B 3 INNOVATION-ORIENTED PUBLIC PROCUREMENT

Introduction

Over the last decades, demand-oriented innovation policy has become increasingly important in many countries. Demand-oriented innovation policy measures include regulation (e.g. the specification of minimum technical standards for products), the promotion of private demand for innovative goods (e.g. buyer's premiums), as well as the public procurement of innovative goods and services. This group of measures is herein referred to as innovation-oriented procurement. Both in the European Union and in Germany, proposals for designing innovation-oriented procurement as an innovation-promoting policy instrument have recently been discussed. In the following section, the Expert Commission aims to review and assess these proposals.[275]

There are two different forms of innovation-oriented procurement:
- the procurement of innovations available on the market: innovative products and services that already exist on the market or have been newly introduced on the market;
- the procurement of innovations not available on the market: products and services that have not entered the market yet and that have yet to be developed for a specific purpose, as well as products and services that have already been developed but are not yet ready for series production.[276]

Examples of innovation-oriented procurement are presented in Box 18.

High quantitative significance of public sector demand

The interest in the effects of innovation-oriented procurement largely arises from the considerable volume of public sector demand. A significant share of Germany's gross domestic product is attributable to procurement by public institutions. Each year, federal agencies and state and municipal institutions purchase goods and services. In 2008, these amounted to a total value of 13 percent of GDP according to OECD figures. This equals a volume of approximately EUR 320 billion.[277] If only a small proportion of the annual procurement budget were allocated to innovative products and services, an important incentive for innovation activities could follow from this.[278]

In spite of the large procurement volume, there is still a lack of reliable information on the extent to which resources are used for the procurement of innovative goods – which is also owing to the fact that the creation of procurement statistics proves to be extremely difficult in practice. The division of competences in federal and Länder procurement law alone makes it difficult to collect data on a national scale.[279] This is further complicated by the fact that there is no uniform standard for defining whether or not a product or a service can be classified as innovative, and by the fact that a uniform standard for recording such goods is also lacking.

Objectives of innovation-oriented procurement

The advantages and disadvantages of innovation-oriented procurement are subject to controversial debate. Advocates of an increased use of innovation-oriented procurement argue that the public sector's high demand potential could be used to strengthen a region's or a country's innovation dynamics. However, sceptics doubt that governments are actually able to achieve this effect with such policy measures. In the following section, the Expert Commission presents potential objectives of innovation-oriented procurement and evaluates the suitability of measures for achieving these objectives on the basis of theoretical and empirical research findings.

Procurement of innovations as an element of public service

The public sector provides citizens with direct or indirect services in the fields of civil security, defense, health, education and infrastructure. Stakeholders from the public sector must ensure that their services meet sufficient quality levels and are delivered efficiently. To meet these requirements, the public sector has to make use of sufficiently innovative primary products and services as part of their service delivery process. Thus, innovation-oriented procurement can be regarded as an essential element of governance. While the public sector can make use of materials and services that are available

Examples of innovation-oriented public procurement BOX 18

Linux in Munich's municipal authorities

In 2004, Munich City Council in its role as municipal service provider decided to migrate its complex IT structure from an operating system based on Microsoft products to a system that can be freely configured. This decision emerged from the need to avoid medium to long-term costs incurred by licence fees and hardware upgrades necessary for the smooth operation of the Microsoft software. In addition to this, the aim was to establish a consolidated IT architecture with automated and standardised documents that would lead to increased efficiency through reduced coordinative and administrative efforts.

Following a public tender, Munich City Council finally opted for the Linux-based LiMux Client – an open source software solution tailored to their needs. The first work stations were migrated in 2005. By the end of 2013, 80 percent of work stations will operate on the LiMux Client. In the course of the gradual migration, existing Microsoft Office products have been replaced by the open source alternative OpenOffice. In January 2013, as many as 13,000 out of 15,000 work stations were using the new software.[280]

The LiMux project has been assessed positively so far. For Munich City Council, LiMux represents a successful example of innovative procurement launched on the grounds of improved user benefits and an expanded range of software functions available. Enhanced reliability, easier maintenance and higher safety levels are important success factors of Munich City Council's LiMux project. The new IT solution will facilitate efficiency and productivity on the part of the employees. In addition, running costs can be reduced as a result of vendor independence (licence fees and hardware upgrades do not apply), which leads to a sustainable increase in the City Council's economic efficiency.[281]

Sensor-based landing aid (SeLa) for *Bundeswehr* helicopters

Pilots of the German Federal Armed Forces *(Bundeswehr)* are often faced with low visibility during their operations. Particularly in landing maneuvers, loss of orientation due to snow or accumulated dust may occur, which can result in aircraft accidents. After a helicopter nearly crashed in Afghanistan in 2005, the *Bundeswehr* decided to equip their helicopters with an electronic landing aid to support the pilot when landing under difficult visual flight conditions.

Thus, the Federal Office for Arms Technology and Procurement commissioned the company ESG Elektroniksystem- und Logistik-GmbH with the development of a new sensor-based landing aid, which was not available on the market at that time. In collaboration with the European Aeronautic Defence and Space Company N.V. (EADS) and the Fraunhofer-Gesellschaft, the ESG developed the SeLa system, which is capable of precisely determining an aircraft's position. All data are processed by a computer system and are immediately made available via the pilot's display.

