

Mutual Learning Exercise on Innovation Related Procurement

Monitoring, evaluation and impact
assessment of innovation related
procurement

Thematic Report No D



February - 2018

Mutual Learning Exercise on Innovation Related Procurement - Monitoring, evaluation and impact assessment of innovation related procurement - Thematic Report No D

European Commission
Directorate-General for Research and Innovation
Directorate Policy Development and Coordination
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Manuscript completed in February 2018.

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SUMMARY

The main purpose of evaluation is to deliver policy intelligence, providing accountability, learning, and guidance. Evaluating public policies is a necessary step because any government intervention can only be justified if it has a complementary and positive effect, which would not have taken place without the policy. Even if there is evidence from some countries having started to monitor and assess their innovation-related procurement activities, we are still far from a common strategic framework for the practice of innovation-related procurement. In this report, we provide a conceptual framework for measuring and evaluating innovation-related procurement, defining the key concepts and the dimensions considered within it. The report also specifies the indicators that could best help to measure the key dimensions considered in the previous framework.

NOTE

This text is one of four thematic reports as listed below. They build the basis for the final report of the Mutual Learning Exercise (MLE) on innovation-related procurement, which was carried out between 2017 and 2018.

- Thematic Report Topic A | Developing strategic frameworks for innovation-related public procurement (Charles Edquist)
- Thematic Report Topic B | Capacity building for innovation-related procurement: evidence and lessons learned (Eva Buchinger)
- Thematic Report Topic C | Financial mechanisms in support of innovation-enhancing procurement and pre-commercial procurement (Gaynor Whyles)
- Thematic Report Topic D | Monitoring, evaluation and impact assessment of innovation related procurement (Jon Mikel Zabala-Iturriagoitia)

ACKNOWLEDGMENTS

I would like to thank the European Commission policy officer Xavier Vanden Bosch; the MLE expert team members Charles Edquist, Gaynor Whyles and Eva Buchinger; the quality reviewer Jari Romanainen; the coordinator Viola Peter; Anne Müngersdorff, and last but not least, the participating country representatives for their inputs and highly valuable comments.

1 INTRODUCTION

This thematic paper focuses on the monitoring, evaluation and impact assessment of innovation-related procurement, which includes innovation-enhancing procurement (IEP) and pre-commercial procurement (PCP). If we are to deal with monitoring, evaluation and impact assessment, then measurement is an inevitable step in this direction, since no monitoring, evaluation or impact assessment can be done if it is not based on some sort of measurement (OECD, 2016).¹ In this regard, conceptual frameworks may provide an understanding of what should be measured and how to make sense of this. This report provides a preliminary framework to help Member States and the EU measure their IEP and PCP initiatives.

The thematic paper on Topic A in this Mutual Learning Exercise (Edquist, 2017) suggested a typology of innovation-related procurement made up of four different types of intervention.² Accordingly, in the context of this report, and for the coherence of the whole MLE, the structure presented in Topic A will also be followed.

Monitoring, evaluation and impact assessment of innovation-related procurement is a relatively new field. This thematic report presents a snapshot of the main issues and discussion points to date. Its contribution to the debate helps to define and refine future activities, including research, implementation as well as learning and development steps.

Of course, creating a comprehensive framework that is able to measure (i.e. monitor, evaluate and assess the impact) IEP and PCP cannot be achieved with a single report. Further efforts to flesh out and implement the framework introduced in this report will be required.³ However, this is not something new. The OECD followed a similar path when it started measuring R&D in the 1960s (i.e. Frascati Manual) and when the OECD/EU started measuring innovation in the 1990s (i.e. Oslo Manual).⁴ This work has been vital in ensuring that R&D and innovation-related data is consistent and comparable across countries, industries, types of R&D and innovation, and over time. We now face a similar challenge, but can draw on their experience for inspiration.

This thematic report and framework offers a common language and definitions to move forward. The next section provides a preliminary state-of-play covering innovation-related procurement in Europe. Section 3 defines the key concepts and dimensions that need to be considered for the evaluation of innovation-related procurement initiatives. It then applies these dimensions to a framework that provides the basis for both IEP (direct, catalytic, and functional) and PCP. Lastly, Section 4 concludes by highlighting the topics/challenges discussed in the Vienna meeting in September 2017, which could guide future developments in the measurement and evaluation of innovation-related procurement.

¹ In this report, when we refer to the term measuring, it includes monitoring, evaluating and assessing the impact.

² In that Topic A report, 'Innovation-related procurement' is used as an overriding umbrella term for all four categories of innovation procurement. Direct innovation procurement, catalytic innovation procurement and functional regular procurement are grouped under the heading innovation-enhancing procurement (IEP). As a result, as discussed in Edquist (2017), Innovation-related Procurement = IEP+PCP.

³ The project 'Study on the strategic use of innovation procurement in the digital economy' (SMART 2016/0040) run by DG CONNECT together with PwC is another interesting step in achieving this aim.

⁴ It should be noted that revisions of the Frascati and Oslo Manuals, expected to be released during 2018, include some methodological developments as regards measuring IEP and PCP.

2 STATE-OF-PLAY ON THE MEASUREMENT OF INNOVATION-RELATED PROCUREMENT

The OECD has recently provided some preliminary evidence on business participation in procurement contracts, and on whether firms undertook some innovation activity as part of the procurement contract. This information is gathered from the 2012 Community Innovation Survey in those EU-OECD countries that introduced some experimental questions on these matters in their innovation surveys. Table 1 displays the share of contracting firms supplying services to domestic and/or foreign public-sector organisations that report to have undertaken some innovation activity, by type of innovation requirement for the period 2010-12. For instance, 15.7% of contractors in Germany undertook some innovation activity as part of the procurement contract, whereby 8.1% of contracting firms were formally required to do so as part of the contract.

Table 1 Firms introducing an innovation as part of a public procurement contract by type of requirement, as a percentage of contracting firms (2010-2012)

Country	Innovation always required (%)	Innovation never required (%)	Innovation both required and not required (%)	TOTAL (%)
Austria	3.77	13.09	3.60	20.46
Belgium	7.04	11.14	0.99	19.17
Germany	8.10	7.21	0.43	15.74
Estonia	4.21	6.48	3.75	14.44
Finland	4.79	14.78	2.87	22.44
France	4.45	17.25	5.28	26.98
Greece	2.26	8.19	4.37	14.82
Italy	9.20	7.58	1.72	18.5
The Netherlands	9.84	9.03	2.15	21.29
Norway	7.17	11.62	2.07	20.86
Poland	3.63	13.83	0.00	17.46
Portugal	6.91	15.87	3.82	26.6
Slovakia	7.99	9.09	2.90	19.98
Slovenia	6.99	10.32	1.66	18.97

Source: OECD⁵

The observatory of public-sector innovation,⁶ also introduced by the OECD, has recently started to gather evidence on the breakdown of government funds into contracts (payment for a service) and grants, the level of satisfaction of the procurement contracts or the role of procurement in innovation activity. This observatory collects and analyses experiences of public-sector innovation to provide practical advice to countries on how to make innovation-related procurements work. The observatory's online platform is a place where individuals interested in public-sector innovation can access information, share their own experiences and collaborate with others.

⁵ See <http://www.oecd.org/science/inno/procurement-for-innovation.htm>

⁶ See <https://www.oecd.org/governance/observatory-public-sector-innovation/home/>

The European Commission has also introduced a Single Market Scoreboard in which the performance of public procurement is assessed.⁷ In this regard, the latest revision of the Oslo Manual will include a new chapter on the “external factors influencing innovation in firms”, in which firms’ innovation activities are distinguished according to the type of customer (B2B, B2C, B2G) and the main customer by level of government (national, regional, local).

Similarly, the Eurobarometer also provides some information about the relationship between public procurement and innovation (European Union, 2015). It reviews the proportion of companies involved in public procurement and discusses the extent to which innovative goods or services have been developed as a result of public procurement contracts for the period 2012-2015. The evidence gathered in the Eurobarometer shows that 19% of firms say they have won at least one public procurement contract in that period, while 15% indicate they have submitted at least one tender without success. However, the vast majority of companies (62%) have never submitted a tender nor investigated opportunities to bid on a public procurement contract. The Eurobarometer also reveals that the firms that have introduced innovative goods or services are more likely to have won at least one public procurement contract. In this sense, 38% of the companies that have won a public procurement contract say they included innovation as part of it. The large majority of firms, however, state that they have not included any innovation in their bids (59%). The results of the Eurobarometer also show that companies with 50-249 employees are the most likely to include innovations in a winning public procurement contract (53% of the firms).⁸ These results are consistent with those provided by the OECD (see Table 1). Thus it can be stated that about 15-19% of firms that have won a public procurement contract included innovations. It can also be concluded that the indicators used by the OECD to measure innovation-related procurement include the share of firms that have participated in public procurement procedures and the share of firms that have introduced innovations through their implementation. No other analysis as regards the type of innovations or the results achieved are analysed so far.

As the OECD evidence indicates, the majority of countries support innovation-related procurement either by developing action plans or as part of broader strategies (OECD, 2016: 13). However, as we will illustrate in this section, measuring the results and the impact of innovation-related procurement still appears to be an area that countries pay little attention to (ibid: 46). Only a limited number of countries have systems in place to measure their innovation-related procurement policies. According to the OECD (2016:47), this is because of the amount of work involved with such new concepts. In some cases, countries stated there was no actual ‘policy’ to measure because innovation-related initiatives were merely conducted in one-off projects. In other cases, when countries had an explicit innovation-related procurement policy, countries stated that it was too ‘new’ to be monitored in a meaningful way. This acknowledges the need for better framework conditions, and justifies this thematic report. As we will see in this section, targets are common means to support innovation-related procurement. However, very few countries have set targets related to the monitoring of innovation-related procurement, and when

⁷ See: http://ec.europa.eu/internal_market/scoreboard/performance_per_policy_area/public_procurement/index_en.htm

⁸ The share of companies between 1-9 employees that included innovations as part of their public procurement contracts amounts to 36%, while the share of companies between 10-49 employees that included innovations as part of their public procurement contracts amounts to 43%. (European Union, 2015: 99).

set, these are mostly prescribing a share of public procurement value that should be conducted following innovation-related procurement logic (ibid).

In this section, we aim to provide evidence of the state-of-play at the European level, getting some preliminary information from the participating countries in the MLE on what and how they are doing in relation to the measurement of innovation-related procurement. The information below results from the Member States participating in the MLE by means of a **questionnaire** (see Appendix I) and follow-up discussion. This information is also **complemented** with the analysis made by the OECD (2016) in relation to the measurement of innovation-related procurement in various OECD countries (see Appendix III).

2.1 State-of-play concerning the evaluation of innovation-related procurement in participating Member States

A questionnaire was circulated to all participating Member States in the MLE (see Appendix II). The purpose of the questionnaire was to seize the state-of-play in the participating countries as to the measurement of their innovation-related procurement policies (i.e. to know what and how the Member States are doing in relation to the evaluation, monitoring and impact assessment of their innovation-related procurement policies). Responses were gathered from eight of the participating Member States (i.e. Portugal, France, Estonia, Austria, Germany, Greece, Spain and Sweden). Participating countries that did not respond to the survey indicated that innovation-related procurement and its measurement still remains to be developed. Specific questions could not be answered due to a lack of prior experience.

Among the countries that responded to the questionnaire, two types of profiles can be distinguished. On the one hand there are those countries in which procurement activities are the responsibility of an agency (e.g. Portuguese Innovation Agency, KOINNO in Germany, and the National Agency for Public Procurement in Sweden) and on the other, those countries in which procurement policies are conducted within ministries (e.g. Ministry of Economy and Finance in France, Ministry of Economic Affairs and Communications in Estonia, Federal Ministry for Transport, Innovation and Technology and Federal Ministry of Science, Research and Economy in Austria, Ministry of Economy and Development in Greece, and Ministry of Economy, Industry and Competitiveness in Spain).

