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Trials and Tribulations in the Implementation of Pre-Commercial Procurement in Europe



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Preface

Pre-commercial procurement (PCP) is a specific approach to the procurement of research and development (R&D) services outside the remit of the European Public Procurement Directives.

The European Commission brought this approach to the front of the innovation European policy agenda since 2007. In a Communication from 2007, the Commission explained what economic benefits the wide deployment of PCP may generate and clarified the applicable legal framework.

The European Commission's initiative was partly motivated by the desire to emulate the perceived success of the United States (US) Small Business Innovation Research (SBIR) program and partly by the desire to prevent that similar national initiatives in the United Kingdom (UK) and the Netherlands would be deployed as illegal state aid schemes. Since its 2007 Communication, the European Commission has undertaken additional efforts to encourage procurers in the European Union (EU) to engage in PCPs; It has commissioned studies with the purpose to understand the barriers to implementation and to promote good practices; it has co-funded cross-border collaborative PCPs; it has financed the drafting of a practical Toolkit which explains the steps in the deployment of a PCP and it has endorsed a team of experts to advise procurers on various aspects of implementation.

The Commission has had several attempts to assess the economic and social impacts of PCP in Europe, with mixed outcomes. This was particularly due to the limited number of projects that qualify as PCP and that have been finalized. The national R&D procurement programs (e.g. in the UK, the Netherlands and Belgium) have also come under internal scrutiny in 2014–2015, prior to deciding their continuation.

PCP in particular and R&D procurement in general are not yet established approaches in the EU. PCP is not widely implemented and the successful examples are still very few. However, partly due to the European Commission efforts, the level of interest and the level of understanding of this procedure by procurers throughout Europe are increasing.

Due to the unfolding debate on the topic, there have been so far no attempts in literature to tackle PCP from a general perspective. Only several articles have been written on PCP, mainly concerning legal aspects or its place within the innovation policy framework.

This book aims to advance the understanding of PCP as innovation policy instrument. First of all, it seeks to place PCP within its political and economic context. It elucidates its origins and its economic rationale. It provides a list of minimum requirements for the appropriate implementation of PCP policy and the appropriate deployment of PCP projects. Second, it assesses the value and achievements of similar policy programs, in the US, the UK, the Netherlands and Belgium and draws additional lessons for the effective implementation of PCP. Third, it suggests a clear conceptualization of PCP and a clear delineation from other innovation policy instruments. In this context, it highlights the gaps in the legislative framework. Fourth, it raises awareness of the remaining obstacles to its wide and effective implementation. It examines various solutions ranging from coordination measures by the European Commission to law interpretation and legislative reform.

This book can be useful to all actors involved in the setting up, coordination and assessment of PCP programs and in the implementation of PCP projects. It is also useful for teaching and training purposes.

This book makes use of illustrative practical examples of policy-making and projects implementation in various countries. Particularly the approaches and performances of the US SBIR program, the UK SBRI program, of the Dutch SBIR program and of the Flemish Procurement of Innovation (PoI) program are discussed. The analysis of these programs is used to assess the appropriateness of EU's effort to promote its own variant of R&D procurement, the PCP. But the book goes beyond presenting cases and policy or legislative frameworks. It outlines the author's own analysis and interpretation of the PCP legal frameworks and cases.

The material in the book is up to date as of July 2016.

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Chapter 1

Introduction

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1.1 Pre-Commercial Procurement (‘PCP’)—Definition and Background

Pre-commercial procurement (‘PCP’) is the model recommended by the European Commission in its 2007 PCP Communication and the afferent Staff Working Document (‘SWD’) for the public procurement of research and development services where the contracting authority or contracting entity shares the results and benefits of the contract with the providers under market conditions and where the purchase of commercial volumes of products or services is the object of a separate contract.¹

PCP is part of the response to the re-evaluation of EU innovation policy that started in 2000. European policy-makers agreed that innovation leads to increased productivity and to sustained economic growth. They moreover believed that innovation can solve critical challenges for Europe’s future welfare (e.g. climate change, increased and aged population, shortage of natural resources, global food security, increasing competition from developing countries etc.).²

However, they concluded that EU’s innovation policy did not target solutions to the above mentioned challenges, but stimulated economic competitiveness in general. The employed innovation policy instruments (supply-side measures such as subsidies, tax measures etc.), which identified broad areas of interest and left

¹ PCP Communication 2007, p. 1.