The SeLa system went through several development and test stages. It is designed in a way that also allows for application to other types of Bundeswehr helicopters. In 2011, the first *Bundeswehr* helicopters were equipped with the new system; the process is due to be completed within the next four years. Hence, it is yet too early for assessing the ultimate success of procuring the SeLa system.[282]

on the market, it also has to initiate innovation processes whenever the required products and services are not available on the market and have yet to be developed.[283]

In practice, however, it has been demonstrated that the public sector makes only limited use of innovative products and services.[284] Factors that hinder the systematic use of innovations by the public sector shall be discussed in more detail below. The limited use of innovative products and services by public agents threatens the quality and efficiency of governance, while private innovation providers are losing an important client. As a result, the market for innovative products and services is shrinking, which decreases the economy's overall innovation activities.

The issues described here do not necessarily require to be solved by means of R&I policy. Rather, economic policy-makers should make it a priority for government agencies to make sufficient use of innovative services and solutions, with the objective of delivering high-quality services in an efficient manner.

Innovation-oriented procurement as a means of correcting market failure

In a market economy, innovation processes are exposed to various forms of market failure. Innovation-oriented procurement can be a means of correcting market failure and strengthening incentives for innovation. The following effects of innovation-oriented procurement are frequently mentioned in this context:

1. In the case of suboptimal (private) investment in R&D and innovation processes, innovation-oriented public procurement can contribute to the systematic support of R&D activities. Promotional measures may be targeted at specific technologies that have been neglected by the private sector.
2. Innovation-oriented procurement can be used as a means of gathering information about new technologies and their uses, while also making this information available to third parties. Thus, it is argued that the public authorities' practical experience will make it easier for private users to assess and use innovative products and services. Public procurement can thus facilitate the tapping of new consumption patterns and new consumer groups for innovative products such as electric vehicles.
3. Innovation-oriented procurement is an instrument that can, at least partially, rectify undesirable developments resulting from lock-in effects and network externalities. Thus, public procurement can be used as a means of replacing outdated technologies by new technologies, and as a means of reaching a critical mass necessary for launching new technologies. This is especially important in such cases where a new technology requires a specific infrastructure in order to disseminate (e.g. charging stations for electric vehicles, tracks for high-speed trains, etc.).
4. Public procurement can also be used as a tool for achieving economies of scale on national and international markets to overcome classic forms of market failure, e.g. market failures that occur in the defense sector in the context of the development of weapon systems and aircrafts.

In most of these cases, a market failure correction could also be accomplished through alternative measures such as subsidies or R&D tax credits. Thus, policy-makers are confronted with a selection problem. This raises the question whether certain policy instruments possess comparative advantages that would justify their preferred use. Generally speaking, a parallel use of several instruments aimed at correcting one and the same market failure can be deemed counterproductive.

Innovation-oriented procurement as an instrument of strategic R&I policy

Innovation-oriented procurement may also serve other strategic purposes. Thus, some observers suggest that procurement policy can support the evolution of domestic lead suppliers and lead markets and the enforcement of technological standards. Supporters of an active industrial policy approach consider it an important task of government institutions to promote the competitiveness of their home country through strategic policy measures.

Thus, strategic objectives such as the use of renewable energy, energy independence, or competitive advantages in specific technologies or industries (biotechnology, smart grids, etc.) could be pursued through government action. These objectives go far beyond the correction of the market failures discussed above. As a part of strategic, innovation-oriented procurement, the government could, for instance, create particularly favourable development opportunities for infant industries, while subjecting domestic businesses to preferential treatment. Albeit such preferential treatment in particular is met with ordoliberal criticism, it can hardly be denied that there are countries that actively pursue such a policy.

Assessment

The three arguments presented above are all subject to controversial debate.[285] In some cases, strategic, innovation-oriented procurement could indeed create macroeconomic benefits.[286] Yet, the Expert

Commission is sceptical as to whether this argument suffices to justify the systematic and broad use of such an instrument.

When assessing the second argument – innovation-oriented procurement to correct market failure in research and innovation processes – it should be taken into account that demand-oriented instruments often function as substitutes for supply-oriented measures, and if an instrument proves more effective than another, then the respective instrument will be deemed particularly suitable. That said, there is only scarce empirical evidence to confirm the assumption that demand-oriented instruments lead to particularly favourable effects.[287] Besides this, demand-oriented interventions usually require pronounced sector-specific and technology-specific competences, while also intervening in market mechanisms to a much greater extent than supply-based innovation-supporting measures. Again, in the view of the Expert Commission, this does not provide the rationale for a systematic, broadly based use of innovation-oriented procurement.[288]

The Expert Commission believes that the first argument is the most important: it is indeed too often the case that public procurement makes use of established solutions or solutions with minor innovative potential, and hence the quality of public service is less than ideal. What is more, the limited demand for innovative intermediate products inhibits or disadvantages the development and dissemination of innovative products and services. The Expert Commission has developed its recommendations based on this very argument.

