public authorities, just as for other organisations, are crucially important to their activities and organisational development. Innovation and renewal depends on creativity with a focus on meeting the challenges on resolving the problems of the organisation. Some of these are short-term, and many are relatively clearly defined. Others are more long-term and so may be less clear-cut and harder to define. Against that background, incentives in procurement by public authorities must:

- favour innovation and renewal
- promote short-term efficiency
- clearly define how the goals above should be mutually balanced.

The most important factor in the incentive structure for Swedish public authorities consists of *the directives* – often closely related to the mandates and financial appropriations for the authorities – issued to the authorities by the government. If innovation and renewal are to be sufficiently prioritised in the public sector, the directives to the authorities must clearly formulate how this should be prioritised and assigned importance in the activities of the authorities.

Long-term organisational development, i.e. solutions to future functional needs, requires investments in development. In some cases, research is needed to bring about solutions. Research and development, R&D, should thus be an integral part of every organisation with long-term ambitions for quality and efficiency in its operations. Such long-term and sustainable development of quality demands continuous renewal of the organisation's activities.

The purchases of goods and services made by various organisations always affect short-term efficiency and long-term renewal. Consequently, in private-sector enterprises, the purchasing function is a part of the strategic organisational development. In contrast, that is rarely the case in public authorities. This hampers renewal in public organisations, while at the same time it limits the stimulus of public-sector demand to innovation in the business sector. An important factor in promoting the strategic role of procurements to organisational development in public organisations is strengthening the incentives for procurement of innovations. Through this, R&D can become an integral part of organisational development in all public authorities, which will stimulate innovation, competitiveness and job creation in the business sector.

One way of strengthening the incentives for procurement of innovations is to require that a certain proportion of the procurement volume, or of the

total budgetary appropriation of an authority, is set aside for procurements comprising R&D. In that context, certain methods – e.g. "pre-commercial procurement" – should come under consideration. One such method is technology procurement. Pre-commercial procurement focuses on function and performance within the framework of organisational development of public authorities. Function-based procurement is thus always a logical condition and integral part of procurement of innovations.

Another way of boosting the incentives for procurement of innovations is to require feedback on how public organisations have promoted and aided innovation in their procurements. This feedback can be used in dialogue and benchmarking between public authorities. It may be possible to recognise particularly successful authorities with awards.

Procurement regulations are based on fundamental principles of openness and competitive tendering on equal conditions, as means to gain access to a broad range of products at good prices. It is therefore impossible to favour certain enterprises by choosing them directly as suppliers or developers of a particular product. At the same time, the legislation provides scope for structuring procurements so that they encouraging innovations in various ways to and create scope for new solutions. This may be done by:

- selecting the most economically advantageous tender from a life-cycle perspective, rather than on the basis of lowest price alone
- increasingly awarding contracts based on performance-or function-related requirements, rather than requirements that specify exactly how goods and services should be produced
- directly stimulating R&D investments via procurement of innovations, or pre-commercial procurement
- encouraging tenders based on alternative solutions and designs, and encouraging certain groups of suppliers to tender
- using negotiated procedure and competitive dialogue, where appropriate and where compliant with LOU, and
- using qualification and pre-qualification systems, as well as project-based competitions where feasible and appropriate.

Against this background, consideration should be given to the possibility of requiring, via directives or financial control, that a certain proportion of a public authority's procurement volume, or of its budgetary appropriation, should be used for pre-commercial procurement of innovations. This refers to step-by-step procurement of R&D under competitive conditions, which gradually leads to several different potential solutions to meet challenges arising from the needs of public organisations.

One fundamental principle in the processes for public procurement of innovation should be that each authority itself is responsible for, and follows up, any such procurement. This is of major importance in terms of helping to raise innovation and renewal processes to the level of central strategic issues in the authorities. The particular scope for procurement of this type, within the context of an authority's budgetary appropriation, will become a clear incentive to incorporate procurement into the authority's management and control processes.

Government authorities with a particular responsibility for investments in R&D and innovation should lend support to other public authorities, to ensure quality in processes of procurement of innovation. Efficiency in methodological development, and learning relating to mechanisms and methods used in procurement of innovations, should be promoted. Such work could create a basis for joint procurement of innovations, where considered appropriate and feasible.