² Innovation is not a goal in itself, but broadly accepted by economists as one of the key potential inputs/driving forces for sustainable economic growth. See for example Hadfield 2011; Spence 2011, p. 36.

the selection of specific research topics to the innovator, did not sufficiently incentivize the private market to upscale research and development ('R&D') investments in desired projects.³

In this context, demand-side instruments were assessed.⁴ Public procurement of R&D services emerged as a suitable mechanism to achieve the following objectives:

- steer private innovators' efforts towards publicly desirable solutions;
- improve public services;
- eventually enhance the global competitiveness of European companies.⁵

Due to its limited competences in the area of innovation policy, the Commission used a soft-law instrument, a communication, to recommend European public procurers a specific approach to the procurement of R&D services.

The purpose of the PCP Communication was twofold. Firstly, the Commission wanted to draw attention to this untapped opportunity. Although the EU procurement rules allowed more flexibility in the conduct of R&D procurement, European public procurers had not consistently engaged in such practices.

Secondly, the Commission wanted to clarify the applicable legal framework, in order to prevent distortive implementations of R&D procurement. National programs launched in the UK in 2001 and in the Netherlands in 2004 strongly resembled subsidy schemes with little or no involvement of the public end-customer and with participation restricted to national companies.

Prior to the drafting of the PCP Communication, the Commission hired experts to investigate the potential benefits of PCP. The experts pointed out that other competing economies such as the United States ('US') succeed relatively better in 'pulling' R&D into the commercialization phase and in enhancing the international competitiveness of their domestic suppliers.⁶ The experts partly attributed this success to the use of public procurement of R&D, which was a strategic part of the US Small Business Innovation Research ('SBIR') program. According to the experts, high-risk R&D procurements performed by the US Department of Defense ('DoD') led to the creation of new industries (e.g. the semiconductors industry, the Internet etc.) in which US companies became world market leaders. In their opinion, the US had used procurement of R&D strategically, '*to provide a strong home market for their domestic supplier base in well-defined areas of desired international competitiveness*'.⁷ The study also confirmed that European procurers did not engage sufficiently in R&D procurement, and considerably less than their US peers.⁸

³ Edler and Georghiou 2007, p. 958.

⁴ Edler et al. 2012.

⁵ For a more detailed discussion on this topic, see Chap. 2, Sect. 2.2.

⁶ National IST Research Directors Forum Working Group on Public Procurement in support of ICT Research and Innovation [PCP Expert Group 2006].

⁷ PCP Expert Group 2006.

⁸ PCP Expert Group 2006.

The European Commission 'used' the success of the SBIR policies, as perceived by the experts, to justify its support for PCP deployment, without questioning whether government intervention through the SBIR-type of action would be effective in the European context.⁹ Although meant to emulate the perceived success of the US SBIR, PCP was adapted by the European Commission to EU realities, made of:

- EU rules meant to maximize EU-wide competition in public contracts;
- EU rules meant to minimize public aid to national businesses;
- Limited EU competences in the area of innovation policy.

As a consequence, the resulting EU instrument embodies major differences when compared to its US counterprogram. Some of the more important differences include:

- the non-binding implementation of PCP;
- the obligation to pay a market price that reflects the pre-defined division of risks and benefits;¹⁰
- the prohibition to purchase the PCP innovative results without conducting a separate competitive procedure in compliance with the Procurement Directives.¹¹
- the application to both technological and services sectors;¹²

The European Commission did not analyze what impact these differences may have on the potential of PCP to achieve its envisaged policy objectives.

Arguably, in the absence of extended competences to mandate or coordinate the innovation policies of its Member States, the Commission focused primarily on safeguarding open competition under market conditions, such as to prevent innovation agencies in EU Member States from granting unwarranted state funding to national companies under the label of 'R&D procurement'. Further judgments related to economic grounds or operational prerequisites for effective implementation of PCP were left to the implementing authorities.

1.2 The Reality of PCP Implementation

The Commission hoped that increased clarity on the legal conditions for implementation would be sufficient to encourage those European public procurers, who need advanced solutions to perform their operational tasks, to deploy PCPs.

⁹ European Commission [PCP Communication 2007].

¹⁰ Article 16(f) of Directive 2004/18/EC (Public Sector Directive) and Article 24(e) of Directive 2004/17/EC (Utilities Directive).

¹¹ Commission 2007, p. 9–10.

¹² Commission 2007, 3.

Despite these expectations, and despite additional efforts undertaken by the European Commission,¹³ the uptake of PCP has been slow and inconsistent.¹⁴

Mostly PCP-‘like’ initiatives have so far been implemented consistently in the EU. These PCP-‘like’ initiatives are mainly the specialty of centralized innovation agencies.¹⁵ They are run in a national environment, with marginal EU-wide competition and often with limited involvement of end-customers. Following internal or external evaluations throughout 2014 and 2015, the 3 most established PCP-‘like’ initiatives in the UK, Netherlands and Flanders are undergoing major adjustments, particularly related to minimizing the role of the coordinating innovation agency and to delegating the main responsibilities to the deploying procurers.¹⁶ The national programs are discussed in more detail in Chap. 6 below.