B 3–1 INNOVATION-ORIENTED PROCUREMENT IN INTERNATIONAL COMPARISON

In the following section, the scope of public procurement in Germany will be compared with public procurement in other industrialised countries. This comparison makes use of figures published by the OECD, which provides procurement data on a large number of industrialised countries calculated on a uniform basis.[289]

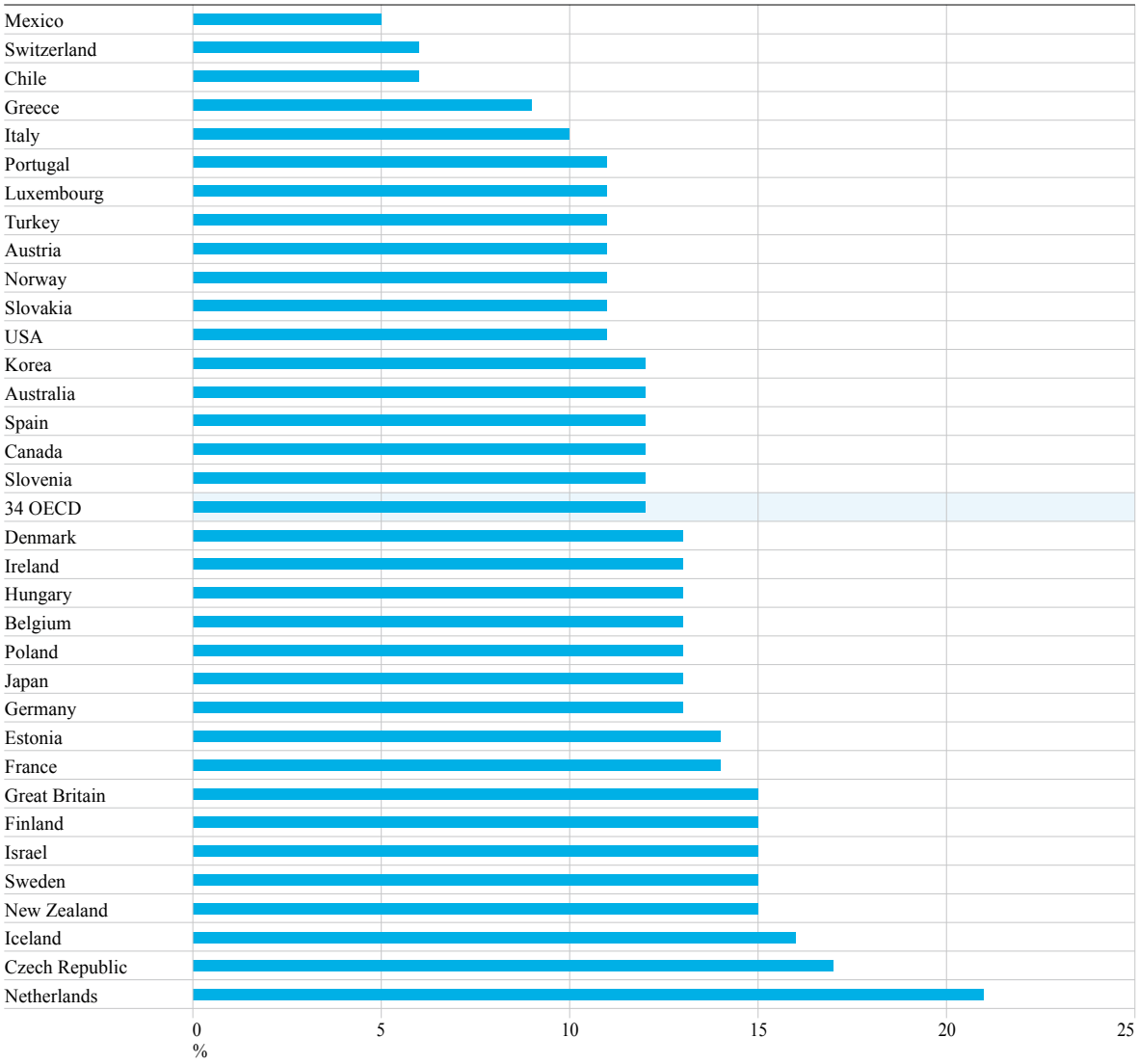
Figure 8 shows that there are considerable differences between OECD countries in terms of their procurement volume. In 2008, public procurement contracts in the Netherlands totalled 21 percent of GDP, while Switzerland's relative procurement volume accounted for only 6 percent of GDP. In Germany, the share of public procurement was 13 percent of GDP – slightly above the OECD average of 12 percent, while still remaining below the values of the two other large European industrialised countries, France (14 percent) and Britain (15 percent).

There are data available on the full scope of public procurement in OECD member states, with figures that have been collected on a uniform basis and allow for international comparison. Yet, when it comes to quantifying innovation-oriented procurement, the task at hand proves much more difficult, since uniform procurement statistics do not exist; neither in Germany, nor at an international level. Also, there are no uniform standards by which the share of procurement of innovative goods and services can be measured against the total procurement volume. For instance, there are no available data on whether or not innovative services were obtained as a result of a public tender. Hence, it is urgently needed to collect such data in compliance with internationally uniform standards and make them available to researchers.

To get an idea of the scope of innovation-oriented procurement in Germany – irrespective of the unfavourable data situation – the procurement process shall be examined in order to identify characteristics that will enable us to roughly estimate the volume of innovation-oriented procurement. Appropriate indicators are the awarding procedure selected for the procurement and the classification of procured products. For R&D services, cutting-edge technology goods, and environmental goods an above-average level of innovation can be expected. In addition, public awarding in the military sector can also be used as a basis for estimating the volume of innovative procurement, since this sector is characterised by a relatively high demand for innovative products and services.[290]

The statistical offices of the OECD and the EU do not keep procurement statistics that would allow for conclusions on procedural features or the nature of the procured product. Thus, the following analysis is derived from Tenders Electronic Daily (TED), the European Union's public online service for publishing public procurement notices.[291] The TED database is

FIG 08 **Size of government public procurement as a percentage of GDP 2008**



Source: OECD (2011b).