2.1.1 General context for policy evaluation

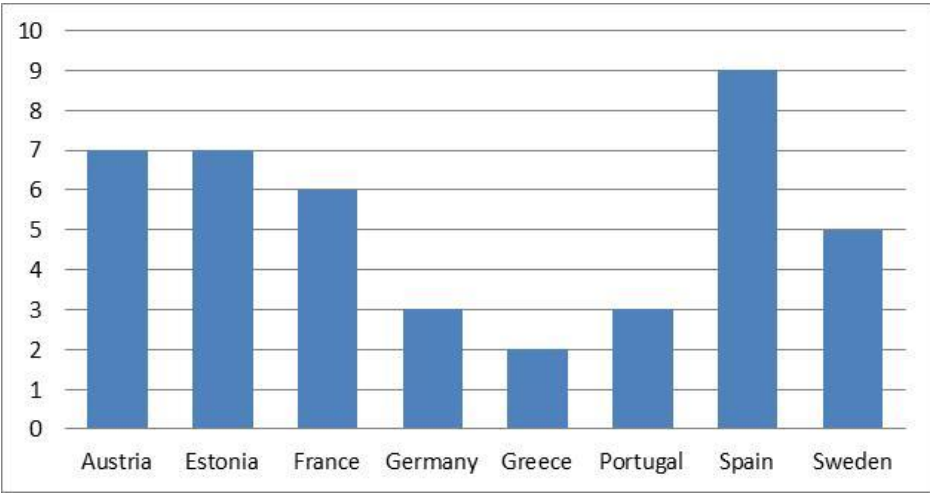
The first block of survey questions aimed to assess the general context for policy evaluation in the Member States. Countries were asked about the existence of an evaluation culture (i.e. prior evaluation experience) in innovation-related procurement. Marked differences can be observed across the eight Member States with documented experience in the evaluation field. Some countries indicated that policies dealing with innovation-related procurement are usually part of a larger strategic context (i.e. national innovation policy or procurement strategy), and hence, innovation-related procurement policies are followed up and evaluated as part of a larger package.

For example, the Austrian Public Procurement Promoting Innovation (PPPI) Action Plan⁹ is part of the Austrian Strategy for Innovation Procurement. The PPPI plan was adopted in 2012 by the Council of Ministers, and its political responsibility lies with the Federal Ministry of Science, Research and Economy, and the Federal Ministry for Transport, Innovation and Technology. Its mission is to introduce innovation procurement as part of a policy mix,

⁹ See: https://era.gv.at/object/document/1485/attach/PPPI_Policy_Brief_2014-10-27.pdf

increasing the share of public procurement volume (currently €43bn/per year used for innovation support) and supporting modernisation efforts in the public sector and infrastructure by procuring/using innovations.

Figure 1 Do you consider your country has an evaluation culture (i.e. experience in evaluation) in innovation-related procurement?

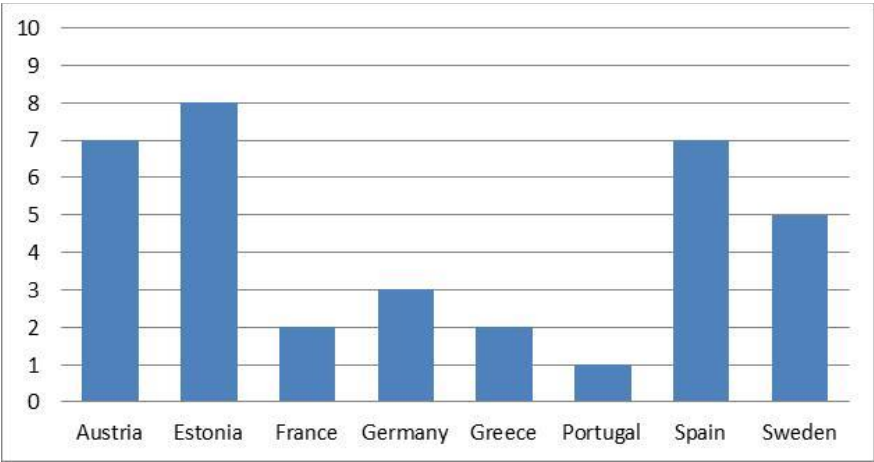


Source: own elaboration

Note: 0 means total disagreement and 10 total agreement

A very similar pattern to the previous question is observed when Member States were asked about the extent to which innovation-related procurement policies (IEP and PCP) implemented in their home country are evaluated regularly. Germany, Austria and Sweden indicated that the activities of their procurement agencies are followed up and evaluated, quantitatively in some cases and qualitatively in others. It is noteworthy that these three countries manage innovation-related procurement policies through innovation agencies.¹⁰

Figure 2 Are the innovation-related procurement policies implemented in your country evaluated regularly?



Source: own elaboration

Note: 0 means total disagreement and 10 total agreement

- **Austrian** procurement law includes statistical obligations to be reported to the Federal Ministry of Science, Research and Economy. Statistics Austria estimates the

¹⁰ The organizational and institutional set-up to pursue innovation-related procurement in the participating countries is discussed in thematic paper Topic A (Edquist, 2017).

share of PPPI to total procurement volume in the government sector to be between 2.3% and 3.3%.

The monitoring of the PPPI Action Plan is done by council meetings twice a year, performance indicators of the PPPI service centre,¹¹ and a bi-annual report on innovation procurement.

- Despite bi-annual performance evaluations of KOINNO's activities in **Germany**,¹²¹³, there is no direct monitoring of the purchases, nor the extent to which innovation may play a role in it. KOINNO's current evaluation criteria includes the quality of information provided through the web-platform, intensity and quality of consulting services provided, degree of awareness among public procurement authorities, and number of innovative public procurement projects.¹⁴
- Since December 2008, the **Netherlands** has included performance indicators on innovation-related procurement (e.g. number of innovation procurement tenders organised by the central government). The focus is, however, more on the procurement process than on outcomes.
- In **Spain**, only the INNODEMANDA/INNOCOMPRA programmes have been partially assessed.

The next question in the survey referred to something partially addressed in the Topic B thematic report (Buchinger, 2017), the capabilities required for the evaluation of innovation-related procurement. In particular, participating Member States were asked about the capabilities and resources that they consider most relevant for effective policy evaluations. The answers provided suggested the following necessary capabilities for innovation-related policy evaluation:

¹¹ See: <https://innovationspartnerschaft.at/>

¹² See: http://de.koinno-bmwi.de/system/publications/files/000/000/363/original/Evaluierung_des_Kompetenzzentrums.pdf?1464690599

¹³ See: <http://en.koinno-bmwi.de>

¹⁴ Most measures are input-related, and mostly of qualitative nature. Output- and outcome-related measures are not yet available.

Table 2. Main capabilities and resources required for the evaluation of innovation-related procurement

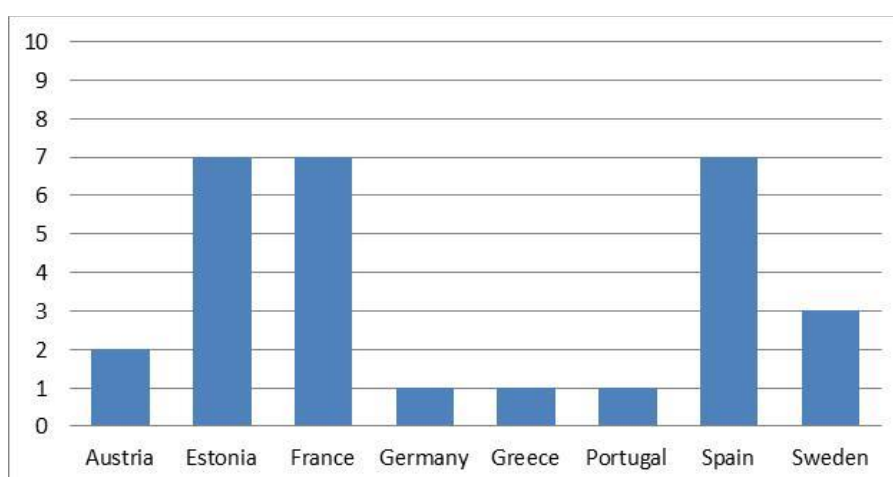
Clear political mandate	<ul style="list-style-type: none"> • Evaluation needs to be regarded as a key and necessary stage of policy formulation and implementation
Qualified staff	<ul style="list-style-type: none"> • Staff (i.e. experts) fully devoted to policy evaluation activities • Expert knowledge of measures, tools, regulations and directives related to innovation-related procurement
Regularity	<ul style="list-style-type: none"> • Possibility to conduct evaluation exercises on a regular and systematic basis
Information system	<ul style="list-style-type: none"> • Availability of an information system (e.g. e-procurement platform) with all project records • Acquisition, validation, management, use and analysis of data
Evaluation basis	<ul style="list-style-type: none"> • Maintenance of a database for frequent and transparent evaluations • Presentation of evaluation findings
Policy response	<ul style="list-style-type: none"> • How to derive corrective actions as a result of an evaluation exercise
Knowledge networks	<ul style="list-style-type: none"> • Create networks of experts across Member States to continue mutually learning and improving domestic evaluation exercises and the policies thereof

Source: own elaboration

On the subject of skills and expertise, Figure 3 below shows a general lack of trained public employees, which some Member States attribute to a lack of formal systems or tools for evaluating innovation-related procurement (see Table 2). The three countries indicating agreement with the question – and thus having trained civil servants – are countries where innovation-related procurement is led by ministries.

In further steps, it would be useful to know the extent to which the relevant capabilities/resources, as indicated in Table 2, are actually available or missing. This would provide a clear means to develop further actions by the Member States to improve their innovation capabilities.

Figure 3 Are public (civil) servants in your country trained to develop/design/interpret evaluations of public innovation-related procurement policies?



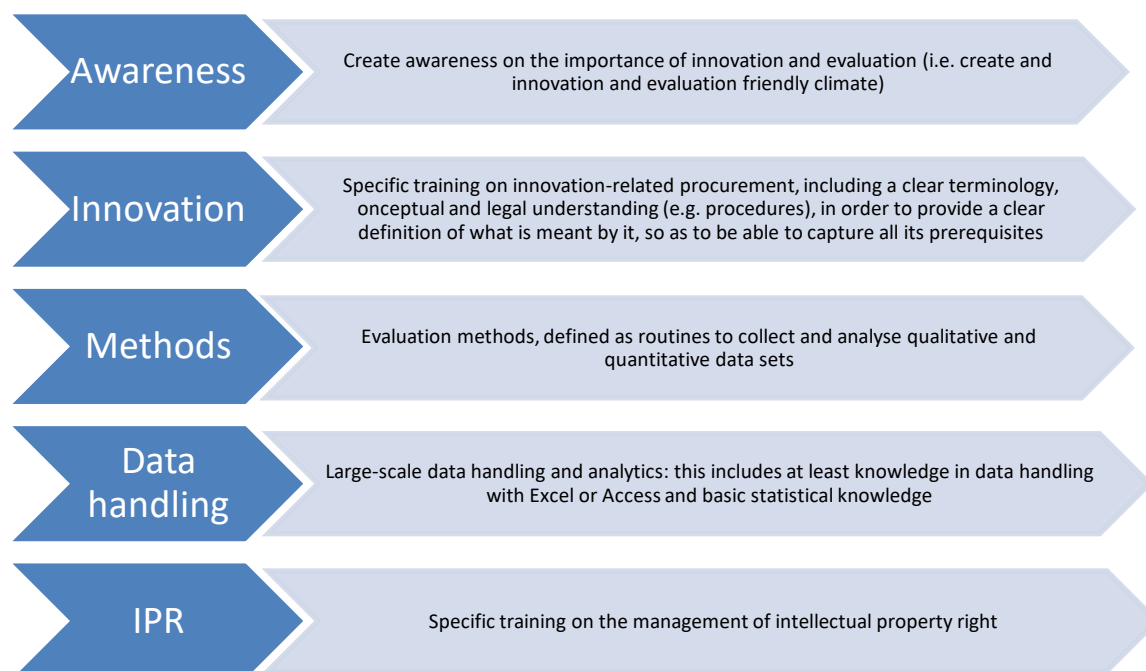
Source: own elaboration

Note: 0 means total disagreement and 10 total agreement

In order to improve the evaluation capabilities in innovation-related procurement, the Member States pointed to a number of areas in which additional training is required (see Table 3). Some of these areas refer to the general picture of policy evaluation, while others

are more specific to the particular evaluation of innovation-related procurement. Training, for example, is likely to have limited impact unless accompanied by other key monitoring and evaluation fundamentals such as a comprehensive e-procurement platform with all project records, etc.

Table 3. Areas in which additional training is required to improve the evaluation capabilities of innovation-related procurement



Source: own elaboration

2.1.2 Design of the evaluation

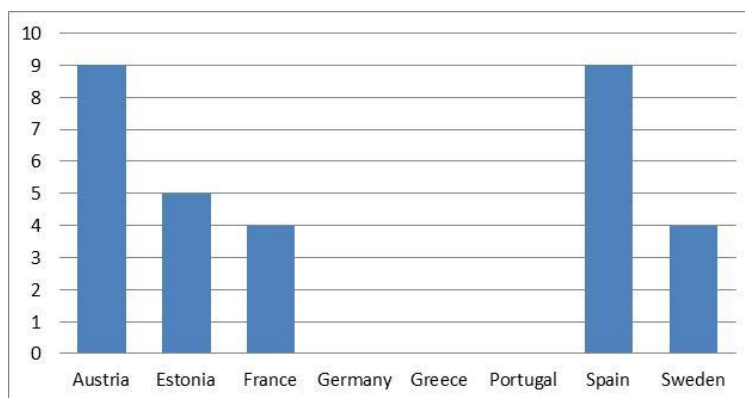
Most of the participating countries in the MLE indicated that two major types of stakeholders participate in the design of the evaluation of innovation-related policies:

- policy officers, experts and programme managers in charge of innovation-related policies in ministries and agencies,
- experts and networks of specialised public bodies or organisations engaged in evaluating innovation-related procurement.¹⁵

But does the design of innovation-related policy evaluations take into account lessons learned in previous evaluation exercises? The jury is still out on this one. Despite efforts to date, many countries believe more experience is still needed on evaluation, in general, and on the evaluation of innovation-related procurement, in particular. In Germany, lessons can only be taken from the first evaluation round of innovation-related procurement initiatives. In Sweden, it is argued that learning from previous experiences is more helpful when new (innovation) policies and initiatives are being designed, whether the learning experience comes from formal evaluation exercises or not.