Where PCP is (or has been) applied, no confirmation of its economic benefits in practice has become available. The few cases of deployed PCP-like initiatives have not yet proven that they are triggering the benefits envisaged by EU policy-makers.¹⁷ The European Innovation Scoreboard 2016 shows that the EU has been unable in the past 8 years to close the gap with its major competitors, the US, Japan and South Korea in R&D expenditures in the business sector.¹⁸ Apparently, the overall EU innovation policy, which includes PCP, is not inducing private businesses to scale up their investments in R&D.

Among the national PCP-‘like’ initiatives, only the UK SBRI has demonstrated positive impacts, in terms of incentivizing firms to conduct R&D that would otherwise not materialize and in terms of increased firm sales.¹⁹

In conclusion, PCP as envisaged by the European Commission, has so far not achieved the desired results in practice. Barriers to the wide implementation of PCPs persist and positive impacts are still to be proven.

¹³ Since 2009, the European Commission funded networks of procurers to facilitate collaboration and exchange of knowledge. Since 2011, Framework Program 7 (FP7) funded the costs incurred by procuring authorities during the organisation of cross-border collaborative PCP procedures. This is carried on by the Horizon 2020 funding program.

¹⁴ European Commission 2011; Izsak and Edler 2011, p. 22–3; Camerer and van Eijl 2011, p. 177–86. T33, Spark and Deloitte 2014, 3. Bedin et al. 2015.

¹⁵ This book only analyses the 3 most established PCP-‘like’ initiatives in the UK, the Netherlands and Flanders.

¹⁶ This is most clear in the case of the UK SBRI.

¹⁷ Bedin et al. 2015. The study concluded that PCP has positive impacts, mainly based on estimations and interviews with involved public procurers. The Study highlighted the difficulty in finding a consistent amount of analytical data (in other words proper PCP cases).

¹⁸ The Innovation Scoreboard 2010 does not evaluate the impact of the PCP instrument, but it is considered by the EU as a reliable indication of the impact achieved by its innovation policy. UNU-MERIT 2016, 30.

¹⁹ SBRI Review 2012, 11.

Assuming that government action to spur innovation is needed and that the PCP-type of innovation policy measure is one of the best available measures, questions related to the most appropriate regulatory conditions are motivating my writing of this book.

1.3 Outline of the Book

The book is structured as follows.

Chapter 2 (Political background to PCP adoption—an institutional approach) presents the context in which the PCP has been embraced by EU policy makers. This is based on a compilation of policy documents emanating from the main actors involved in setting the EU innovation agenda: the European Council, the European Commission and the European Parliament. The analysis goes back to 2000, the year that marked the revival of the EU policy-makers' interest in demand-side policies in support of innovation.

Based on this documentary analysis, this chapter provides a general view on how the political interest in demand-side innovation policy instruments amounted to the adoption and support of PCP.

Chapter 3 (The economic rationale for PCP) aims to identify in how far the policy expectations and the policy choices related to PCP resonate with economic theories on the public intervention(s) embraced by the EU. To this end, I compare the economic assumptions underlying policy-makers' expectations from PCP, against authoritative economic theories and empirical studies. Based on this analysis, I will also conclude on the economic prerequisites for PCP to achieve its objectives and I will clarify under which circumstances PCP cannot be economically effective and should therefore not be applied.

Chapter 4 (The US model of R&D procurement—lessons for PCP) analyzes the features and the outcomes of the US SBIR programme based on a documentary analysis of relevant US legislation, policy guidelines and evaluation studies.

Based on this analysis, I will identify the features of the US SBIR that relate to its perceived efficacy and I will conclude whether these strengths are reflected into the PCP. Moreover, by reference to the economic prerequisites identified in Chap. 2, I will conclude whether the main differences between PCP and the US SBIR weaken the potential of the PCP to achieve its objectives.

Chapter 5 (Placing PCP within the legislative framework) presents a broad overview of PCP's objectives and features, as envisaged by the European Commission in its 2007 PCP Communication and the accompanying Staff Working Document. This chapter points out the gaps and ambiguities in the conceptual design of the PCP and seeks complementary guidance on the interpretation of relevant concepts in documents endorsed by the European Commission (e.g. the Frascati Manual, the Expert Group report preceding the PCP Communication) and in other legislative areas of the EU (e.g. State aid).

Finally, this chapter places PCP within the broader framework of EU innovation policy approaches. It outlines the differences between PCP and related (and potentially complementary) innovation policy instruments (e.g. subsidies, forward commitment procurement etc.).

Chapter 6 (The realities of public R&D procurement implementation in the EU—trials and tribulations) provides an overview of the main PCP-like national schemes, that have been implemented so far in the EU. It also outlines the European Commission's efforts to trigger a generalized practice of transnational implementation of PCP.