managed by the Publications Office of the European Union. It provides information on all public procurement (including tendering procedure and contract type) that has a volume above the EU threshold and thus has to be tendered on a Europe-wide basis.[292]

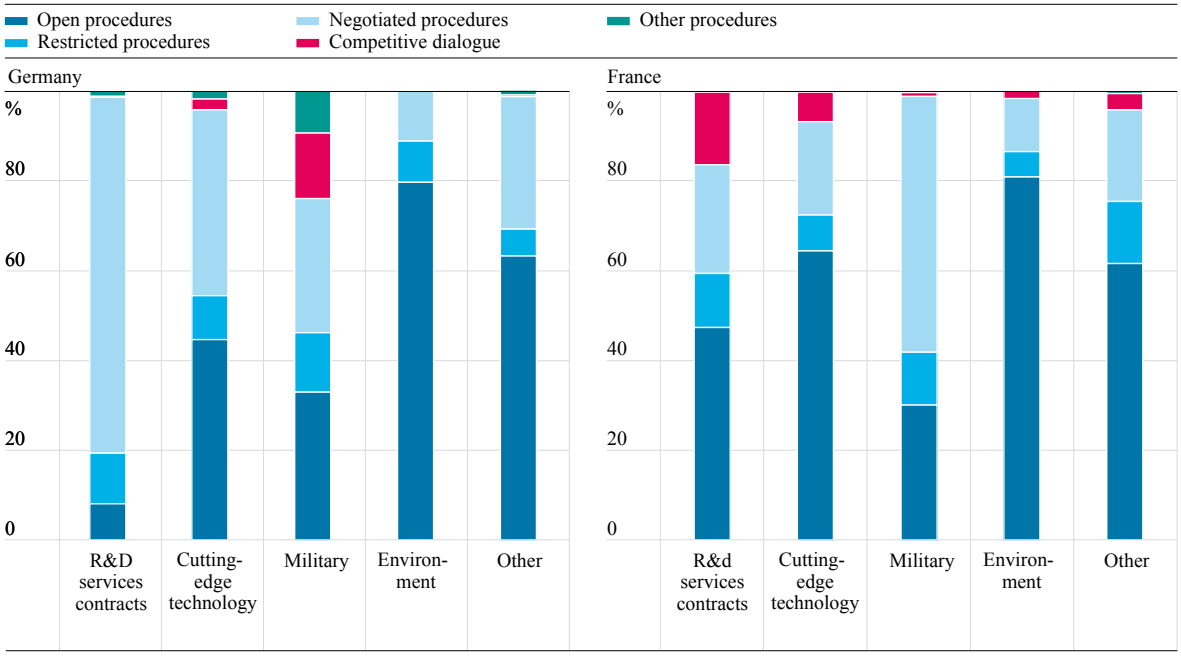
To facilitate the evaluation of results, data for Germany and France have been collected and compared.

Innovative procurement in Germany and France

The procurement procedure chosen by the tendering party serves as a first indicator to determine whether innovative products and services were or shall be procured. Procurement procedures employed by the public sector differ considerably with regard to their degree of formality and the steps involved.[293] The "competitive dialogue" procedure is a negotiation procedure that is characterised by a high degree of flexibility and is therefore particularly suitable for the procurement of innovative goods.

European tendered contracts as a proportion of total procurement according to procurement process and product type (2006–2010 aggregated)

FIG 09



Source: Tenders Electronic Daily. Own depiction.

In the competitive dialogue procedure, the object of procurement is not defined in the tender documents and is only specified in the course of one or more dialogue sessions with selected bidders. This procedure provides the public contracting party with a much greater choice of opportunities to identify appropriate and innovative solutions than would be the case in the context of the traditional open or restricted tendering procedures.[294]

The comparison of procurement procedures used in France and in Germany (Figure 9) shows that to date, competitive dialogue has hardly played any role in Germany's procurement practice: contracts awarded on the basis of this procedure account for less than 1 percent of Germany's total procurement volume. In France, however, competitive dialogue is used more frequently, making up approximately 4 percent of the total procurement volume.[295] Germany's procur-ers are resorting more frequently to this procedure in the procurement of military goods: in this sector, around 10 percent of all contracts are awarded through the competitive dialogue procedure (cf. Figure 9).

A comparison of product types procured in Germany and France classified according to goods and services – R&D services, cutting-edge technology, environmental goods, and goods and services in the military sector – between 2006 and 2010 has lead to the following findings:

R&D service contracts do not play an important role in public procurement in Germany or in France. During the examined period, R&D service contracts accounted for only 0.5 percent of the total procurement volume in Germany. In France, the respective figure is even much lower than this (0.1 percent).[296] In both countries, military procurement with Europe-wide tendering procedures account for only a small fraction of the overall procurement volume, with an average of 2.4 percent in Germany and 2 percent in France.[297] Environmental goods and services account for a much bigger share of the overall procurement volume in the relevant period, with 4.2 percent in Germany and 6.1 percent in France. It is striking that in both countries the demand for environmental goods experienced a decline between 2006 and 2010. In Germany, the decline observed was much more significant than that observed in France. The largest share of the total procurement

volume is taken up by cutting-edge technology procurement. With an average of 13.5 percent, the share of cutting-edge technology procurement in France is almost twice as high as that of Germany (7.3 percent). In both countries, the peak intensity of cutting-edge technology procurement increased slightly in the examined period and continues to be several times greater than the share of R&D services.[298]

To sum up, the scope of public procurement in both France and Germany is considerable, and so is the potential for improving government services and for stimulating innovation activities. The indicators examined suggest that in the practice of procurement, however, the procurement of innovative goods and services plays only a minor role. Beyond these general statements, the findings of the analysis do not allow for conclusions regarding the qualitative and quantitative dimensions of innovation orientation in German procurement. A more detailed analysis of the German procurement practice can only be conducted once the federal, *Länder* and local governments have introduced uniform, reliable procurement statistics.