There are several conceivable methods and models that lend themselves to creating effective and fit-for-purpose processes in public procurement of innovation, i.e. pre-commercial procurement. These should be further investigated and adapted to particular public authorities and their area of responsibility. Interesting models that could come under consideration for establishing fundamental principles are the Swedish Energy Agency's procedures for technology procurement[35], the principles used for the US programme Small Business Innovation Research (SBIR)[36] and the principles put forward by the EU committee on the pre-commercial procurement in the EU Commission.[37]

Efficiency and development of procurement methods

The opportunities for conducting innovation-promoting public procurement are today hampered by factors such as lack of coordination, limited methodological development and lack of clearly defined responsibilities. This situation needs to be remedied.

[35] Interview with Anna Forsberg, Swedish Energy Agency, 1 September 2006.

[36] Reitberger (2004), Forskning och innovation i småföretag. SBIR – Small Business Innovation Research. A US programme in needs based on research conducted by small enterprises.

[37] European Commission (2006:2), Pre-Commercial Procurement - Public sector needs as a driver of innovation.

Interaction for higher quality and efficiency in demand

In innovation processes, it is often important to find an initial buyer, since the interaction between buyer and supplier plays an important role in developing and adapting goods and services. For innovation processes to be successful, it is also important for suppliers to identify, at an early stage, a broader client base, so that the investment costs of developing new solutions are offsets as early as possible by revenue gained. Coordinated procurements may assist in connecting an initial buyer to new innovative solutions and ensuring that a broadly-based demand is established for these solutions.

Collaboration between buyers with similar interests is also likely to contribute to a more complete picture of various buyers' needs, which may lead to more accurate formulations of needs and specifications of requirements. A group of buyers may also agree on suitable specifications of requirements, which may make it easier for the supplier. Coordination can also spread risk among procuring entities, and experiences of "trial runs" may be communicated to others.

However, coordination cannot take place in a way that results in large "bulk-procurements", in which small enterprises find it difficult to participate and where streamlining of standards does not encourage new technologies. Another risk is that coordination will lead to specifications of requirements that represent a merger of the unique needs of several participants. This can result in the general application of extensive and cost-increasing requirements, instead of adjusting the requirements to the specific needs of the procurement.

Many public authorities today coordinate their purchases via *framework agreements,* in order to maximise efficiency in their procurements and reduce purchasing costs. The way that framework agreements are formulated may affect the innovation capacity of suppliers. The agreements can have a determining effect on the design of the products within a certain sector. If a large number of authorities use such an agreement and its specifications of requirements, instead of assessing their specific needs on an individual basis, the scope for creativity by the supplier may be restricted. For that reason, it is important that framework agreements are not formulated in such a way that hinders product development, for example at small enterprises. Also, certain sectors do not lend themselves to framework agreements, but are better served if procuring entities with similar needs collaborate in other ways, for example on formulation of appropriate requirements during the preparation of invitation to tender documents prior to procurement.

Coordination may also be focused on collaboration in processes to identify procurement needs, and appropriate requirements that each contracting authority can set for its own procurements. The result may be a broader perspective on, and better understanding of, the organisational needs that may be met by public procurement. In turn, this may lead to a higher degree of standardisation of invitation to tender documents. An advantage of coordination is greater demand, which reduces the risk taken by the supplier. This may offer benefits of scale, both to procuring entities and suppliers, in that requirements are to some extent standard. This should and could also lead to greater scope for e-procurement, as well as quicker decisions by courts. Further, it ought to be possible to establish automatic check-ups against relevant registers, for example, at *Skatteverket* (the Swedish National Tax Board) and the Swedish Companies Registration Office. This would reduce administration at enterprises, while at the same time making check-ups for shady businesses more efficient.

One important prerequisite of innovation is that users and suppliers have the opportunity to meet and discuss needs and alternative solutions. In this way, public authorities are better able to formulate quality invitation to tender documents, which will encourage innovative products and solutions.

Today, certain public authorities have assumed responsibility for establishing various types of forums. These authorities include the Swedish National Financial Management Authority, Verva, and the Swedish Energy Agency. In some cases, this has been done in collaboration with an industry organisation. The secretariat of the non-profit making *Sveriges Offentliga Inköpare* (Association of Public Purchasers in Sweden) has organised a number of industry seminars for purchasers and suppliers, in consultation with industry organisations, for example, in office products, waste management and IT. This enables various problems to be identified from the viewpoint of buyers and sellers and possible solutions discussed.