¹⁵ An example is provided by the Bundeswehr University in Munich, which cooperated with KOINNO in the evaluation of innovation-related procurement. The details about the role played by the Bundeswehr University were discussed in the Frankfurt meeting (see Buchinger thematic paper, 2017).

Figure 4 Do you consider the design of evaluations of innovation-related policies in your country take into account the learning(s) observed in previous evaluation exercises?

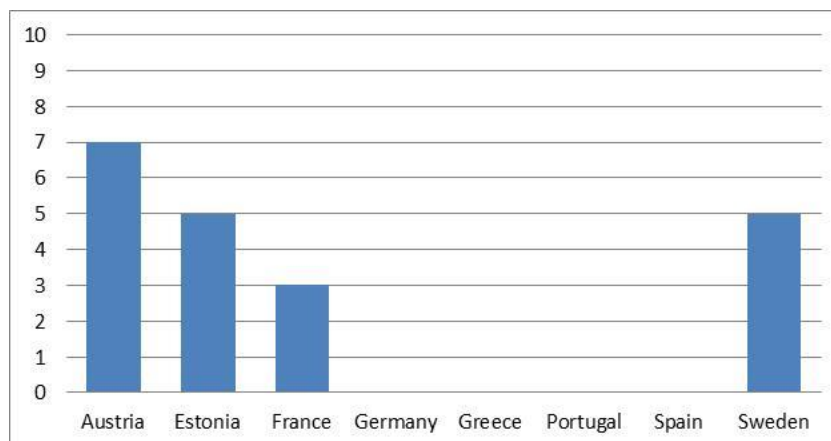


Source: own elaboration

Note: 0 means total disagreement and 10 total agreement

Member States were also asked about the extent to which they benchmark the evaluations of their innovation-related policies with those from other Member States. As can be observed in Figure 5, almost the same set of countries (except Spain) as in the question above have adopted such benchmarking processes. When we compare the two figures (4 and 5), the data suggests that, with the exception of Spain, all countries learn from their own but also outside evaluations. Slight differences exist in their uptake: all but Sweden emphasise their own evaluations for their learning experiences. This also relates to the need to create networks of experts across Member States who can learn from each other and improve the domestic evaluation culture.

Figure 5 Does your country benchmark evaluations of innovation-related policies with those from other Member States so as to also learn from these?



Source: own elaboration

Note: 0 means total disagreement and 10 total agreement

2.1.3 Implementation of the evaluation

The limited overall penetration of evaluation exercises in policy-making to date is no barrier to learning from the approaches to evaluating innovation-related procurement taken by several pioneering Member States.

In the **Austrian** case, the two ministries responsible for innovation-related procurement follow a holistic approach, aimed at evaluating the whole system of activities that have

been set to promote innovation-related procurement.¹⁶ This holistic evaluation started in July 2017 and carries on through to February-March 2018. The evaluation is carried out along three dimensions:

- Ex-ante: focusing on the governance/set-up as well as the monitoring system of innovation-related procurement (i.e. how the process is measured). It provides recommended measures to be taken into account.
- Ex-post:¹⁷ this includes,
 - measures taken on strategic and operational levels,
 - measures taken with regard to procurement law, and monitoring,
 - support offered by the service centre for innovation procurement (assessment regarding their relevance, goal achievement and impact),
 - governance/set-up of the service network on innovation procurement (including the central service centre, sectoral centres of competence and contact points as well as the council on innovation procurement),
 - state-of-play of the Austrian monitoring and benchmarking system of innovation procurement (pilot survey, performance indicators).
- International: the Austrian initiative on innovation-related procurement compared with similar initiatives from other (European) countries.

In **Estonia**, about 10 000 public procurement procedures take place on a yearly basis. The Ministry of Economic Affairs and Communications has started to monitor innovative procurements through an e-procurement register by the Ministry of Finance.¹⁸ In September 2017, a new measurement system in the e-procurement register was launched to identify those cases that can be marked as potentially innovative. The innovation-related procurement funding scheme is evaluated according to the number of funded projects per funding round. An innovation procurement procedure is defined according to these four questions:¹⁹

- Did you acquire research and development activity in the scope of this procurement?

¹⁶ Prior to the holistic evaluation, numerous interim assessments were conducted in Austria, particularly regarding support offered by the central service centre on innovation procurement. To date, interim evaluations were carried out in 2013/2014, 2015 and 2017/2018 (ongoing), in which the PPPI service centre and the implementation of the PPPI Action Plan were assessed. The results gathered (Buchinger and Schiefer, 2017) show that between 2012 and 2014, 33.6% of Austrian enterprises (10+ employees) had at least one contract with a public institution, 2.2% of Austrian enterprises had a contract with a public institution specifically requiring innovation, and 2.5% of Austrian enterprises had a contract with a public institution where innovation was not specifically required as part of the contract, but as a consequence of carrying it out (see also IOB, 2016).

¹⁷ The Austrian PPPI Action Plan covers various dimensions and indicators: share of innovative procurement in public procurement (i.e. IEP), share of procurement-oriented R&D (i.e. PCP), reducing environmental burden, reducing costs (within public entities), improving processes (within public entities), and improving public service quality (benefits for citizens).

¹⁸ In 2015, 80% of all procurement activity in Estonia was handled through this e-procurement register, and it is expected that, by 2020, 100% will be registered.

See: <https://www.rahandusministeerium.ee/et/riigihangete-poliitika>

¹⁹ The survey is available here: https://www.mkm.ee/sites/default/files/inno_26_eng.pdf

- Was the object of the procurement novel for the contracting authority as well as for the whole market in general?
- Was the solution procured in the scope of this procurement novel for the contracting authority?
- Did the procured solution make the work processes at the facilities of the contracting authority more effective?

In **France**, there are two evaluation processes for innovative purchasing. One refers to the assessment of the number of innovative enterprises benefiting from public procurement contracts, with a focus on SMEs. The other concerns the evaluation of the results of the purchases made. This second approach to the evaluation does not come without difficulties, as it is based on the assessment made by public procurers: often, they do not know when and how to qualify a procurement as innovation related.

In **Germany**, the Centre of Excellence for innovative procurement (KOINNO), which receives funding from the Federal Ministry for Economic Affairs and Energy, advises public procurement officers on how to streamline public procurement processes and buy more innovative products. The competence centre is evaluated according to how efficiently and effectively money is spent on promoting public innovation procurement. To date, the only evidence concerning the measurement of innovation-related procurement responds to the estimations made for the year 2016.²⁰

In **Greece**, there is no evaluation experience concerning innovation-related procurement (neither IEP nor PCP policies). At present, the General Secretariat of Commerce and Consumer Protection (within the Ministry of Economy and Development) is mapping which contracting authorities perform innovation-related procurement. Something similar occurs in **Portugal**, with no evaluation system implemented at the national level. In **Spain**, the evaluation of innovation-related procurement (IEP and PCP) is managed and led by the Deputy Directorate-General for Innovation Promotion (within the Secretariat General of Science and Innovation). This Directorate General is supported by a network of specialised public organisms, such as universities and public research organisations (e.g. the Health Institute Carlos III for health issues, and the National Institute for Aeronautic Technologies for dual technologies). Worth emphasising are the evaluations of the INNODEMANDA and INNOCOMPRA programmes.²¹ Lastly, **Sweden** does not yet have a system to measure the collective impact of innovation-related procurement actions. However, the country uses evaluation tools to measure results, outcomes and impacts of individual innovation procurement initiatives. These are followed up by the authorities/organisations in charge

²⁰ Results were presented in the Frankfurt seminar of this MLE by Ch. von Deimling, Managing Director of the Bundeswehr Hochschule in Munich (see Thematic Paper B, Buchinger, 2017).

All methods and data, processes and routines are described in detail in: 'Konzeption einer 'Innovativen öffentlichen Beschaffung'', January 2016, https://www.koinno-bmwi.de/fileadmin/user_upload/publikationen/Konzeption_IOEB_13_01_2016_fertig.pdf

Ermittlung des innovationsrelevanten Beschaffungsvolumens des öffentlichen Sektors als Grundlage für eine innovative öffentliche Beschaffung: October 2016: https://www.koinno-bmwi.de/fileadmin/user_upload/publikationen/Ermittlung_des_innovationsrelevanten_Beschaffungsvolumens_des_oeffentlich....pdf

Erfassung des aktuellen Standes der innovativen öffentlichen Beschaffung in Deutschland – Darstellung der wichtigsten Ergebnisse: October 2016, https://www.koinno-bmwi.de/fileadmin/user_upload/publikationen/Erfassung_des_aktuellen_Standes_der_innovativen_oeffentlichen_Beschaffung....pdf

²¹ See: <https://www.cdti.es/index.asp?MP=7&MS=581&MN=3>

of the respective initiative, sometimes in co-operation with other bodies such as the Swedish Agency for Growth Policy Analysis.

These findings suggest that more reliable and comparative data is needed across the board on innovation-related procurement. Efforts so far have concentrated more on boosting innovation-related procurement per se, and defining criteria to meet that goal. Less emphasis has been placed on monitoring or ex-post evaluation of the results achieved with these innovation procurement drives.

Another important step in the implementation of any evaluation exercise concerns the methods used. According to the OECD (Appelt and Galindo-Rueda, 2016), in those countries where evaluations of innovation-related procurement are conducted, various instruments are used for such a purpose, including surveys, external independent reviews, combined interim and ex-post evaluations, or one-off project-related evaluations, among others. According to the responses gathered from the Member States (see Table 4), the main approaches to conducting evaluations of innovation-related procurement initiatives seem to be surveys and qualitative methods (i.e. case studies, interviews with beneficiaries). Again, this underlines earlier evidence of a lack of comparative data and the need for further quantitative approaches. Efficiency methods and cost-benefit analysis are among the quantitative approaches recognised, but there is contradictory information about their widespread use, with perhaps the exception of Austria, the Netherlands and Germany. Hence, the data included in Table 4 below should be taken with some caution due to this apparent inconsistency.

Table 4 Main methods used in the evaluation of innovation-related procurement and PCP policies (0 to 10 points)

	Austria	Estonia	France	Germany	Greece	Portugal	Spain	Sweden
Cost-benefit analysis	2	0	2	0	0	5	10	1 (not yet)
Additionality (input)	6	0	2	0	0	0	7	1 (not yet)
Additionality (output)	8	0	2	0	0	0	7	1 (not yet)
Additionality (behavioral)	7	8	2	0	0	0	7	1 (not yet)
Efficiency analysis	7	0	2	0	0	5	7	1 (not yet)
Impact analysis methods (econometrics)	2	0	10	0	0	0	0	1 (not yet)
Matching methods	7	0	2	0	0	5	0	1 (not yet)
Qualitative methods (e.g. case studies, interviews with beneficiaries)	10	5	2	10	0	0	0	5
Quantitative methods (e.g. surveys)	7	8	6	10	0	5	0	5

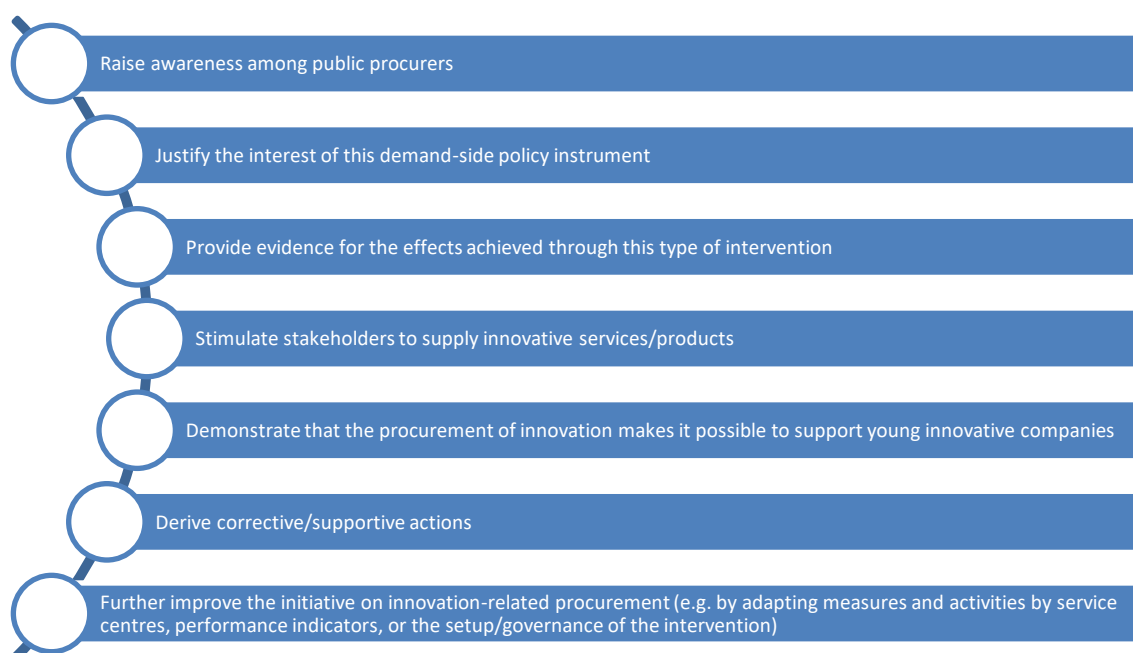
Source: own elaboration

Note: 0 means total disagreement and 10 total agreement

2.1.4 Learning from the evaluation

It is generally acknowledged that evaluation is a key stage in the broader policy cycle. The table below shows the main benefits declared by participating countries with experience of evaluation in the innovation-related procurement context. The relative importance that the Member States ascribe to each of these benefits cannot be assessed at this stage.