More specifically, this chapter assesses three of the most established national PCP-'like' initiatives in the UK, the Netherlands and Belgium, against the economic prerequisites identified in Chap. 2. To this end, a documentary analysis of the guidelines and conditions for implementation of the 3 initiatives is performed. The assessment is also based on a study of the calls for proposals published within the framework of these initiatives. This is complemented by interviews conducted with functionaries involved in deploying these initiatives.

Based on this analysis, I comment on the success of the current implementation of the PCP policy. I also highlight the reasons for the limited appeal of the PCP or PCP-'like' initiatives as mentioned by individual public authorities themselves.

Chapter 7 (Legal barriers and paradoxes) analyzes the main legal barriers that are frequently invoked by public procurers for not getting (regularly) engaged in the deployment of PCPs. Based on the analysis of the laws that underlie these barriers, Chap. 7 suggests suitable ways of interpretation or legal amendments. This chapter also concludes on the suitability of the current regulatory framework to advance EU's interests in the area of R&D and innovation and points out possible solutions to the problems thus identified.

Chapter 8 (Concluding remarks—the case for a EU coordinated deployment of PCP) draws general conclusions and makes the case for EU coordination and supervision of PCP deployment.

What Does This Book Not Aim to Achieve?

This book does not aim to evaluate the quantitative impacts of the PCP instrument on leveraging private R&D investments, on increasing the commercialization rate of R&D projects or on improving public service efficiency. Such measurements are outside the scope of this book.

This book will neither strive to find alternatives to the use of PCP or to indicate a combination of innovation policy instruments which can best enhance the innovative capability and capacity of private actors. It provides a broad outline of one instrument from the innovation policy repository, namely pre-commercial procurement. It acknowledges though that the proper functioning of pre-commercial procurement cannot be seen in isolation from other systemic conditions (such as availability of qualified researchers, availability of technological opportunities, entrepreneurial culture etc.).

Moreover, this book focuses on the efficacy of legal instruments, not on the quality or the correctness of the economic theories that they implement. Consequently, this research is based on the conclusions of existing economic theories that have provided justification for EU intervention through PCP. By analyzing the current economic paradigm embraced by the EU-institutions, the research identifies under which economic conditions PCP can be effective and in which cases PCP might do more harm than good.

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Chapter 2

Political Background to PCP Adoption— An Institutional Approach

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2.1 Introduction

Before the 1980s, Europe’s R&D policy took place at national level and was focused on supporting ‘national champions’ (also called ‘flagship companies’). In the face of rising international competition in technological sectors in the 1980s and 1990s, increased coordination at EU level was set in motion.¹

Since 2000, EU policy-makers searched for improved policy instruments to catalyze the development of innovative solutions to serious threats to EU’s advancement (e.g. increasing competitive pressure from emerging economies, climate change, shortage of natural resources, ageing etc.). In this context, they re-discovered demand-side policy instruments. Particularly public procurement was brought to the fore. In 2005, the Commission decided to exploit the potential of public procurement as source of investment in desirable R&D projects.² This eventually led to the adoption of the PCP Communication in 2007.

¹ Gulbrandsen 1999, 230.

² Commission 2005, 8.

This chapter describes the policy processes that preceded the adoption of the PCP and the policy actions that were subsequently undertaken, in order to boost its implementation in practice. The Chapter focuses on the political support and the relevant policy measures adopted in this context by the different EU institutions which have a say in the innovation policy arena. Section 2.2 describes the political support offered by the European Council (which gives the political impetus and support for certain action to stimulate innovation). Section 2.3 describes the actions undertaken by the European Commission (which translates the European Council's guidance into concrete activities) to design and subsequently encourage the deployment of PCP. Section 2.4 outlines the endorsement provided by the European Parliament (which has a say as co-legislator, in case legislation needs to be adopted). Section 2.5 outlines concluding remarks.

2.2 European Council's Guidance

In 2000, the European Council³ adopted the 'Lisbon Strategy', the EU coordinated innovation policy framework. The 'Lisbon Strategy' provided the necessary political impetus for renewing EU's objectives in the face of challenges brought by economic globalization (e.g. increased competition from developing countries, climate change, ageing, scarcity of natural resources etc.). The European Council set the ambitious goal for Europe to become the most competitive and dynamic economy in the world within a decade.

To reach this goal, Europe needed to increase research and technology intensive production and to improve the innovative capabilities of European businesses. This could be achieved by ensuring (i) coordination of research efforts at EU level and (ii) uptake of the resulting innovations; (iii) diversion of public expenditure towards R&D, innovation and information technologies.⁴

In Lisbon, the European Council concurrently decided to introduce the concept of 'open method of coordination' (OMC). OMC is a decentralized approach by which the European Council defines annual political goals related to the Lisbon areas (employment, innovation, economic reform and social cohesion). The European Commission defines specific actions that are needed to achieve these goals, with related timetables. However, the implementation of these actions is left to the Member States.