It should be possible to use this approach more generally to increase the number of function- and performance-based procurements, while decreasing procurements of specified solutions. At the same time, resources and organisations would be needed to take responsibility for arranging this. One possibility is to raise these issues in the “industry discussions” that are under way between representatives of the government and leading business sector actors in a number of selected areas.

Organisation of methodology support functions

In any national procurement policy seeking to promote innovation and renewal, the following functions need to provide efficient and high quality service:

- formulation and detailing of rules of play and how these should be interpreted formally
- follow-up of competition issues and formal management in accordance with LOU and its underlying principles
- development of procedures and arenas and processes for methodology support and procurement coordination
- development of the legal organisation and legal processes for public procurement to ensure that these contribute to increased efficiency
- evaluation of the social-economic effects, including the effects on innovation and renewal, of public procurement.

Today, no clear structure exists for the control and support needed to promote efficient and innovation-promoting public procurements, despite both the huge sums represented by public procurements and the efficiency-promoting potential offered by appropriate forms of procurement. It is true that several central government authorities support other authorities in their public procurements, but all functions are not represented and certain conflicts of interest can be said to exist.[38] In general, structure and a "corporate perspective" are lacking in central government procurements, which makes it difficult to see opportunities for coordination, exchange, communication of experiences and good examples.

To attain a high level of quality and efficiency, the responsibility for every function should be based on clear assignments and roles for different authorities. The role of public procurements in promoting innovation and renewal should be taken into account in all areas. Some of these functions should be coordinated, while others could be kept separate to avoid conflicts of interests or lack of clarity. For example, it may be inappropriate to combine work on defining rules with the roles of follow-up and evaluation. It may also be undesirable directly to combine competition-based follow-up with broader socio-economic assessments.

[38] Nämnden för offentlig upphandling (NOU) ((the Swedish National Board for Public Procurement) supervises compliance with LOU and provides information and support to the government. The Swedish National Financial Management Authority is responsible for the central government framework agreements and the National Agency for Services to Universities and University Colleges performs extensive consultancy services and assists other procurement entities in their procurements. Other agencies such as Verva, the Swedish Competition Authority, and the Swedish Energy Agency, perform functions in public procurement.

Methodology development and methodology support should also be separate from other functions, since these functions encourage a contracting authority's own organisational development relative to procurements. In this respect, it should be considered whether or not such functions should be performed by a partnership-based organisation in order to achieve the maximum possible impartiality.

The legal processes are owned by the judiciary, and so are naturally separate from other functions. However, it should be considered here whether this function could be centralised within any single organisation, in order to raise the level of professionalism and efficiency.

Development of methods and tools

Today, there is often a considerable degree of uncertainty among procuring entities as to how procurement processes can be made more efficient and innovative. The uncertainty concerns, for example, which requirements should be stated in the invitation to tender documents, which forms of procurement are suitable for different situations and which criteria of evaluation should be used.

It is therefore important to ensure that sufficient resources are invested in methodology development and that systems of methodological learning are established among public authorities. For that reason, clear responsibilities at public authority level should be allocated for various types of methodological development within the area of public procurement. This would also include issuing recommendations as to how different procurement models may be used. Models that fulfil a central role in processes for methodological development should include:

- procurement of innovations, also known as "pre-commercial procurement"
- function-based procurement
- combined procurement
- Public Private Partnership (PPP)
- concessions, and
- agreements with built-in incentives.

In this context, it is also important that guidelines are produced about how rules in LOU and the new EU directives that are relevant to innovation and renewal may be applied in practice. It is also important to take an active part in EU initiatives and activities to improve and develop public procurement and contribute to learning on the subject.

For an innovative enterprise to be able to safe-guard its ideas, protection for intellectual property rights may be necessary. Today, this is not always provided for in contracts, and knowledge is often lacking both at procuring entities and small suppliers. In addition, the use of new forms of procurement, such as competition-based dialogue, is likely to lead to new issues of intellectual property rights.