Table 5. Benefits of the monitoring and evaluation of innovation related procurement



Source: own elaboration

Member States were also asked about the benefits they would like to get in their innovation-related policies as a result of policy evaluations. Among others, several countries state they would like to gain access to different examples carried out in other countries in order to decide what works best for their own needs (i.e. more quantitative indicators of performance and effectiveness in public innovation-related procurement).

The Member States were also asked about the barriers to achieving the benefits mentioned. The relative importance that Member States attribute to each of these barriers is, again, difficult to ascertain. Knowing the relative weighting would, however, help to explain the underlying rationale behind specific design of policy instruments addressing innovation-related procurement, and hence, it is something that should be considered in further work. In order to complement the previous findings (see Table 6), the participating countries discussed the following questions:

- What are the main barriers Member States face in defining and implementing the monitoring and evaluation of innovation-related procurement initiatives?
- What are the main capabilities that are needed to set up and run monitoring and evaluation exercises?

In relation to the barriers, participants indicated that some of them can be addressed, while others are more structural and difficult to overcome. The first 'grand' barrier identified was the **lack of common understanding**. Innovation-related procurement involves various stakeholders from different administrative levels, which makes defining metrics and gathering data more complex. Different countries monitor or measure different aspects and have different objectives. Hence, even if a unique definition existed for every dimension introduced in the framework presented in Section 3, the understanding of each of these would also vary depending on the rationale, logic and behaviour of each stakeholder. This makes shared definitions and comparable measurement indicators between countries vital but very challenging to achieve. Agreement needs to be reached on a set of 'homogeneous' metrics, such as cost-benefit analysis, network analysis, and monitoring systems, which offer mutual learning potential.

Acquiring accurate data is another barrier identified in the MLE. Member States indicated that many procurements take place below the EU tendering threshold, and it is difficult to secure data about these cases. Not having a central procurement agency makes the identification and characterisation of these cases more challenging, they stated. Several countries pointed to the fragmented demand that often emerges from independent and uncoordinated contracting authorities. Unclear roles and responsibilities for data collection is another area for improvement. In some countries (e.g. Sweden) it is almost impossible to carry out quantitative monitoring/evaluation, as the data on procurements is held within private companies who manage the procurement platforms. In turn, the results of the pilot survey conducted in Austria revealed that the role of the public sector in innovation-related procurement is threefold: to define the need, to buy the need, and to uptake/diffuse the product.

These results indicate that three types of agents may be required when measuring innovation-related procurement initiatives: the ones having/identifying and formulating the needs/opportunities (i.e. the procurer), the beneficiary firms developing the

solutions/innovations (i.e. the supplier), and those who are benefiting from the diffusion of that innovation in the market.²²

A third barrier identified the perception of monitoring and evaluation as an issue; it is seen as more things 'to do', or hoops to jump through, by the contracting authorities. Evaluation and monitoring are **resource-intensive activities**, both in terms of financing and people. Yet their value added is not clearly communicated or well perceived. This points to a trade-off between spending resources for evaluation and spending resources on creating interventions that may lead to a transformative change. It is also difficult to find **the right people** and the level at which evaluations should be conducted. Are programmes **the right level**? Or is the project level better suited? And how to identify the right people to deal with the evaluation? This adds to the need to recognise that different stakeholders have different needs for monitoring and evaluation (e.g. ministries as compared to service centres).

Other barriers identified by the Member States include, for example, how well contracting authorities can keep up with the **state-of-the-art** (i.e. technologies/products and their suppliers), to guarantee that procurement leads to the desired level of innovation. Another potential barrier is contracting authorities constantly pushing for the next big innovation, rather than focusing on properly **diffusing and absorbing** innovations already in the pipeline, or those developed elsewhere that could also meet the identified needs effectively. Member States mentioned that procurement and innovation are often seen as **antagonists**. Although delivering quality public services is the ultimate goal of public entities, procurement staff tend to be oriented towards cost-saving as an economic necessity and towards providing safety and security through public action.²³ This explains the inherently **conservative and risk-averse nature** of public procurement, which in turn can be antithetic to innovation.

Another barrier identified the problem of getting more **SME participation** in procurement tenders. Some sectors, such as ICT, software and health, where start-ups are challenging the established companies, show positive signs of change, but the up-front barriers to entry and bureaucracy still widely exist, the MLE revealed, which affects **user-producer relationships** (i.e. interacting with public administration 'customers' was considered a burden for participating SMEs). A final barrier referred to **political systems** themselves. Changes in administration due to elections may also lead to changes in priorities, and hence to a lack of continuity of certain policies and programmes.

Next, countries were asked about the **capabilities and levers** that could be articulated to address the barriers identified above – at least those that are subject to change due to political intervention. However, during their interventions, the participating Member States did not provide any evidence on how they have addressed these barriers in the past or at present. Accordingly, it is difficult to ascertain which levers have already been attempted and with what kinds of results. The levers discussed below should thus be understood as potential solutions to mitigate the barriers identified by the Member States. Nevertheless, as already indicated, these should be tested to provide a firmer path to proceed upon.

²² The third type of agent is a major part of the indirect socio-economic impact, namely, the end-users of the innovative solution. In most cases, this would be either citizens enjoying improved public services, public entities being served either by the application of the innovative solution, or entities buying the innovative solution.

²³ This behaviour is partially explained by the public perception of procurement as a 'corrupt practice', which does not help to lever the risks associated with innovation. The perception that innovation-related procurement is not formally regulated may also explain this view.

Again, in terms of data acquisition, Member States deemed that **service centres** could intermediate (i.e. facilitate) with contracting authorities in the development of procurement projects, so they can provide continuity and follow-up. Service centres could thus play a central role in the evaluation (review) committees. As we have highlighted earlier, those countries in which innovation-related procurement is managed by specialised service and competence centres show a better predisposition to measure the results achieved. Concerning the possible fragmentation of demand, due to diverse procuring actors in some countries, institutionalising central competence centres – coordinating sub-national procurement units – deserves further investigation.

When there is an absence of systematic (and comparable) data, **case studies** may provide a very effective mechanism to identify indicators that measure patterns in different projects. When a sufficient number of case studies are conducted, then a preliminary framework for indicators could be agreed (as done for the Frascati and Oslo Manuals).

As a response to the large costs involved in an evaluation exercise, Member States considered that **project monitoring** could be a relatively simple and cost-effective activity, which also informs policy recommendations. However, this would largely depend on the quality and scale of the monitoring system, which can also be quite expensive. To mitigate the difficulty of keeping up with the state-of-the-art, Member States advocated more active **dialogue** with potential suppliers in which needs can be identified and translated into functional requirements, to embed these in the policy design phase. Even if there are cases in which innovation-related procurement initiatives have been developed both including and ignoring dialogues and other types of procedures (see thematic paper Topic B, Buchinger, 2017), the consensus among participating Member States was that including dialogues as early as possible in the policy design phase can improve outcomes in terms of innovation. The example provided by the Austrian procurement service centre was regarded as an interesting experience other countries could also learn from.

Participants also considered that evaluation and monitoring processes need **political backing** if they are to be implemented effectively. This implies that sufficient knowledge and clear objectives are needed to be able to commission evaluation services effectively. In addition, a set of **capabilities** that should be in place were also identified. Firstly, the training of procurement officials should be addressed (procurers with limited skills may struggle to follow the project). They should be able to clearly understand procurement procedures/processes and able to ask for external expert or technical help when needed. In this regard, there was agreement on the fact that a mix of capabilities was needed (i.e. a team of different people with different skills). The need for certain personal skills was also discussed, for example, good communication skills, knowledge of the project ecosystem and the different stakeholders involved, knowing how to engage and enrol people, building trust, etc. Lastly, in order to make sense of data, statistical capability is also needed.

Table 6. Main barriers/difficulties associated with innovation-related procurement and potential levers

Key barriers	Key levers
Lack of shared definitions on the key dimensions that need to be measured in an evaluation	Use of methodologies (quantitative or qualitative) in a systematic way to guarantee comparability of results
Difficulties associated with the acquisition of quality data	Service centres facilitating (intermediating) in the procurement process with contracting authorities
The financial costs of an evaluation, as well as the amount of work to carry out an evaluation, is relatively high (including the preparation phase) Evaluation implies more work, more cost and the conclusions of an evaluation (should) lead to change, and usually, the public administration is change-averse	Monitoring relatively easier and cheaper
Difficulty to know the state-of-the-art and avoid opportunistic behaviour Focus on the emergence of innovations, but not on their absorption and diffusion	Need identification sessions/dialogues
Significant lack of awareness among procurers	Further efforts to communicate the rationales by which this instrument is necessary For an evaluation to be effective, feedback and conclusions need to be integrated in the policy process
Different perceptions of procurement rationales and its potential for innovation	Need for political backing
Difficult to encourage SME participation	
Difficult to implement user-producer relationships	
Lack of a comprehensive list of public entities engaged in innovation-related procurement makes it hard to draw conclusions on the overall implementation status of the instrument	

Source: own elaboration

3 A FRAMEWORK FOR MEASURING AND EVALUATING IEP AND PCP

3.1 Defining the key concepts

Evaluation represents “an assessment, as systematic and objective as possible, of an ongoing or completed project, programme or policy, its design, implementation and results. The aim is to determine the relevance and fulfilment of objectives, development efficiency, effectiveness, impact and sustainability. An evaluation should provide information that is credible and useful, enabling the incorporation of lessons learned into the decision-making process of both recipients and donors” (OECD, 1987: 5). One of the main purposes of evaluation is thus to **provide learning for policy-making** (Batterbury, 2006), in such a way that it enables them to avoid making the same mistakes (Rich, 1979: 80) in strategic policy formulation processes. In other words, evaluation is expected to provide accountability, learning, and policy guidance (Arnold, 2004: 4). Edler et al. (2012: 36) define this rationale as the **provision of policy intelligence**.

Evaluation is a process, and not just a static stage of the policy cycle. This means that evaluation needs not only to be considered a stage at the end of the policy cycle, but rather as an uninterrupted process that promotes the continuous refinement and reframing of the overall policy cycle. As the thematic paper for Topic B states (Buchinger, 2017), innovation-

related procurement processes do not end up with the implementation (or use) of the procured product/service/process. They also include the monitoring of its onward use, so that we not only gather information about the procurement process itself, but also follow how the procured product/service is being applied or implemented.

In an evaluation exercise, three time frames can be distinguished:

- **Ex-ante evaluation:** it is carried out in the policy design phase and associated with the formulation and execution of policies. It cannot be conducted in cases in which the budget and priorities of the programme are already decided.
- **Interim evaluation (or monitoring):** it runs during the policy implementation phase. It interacts with programming since the monitoring mechanism provides intermediate information that can be used for decision-makers as a management tool.²⁴
- **Ex-post evaluation:** it is carried out once the programme has been concluded. It aims at analysing the main results and effects that can be attributed to the intervention. The conclusions achieved with it should set the basis for future programming.