Yet, the European Commission monitors the implementation by each Member State against quantitative and qualitative indicators and benchmarks. It draws up annual reports on the progress made in each area. For the comparative assessment of the research and innovation performance of the 27 Member States and

³ The European Council is the organ which gives the political impetus to the Union's economic, social and environmental action. It is formed of the heads of the Member States.

⁴ Expert Group 2006.

the relative strengths and weaknesses of their research and innovation systems, the Commission uses the innovation indicators of the Innovation Union Scoreboard. These outcomes of these assessments are subsequently used as justification for policy choices.

The OMC approach leaves the European Commission with no direct enforcement mechanisms, yet it allows for evidence-based arguments to persuade and leverage peer pressure.

Since 2000, the European Council re-endorsed and fine-tuned the Lisbon Strategy on innovation during each of its annual meetings. Different measures meant to create favourable conditions for businesses to invest in R&D and innovation were proposed. Hereafter, I will highlight European Council's most important decisions for spurring investments in R&D and innovation and for using procurement as a policy instrument to this end.

In 2001 in Göteborg, the European Council underlined the need to consider the environmental effects of all policies (including innovation policy). Setting policy objectives for sustainable development, next to the economic and social objectives, would unleash much needed technological innovation, particularly in sectors such as energy and transport.⁵

An important step was taken during the 2002 European Council in Barcelona, when it was agreed that investment in R&D and innovation in the Union should increase to 3 % of the GDP by 2010, of which two-thirds should come from the private sector.⁶ The Council underlined the need to ensure '*better access to risk capital*', networking and improved technology diffusion as part of an integrated strategy. The Council laid a particular emphasis on priority areas in frontier technologies such as biotechnology and energy, considered instrumental for closing the gap between the EU and its major competitors.⁷

During its 2003 Spring meeting, the European Council⁸ stressed the need to improve access to public finance in order to incentivize businesses to increase their R&D investments. It also recognized the important role defence R&D procurement had in promoting leading-edge technologies⁹ and re-stated that environmental innovations must be treated as a priority in EU's public research and innovation strategy.¹⁰

In 2004, the European Council remarked that the EU had not booked sufficient progress towards reaching the 3 % investment target, but reiterated its political commitment therefore. Among others, it called upon Member States to use targeted public R&D investments in order to catalyze greater private investments in R&D.¹¹

⁵ Council 2001, paras 19–21.

⁶ Council 2002, paras 47–48.

⁷ Council 2002, paras 12, 29.

⁸ Council 2003, 14.

⁹ Council 2003, 4.

¹⁰ Council 2003, 25.

¹¹ Council 2004, 2.

In 2005, faced with a negative mid-term evaluation of the Lisbon Strategy targets,¹² the European Council explicitly added public procurement to the array of innovation policy instruments.¹³ This addition was prompted by the French, German and UK governments' request to upscale the use of public procurement in support of innovation.¹⁴ Investments in eco-technologies in the energy and transport sectors were considered particularly suitable to be stimulated through public procurement.¹⁵

In the following years, the European Council continued to back the commitments made in Lisbon specified areas of European strategic interest: ICT, eco-innovations, and the energy sector (energy efficiency, sustainable energies and low emission technologies),¹⁶ eco-innovations to combat climate change (sustainable safe low carbon technologies, renewable energies, energy and resource efficient technologies).¹⁷

In 2008, in the face of the unraveling economic crisis, the Spring European Council reinforced its support for a coordinated innovation policy deployment. The Council concluded that innovation was more than ever needed to deal with growing long-term challenges, in the context of restricted financial resources.¹⁸ The Council underscored the need to support innovative SMEs by creating a EU-wide market for venture capital and by enabling their participation in public procurement.¹⁹

Based on the 2007 Innovation Union Scoreboard, which concluded that EU performs significantly weaker than competing economies in areas such as availability of early stage venture capital and public R&D expenditure,²⁰ the European Council strengthened its commitment to invest more, but also more effectively, in research, such as to achieve the 3 % R&D investment target. Public procurement was again mentioned as one of the instruments capable to contribute to deployment of desired innovations.²¹

In 2010, the European Council endorsed the new Europe 2020 Strategy and reconfirmed its political commitment to the Lisbon 3 % target,²² while in 2011 it

¹² Commission 2005b.

¹³ Council 2005, paras 13, 19.

¹⁴ French, German, UK Governments 2004.

¹⁵ *Ibid.*, 6.