The differences between various sectors are sizeable, both in terms of the public authorities and the business community in the sector. Different industry organisations should therefore be invited to participate in developing principles, criteria and procedures for public procurement in the sector concerned. It may also be useful to work in partnership with – and in certain cases issue assignments to – institutions active in research and development in the sectors concerned, as well as public authorities with experience of innovation-heavy procurements and other stakeholders working to improve expertise within public procurement process.

There are also considerable needs for procedural development of routines and facilities for following up and *evaluating* the results of completed procurements. Today, the use of evaluation instruments is limited, which adds to the difficulty of long term learning.

Among procuring entities, there is a major demand for advice and support, information and sharing of useful examples of various modes of procurement, models of agreement and methods of evaluation. Even if a number of large public authorities in Sweden have made great strides in their use of different models of agreement that promote innovations and technological development, a major need remains for the sharing experience and knowledge with smaller procuring entities.

Participation by small enterprises in procurement of innovations

It is of the utmost importance that small enterprises too should be able to participate in public procurements, since there are many small innovative enterprises. Effective competition between suppliers demands that new solutions from small enterprises should also be included in procurements.

The participation by small enterprises in procurement of innovations can also increase employment. Innovation-promoting public procurement can provide small enterprises with special opportunities for supplying public authorities. To a small enterprise, a public-sector contract can create new jobs in a way that does not occur in major enterprises. Thus, this may be an important source of new job creation.

However, many small enterprises find it difficult to participate in public procurements, partly because of the demanding administrative procedures, costs of producing tenders, lack of predictability in framework agreement structures and the need of quality management systems. It is important to ensure that rules, conditions and routines do not discriminate against small enterprises, so that the best use is made of their potential for growth and employment.

It is important to consider the structure of framework agreements, so that it is possible for small enterprises to take parting them, for example by building on a certain estimated delivery volume or otherwise increasing the predictability in the demand. It is also essential to ensure that procurements are structured in a way that establishes effective competition, with low entry barriers to new participants and account taken of the conditions of small enterprises. This may involve, for example, greater use of methods such as split tendering, or encouraging the use of sub-contractors or joint tendering. It is also important that the requirements stated in the invitation to tender documents are designed to be proportionate to the volume of the procurement and should not make far-reaching demands for concept sketches in the tender.

The issue of how participation by small enterprises in public procurement may be promoted generally, and how their contributions to innovative solutions should be stimulated specifically, needs to be further investigated. In this connection:

- "pre-commercial procurement" and function-based procurement should be structured so as to promote R&D and innovation in small enterprises, via processes similar to the US SBIR system;
- coordination of procurement needs and procurement processes between public authorities should be structured in such a way that they improve the opportunities for making best use of the particular potential for innovation and renewal at small enterprises; and
- rules, routines and processes should be modified to simplify the possibilities for, and lower the transaction costs of, small enterprises when participating in public procurements.

Follow-up and statistics on public procurement

Today, it is very difficult to gain a clear idea of the total scale of public procurement, what proportion it represents of different markets and what its main content is organisationally and in terms of renewal. This is especially true of the proportion of public procurements carried out for amounts below what is known as the threshold values. However, it also

applies to procurement above the threshold values. Existing statistics and reporting by public authorities provide an inadequate basis for formulation and development of a national procurement policy.

The lack of quality statistics on important aspects of public procurement stems ultimately from weak requirements for reporting and follow-up of public procurement. This, in turn, originates from the fact that public procurement is rarely viewed as a strategic function in organisational development. This applies both to central government departments and public authorities. As a result, systematic reporting of, and follow-up on, procurements at public authorities are rarely carried out. An important basis for the compilation of quality statistics is lacking. Reporting and follow-up can in themselves work as an important incentive for high quality innovation in public procurement – similarly, the lack of high quality in this respect is symptomatic of a lack of status of procurement as a strategic function.

Our opinion is that processes should be formulated to improve reporting and follow-up of content, processes, suppliers and effects within public procurements. This work should include describing and following up how procurements are affecting/have affected innovation and renewal in the activities of public authorities, and their effects on innovation and renewal in the business sector.

8 Proposals

To spur innovation and renewal through public procurement, the following measures are recommended:

1. Introduce public procurement of innovation, i.e. procurement including R&D, as a general procurement form in Sweden. This should be done entirely within the framework of existing regulation of public procurement and R&D. Create supporting structures of expertise with the aid of public authorities that have R&D auditing as a core activity. Introduce clear incentives for procuring authorities, by stating that 1% of their total volume of procurement should be allocated to procurement of innovations. In addition, highlight successful procurement of innovations and reward them. In this manner, public procurement of innovation can become a strategic issue for Swedish public authorities.