Innovation-oriented procurement in the United States and China

According to OECD figures, the total volume of procurement in the United States amounted to 11 percent of GDP in 2009, corresponding to approximately EUR 1,160 billion. Due to national differences in the collection of data, it is not possible to precisely identify the percentage share of innovation-oriented procurement in the US as compared with Germany and France.

Yet, a comparison of the three countries in terms of their procurement expenditure in cutting-edge technology and R&D goods as well as procurement in the military sector does suggest a certain trend: while the procurement volume of Germany and France in relation to the overall economic power (GDP) is larger than that of the United States, the US' share of innovative goods as a proportion of total procurement is well above that of Germany and France.[299]

The example of the United States demonstrates that government needs serviced through public procurement can be important drivers for innovation and may have great potential for private markets. The energy saving scheme FEMP for reducing power consumption in the stand-by mode, the development of computer and internet technology, or the development of the Global Positioning System (GPS) are examples of products originating in public procurement initiatives that have entered the private market.[300]

When compared on an international level, the United States can also provide the largest and most detailed public procurement database, as all of the federal agencies are required to report public procurement contracts that exceed the threshold of USD 2,500.

The United States' relatively high share of innovation-oriented procurement as a proportion of the total procurement volume might well be the result of individual public sector initiatives. Already three decades ago, the US Administration started promoting the public procurement of innovative goods. Thus, the Small Business Innovation Research Program (SBIR) was designed not only to strengthen small and medium-sized enterprises (SMEs); it was also designed to support innovation-oriented public procurement. The SBIR requires all federal agencies with an R&D budget of at least USD 100 million to allocate a certain percentage of their budget to SMEs. For these ends, federal agencies are expected to identify societal needs e.g. in the areas of health, safety, environment and energy. SMEs can then submit proposals for the financing of innovation projects in these fields of need. These projects may take the form of a feasibility study or the creation of a prototype.

Yet, the market launch of products developed in the context of the SBIR will be conducted outside the programme. Only a small number of US federal agencies, among them the Department of Defense, use the SBIR programme as a tool for public procurement of innovative products that have emerged from subsidised R&D activities.

In China, the volume of public procurement increased rapidly between 1998 and 2009. In 2009, the total of goods and services procured by the public sector amounted to EUR 67.4 billion – in real terms, this equals two hundred times the volume recorded in 1998. China's procurement spending is thus growing even faster than the country's drastically increasing GDP. While procurement accounted for only 0.04 percent of GDP in 1998, this share continuously

increased during the following years to almost 2.2 percent. It can be assumed that a considerable part of the procurement volume still remained unreported: according to estimates of the European Chamber of Commerce, China's total procurement volume in 2009 amounted to approximately EUR 790 billion – a multiple of the officially reported volume.[301]

Due to the absence of reliable data it is not possible to assess the extent to which China's public sector has been requesting and tendering innovative goods and services. It is known, however, that it is the stated goal of the Chinese government to make consistent use of public procurement as a tool for promoting and disseminating domestic innovation.[302]

Innovation-oriented procurement in China is focussed on marketable innovations produced by domestic enterprises.[303] For these purposes, product catalogues with a classification of domestic goods are submitted to the provincial governments as a preselection of potentially suitable products. Contracting authorities are encouraged to purchase the goods listed in the catalogues, provided that they do not exceed the price of alternative goods. Domestic innovative products enjoy a price preference of up to 18 percent. If the price of the domestic product is still too high, suppliers are permitted to rewrite their offers.[304]

US policy supports domestic businesses in quite a similar manner. Thus, the US Buy American Act grants a price preference of 6 to 25 percent for domestic products.[305] The Buy American Act explicitly excludes itself from the scope of the Government Procurement Agreement (GPA) adopted by the World Trade Organization (WTO). The GPA has established competition, non-discrimination and procedural transparency as the three guiding principles for public procurement (cf. B 3–2). China's regulations for the promotion of domestic innovation also contravene the provisions of the GPA,[306] but indeed China is not a signatory of the agreement but is merely in negotiations with the WTO.[307]

The analysis of procurement in China shows that the government influences technological development by pursuing a targeted innovation-oriented procurement policy – much more than Germany and France. China's procurement policy seeks to promote not only the goal of facilitating the market entry of socially desirable technologies, but also serves as a means of shielding the Chinese market from international competitors. Due to the exertion of pressure from Europe and the United States, China abandoned its plan to introduce a product catalogue at a national level. Yet, at a provincial level, the number of product catalogues to promote domestic innovation has increased continuously. Moreover, there are also indications of a hidden preference towards Chinese companies.[308]

INNOVATION-ORIENTED PROCUREMENT IN GERMANY: LEGAL FRAMEWORK AND PRACTICE B 3–2

Public procurement is an area that is very much governed by legal provisions. The complex structure of procurement law primarily serves the purpose of guaranteeing non-discriminatory access to transparent procedures that are open to the public. The guiding principles of public procurement – competition, non-discrimination and procedural transparency – are stipulated in the World Trade Organization's Government Procurement Agreement and are thus authoritative for all GPA member countries, including Germany.[309]