With regard to the **data required** for evaluation, we need to distinguish between inputs, outputs, outcomes and impacts:

- **Inputs:** defined as the resources provided for the intervention.
- **Outputs:** defined as the results that have been produced in the beneficiary firm as a direct result of the intervention (e.g. new products or services, patents, prototypes, etc.).
- **Outcomes (or effects):** refer to the changes produced in the beneficiary firm as a consequence of policy outputs (i.e. increase in sales, increase in productivity, etc.), and constitute the first impact of the intervention.
- **Impacts:** refer to the effect of the intervention in both the beneficiary firm, the public procurer, and the wider economy, which are basically long-term and socio-economic, although they can also include other impacts such as those on institutional or educational settings, to name a few.²⁵

A government intervention can only be justified if it causes a complementary and positive effect, which would not have taken place without the policy. The **additionality** concept implies that the beneficiary firms have gained something or achieved some 'benefits' (i.e. outputs and outcomes) that would not have been obtained in absence of the policy. It thus refers to the complementary role that the government should have, and departs from the principle that public intervention is only justified if it generates a **complementary effect**

²⁴ It is often argued (Bachtler and Michie, 1997) that interim evaluation is the most important of all three evaluations. It is conducted at the mid-point (i.e. during execution) and is the only evaluation phase that can simultaneously assess the effects of a programme and influence its operational orientation and balance, providing certain directionality to the programmes being undertaken.

²⁵ The impact needs to be framed in terms of the parties involved, the procuring public entity or the company (or companies) contracted to produce the innovation. Typically, the former aims for wider socio-economic impact while the latter focuses on innovation development that has wider market impact than just this one procurement contract. Both can yield wider socio-economic impacts, but the former is often the more important one overall.

that would not exist without that intervention. Various types of additionality can be identified (Bach and Matt, 2002; Georghiou; 2002, 2004; Clarysse et al., 2009):

- **Input additionality:** it is a measure of the resources invested in order to obtain an output. It means that the beneficiary firms of a policy should add as many resources to the innovation-related procurement process as those received.
- **Output additionality:** offers a measurement of the outputs obtained due to the public intervention. It captures the effects of the policy intervention in the outputs of the innovation process (e.g. prototypes, new products and services, etc.).
- **Outcome additionality:** refers to the effects of outputs in business performance (e.g. increases in sales, new employees, growth rates, etc.). Outcome additionality is, therefore, more difficult to measure than output additionality, as it becomes difficult to attribute the effects of the intervention on business performance to certain outputs. It is usually not recognised as a dimension on its own.
- **Behavioural additionality:** refers to the policy impacts on organisational behaviour and processes (e.g. changes in collaborative patterns among firms to innovate, or encouraging firms to take risks that they would not have taken otherwise, to change requirement setting procedures, award criteria, organisational learning, etc.).

It is possible to find various evaluation **methodologies** to measure the contribution of policies. Each method has its own strengths and weaknesses and the pertinence of each method should be assessed before proceeding, depending on the type of evaluation to be implemented (ex-ante, interim-monitoring, ex-post). The benefit of statistical approaches is that they are based on existing practices and can also be linked at least to some extent to existing data collection (e.g. Community Innovation Surveys). The downside of these approaches is that they are less suitable for monitoring purposes, and do not necessarily cover all outcomes and impacts. Cost-benefit analyses can be quite useful as they are based on well-established econometric methods, which are becoming increasingly popular also in the area of innovation policy. As such, they can provide comparative results across countries. Furthermore, the data can be collected separately or gathered from monitoring systems (if available). Cost-benefit analyses are more appropriate for impact evaluation, less so for monitoring or behavioural additionality. Network analyses could be used for behavioural additionality evaluations, despite being rather resource intensive. Monitoring can also prove to be a useful approach when launched at the same time as the policy measures and accompanying them during implementation. They can be quite effective in providing additional support for identifying appropriate indicators and data-collection systems, and they can be used for both supporting the monitoring and evaluating the outputs, outcomes and impacts.

Table 7. Main methodologies to evaluate innovation-related procurement policies

Methodology	Type of additionality	Timeline
Legislation and standardisation analysis	Input	Ex-ante
Interviews with key stakeholders and key procurers	Input	Ex-ante
	Output	Monitoring
	Behavioural	Ex-post
Qualitative methods (e.g. participative evaluation, focus groups, case studies, cost-benefit analyses, network analyses)	Output	Monitoring
	Behavioural	Ex-post
Surveys (e.g. company panel, user surveys)	Output	Monitoring
	Behavioural	Ex-post
Text analysis of tender texts	Output	Ex-post
Quantitative market/technology impact assessment based on indicators	Output	Ex-post
	Behavioural	

Source: own elaboration

In practice, more than one evaluation method might be used to evaluate a given initiative (OECD, 2011). For that reason, it is important to define an evaluation framework that combines various techniques and methodologies within the process. This multi-method approach is often called **triangulation**, and can increase the insight and credibility provided by evaluations. When we focus our analysis on demand-side policy interventions in general and innovation-related public procurement in particular, the following methods stand out, according to the OECD (2011).

3.2 Key dimensions to consider in the evaluation framework

This section introduces some of the key dimensions that should be considered before the evaluation of an innovation-related procurement initiative is evaluated.

- a) **What is the purpose and the scope of the evaluation?** Why should the policy be evaluated? What is the desired outcome of the evaluation?

As Edler et al. (2012: 35) argue, the first dimension to be considered in an evaluation is to set the limits to its underlying rationale and the way in which the implementation of the evaluation exercise complies with this rationale. When defining the purpose and scope of the evaluation, the coverage and the assessment criteria are to be set.

- b) **What is going to be evaluated?** What are the elements of the evaluation? What kinds of results or answers are expected from the evaluation? This dimension should be largely decided by the answers to the previous question (i.e. defining what needs to be evaluated).
- **Inputs** (for the assessment of **input additionality**): Which inputs go toward the implemented policy? (mainly resources)
 - **Process (monitoring)**: What indicators are needed to follow up the implementation process and determine if things are on track?

- **Outputs** (for the **output additionality**): What are the direct results (i.e. outputs) of the intervention in the beneficiary firms and/or for users? (i.e. R&D results, patents, new products, etc.)
 - **Expected outcomes** or **effects** (for the **outcome additionality**): What are the changes in the beneficiary firm and/or for users as a consequence of the previous outputs? (i.e. increase in sales, increase in productivity, etc.)
 - **Impacts**: What are the wider socio-economic results, beyond the beneficiary firm? Impacts are perceived at the level of public procurers, public demand, public-sector performance, markets and society at large. They can also be both direct (i.e. beneficiary firm growth, increased efficiency, etc.) and indirect (i.e. development of standards, new market creation, capacity building, etc.).²⁶
 - **Behaviour** (for the **behavioural additionality**): changes in actors' behaviour can be observed at the level of: (i) the beneficiary firms of the intervention through the change in their research and innovation routines; (ii) the public actors involved in the intervention (i.e. change in the procedures followed, capacity building, training, governance processes, etc.); and even (iii) consumers (i.e. awareness of new products, willingness to pay for innovation).
- c) **How is the evaluation going to be conducted?** Who is going to be involved in the evaluation process? This dimension means addressing questions such as:
- What are the more suitable methods to be used?
 - Which indicators should be used?
 - How are data going to be gathered?
 - Who should be involved in the evaluation?
 - Who should be the 'owner' of the evaluation?
 - How to embed the results emanating from the evaluation in the decision-making process?

3.2.1 A framework for the measurement of innovation-related procurement

This section introduces a framework based on the concepts presented in the previous section. As noted, and in order to be coherent with the previous thematic papers in this MLE (Edquist, 2017; Buchinger, 2017; Whyles, 2018), we also distinguish between IEP (i.e. direct, catalytic and functional) and PCP. Ideally, we should have four columns in the framework presented below (Table 8), each column with particular dimensions and indicators suited to each of the four types of procurement covered in the MLE (see thematic paper Topic A). However, it is not yet possible to define measures particularly suited to each of these four categories of procurement. As discussed in this report, the evaluation of innovation-related procurement is still in its infant stage. As such, participating Member States in the Vienna round-table meeting (September 2017) advocated developing a 'simple' preliminary framework that may provide differences between the two major types of innovation-related procurement (i.e. IEP and PCP), which can be elaborated on later, once concrete measures for each of the four types of procurement covered in the MLE are

²⁶ The main point is to distinguish between different types of analytically distinct impact mechanisms. In practice, making these distinctions is difficult but essential to the process.

available. Accordingly, in the framework introduced in this section we focus on the two big categories (IEP and PCP).

The first step is to define the **purpose** and **scope** of the evaluation. The underlying conceptual differences between IEP and PCP may also call for distinct goal definitions (i.e. purposes of the evaluation). While the former may intend to learn about/measure the effect of the procured innovative solution/product, the latter should be focused on learning about/measuring the potential effect of the developed R&D solutions on the targeted challenge, and their further potential for commercialisation.

Similarly, many of the dimensions that need to be considered by the evaluation framework, also differ between IEP and PCP. As to the **inputs**, in both cases it is necessary to measure the amount of public resources devoted to the procurement process, either for the winning bidder or for the competing beneficiary firms. For **monitoring** IEP initiatives, indicators should be related to the innovation procurement phases (i.e. identification of challenges/needs, translation of the identified challenges into functional requirements, tendering process, assessment of tenders and awarding of contracts, and delivery – see Edquist et al., 2015). The same approach applies to monitoring PCP schemes (i.e. related to the phases; solution exploration, prototyping, testing). The monitoring may prove particularly useful to analyse the governance/management of each of the processes (i.e. IEP and PCP), in order to identify failures and the underlying reasons for them, so that corrective measures can be taken before the intervention is finished.

Concerning the **outputs**, there are also differences in how these can be measured in each case. In IEP, it will be necessary to use innovation-oriented indicators (e.g. number of usable products, innovations that respond to societal needs/demands, etc.). However, in PCP cases, these output indicators will be technology related (e.g. prototypes, R&D results, patents). Lastly, concerning the measurement of the **outcomes** or **effects** of the policy, in the case of IEP we will have to measure such issues as the diffusion of innovations throughout the economy, the growth rate of the beneficiary firm, the increase in sales of the new product, gains in public productivity or in the efficiency of public-service provision, etc. In turn, the indicators reflecting the outcomes of PCP initiatives will be more oriented toward the dissemination and commercialisation of R&D results, technology transfer (royalties), or the exploitation of the intellectual property rights associated with the R&D outputs. The indicators chosen very much depend on the nature of each call for tender and the IEP or PCP specifications.

When we move into the measurement of **impacts**, we need to distinguish between the direct and indirect expectations and distinguish between each of these from the perspective of the public procurer and the beneficiary firm producing the innovation. The impact mechanisms, and thereby the measurement needs and methods, are different (although connected).

Direct impacts

Various types of impact are envisaged in **IEP cases**: impact on beneficiary firms (e.g. growth), impact on public demand (e.g. public agencies carrying out more innovation-enhancing procurements), impact on public-sector performance (e.g. productivity, effectiveness, and sustainability improvements resulting from adoption of innovative products, technologies, and services), impact on the market (e.g. number of new entrants, structural transformation), and impact on society (e.g. improvement on welfare, efficiency, quality of public services, impact on market uptake and private demand, spillover effects in complementing – or competing – technologies, etc.).

In the **PCP case**, however, we need to account for potential indicators that reflect the share of the developed R&D solutions that reach commercialisation, the degree of R&D sophistication in the bidders that reach the final (prototyping) stage, the time-to-market required for firms to reach commercialisation, the access of SMEs, and other innovation-related indicators discussed above, such as innovations that respond to societal needs/demands.

Indirect impacts

In **IEP cases**, these are impacts that may emerge as a consequence of the scheme. Measures such as the increase in the industrial sophistication of non-selected suppliers/bidders, the provision of new knowledge and capabilities to the existing industrial base in the country/region, potentially breaking dependencies and avoiding lock-in situations, the incentives provided to industry to invest in innovation (e.g. internationalisation of local firms) due to the demonstration effects of winning bids, the evolution of market prices and the market shares sustained by domestic firms, the development of standards, or the impact on the public administration (e.g. institutional change, capacity building, agenda setting).

In **PCP cases**, however, indirect impact may be represented by improvements in the quality and/or effectiveness of the public services,²⁷ or the attraction of financial investors (e.g. venture and seed capitalists) to the country, to name a couple.

Regarding the measurement of **additionality**, we need to account for the different types of additionality, namely, input, output and behavioural. For **input additionality**, as already stated, both IEP and PCP require a certain amount of public investment. For **output additionality** of an IEP call, the measures will gravitate toward the impact of the innovation in meeting the identified need, which changes from call to call. And in the case of PCP calls, the measurement of the output additionality needs to consider measures related to the development of new technologies with potential for further exploitation. In terms of **behavioural additionality**, as already discussed, we also need to distinguish between measures that capture the change in the behaviour of the beneficiary firms and public procurers (e.g. their innovation capabilities), the behaviour of governmental capabilities (e.g. changes in the governance of the IEP process), and the behaviour of consumers (e.g. changes in their market preferences). Whereas the behavioural additionality related PCP schemes needs to assess the change produced in the beneficiary firms' R&D capabilities.