2. Strengthen the organisation of and simplify procedures for public procurement to enable coordination of demand. Thus, critical mass regarding methodological expertise can be achieved. This should be done in consideration of how to utilize the innovation potential and increased efficiency of small and medium enterprises (SME).

3. Create reliable information for follow-up and statistics on public procurements. Evaluate the scope of public procurement and distribution, as well as its effect on public organisations regarding organisational renewal and increased efficiency. Also, evaluate its effects on innovation in the private sector.

Procurement of innovations

Innovation is always preceded by development and at times even by research, in other words R&D. Thus, public procurement processes that endeavour innovative solutions encompass R&D. Such public procurement should be denoted as procurement of innovation, as the focus is on novel solutions, i.e. innovation.

Historically, Sweden boasts numerous successful procurer-producer examples that occurred before the deregulation of different state monopolies. Well-known cases are the collaboration between Televerket (the Swedish Agency for Telecommunications) and Ericsson, which led to the AXE switching system and NMT, Nordic Mobile Telephony. Also, the

collaboration between Swedish energy company Vattenfall and electrical engineering company ABB led to advanced power generators. For more details on the dynamics in and effects of the interaction in these development pairings, see the IVA, Royal Swedish Academy of Engineering Sciences reports from the project *Samverkan för tillväxt* (Cooperation for Growth). In the EU, discussion is now taking place on the concept of "Lead Market", and the procurement of NMT and Denmark's build-up of wind power industry are being quoted as good examples.

Warning examples of a lack of development-thinking in public procurement also exist. One such post-deregulation example is the procurement of mobile telephony for the "blue-light" agencies (police, ambulances etc.). The main difference from the positive examples lies in the degree of commissioning expertise and the incentives of the procurer. In the absence of clear incentives and of technical/ scientific expertise, the result is often a simple, secure procurement of existing solutions, despite the possibility that better solutions could be developed. In its VINNITEL report, VINNOVA proposed to the government that the specification for the "blue-light procurement" should be changed so that it could be conducted by upgrading of existing networks (GSM and 3G).[39]

Another example is the procurement by Svenska Kraftnät of power supply networks from Hallsberg to Skåne (replacing capacity following the shut-down of the Barsebäck Nuclear Reactor). However, the outcome here is not yet decided. The alternatives are either a traditional above-ground power line or an underground cable. The latter offers many advantages from the viewpoint of conservation of land and the environment. It is also a new product in a growing world market. However, it requires procurement of innovations with a major element of R&D, and involves risks of failure. In addition, a higher, short-term, cost is likely. VINNOVA has also, in its consultation response, proposed that the government should offer incentives to Svenska Kraftnät to choose the more innovation-driving procurement, i.e. the underground high-voltage DC cable.[40]

Procurement of innovations centres on the functions in public sectors that require new innovative solutions to increase effects, quality or efficiency in their activities. Such procurements can either be made in one stage and

[39] VINNOVA (2002), *VINNITEL, Utvecklingsprogram för IT/telekomsektorn*. (Development Programmes for the IT/Telecom Sector)

[40] VINNOVA (2006), *Remissyttrande*. *Slutredovisning av uppdrag till Affärsverket svenska kraftnät att ta fram förslag till förstärkt forsknings-, utvecklings- och demonstrationsprogram inom elteknikområdet.*(Consultation Response: final report on commission for *Affärsverket svenska kraftnät* to produce proposals for increased resources for research, development and demonstration programmes in electrical engineering sector.)

include R&D as one part, i.e. as in the examples above, or be split into two or more stages. Because the new solutions do not exist at the time the procurement process begins, a procurement of an innovation can often be made at the stage preceding commercial production of the solutions. This procurement of innovations is therefore, in terms of content and methodology, identical to that referred to as "pre-commercial public procurement", which form part of the EU's new innovation strategy. Of course, several small stages in public procurement are also conceivable, including procurement of specifications of the next stage of the procurement (e.g. how the R&D section is to be defined and evaluated).