¹⁶ Council 2006a, paras 22, 34.

¹⁷ Council 2007, 11–2.

¹⁸ Council 2008.

¹⁹ *Ibid.*, paras 7, 11.

²⁰ The EU-US gap in public R&D expenditure was reportedly increasing and the GDP share of early-stage venture capital in the US was still more than 50 % higher as compared to the EU. See European Innovation Scoreboard 2007, p. 17; Pro Inno Europe 2007.

²¹ Council 2008.

²² Council 2010, 11.

invited the Commission to explore the feasibility of a Small Business Innovation Research Scheme, with the purpose of lifting remaining obstacles to the cross-border operation of venture capital.²³

The European Council of March 2012 acknowledged for the first time the need to put demand-led innovation at the core of Europe's R&D policy and expressly mentioned the need to make more efficient use of pre-commercial procurement.²⁴ A year later, in its October 2013 meeting, the Council highlighted the need to support commercialization of valuable research projects and suggested to this end a *'better-coordinated use of tools such as grants, pre-commercial public procurement and venture capital, and an integrated approach from research and innovation to market deployment.'*²⁵ In the defense sector, the Council invited Member States to focus on dual-use technologies (e.g. key enabling technologies and energy efficiency technologies) and to ensure uptake through pooled procurement.²⁶ Increased participation of SMEs in the defense supply chain was singled out as a significant source of innovation, and the Commission was requested to facilitate SMEs access to defense and security markets.²⁷

In the followings years, pressing issues such as the Greek economic crisis, migration and security against terrorism and most recently Great Britain's decision to exit the EU captured policy-makers' attention, and innovation received less emphasis. However, the Council mentioned in 2015 again the importance of innovation in addressing energy and climate-related challenges and singled out renewables, electricity storage and carbon capture and storage, energy efficiency in the housing sector and sustainable transport²⁸ as well as digital technologies.²⁹

In conclusion, the European Council provided since 2000 broad guidance on the policy action needed to improve EU's innovative capabilities and transform Europe into the most competitive and dynamic economy in the world. It underlined the need for an integrated and coordinated approach between EU's and Member States' actions in support of research and innovation. Among the various conditions needed to leverage private investments in research and innovation, the European Council mentioned the need to increase not only the amount but also the efficiency of public R&D investments. In this context, it explicitly pointed at the need for public authorities to purchase those innovations which present social benefits.

Following the lead of competing economies such as the US, the European Council proposed to increase public R&D and innovation investments up to 1 % of the GDP. The European Commission was asked to guide Member States and

²³ Council 2011, 8.

²⁴ Council 2012, para 18.

²⁵ Council 2013a, para 16.

²⁶ Council 2013b, 8.

²⁷ Council 2013b, 9.

²⁸ Council 2015a.

²⁹ Council 2015b, para 12.

monitor the amount and impact of their investments. The aim was to deploy public R&D investments in such a way as to leverage increased private R&D and innovation investments up to an additional 2 % of GDP. The Innovation Union Scoreboard was initially designated to comparatively assess the achievement of these targets by the EU Member States. Recently, the Commission has developed the Innovation Output Indicator, a complementary tool to the Innovation Union Scoreboard, aiming to measure the innovation performance of a country in terms of output.³⁰ These assessment tools do not distinguish between the impact of various types of policies, but look at their concurrent effect. Another recently adopted instrument, the Research and Innovation Observatory assesses each member state research and innovation policy and provides specific recommendations for improvement.³¹

PCP was not mentioned as a distinct policy instrument before 2012. However, the guidance offered before 2012 left sufficient leeway for the European Commission to promote and finance PCP. The express reference to PCP in 2012 seems to indicate increased political support for its deployment as distinct innovation policy instrument.

2.3 European Commission's Actions

2.3.1 *Actions to Promote Public Procurement as Innovation Policy Instrument*

Since 2000, the European Commission gave concrete form to the political guidance offered by the European Council. In 2002, it started to pay attention to the potential of public procurement as an important instrument to stimulate private actors to invest in R&D and innovation. The Commission underlined in a number of communications the importance of public procurement as funding source particularly for some industries (such as transport, communications and defence) as well as the need to overcome fragmentation of EU procurement markets in areas where scale is necessary to incentivize innovators to invest in high-risk R&D.³² In 2003, the Commission included public demand in its Research Investment Action Plan, as an instrument to raise R&D expenditure to the 3 % Barcelona target.³³

Besides explicitly identifying public procurement as a suitable policy instrument to leverage private R&D investments, the Commission introduced new possibilities to procure innovative products into the 2004 Procurement Directives, by creating an equal footing for formal standards and functional specifications, and

³⁰ Commission 2013.

³¹ See <https://rio.jrc.ec.europa.eu/en>.