Lastly, in order to answer **how** the evaluation in both cases is to be conducted, it is strongly recommended to apply mixed **methods** (i.e. triangulation). In this respect, it might make sense to emphasise qualitative approaches in IEP cases (e.g. participative evaluation, focus groups, case studies), given the complexities and multiple paths involved in their development. While in PCP cases, the emphasis could be placed on quantitative approaches (e.g. surveys, matching), which are better suited to capturing processes of a more linear nature, in which the stages are more clearly demarcated than in IEP processes. It should be noted here that quantitative methods are becoming increasingly important in evaluation in general, and may be particularly relevant for innovation-related procurement. Using this sort of quantitative method can help to assess, for example, the socio-economic benefits created for the procurer (cost savings, improved service quality, environmental impact and its quantification, etc.), or the volumes of the new business created because of the

²⁷ PCP does not necessarily require changes in the performance of R&D activities, but does require changes in the orientation of R&D activities (to address a specific, well-defined challenge as described by the functional requirements or some other description of the desired outcomes). Hence, the analysis of the effectiveness of the PCP scheme is a more important indirect impact than the assessment of its efficiency.

intervention (for the producer of the innovation). However, to implement quantitative methods effectively requires systematic data, which as discussed, is lacking in most Member States. It should also be noted that most evaluation exercises call for a complement of different methods to be fully effective.

The table below reflects the essential dimensions for properly characterising and measuring innovation-related procurement processes. This does not, however, mean that the dimensions below should be confused with the concrete indicators that determine the measures for each dimension. The definition of the concrete indicators may vary depending on the country's goals/targets, and hence, they should be defined in an ad-hoc manner. The concrete indicators feeding each of these dimensions were discussed in the Vienna meeting and will be provided in the next section (see Table 9).

Table 8 Key dimensions in the evaluation of innovation-related procurement

a) IEP (direct, catalytic, functional)

Stages of the evaluation	Additionality	Evaluation process: methods
Purpose of the evaluation	<ul style="list-style-type: none"> - Understand the impact of public authorities (i.e. their demand) in fostering innovation - Learn about/measure the impact of the procured innovative solution/product 	
Input	<ul style="list-style-type: none"> - Input additionality: public/private resources for the entire process for the winning bidder 	<ul style="list-style-type: none"> - Stronger emphasis on quantitative methods (e.g. impact assessment, matching, surveys, cost-benefit analyses, network analysis)
Monitoring	<ul style="list-style-type: none"> - Indicators related to the procurement phases (i.e. identification of challenges/needs, translation of the identified challenges into functional requirements, tendering process, assessment of tenders and awarding of contracts, delivery) - Indicators related to the extent to which functional specifications are being achieved - Indicators related to the co-funding by the beneficiary firm or other public entities - Measures reflecting coordination efforts 	<ul style="list-style-type: none"> - Stronger emphasis on qualitative approaches (e.g. participative evaluation, focus groups, case studies, text analysis of tender texts)
Output	<ul style="list-style-type: none"> - Output additionality: impact of the innovation in meeting the identified need - Innovation-related indicators (i.e. directly usable outputs) - Development of innovations that respond to societal needs/demands 	<ul style="list-style-type: none"> - Stronger emphasis on quantitative methods (e.g. impact assessment, matching, surveys, cost-benefit analyses, network analysis)
Outcome or effect	<ul style="list-style-type: none"> - Behavioural additionality related to firms' innovation capabilities - Behavioural additionality related to governmental capabilities (in the governance of the innovation procurement process) - Behavioural additionality related to consumers - Diffusion of innovations throughout the economy - Increase in sales of the new product - Growth rate of the beneficiary firm - Increase in public productivity - Increase in the efficiency of public service provision 	<ul style="list-style-type: none"> - Mixed methods; stronger emphasis on qualitative approaches (e.g. participative evaluation, focus groups, case studies, text analysis of tender texts) in combination with quantitative methods (e.g. impact assessment, matching, surveys, cost-benefit analyses, network analysis)
Impact (direct)	<ul style="list-style-type: none"> - Impact on beneficiary firms - Impact on public demand - Impact on public-sector performance 	<ul style="list-style-type: none"> - Mixed methods; stronger emphasis on qualitative approaches (e.g. participative evaluation, focus groups, case studies, text analysis of tender texts) in combination with quantitative methods (e.g. impact assessment, matching, surveys, cost-benefit analyses, network analysis)

	<ul style="list-style-type: none"> - Impact on markets - Impact on society 	
Impact (indirect)	<ul style="list-style-type: none"> - Indirect economic impacts on society - Industrial sophistication - Strengthen key suppliers, providing new knowledge and capabilities that will be useful to them in the future, potentially breaking dependencies and avoiding lock-in situations - Incentivise industry to invest in innovation, with potential substantial spillover effects - Market shares and prices - Development of standards - Spillovers to other territories - Impact on public administration 	<ul style="list-style-type: none"> - Mixed methods; stronger emphasis on qualitative approaches (e.g. participative evaluation, focus groups, case studies, text analysis of tender texts) in combination with quantitative methods (e.g. impact assessment, matching, surveys, cost-benefit analyses, network analysis).

b) PCP

Stages of the evaluation	Additionality	Evaluation process: methods
Purpose of the evaluation	<ul style="list-style-type: none"> - Understand the impact of public authorities in steering the development of new technological (R&D-based) solutions - Learn about/measure the impact of the developed R&D solution 	
Input	<ul style="list-style-type: none"> - Input additionality: public/private resources throughout the entire process for all beneficiary firms 	<ul style="list-style-type: none"> - Stronger emphasis on quantitative methods (e.g. impact assessment, matching, surveys, cost-benefit analyses, network analysis)
Monitoring	<ul style="list-style-type: none"> - Indicators related to each phase in the PCP scheme (i.e. solution exploration, prototyping, testing) 	<ul style="list-style-type: none"> - Stronger emphasis on qualitative approaches (e.g. participative evaluation, focus groups, case studies, text analysis of tender texts)
Output	<ul style="list-style-type: none"> - Output additionality: development of new technologies with potential for further exploitation - Technology related indicators (i.e. prototypes, or R&D results) 	<ul style="list-style-type: none"> - Stronger emphasis on quantitative methods (e.g. impact assessment, matching, surveys, cost-benefit analyses, network analysis)
Outcome or effect	<ul style="list-style-type: none"> - Behavioural additionality: related to firms' R&D capabilities - Dissemination of R&D results - Commercialisation of R&D results - Technology transfer (royalties) - Exploitation of IPR and R&D results 	<ul style="list-style-type: none"> - Mixed methods; stronger emphasis on quantitative approaches (e.g. impact assessment, matching, surveys, cost-benefit analyses, network analysis) in combination with qualitative methods (e.g. participative evaluation, focus groups, case studies, text analysis of tender texts)
Impact (direct)	<ul style="list-style-type: none"> - Share of the developed R&D solutions that reach commercialisation - R&D sophistication - Knowledge and technology transfer - Speeding up time-to-market for firms and facilitating SME access to the procurement market - Innovation-related indicators - Development of innovations that respond to societal needs/demands 	<ul style="list-style-type: none"> - Mixed methods; stronger emphasis on quantitative approaches (e.g. impact assessment, matching, surveys, cost-benefit analyses, network analysis) in combination with qualitative methods (e.g. participative evaluation, focus groups, case studies, text analysis of tender texts)
Impact (indirect)	<ul style="list-style-type: none"> - Improvements in the quality and/or efficiency of the public services achieved by deploying the innovative solutions developed as a result of the PCP - Increase in the effectiveness of R&D expenditures - Attracting financial investors to Europe 	<ul style="list-style-type: none"> - Mixed methods; stronger emphasis on quantitative approaches (e.g. impact assessment, matching, surveys, cost-benefit analyses, network analysis) in combination with qualitative methods (e.g. participative evaluation, focus groups, case studies, text analysis of tender texts)

Source: own elaboration

4 KEY INDICATORS FOR THE MEASUREMENT OF INNOVATION-RELATED PROCUREMENT

The framework presented in Table 8 includes a set of dimensions that need to be considered when measuring innovation-related procurement, depending on the stage (input, output, monitoring, outcome, impact) and the type of additionality to be assessed. However, one of the essential requirements to evaluate policies is the need for indicators. **'What'** can be **measured**, and **'how'**? In order to address these questions, the Member States participating in the MLE agreed on a minimum set of **indicators** that they deemed **essential** for measuring innovation-related procurement (see Table 9). Hence, the next efforts by the Member States could be oriented toward guaranteeing systematic access to these indicators, so comparability can be achieved.

On the **input** side, two essential indicators were defined. While overall public procurement budgets and the value of each procurement could aid the characterisation of IEP initiatives, extramural R&D budgets could be helpful in the case of PCP projects (to the extent these are allocated to PCP). In the case of IEP, the percentage of innovation procurement as part of the total procurement budget could also be considered, even though it has been acknowledged that providing a clear share may prove difficult.

Monitoring was regarded as the most sensible place to start, according to the Member States, because there is a lot of information directly available in the tender documents, which could be translated into helpful monitoring indicators. The best moment to decide the information to be collected during the monitoring and the evaluation (ex-post) is during the tender drafting and definition, because it is when procurers know the state-of-the-art, thanks to preparatory dialogue with potential suppliers, and the functions and objectives of the call are still fresh in their minds.

Due to the central role countries attributed to the **monitoring** stage, the largest number of indicators were proposed for this dimension, with particular emphasis placed on the extent to which **functional specifications** have been included in calls. Countries advocated following the MEAT (most economically advantageous tender) criteria or implementing early engagement dialogue to facilitate functional procurement processes. Other criteria include the maturity level (i.e. previous experience) of contracting authorities, the number of people devoted to the procurement process, which of the procedures included in the procurement directives have been applied, whether capacity building activities were done by support structures/service centres, and the existence of coordination efforts across procurement units. Yet more criteria could be whether experts or consultants were used in the tender, the perception of stakeholders (public and private) involved in the procurement process, if interactive learning activities were carried out together with municipalities/provinces (depending on the institutional setting of each country), the general award criteria used, or whether risk-sharing levels have been apportioned between municipalities. It might be the case that one contracting authority initiates an innovation-related procurement with a particular purpose or focus (e.g. environment), while different contracting authorities focus on other areas (e.g. they invest in health), but still benefit from the results achieved in the former initiative. The externalities of the innovation-related procurement can be positive, and those should also be considered. In this sense, it is possible that contracting authorities split their initiatives, so everyone assumes certain risks but the results are diffused among them so everyone benefits from these outputs. Resolving these sorts of issues would help authorities better monitor procurement projects, and improve their effectiveness.

In the Estonian case, where procurers were asked four questions during the tendering process, was highlighted as a helpful and inspiring example to measure the **outputs** of an innovation-related procurement initiative. It was clarified that this information was collected when the tender was launched, so it measured intent rather than outputs. It was felt that simply asking 'Was this innovative?' is not sufficient; seeking innovation for the sake of innovation is not the goal, but rather to solve problems or respond to existing needs. Some examples of indicators that could help to measure outputs include whether R&D was carried out, or whether the product or service was new to the market or organisation.

In order to capture the **outcomes**, participants considered that the key indicator should help assess whether there was a first buyer who actually purchased the solution. This indicator was regarded as valid in some cases (e.g. PCP), but less relevant for others (e.g. IEP), as they include the purchase automatically. This indicator could be complemented by another measuring how many innovative solutions have been sold, besides the first buyer. On the topic of **impacts** a caveat was issued. Participants felt that while direct causality cannot be attributed, several measures can help to determine whether positive or negative results are being observed:

- Impact on public demand: potential for follow-up projects, diffusion of solution
- Impact on public-sector performance: compare cost before/after
- Impact on markets: change in the structure of important public sectors (e.g. health, construction, education, transportation-mobility), and number of new customers (volume of new business based on the innovative solution)
- Impact on society: number of new jobs, increased quality of public services, environmental effects
- Indirect impact: GDP growth, happiness/wellbeing (e.g. UN World Happiness Report)

Table 9 Indicators considered as essential by the Member States for the evaluation of innovation-related procurement

Stages of the evaluation	IEP	PCP
Input (input additionality)	<ul style="list-style-type: none"> - Overall budgets devoted to public procurement - Value of each procurement project - Percentage of innovation procurement as part of the total procurement budget 	<ul style="list-style-type: none"> - Extramural R&D budgets
Monitoring	<ul style="list-style-type: none"> - Has the procurement been done with functional specifications? - Has the call followed MEAT criteria? - Has the call allowed for variants (competition)? - Number of offers received - Were early engagement dialogues implemented? - Experience of contracting authorities - Number of people (FTE) managing the procurement process - Which of the procedures included in the procurement directives have been applied? - Were capacity building activities done by service centres? - Was there coordination across procurement units? - What is the perception of stakeholders involved in the procurement process? - Were interactive learning activities carried out together with municipalities/provinces? - What were the award criteria? - What is the level of risk-sharing between municipalities? 	<ul style="list-style-type: none"> - Has the procurement been done with functional specifications? - Has the call followed MEAT criteria? - Has the call allowed for variants (competition)? - Number of offers received - Were early engagement dialogues implemented? - Experience of contracting authorities - Number of people managing the procurement process - Were capacity building activities done by service centres? - Was there coordination across procurement units? - What is the perception of stakeholders involved in the procurement process? - Were interactive learning activities carried out together with municipalities/provinces? - What were the award criteria?
Output (output additionality)	<ul style="list-style-type: none"> - Was R&D was carried out? - Was the product or service new to the market? To the procurer? To the company producing the innovative solution? - Was an innovative solution developed as a result of this procurement? Was it taken by the procurer and implemented in practice? 	
Outcome or effect (outcome additionality)	<ul style="list-style-type: none"> - Was there a first buyer? - How many innovative solutions have been sold besides the first buyer? 	<ul style="list-style-type: none"> - Was there a first buyer? - How many innovative solutions have been sold besides the first buyer?