Strengthen the organisation for public procurement

Because R&D is a vital part of procurement of innovations, procedures for, and assessments of, the quality in the R&D activities are vital to the effects of this type of procurement. Thus the availability of R&D expertise to procuring entities is crucially important to the quality of the procurements. Generally speaking, all procuring authorities cannot be expected themselves to have the expert knowledge needed to be able to review in detail the R&D content of tenders received. On that basis, it is important that those public organisations that do possess knowledge of this type should support those that do not.

Thus, public authorities dealing with R&D-funding as a core activity should be in a position to review the quality of R&D in public procurements of innovation. Such authorities include VINNOVA, Swedish Research Council (VR), Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning (FORMAS), Swedish Council for Working Life and Social Research (FAS), Swedish Energy Agency and others. Procuring authorities should make such R&D reviews a part of the final assessment of tenders received. If necessary, R&D-funding authorities can assist in preparing the R&D content in the invitations to tender documents.

Innovation procurement should be an integral part of an authority's long-term organisational development and therefore every public authority must have both incentives to pursue innovation procurement, as well as ownership of innovation procurement contents and processes. It is thus essential that there are clear incentives to promote innovative public purchases for all public authorities. As the encouragement to conduct such procurements are currently quite weak, it is suggested that special incentives be created. It is therefore put forward as a suggestion that the Swedish Government set up a target of at least one percent of the total procurement volume of public authorities be innovation procurement.

To stimulate innovation procurement as a general form of public procurement, development of methods and structures to coordinate processes dealing with such procurements should be devised, so that:

- Critical mass regarding demand and methodological expertise and requirements for innovation procurement is attained, and
- Small and medium enterprises' potential for innovation and job creation are considered and encouraged.

Coordination of demand and expertise are critical for the quality in the requests for proposals and for the evaluation of submitted bids. Special venues should be developed to coordinate between public authorities and organisations with similar functional requirements and procurement procedures. Critical mass can be attained through such venues regarding function oriented demand and methodological skills.

The development of new solutions driven by procurement of innovations also enables common standards to be developed. Common standards for different public organisations offer important potential for improved quality and efficiency in the public sector. At the same time, such standards are an important factor in developing the customer base, i.e. the markets, for new solutions. It is important to emphasise that coordination must always be performed in such a way that makes best use of the particularly great potential offered by small and medium-sized enterprises for innovation, growth and job creation.

The objective of the proposal to strengthen the organisation for public procurement is to lay the groundwork for a shift towards a new form of general procurement that vigorously promotes innovation and renewal in the public sector and the Swedish business sector. The principles stated in the proposal are based on the positive experiences from the important "development pairings" in Swedish economic history, such as Televerket-Ericsson and Vattenfall-ASEA/ABB. These pairings have been of major historical importance in the development of R&D and innovation, growth and job creation in Sweden. The principles of the proposal are meant to function within the scope of public regulation and the market conditions that prevail within EU cooperation and the increasingly deregulated European market.

The proposal should encompass all public authorities and thereby all the sectors these authorities represent. Each public authority should decide on its own whether any adjustment of its organisation or its role within its specific sector is necessary. Municipalities and county councils should also be able to use the principle of the proposal, as part of their innovation and

renewal strategies. If so, public authorities must be given assignments to methodologically support the municipalities and county councils and thereby serve as necessary coordinators. Financial support from EU's structural funds may be applicable.

Simplify and strengthen policy on public procurement

Today, the procurement policy of the Swedish state is characterised by a number of hard-to-reconcile requirements to government authorities. Authorities are instructed to promote a series of political objectives for the community at large via procurements, even though the procurements are not categorised internally on the basis of their overall effects on neither community developments nor on the authorities' internal activities. Examples of such political objectives include conditions and procedures for taking into account social or environmental needs, and the needs of small enterprise etc. At the same time, initiatives taken to develop methods and support in public procurements often lack critical mass and remain unused.

It is not evident whether the directives for procurement require public authorities to focus on the organisational development, for improved quality and efficiency. There is thus a considerable risk that the overall effect of the directives may impact adversely both on long-term organisational development of public authorities and short-term cost efficiency.