The easiest way of achieving the objective of a transparent, non-discriminatory procurement process is a price competition on competitive markets. Hence, until the beginning of the last decade, the EU procurement rules, which form the basis of national procurement law, had a strong focus on price competition. It was not until 2004 that social, sustainable factors were added to the set of rules; factors that had previously been deemed "extraneous aspects".[310]

With the law on the modernisation of public procurement law, the Federal Government transposed the European public procurement Directive 2004/18/EC in April 2009. Besides integrating the social and environmental award criteria laid down in the Directive, the Federal Government also added additional innovative criteria.[311] Germany's legal framework thus generally provides options for innovation-oriented procurement, and yet these options have been used only little to date. The following section aims to examine the reasons why public procurement in Germany focusses only to such a limited extent on innovative products and services. At the same time it should also be borne in mind that innovation orientation is only one of several aspects of public

procurement. Irrespective of the procurement law reform, the central concern of public procurement is to meet the economic demand of public institutions. This is also the reason why public procurers largely base their decisions on the economic efficiency of services and goods to be purchased, and on the budget available.[312]

Innovative products are frequently disregarded even if they are clearly more cost-efficient than competing conventional products. The reason for this is that procurers tend to avoid the risks associated with the launch of a new technology or the collaboration with new enterprises that are still lacking economic stability. General concerns about innovations, insufficient knowledge of new products and technologies, and existing procurement regulations contribute to the fact that innovative products are disregarded. Another reason for disregarding innovative products is that procurers often fail to fully consider a product's life cycle costs.[313] Limited budgets and lacking intertemporal optimisation options often force procurers to purchase the cheapest product – instead of the most economic product.

The reform of the German public procurement law in 2009 has created leeway for integrating innovative aspects into the awarding of contracts. Yet, there are few incentives for procurers to make actual use of these options.[314] In fact, a 2009 survey among procurers at federal, state and municipal levels reveals that in the practice of procurement the degree of innovation of a product or service to be purchased is often deemed irrelevant or plays only a minor role. One of the main reasons for the lack of innovative aspects in the German procurement practice probably lies in the fact that up until the 2009 reform, the innovation criterion was classified as an "extraneous aspect" and was thus considered inadmissible.[315] Procurers are familiar with established patterns of behaviour and have not yet adopted the new regulations.

The acceptance of new patterns of behaviour is further complicated by the fact that the German procurement system is highly fragmented. Overall, there are an estimated 30,000 contracting authorities at the federal, state and local levels. All of the procurers involved have to be made aware of the benefits of innovative products and services and be equipped with relevant information on how to tap this new potential.[316] Thus, it will be one of the key challenges for the Federal Government to convince such a broad range of different institutions of the advantages of innovation-oriented procurement. Besides the fragmentation issue, there are also issues at individual levels that hinder a consistent focus on innovation in public procurement: procurers have the sole responsibility for the risks associated with their decisions, such as higher purchaser prices, late delivery or project failure.[317]

What is more, the selection of additional award criteria and the monitoring of requirements imposed are associated with increased workloads and administrative efforts for procurers. But the OECD Public Procurement Survey also shows that procurers' insufficient knowledge regarding the calculation of e.g. life cycle costs often hinders the consideration of economic aspects of sustainability and innovation. Besides this, it can be difficult to quantify the degree of innovation of a requested service or product. As a result, procurers are reluctant or simply unable to define innovation-oriented award criteria. Moreover, public procurers also feel that there is high legal uncertainty as to whether a chosen award criterion actually complies with the provisions of procurement law.[318] The integration of sustainable, innovation-oriented aspects into contract awarding is supported through information policies and initiatives. However, given the increasing complexity of the regulatory framework, these initiatives (cf. B 3–3) do not suffice to remove the procurers' fears of procedural mistakes and subsequent review procedures.[319] Another impediment for innovation-oriented procurement is, according to the Federal Ministry of Economics and Technology (BMWi), the fact that awarding documents are often over-specific in describing the required service, i.e. the leeway for offering new and innovative products is narrowed down further.[320]

CURRENT POLICY INITIATIVES TO PROMOTE INNOVATION-ORIENTED PROCUREMENT B 3–3

European Union

With its new framework programme for research and innovation, Horizon 2020,[321] and with its competitiveness programme, the EU is currently putting a strong emphasis on the use of public procurement as

a means of fostering innovation.[322] Thus, the European Commission also encourages national contracting authorities to exchange good practice examples in the field of innovation-oriented procurement.

Especially through its framework programme, the EU Commission also increasingly focusses on the use of Pre-Commercial Procurement (PCP) particularly in the promotion of information and communication technology.[323]

The use of Pre-Commercial Procurement requires a public need for which the market does not provide a suitable solution. As part of an R&D project, governments can commission several companies with the development of new or alternative solutions. The development of solutions is divided into three phases. In phase 1, the participating companies present their design to the contracting authority. An evaluation committee subsequently selects those companies that will be permitted to enter phase 2, during which participants are required to produce a prototype. At least two of these companies progress to phase 3, which entails the original development of a limited volume of first products or services. This is followed by the commercialisation phase, i.e. the public institution now procures a solution, which is, in legal terms, a separate procedure. However, the procurer is not obliged to commission one of the PCP participants – it may also choose a company that was not involved in the PCP procedure.[324] The advantage of the PCP procedure is that the public contracting authority is not committed to offers that, in hindsight, prove to be technically immature or too expensive.