Impact (direct)	<ul style="list-style-type: none"> - Diffusion of solution - Compare cost before/after - Structural change in sectors with a large public demand - Number of new customers - Number of new jobs (in the producer of the innovative solution and in the economy at large) - Increase of quality of public services - Environmental effects 	- Potential for follow-up projects
Impact (indirect)	<ul style="list-style-type: none"> - GDP growth - Happiness/wellbeing 	

Source: own elaboration

5 CONCLUSIONS AND RECOMMENDATIONS

As the OECD points out (OECD, 2016: 66), one argument for embarking on innovation-related procurement is that an innovative solution often yields better results than a traditional solution. Without evaluation, however, it remains unclear whether the innovative solution is indeed better than the traditional path.

As noted, the measurement (i.e. monitoring, evaluation and impact assessment) of innovation-related procurement policies does not come without problems, since demand-side interventions have been relatively under-explored and under-valued compared to other forms of public support to innovation (e.g. direct and indirect support to R&D). This implies, among other things, the need to collect reliable data and engage with actors who do not necessarily see themselves as part of the initiative being evaluated, the difficulty of assessing the complexity and coordination involved, the time lags between the intervention and the emergence of results – and the difficulty in capturing the potentially wide geographical scope of the results (Edler et al., 2012).

The goal of this section is to summarise the discussions that took place in the Vienna meeting around some key topics/barriers/challenges that should be addressed in further work, and which could guide Member State activities in years to come regarding innovation-related procurement. The EU-backed 'Study on the strategic use of innovation procurement in the digital economy' (SMART), has the scope to sharpen the conclusions reached in this thematic paper.

One of the issues raised in that discussion was related to the target and scope of the evaluation. For example, it is possible to monitor/evaluate projects, organisations, programmes or policies, to see if the financing/resourcing is being used effectively, and to extract lessons from the experience to improve future actions. Participants in the MLE believed that indicators should ideally be defined and data gathered at the project level, at least in a preliminary stage, instead of focusing on the programme or policy levels. Then further levels (organisation, programme, policy) can be added at different stages, with the benefit of hindsight showing what works best in different circumstances. The participants did not see a need to distinguish between the different types of innovation-enhancing procurement (i.e. direct, catalytic and functional) at this stage, as the indicators characterising each of them would not differ substantially.

Data are available in some countries via their e-procurement portals, but not in others. It is important to better use existing data and apply methodologies in a systematic way to get the most out of these data. However, it was noted that very few countries in Europe currently collect sound data on innovation-related procurement. Participants confirmed the need for a framework guiding the collection and use of data and new indicators to fully explore developments in innovation-related procurement. But they cautioned against a very elaborate or detailed conceptual framework which may prove very difficult to assess or characterise in different policy contexts in later stages. This leads to a trade-off between the 'generalisability' of the framework and the 'particularities' of each intervention.

Simple does not, however, mean wrong. In the Vienna meeting, it became evident that countries use public procurement for different purposes. Some use it as an instrument for internationalisation, others for environmental concerns, etc. Accordingly, the rationales for using this policy instrument vary across countries, which has clear implications on the way countries then use evaluation exercises. Nevertheless, we still need to agree on a minimum

and shared number of indicators that can help characterise innovation-related procurement across Member States, so at least this information is shared and comparable.

Countries have defined means to identify the projects that can be regarded as innovation-related procurement, but there is presently no clear-cut means to characterise these initiatives, which is the actual purpose of the evaluation. Identification is a necessary precursor to developing (qualitative) case studies or defining (quantitative) indicators that help measure them, but it should not be considered as the end of the story, but rather as the beginning of the journey. Identification (of cases) thus needs to be followed by efforts to fully characterise or flesh them out.

We believe that the framework introduced in Section 3 of this thematic report (see Table 8) and the indicators suggested by the Member States is a valuable tool to better characterise innovation-related procurement projects (see Table 9). Once these indicators are gathered and data are available, then it is time to apply different methodologies to these data. Comparability of results and the exchange of experiences should be key criteria when applying these methods, helping countries 'mutually learn' from each other. Then, as the use of evaluation methods start to permeate the European policy landscape (at least as far as innovation-related procurement is concerned), different Member States can develop new ad-hoc measures responding to their particular targets. As discovered during this MLE, we also believe that joint work and cooperation among Member States will enlighten this future path.

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APPENDIX I: AGENDA FOR THE MLE SEMINAR IN VIENNA, SEPTEMBER 20-21, 2017

MLE Innovation Procurement

Country seminar on Topic D:

Monitoring, evaluation and impact assessment of innovation-related procurement

Federal Ministry for Transport, Innovation and Technology (bmvit)

Radetzkystraße 2

1030 Wien | Austria

Seminar Room EA08 (ground floor)

September 20th 2017 15:30-18:00 & September 21st 2017 9:00-16:00

Agenda

September 20 th		
15:30 - 15:40	Welcome from the chairs and the host team	Welcome note by Xavier van den Bosch Welcome note by Charles Edquist Jon Mikel Zabala will explain the structure and issues of the two days Welcome note by Michael Brugger (bmvit) and Bernd Zimmer (BMWFW), incl. provision of basic on-site-information
15:40 - 16:00	Background Paper: Monitoring, evaluation and impact assessment of innovation-enhancing procurement and PCP	Presentation Jon Mikel Zabala (20')
16:00 - 16:30	Austrian strategic approach on innovation procurement, incl. monitoring, evaluation and measurement	Presentation Bernd Zimmer and Michael Brugger (20') Strategic framework: The Austrian PPPI Action Plan Implementation and governance (PPPI Service Network) Monitoring, evaluation and measurement Q & A, Discussion (10')
16:30 - 16:50	Austrian experiences with measurement of innovation procurement	Presentation Andreas Schiefer (Statistics Austria) (20') Experiences from a pilot survey regarding the measurement of innovation procurement
16:50 - 18:00	Implementing PPPI in Austria - views and experiences on monitoring and evaluation of innovation procurement	Presentation Jasmin Berghammer (PPPI Service Center) (35') Service portfolio (e.g. capacity building, financial incentives, counselling, PPPI Online Platform) Performance indicators and monitoring Presentation Hannes Pöcklhofer (Federal Province of Upper Austria; PPPI contact point; 15') Implementing PPPI on a regional level, incl. monitoring and evaluation of PPPI projects
19:30	Dinner	Radetzkyplatz 1, 1030 Wien Invitation by the Austrian hosts bmvit & BMWFW

September 21st

09:00 – 09:45	State of play at OECD/EU level	Silvia Appelt (OECD) (10') Measurement of R&D procurement, state of play, selected results Jaroslav Kracun (EC) (10') Reporting obligations under the directives CONNECT/PWC (10') Study on measuring the use of public procurement for innovation Q & A (15')
09:45 – 11:00	Tour de table by a set of selected countries (NL, DE, EE, ES, SE) (5' per country)	National innovation procurement initiatives and measurement systems: - Each national participant is invited to indicate what and how are the MS doing in relation to the monitoring and evaluation of innovation-enhancing procurement and PCP initiatives? - Presentation of experiences from different countries on possible evaluation models that might be under discussion to date in them. - What are the main challenges her/his country is facing concerning the monitoring and evaluation of innovation-enhancing procurement and PCP?
11:00 – 11:15	Coffee break	
11:15 – 12:30	General discussion on possible approaches based on current state of play	Possible questions to be discussed: - Which data is already available that could be used for further steps on national level? - What is required to design monitoring and evaluation framework that would allow gathering the data needed to monitor and evaluate innovation-enhancing procurement? - How is it possible to operationalize the typology of innovation-enhancing procurement in this MLE into surveys/case studies?
12:30 – 13:15	Lunch Break, bilateral exchange and discussions	
13:15 – 14:00	Breakout session A: Monitoring and evaluation: barriers and set-ups	The plenary will be split in groups discussing: # What are the main barriers MS face in defining and implementing the monitoring and evaluation of innovation procurement initiatives? # What are the main capabilities that are needed to set-up and run monitoring and evaluation exercises?
14:00 – 14:30	Plenary: Recap of breakout sessions	Rapporteurs provide a snapshot per theme. Comments and questions by participants.
14:30 – 15:15	Breakout session B: Towards a framework for evaluation of innovation procurement	The plenary will be split in groups discussing: # Identify possible indicators adequate for monitoring and evaluating different types of innovation procurement. # Identify different ways (i.e. approaches, methods, profiles of evaluators) in which data for the previous indicators can be gathered (i.e. sources of information).
15:15 – 15:45	Plenary: Recap of breakout sessions	Rapporteurs provide a snapshot per theme. Comments and questions by participants.
15:45 – 16:00	Conclusions & Next steps	Jon Mikel Zabala will summarize Charles will brief on next steps

APPENDIX II: QUESTIONNAIRE FOR PARTICIPATING MEMBER STATES

Horizon 2020 Policy Support Facility

Mutual Learning Exercise on

Innovation Procurement and Pre-Commercial Procurement (PCP)

**Topic D: Monitoring, evaluation and impact assessment of
Innovation – Related Procurement**

September 8, 2017

The aim of this Topic D on 'Monitoring, evaluation and impact assessment of innovation related procurement' is to create a conceptual basis that allows setting up a general framework according to which data on innovation-enhancing procurement can be gathered. In order to reach this goal, we first aim to provide the state-of-the-situation on the topic at the European level, getting some preliminary information from the participating countries in the Mutual Learning Exercise on what and how they are doing in relation to the evaluation and monitoring of their policies. This the reason why we are circulating this survey beforehand. The goal of the questionnaire is to capture the basic state-of-play we have in the participating countries as to the evaluation of innovation procurement-enhancing procurement. The answers will be used to ensure sufficient focus of the discussions during the meeting, as well as input to the background report.

Some of the questions refer to a scale 0-10, where 0 means total disagreement and 10 means total agreement. In turn, some other questions require you specifying (i.e. writing) the answers in the corresponding cells.

Once all the questionnaires have been circulated and collected, we would be grateful if you could please forward all back to Jon Mikel Zabala-Iturriagagoitia (jmzabala@deusto.es) as he is the person in charge of this Topic D.

The deadline for responding the survey is Monday, 18th of September 2017.

Thank you very much for your assistance and commitment to this Mutual Learning Exercise.

1.- Contact details

Name and surname:

Age:

Organisation you belong to:

Department:

Main responsibilities in your organization:

Training (please specify your highest degree, and other specialized training you may have received):

2.- General context for evaluation

	Please specify
2.1.- Do you consider your country has an evaluation culture (i.e. experience in evaluation) in innovation related procurement? (0-10 points)	
2.2.- Are the innovation related procurement policies implemented in your country evaluated regularly? (0-10 points) ²⁸	
2.3.- Does your country have the required capabilities for in-house policy evaluation in innovation related procurement? (0-10 points)	
2.4.- Which do you consider are these required capabilities? (please specify)	
2.5.- Are public (civil) servants in your country trained to develop/design/interpret evaluations of public innovation related procurement policies? (0-10 points)	
2.6.- Which are, in your opinion, the areas in which additional training is required to improve the evaluation capabilities in innovation related procurement policies? (please specify)	
2.7.- Please add any additional comments you may deem relevant:	

3.- Design of the evaluation

	Please specify
3.1.- Who participates in the design of the evaluation of innovation-enhancing policies in your country? (please specify) ²⁹	
3.2.- Do you consider the design of evaluations of innovation-enhancing policies in your country take into account the learning(s) observed in previous evaluation exercises? (0-10 points) ³⁰	

²⁸ In case you consider your country does not have an evaluation culture and innovation related procurement policies are not evaluated regularly, please specify in the box 2.7 possible reasons behind that.

²⁹ In case you consider your organization does not rely on external actors to develop the framework of the evaluation, please specify in the box 3.X possible reasons behind that.