³² Commission 2002, 14.

³³ Commission 2003.

by introducing the competitive dialogue.³⁴ Subsequently, the European Commission provided clarity regarding the possibilities to procure innovative solutions in compliance with the legal framework.³⁵

The Commission concluded that public procurement may incentivize private investment in R&D, based on a number of funded studies (outlined below). The commissioned studies underlined the importance of customers 'needs and risk-taking attitudes in influencing private firms' decisions to invest in R&D and innovation, and warned that the lack of focus on public technology procurement constituted a missed opportunity towards achieving the 3 % target.

Experts advised the European Commission, among others, to set targets for Member States regarding public procurement of R&D and to stimulate the establishment of analogues to the US SBIR.³⁶ The same conclusions were validated by yearly EU surveys among private actors. These surveys repeatedly reported that businesses who had the opportunity to offer innovations in publicly tendered contracts, were the most likely to increase their innovation budgets. At the same time, public procurement tenders reportedly did not offer sufficient opportunities to bid innovative solutions, while in the few cases where they did, large companies had a higher chance to win the award.³⁷

Some of the most representative studies contracted by the Commission on this topic were the Kok Report which pointed out the possibility to use public procurement to offer lead markets to innovative products³⁸ and the Wilkinson Report which re-confirmed the need for demand-side innovation policy.³⁹ But the Aho Group Report, which was commissioned by the EU leaders in the aftermath of their Spring Summit in 2006⁴⁰ provided the most important input for the EU broad-based innovation strategy formulated by the European Commission in the same year.⁴¹ The Aho Group underlined that the demand-side was concomitantly the most promising and the most under-represented approach in the EU innovation policy. The Group argued for 4 priority actions: creating innovation friendly markets, strengthening R&D resources, increasing structural mobility and fostering a culture that celebrates innovation. The EU Council endorsed the conclusions of the Aho Group and the possibility of using public procurement to stimulate demand for innovation was reiterated at the Ministerial Meeting organized during the Finnish Presidency in 2006.⁴²

³⁴ Arts 23 and 29 Directive 2004/18/EC.

³⁵ Wilkinson et al. 2005.

³⁶ Gheorghiou et al. 2003, Business Decisions Limited 2003.

³⁷ Gallup Organization 2009, 59.

³⁸ Kok et al. 2004.

³⁹ Wilkinson et al. 2005.

⁴⁰ Aho et al. 2006.

⁴¹ The 2006 innovation strategy is the predecessor to the current EU innovation policy (Innovation Union Flagship).

⁴² Edler and Georghiou 2007, 958.

The EU broad-based innovation strategy adopted by the European Commission in September 2006, proposed to improve access to finance in support of innovation, to create an innovation friendly regulatory environment and to create demand for innovation as well as to reinforce the activities of institutions relevant for innovation, including the links between research institutions and industry.⁴³ Amongst the instruments to achieve these goals, public procurement was mentioned. By purchasing innovation, the public sector may stimulate the dissemination of innovations onto the private market through the power of example, while at the same time improving the quality and productivity of the public services. The Commission considered that, in order to achieve a significant impact, the focus should lie on the purchase of innovative products that have the potential to improve public service and for which the public sector is an important customer (such as ICT). Moreover, the need to stimulate all forms of innovation (technological, organizational and innovation in services) was underscored.⁴⁴

In 2006, the Commission also contracted a broad study to assess the practical uptake of innovation in public procurement in EU countries. On the basis of this study, the Commission drafted in the spring of 2007 the Handbook on Public Procurement for Innovation, to provide legal certainty on the possibilities offered by the procurement directives to procure innovative products.⁴⁵

By 2006, the Commission had mainly focused on the procurement of commercially available innovative products and not on the procurement of R&D services. Its measures had mainly focused on guidance and improvement of the legislative framework. In 2006, the Commission added pre-commercial procurement to its agenda and started to explore its potential. The concrete steps are described in the next Sect. 2.3.2.

In 2007, the Commission adopted a more hands-on approach and brought policy-makers from different Member States together in the Lead Market Initiative ('LMI'), with the purpose of deploying demand-side measures (e.g. public procurement, standardization and regulation) in a coordinated manner. LMI would be deployed in several sectors (eHealth, protective textiles, sustainable construction, recycling, bio-based products and renewable energies) which were already supported by means of supply-side measures. In addition, LMI envisaged support for Member States in the development of innovation-oriented procurement policies.⁴⁶

Following the adoption of demand-side instruments by several Member States in their innovation policies, the Commission contracted in 2011 a study to investigate the trends and challenges in demand-side innovation policies in Europe. The study concluded that there was a tendency in the EU Member State to focus on public procurement and pre-commercial procurement in their innovation policies, but that it was *'still too early to say whether demand-side type of activities meet*

⁴³ Council 2006b, 2.