Given this ambiguity, it is suggested, that a general review of Sweden's national policy for procurement be conducted. The main focus of such a review would be to clarify how currently prevailing principles and regulations affect the role of public procurements in the organisational development of public authorities, and how they affect the social economy and development in the community. The purpose should be to develop the principles and structures of a national procurement policy so that the organisational developments of public authorities are strengthened and positive socio-economic outcomes are promoted.

Three central functions of an updated national procurement policy should be clearly defined:

- Fundamental objectives and principles for prioritisation in public procurements
- Clarification of the responsibilities of central/national public authorities and their public relations so that the policy can have a high impact

- Resources for further development of principles and methodologies as well as measures for follow-up of public procurements should be secured.

For a goal-oriented, innovation friendly and efficient public procurement, it is essential that there are strong stimulants and responsibility for a continual development of policy, methodologies and performance metrics. This must be steered politically and be based upon a clear leadership from the Government's side. To support the political objectives, the functions and roles of assisting public authorities must be clarified and distributed among the authorities. This requires a detailed review of the strengths among public authority roles, as well as the collaboration between them that exist today.

In addition to the quality of the policy function, there is a major need for methodology development and support in public procurements. It is therefore essential that a national procurement policy secure mandates and development resources to public authorities with particular responsibility for method support. Critical mass and quality in procurements must be achieved without it being necessary to build up huge resources of expertise in all aspects of this work within every single public authority. A clearly defined corporate perspective should flow through the central government procurement system, in which different public authorities can and should support each other to ensure higher quality and greater efficiency.

Develop reliable information and statistics

The level of ambition should be raised for follow-ups, statistics and out-come analyses of innovation-promoting effects, effectiveness and structure of public procurements. Increased demands of reporting and following-up the general effectiveness and innovation-promoting effects of public procurements should in themselves affect positively the incentives for efficient and innovation-promoting procurement. Above all, it should constitute an important driver for making procurement into more of a strategic issue in the organisational development of public authorities than is the case today. Furthermore, improved reporting should improve the information required to control public procurement in a strategic way, on behalf not only of the government and Parliament, but also of individual public authorities.

At the moment it is difficult to get a picture of the total volume of public procurement, its size in different markets and its content in terms of the operations involved and renewal. This is especially true of the proportion of public procurements carried out for amounts below what is known as the

threshold values, but it also applies to procurement above the threshold values. This indicates that existing statistics and reporting by public authorities represent an inadequate basis for formulation and development of a national procurement policy.

We are of the opinion that processes should be formulated to improve reporting and follow-up of the content, processes, suppliers and effects within public procurements. This work should include describing and following up how procurements are affecting innovation and renewal in the operations of public authorities, and their effects on innovation and renewal in the business sector.

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Hans Ekman, Swedish Association of Local Authorities, director
Jan Torége, Swedish Association of Local Authorities, handling officer
Åke Matton, County Council Fund for Technology Procurement and Products, vice president
Kalle Krall, AffärsConcept AB, vice president
Fritz Sprung, Almi Företagspartner, project leader

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Seminar, 24th of August 2006

Gunnar Tunkrantz, Vägverket
Mats Bergman, Konkurrensverket
Bengt Jäderholm, Vägverket
Anders Lunander, Örebro universitet
Jan-Eric Nilsson, VTI
Torbjörn Stembeck, KTH
Ove Pettersson, VINNOVA

Seminar, 18th of September 2006
Magnus Nilsson, NOU
Stefan Elg, Allego
Stefan Holm, Almega (ex. IT-företagen)
Daniel Eriksson, OPIC
Ulf Lindberg, Almega
Jens Karlsson, Företagarna

Seminar, 6th of October 2006

Magnus Nilsson, NOU
Sven-Eric Hargeskog, VERVA
Bo Svanlind, EVS
Gunnar Hult, FMV
Göran Lindgreen, FMV
Christina Wilén, FMV
Lars Jacobsson, Vägverket
Per Kyhle, Banverket

Seminar, 9th of October 2006

Magnus Nilsson, NOU
Stefan Elg, Allego
Stefan Holm, Almega
Daniel Eriksson, OPIC

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03 Sammanfattning - Användningsdriven utveckling av IT i arbetslivet - Effektvärdering av tjugo års forskning och utveckling kring arbetslivets användning av IT. *Brief version of VA 2007:02, for brief version in English see VA 2007:13*

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by funding needs-driven research
and developing effective innovation systems

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