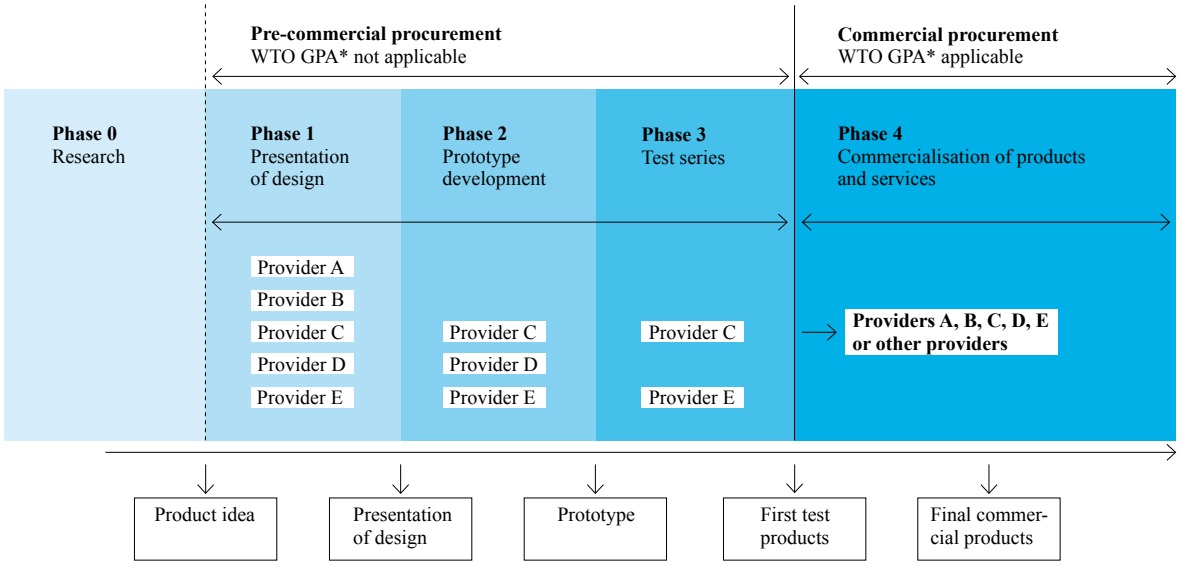
Besides the iterative selection process, the PCP procedure differs from a regular R&D contracting procedure in that it provides the opportunity to make use of the knowledge generated in the development process. PCP is therefore employed in cases where the knowledge generated is not solely for use by the contracting authorities, i.e. cases that entail a planned knowledge spillover to the private market. As a result, the guiding principles of procurement law – competition, non-discrimination and transparency – do not have to be adhered to.[325]

In the practice of procurement, it has not been clarified in detail how intellectual property rights emerging from a PCP procedure shall be assigned. The EU Commission has ruled that the beneficial interest in intellectual property rights held by PCP participants must be transferred to third parties at market prices if requested by the contracting authority. Yet, the assignation of rights differs considerably in the EU member countries and is sometimes not even subject to regulation. Germany is one of the countries that have not formulated rules and regulations for this policy area.[326] Among German policy-makers it is currently being discussed to let the respective companies, i.e. the contractors, retain the property rights, with the aim of enhancing the public appeal of PCP procedures and as a means of stimulating competition. The regulations that are in place in France, however, specify that property rights can be fully transferred to the government in its role as commissioning party. These provisions reflect the notion that rights should be transferred to the contracting party that can best utilise it.[327]

Alongside the launch of the PCP procedure as part of the Horizon 2020 programme, the European Commission has also been preparing the renewal of the Directive on European procurement law, which is due to be adopted in 2013. With regard to innovation-oriented procurement, two planned regulatory changes are of particular interest here: first, the EC aims to establish negotiated procedures with a prior call for competition as the standard procedure for public procurement. This means that, in future, procurers would not have to give explicit reasons for choosing this procurement procedure.

Second, the EC plans to introduce “innovation partnerships” as a new awarding procedure for innovative services. Innovation partnerships link the awarding of a development contract with the actual procurement of the product, thereby establishing a long-term partnership between the company and the contracting public authority.[328] This model differs from PCP insofar as only one company will be involved in the design and procurement process. Innovation partnerships shall make it easier for procurers to requisition innovative solutions. Since these innovative solutions solely meet the public sector’s requirements, the principles of procurement law have to be fully taken into account in such innovation partnerships.[329] The EU Lead Market Initiative represents yet another measure to promote innovation-oriented procurement at a European level.[330] Furthermore, in the context of the Innovation Union strategy,[331] the EU

FIG 10 **Schematic representation of pre-commercial procurement[332]**



*GPA = Governmental Procurement Agreement
Source: Commission of the European Communities. Own depiction.

has commissioned a study to explore the design options for a programme to promote innovation-oriented procurement. The study is based on the United States' Small Business Innovation Research Program (SBIR) (cf. B 3–1) and other respective programmes in Great Britain, the Netherlands and the region of Flanders, all of which are also modeled around the SBIR.[333]

Germany

In the spring of 2011, the Federal Ministry of Economics and Technology (BMWi) presented its innovation policy strategy to complement the High-Tech Strategy. The innovation policy strategy includes initiatives to stimulate innovation-oriented procurement at the federal level. Yet, for the year 2013, only EUR 3.8 million are earmarked for these purposes. One of the key projects includes the launch of a competence centre to advise procurers at federal, *Länder* and municipal levels, to enable networking and to provide good practice examples. At the federal level, the additional administrative efforts anticipated in the context of innovation-oriented procurement processes shall be, at least partially, offset by the planned competence centre. Furthermore, the BMWi plans to test the EU Commission's PCP procedure at national level on the basis of a pilot project. The project shall be conducted in close consultation with EU member states that have already gained experience in implementing PCP procedures.