⁴⁴ Commission 2006, 11.

⁴⁵ Commission 2007c.

⁴⁶ Commission 2007a.

the expectations'.⁴⁷ The study signalled the importance of 'intelligent learning' as compared to 'policy copying' as well as the importance of experimentation with demand-side policies, before assessing their positive effects.

Another study commissioned in 2011, warned that Europe needs to significantly improve the *quality* of R&D and innovation expenditure in order to close the innovation gap with its major competitors (South Korea, Japan and the US). The study argued that a successful innovation policy requires supranational coordination and governance.⁴⁸ Among other solutions, the Report pleads for '*the use of pre-commercial and early-commercialization procurement*' and for extended competences of the European Commission, beyond sharing practices and granting funds.⁴⁹

The new Public Procurement Directives represent the most recent legislative initiative of the Commission to simplify the deployment of innovation procurement (including pre-commercial procurement, procurement of innovative solutions and innovation partnerships).⁵⁰ The most important changes supposed to encourage the innovation supportive practices are: the simplification of the grounds for application of the competitive dialogue procedure and the competitive procedure with negotiation; and the legal guidance on the applicable rules in case of cross-border procurements. The new directives also introduce the procedure of Innovation Partnerships, which is meant to stimulate contracting authorities to engage in procurements of R&D. For a critical analysis of the legislative choices concerning this instrument and its relation to PCP, see Chap. 7.

2.3.2 Actions to Promote PCP Within the EU Innovation Policy

Until 2006, the European Commission had mainly focused on the use of commercial public procurement to encourage private actors to invest more in R&D. The procurement of innovative products (whether new to the market or to the public purchaser) was expected to give private actors the trust that follow-up innovations would find a market in the public sector. This would potentially nudge them towards assuming more risks and investing more in R&D.

The European Commission decided though to add a new dimension to the use of public procurement as innovation policy instrument. Already in a Communication of 2005 the Commission announced its intention '*to raise awareness of the benefits of re-orienting public procurement towards stimulating*

⁴⁷ Technopolis 2011.

⁴⁸ Ernst & Young and CEP 2011, 14.

⁴⁹ Ernst & Young and CEP 2011, 17.

⁵⁰ Directive 2014/24/EU and Directive 2014/25/EU.

research'.⁵¹ In 2006, the European Commission put together a group of experts to investigate the need to stimulate R&D activities in the ICT sector through demand-side policies.⁵²

The ICT sector was singled out as a dynamic and innovative sector that is responsive to public demand, that is of common European interest and that can generate spill-over effects and enable innovative capabilities into other sectors of the economy.⁵³ It was also considered that increasing R&D investments (both public and private) to levels comparable to those of competing economies such as the US, could leverage the competitive advantages Europe held in certain ICT markets.⁵⁴ Although the scope of PCP was later broadened beyond its initial focus, ICT continues to be suitable focus area. On the one side, the ICT sector holds the potential to provide revolutionary solutions for the sustainable economy of the future⁵⁵ and on the other side, needs public steering towards environmentally friendly choices.⁵⁶ In the context of the economic slowdown after 2008, innovative ICT solutions were also seen as a source of potential efficiency gains and spending cuts in the public sector.⁵⁷

The expert group reported that PCP is a suitable instrument to pull innovative solutions from the R&D phase into the commercialization phase in the ICT sector as well as elsewhere.⁵⁸ The conclusion reached by the experts motivated the Commission to support the implementation of PCP as innovation policy instrument.⁵⁹

The PCP Expert Group mentioned several reasons why use of public procurement of R&D was considered necessary.

⁵¹ Commission 2005c, 8.

⁵² PCP Expert Group 2006.

⁵³ ISTAG 2006, Aho et al. 2006.

⁵⁴ Commission 2009, 3. The Commission underlines the world leadership Europe holds in ICT application markets such as telemedicine and medical equipment, in automotive and aerospace electronics, and in embedded ICT. See also Joint Research Centre 2008.

⁵⁵ The ICT sector generates more than a fifth of all patents in Europe. See Joint Research Center 2008.

⁵⁶ In 2009, the ICT sector and ICT products were considered responsible for about 2 % of global GHG emissions and this harmful contribution was expected to grow quickly. See also OECD 2009.

⁵⁷ For example, by making significant savings in energy possible, in sectors such as transport, buildings and in manufacturing, ICT technologies are expected to help reduce 20 % of the CO₂ emissions in Europe by 2020. See Commission, 'A European Economic Recovery Plan' COM 2008 800 final. See also COM 2009, 116.

⁵⁸ PCP Expert Group 4.

⁵⁹ These reasons could also be valid for the deployment of PCP in other sectors.