³⁰ In case you consider your organization does not consider the learning(s) from previous evaluation exercises in the design of evaluations, please specify in the box 3.4 possible reasons behind that.

3.3.- Does your country benchmark evaluations of innovation-enhancing policies with those from other Member States so as to also learn from these? (0-10 points)³¹

3.4.- Please add any additional comments you may deem relevant:

4.- Implementation of the evaluation

4.1.- What is the process (or approach) your organization follows when conducting an evaluation of innovation related procurement and PCP policies? (please specify)

4.2.- Which are the main methods your organisation uses in the evaluation of innovation related procurement and PCP policies? Please include the corresponding points (0-10) in each of the cells below:

	Please specify
Cost-benefit analysis	
Additionality (input)	
Additionality (output)	
Additionality (behavioural)	
Efficiency analysis	
Impact analysis methods (econometrics) (e.g. environmental impact)	
Matching methods	
Qualitative methods (e.g. case studies, interviews with beneficiaries)	
Quantitative methods (e.g. surveys)	
Others (<u>please specify</u>)	

	Please specify
4.3.- Who participates in the implementation of the evaluation of innovation related procurement and PCP policies in your organisation? (<u>please specify</u>)	
4.4.- Does your organisation use a panel of indicators for the evaluation of the results of innovation related procurement and PCP policies? (0-10 points) ³²	
4.5.- Does your organisation count with any evaluations of innovation related procurement and PCP policies? (please specify)	
4.6.- Please add any additional comments you may deem relevant:	

³¹ In case you consider your organization benchmarks evaluations of innovation-enhancing policies with those from other Member States, please specify which are those Member States (or organizations within them) your organization has had learning experiences from in the box 3.4.

³² In case your organisation uses a panel of indicators for the evaluation of the results of innovation related procurement and PCP policies, please specify the most regularly used indicators in the box 4.6.

5.- Learning from the evaluation

	Please specify
5.1.- Who participates in the discussion of the results of the evaluation of innovation related procurement and PCP policies in your organisation? (<u>please specify</u>)	
5.2.- Which are the main benefits you are able to achieve in innovation related procurement and PCP policies as a result of their monitoring and evaluation? (<u>please specify</u>)	
5.3.- Which benefits would you like to get in innovation related procurement and PCP policies as a result of their policy evaluations? (<u>please specify</u>)	
5.4.- Which are the main barriers/difficulties that prevent your organization from achieving those benefits aimed? (<u>please specify</u>)	
5.5.- Please add any additional comments you may deem relevant:	

APPENDIX III: OECD SURVEY ON STRATEGIC INNOVATION

PROCUREMENT

The following information has been taken from the OECD (2016), and provides a descriptive overview of the state-of-play concerning the measurement of innovation-related procurement in some OECD countries. Despite the results of the OECD survey in every country follow a different structure, the following issues are discussed in the report:

- Strategic framework, stand-alone action plan and scope for innovation procurement policy
- Implementation
- Challenges, risks and solutions to overcome obstacles
- Key lessons learned
- Measurement and impact assessment

Among the topics discussed for each country in the report, the text below only includes the evidence provided by the OECD (2016) as far as the measurement of innovation-related procurement is concerned.

Austria: There is no quantifying of targets for innovation procurement. To capture the impact of innovation procurement activities, the Austrian PPPI Action Plan covers various dimensions: increasing (significantly) the share of innovative procurement in public procurement and increasing (significantly) the share of procurement-oriented research and development (R&D). There are also other indicators such as: reducing environmental burden, reducing costs (within public entities), improving processes (within public entities), and improving public service quality (benefits for citizens). Beyond these dimensions, an innovation procurement monitoring system has been set up. It comprises an innovation procurement survey by Statistics Austria, monitoring obligations of the PPPI service centre and scientific interim and ex post evaluations and covering the following types of innovation procurement: procurement of goods/services newly developed for the procuring entity, first commercial procurement of goods/services and the diffusion of innovative goods/services. An interim impact assessment took place in 2014. An assessment of the PPPI service centre was conducted in 2015. A comprising impact evaluation will take place in 2017/18 (OECD, 2016, p. 90).

Belgium: Belgium has quantified its 3% target for innovation procurement and measures/follows up moves to reach of this target. For the time being there are no impact assessments, evaluation studies and/or studies of state of play regarding any type of innovation procurement on national level, but on regional level (Flanders) studies of state of play. At federal level, the use of the e-procurement platform by all administrations is targeted and measured. Indicators for SME participation are currently being implemented (OECD, 2016, p. 93).

Denmark: If not already complete, the initiatives launched in the Strategy for Intelligent Public Procurement are continued and monitored by the accountable ministries and agencies. No central evaluation or assessment is planned in a short-term perspective (OECD, 2016, p. 105).

Estonia: There are several discussions on the subject – quantified target for innovation procurement in Estonia, but there is no agreed hard target yet. Ministry of Economic Affairs and Communications (MEAC) is conducting a study to determine the percentage of innovative procurements in year 2015 and the results are considered as a base line of innovative procurements in Estonia. MEAC is also starting to monitor the innovative procurements in e-procurements system late 2016. A feasibility study was conducted for the design and implementation of demand-side innovation policy instruments. Estonia will start to monitor innovative procurements late 2016 and criteria for evaluation were proposed by the authors of the study 'Feasibility study for the design and implementation of demand-side innovation policy instruments in Estonia' (OECD, 2016, p. 108).

Finland: The Finnish government has launched a study to tackle the measurement issues around innovative public procurement. This will help to monitor the use of innovation procurement and encourage more public procures to use it in the development of public services (OECD, 2016, p. 111).

France: The Department of State Procurement (Service des Achats de l'Etat) ensures that public procurements are efficient from an economic standpoint, respect the objectives of sustainable development and social development, and contribute to supporting innovation. Since 2012, the government has given priority to the development of innovation procurement with a target of 2% of the volume of public procurement awarded to innovative SMEs by 2020. Since 2014, the SAE has included in its procurement performance measurement system an innovation indicator. The indicator relies on two ratios: (i) Total amount of innovation procurement contracts awarded by the department/Total procurement from the Department excluding defence and security; (ii) Total amount of innovation procurement contracts awarded by the Department for SMEs/Total procurement of the Department excluding defence and security. For the time being there are no impact assessments, evaluation studies and/or studies of state of play regarding any type of innovation procurement (OECD, 2016, p. 114).

Germany: Germany uses evaluation studies. It is extremely difficult to set quantitative targets. There is no survey about the amount of innovative procurements in Germany. However, a study to investigate possibilities to survey the most relevant statistical data was launched (OECD, 2016, p. 116).

Greece: There is no system in place to measure the impact of actions related to innovation procurement and there are no quantified targets for innovation procurement in Greece. Impact assessments, evaluation studies and/or studies of state of play regarding innovation procurement do exist (OECD, 2016, p. 117).

Hungary: Hungary does not yet have a system in place to measure the impact of actions related to innovation procurement. The system will be developed in the course of the PCP pilot programme under the National Smart Specialisation Strategy (OECD, 2016, p. 119).

Ireland: The reason why no system currently exists to evaluate the impact of innovation procurement is that the reform of public procurement is in its early days and procurement innovation is presently just being tested on a limited basis. It would be the intention to evaluate procurement innovation at a later stage (OECD, 2016, p. 122).

Italy: There is no system in place to measure the impact of actions related to innovation procurement in Italy. All actions regarding impact evaluation are referred to the NRP (i.e. National Research Plan) 2015-20. For the planning and implementation of the policies and tools provided by the NRP, within the General Directorate for Research, a unit will be

established that is tasked with monitoring. This unit is also tasked with providing access to evidence processed by the different parts of the research system and reprocess them in order to conduct evidence-based modelling. Moreover, this action will develop procedures and tools for ongoing monitoring and analysis of information sources that will allow reproducing technological foresight analysis and documents, acting in synergy with ex-ante and ex-post assessments of research policies (OECD, 2016, p. 124).

Lithuania: The innovation procurement has just begun to gain in importance. Therefore, up until now, there was no need to set up a system to evaluate the impact of innovation procurement. With the basic regulation for PCP in place, Lithuania plans to monitor the implementation of this type of procurement and to measure the impact in the country. In 2011, Lithuania's the Public Procurement Office started collecting statistics on the number of innovative public procurement cases in the country. According to the Innovation Development Programme 2014-20, the share of innovative procurement should have accounted for 2% of all procurement in 2017 and 5% in 2020 (OECD, 2016, p. 128).

Malta: Since innovation procurement is still at its infancy, Malta focuses on raising awareness about the use of innovation procurement and changing the current procurement system. A second step will be to undertake proper evaluations of the impact of innovation procurement (OECD, 2016, p. 130).

Netherlands: The Netherlands monitored the above-described 2.5% target. To assess impact, the Netherlands conducts studies of state of play (OECD, 2016, p. 133).

Norway: There are several partial evaluation exercises, but no overall quantified targets nor a general evaluation encompassing all policy measures. The following partial assessments are relevant: a) Difi (i.e. The agency for Public Management and eGovernance) and the Supplier Development Programme have conducted two surveys on innovation procurements. PWC conducts an annual sourcing survey with trends and findings from both private and public procurement. Innovation is one component in this study; b) The IRD/PRD programme (i.e. The Innovation Norway's Research and Development Programme "Industrial and Public Research and Development Contracts"): In addition to annual customer surveys, the programme is being externally evaluated every fifth year. Latest evaluation in 2012; c) BI, Norwegian Business School, conducted in 2013 an in-depth study of the long-term value creation based on the IRD/PRD projects. There has no target been quantified yet for innovation procurement; however, impact assessments, evaluation studies and studies of state of play are used (OECD, 2016, p. 139).

Poland: Poland has no system to measure the impact of actions related to innovation procurement and no quantified targets have been established. However, some assessments and evaluation studies have been elaborated (see www.paprp.gov.pl - information available mainly in Polish). At the central level, there is no system evaluating the impact of innovation procurements. A basic statistic research based on samples of contract notices is conducted to assess the level of green and social procurement, however also without impact evaluation (OECD, 2016, p. 142).

Portugal: A target for innovation procurement has not yet been quantified. The impact of innovation procurement is measured by impact assessments, evaluations studies and studies of state of play. A system to measure the impact of actions related to innovation procurement was targeted through the National Green Public Procurement Action Plan 2008-10. This report found that "in 2010, over 56% of the procedures and over 60% of the total value of acquisitions of goods and services classified in priority categories [...]"

incorporated environmental criteria or requirements." A National Survey on e-Procurement was conducted to assess the impact of electronic public procurement after one year of mandatory use in Portugal. The percentage of SMEs is assessed (OECD, 2016, p. 146).

Spain: Spain tracks its quantitative target for innovation procurement through a marker in the State Procurement Platform (PACE). This marker indicates if a project corresponds to innovation procurement. There is currently little follow up if the target is fulfilled, apart from the evaluation as part of the INNODEMANDA/INNOCOMPRA programmes, as well as otherwise unevaluated innovation procurements entered in PACE. More resources could be focused on this particular matter. One of the projects tracked by the innovation procurement marker in PACE that is not part of the INNODEMANDA / INNOCOMPRA programme is a new investment project called 'Type K' which is in use since 2013 (OECD, 2016, p. 153).

Sweden: Sweden does not yet have a system to measure the collective impact of innovation procurement-related actions, but the country does use evaluation tools to measure results, outcomes and impacts of individual innovation procurement initiatives. These are followed up by the authorities/organisations in charge of the respective initiative, sometimes in co-operation with other bodies such as the Swedish Agency for Growth Policy Analysis. Since most of the initiatives are fairly recent (with the exception of the Swedish Energy Agency), these activities mainly concern specific cases. There is no quantified target for innovation procurement on a national level. Aside from quantitative targets, introducing qualitative targets may currently be equally or more important than quantitative. "Soft" measures to increase knowledge and co-ordinating demand for innovation procurement are deemed more effective at this point (OECD, 2016, p. 157).

Switzerland: As innovation procurement is not at the centre of Swiss innovation policy, there is no measurement of the impacts of actions related to innovation procurement nor does the government or other institutions define targets with regard to innovation procurement (OECD, 2016, p. 159).

Turkey: The Ministry of Development monitors the progress through 'Programme Monitoring Reports' which are due every six months. The impact of the 'Programme for Technology Development and Domestic Production through Public Procurement' is monitored by performance indicators, which are defined during the development stage. The targets have not yet been achieved. There are no impact assessments, evaluation studies and/or studies of state of play regarding any type of innovation procurement (OECD, 2016, p. 162).

United Kingdom: Innovate UK has commissioned an independent evaluation of the SBRI programme. The terms of reference for the evaluation are to: a) draw up a baseline for SBRI and to understand the effect of the new targets; b) review the SBRI process; c) review the impact of the programme. There is no quantified target for innovation procurement, but the United Kingdom attempts to measure and follow up activities to reach (qualitative) targets (OECD, 2016, p. 164).

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