With these initiatives, the BMWi aims not only to improve the practice of innovation-oriented procurement practices at the federal level, but also to provide incentives for the *Länder* governments and municipalities to introduce similar procedures.[334] For several years now, the BMWi has also been awarding a prize for innovative procurement, which serves as a further incentive for innovation orientation. The BMWi thus awards contracting authorities for their achievements in the procurement of innovation and the design of innovative procurement processes. The title of the award is *Innovation schafft Vorsprung* ("Innovation creates a competitive edge") and has been awarded since 2006 in collaboration with the Association Materials Management, Purchasing and Logistics (BME).[335]

In 2010, the Federal Government established the Alliance for Sustainable Procurement *(Allianz für eine nachhaltige Beschaffung)* as a primary step to improve the data situation in the area of public procurement. The Alliance comprises procurers from the federal and *Länder* governments and from municipal

associations. Its declared goal is to strengthen cooperation between federal, *Länder* and local governments in all aspects of sustainable public procurement and to "significantly increase the proportion of sustainable products and services in public procurement".[336] To accomplish this, expert groups on standardisation, statistics and monitoring have been established, who will evaluate available data and fill existing data gaps.

So far, the Alliance primarily focusses on the overall objective of prioritising environmental and social criteria rather than innovative aspects of procurement – although innovative aspects are classified as valid award criteria since the procurement law reform of 2009. Yet, innovative procurement is only indirectly considered, e.g. by preparing proposals for the procurement of innovative environmentally friendly products such as electric or hybrid vehicles. Hence, the Alliance's recommendations for enhancing the data situation will contribute only to a limited extent to improving the public sector's innovation orientation.[337]

B 3–4 RECOMMENDATIONS FOR THE DESIGN OF INNOVATION-ORIENTED PROCUREMENT IN GERMANY

The Expert Commission believes that the potential of innovation-oriented procurement in Germany is not being sufficiently realised. The Federal Government should actively work on overcoming structural barriers and continuously explore new forms of procurement procedures. Experience gained in other countries can serve as a model in this regard. Thus, the Expert Commission recommends the following:

- The Federal Government should support EU initiatives promoting innovation-oriented procurement, such as the measures launched in the context of Horizon 2020, the Lead Market Initiative and the Innovation Union strategy. The EU Commission's initiatives on Pre-Commercial Procurement (PCP) and the renewal of the Directive on European procurement law particularly deserve the support of the Federal Government. The Expert Commission therefore welcomes the BMWi initiative on the adoption of pre-commercial procurement procedures. It is hoped that numerous procurement offices can be persuaded to follow suit. The BMWi should continue to take the lead by providing good practice examples to promote the adoption of PCP procedures by public institutions. At the same time, the Federal Government will have to ensure that the instrument of pre-commercial procurement does not lead to permanent restriction of competition; a concern that also applies at European level.
- The reform of the Directive on European procurement law will have an even greater impact on the practice of procurement than the introduction of PCP procedures, as it introduces negotiated procedures with a prior call for competition as the new standard procedure. In the view of the Expert Commission, this is indeed a suitable measure for promoting innovation. Yet, in the implementation of this reform, the Federal Government must also ensure that a permanent competition restriction is avoided.
- For R&D activities in the context of pre-commercial procurement, it may make sense for the contractor to register intellectual property rights. In such an event, it has to be clarified whether the contracting authority or the contractor is entitled to hold the respective rights. The Expert Commission prefers that the contractor retains the respective intellectual property rights. If property rights are transferred, this would generally have a lowering effect on the price of the R&D service. In some cases it may also be appropriate to request the contractor to make licences available to third parties by a licence of right declaration according to §23 of the German Patent Act *(PatG)*. An active management of intellectual property rights by public authorities is not a desirable objective.
- Already in the preparation phase of the procurement process, purchasing entities should be supported with expert advice and (financial) resources necessary for reducing information deficits on the part of procurers. This support would diminish the procurers' reluctance towards innovation at an early stage.
- Public procurement in Germany is highly fragmented and should be coordinated more closely. Furthermore, it is important to raise awareness among procurers about the opportunities of innovation-oriented procurement. The Expert Commission therefore welcomes the creation of a competence centre that offers advice and assistance to public procurers in the field of procurement.

– In order to make practical use of the opportunities created by the 2009 public procurement law reform, the Alliance for Sustainable Procurement must widen its focus beyond social and environmental criteria and consider the criterion of innovation orientation to a greater extent.
– In spite of the considerable volume of public procurement, there are still no uniform procurement statistics and no reliable data on innovation orientation in German procurement. It is essential to collect and publish relevant data in order to monitor the effectiveness of measures promoting innovation-oriented public procurement and to take corrective action if necessary. The Alliance for Sustainable Procurement, initiated by the Federal Government, should therefore develop explicit recommendations for an improved statistical collection of data relating to innovation-oriented procurement.
– The Federal Government's planned projects for the promotion of innovation-oriented procurement should be monitored and evaluated from the start.