XPRESS

Facilitating green
public procurement
in the energy sector

Deliverable 2.2

Deliverable 2.2

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Deliverable 2.2

XPRESS dataset

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Scope and structure of this document

In this document, we present the XPRESS approach to data collection on Public Procurement contracts focused on RES (Renewable Energy Sources) technologies and services whose counterparts are mainly local authorities and SMEs (Small and Medium Enterprises).

Secondary source data such as information coming from national databases on GPP (Green Public Procurement) projects will be combined with primary source data, coming from **RESS** (***RES Survey***). A strategy for organizing and analysing the data will be elaborated by all the XPRESS partners. More specifically, XPRESS will be performing:

- A number of in-depth case studies informed also by a GPP literature review, focusing on how leading municipalities/regions are using innovative (dialogue) based public procurement to achieve RES (related) objectives and to what extent they succeed in involving SME in these cases. More specifically, the XPRESS team will build up a selected number of good practise case studies of how leading municipalities/regions are using innovative (dialogue) based public procurement to achieve RES (related) objectives and to what extent they succeed in involving SME in these cases. This data will be the main core for the XPRESS analysis.
- A systematic search in the national databases for public procurement projects in the 10 participating countries (secondary source data) in order to perform a quantitative assessment of SME involvement in public tenders and the occurrence of RES (related) criteria in tender documents.

The RESS has been designed following the existing literature and tailored to assess the current collaboration between SMEs and local authorities in order to implement innovations in RES. The XPRESS Portal will target companies that are directly connected to the XPRESS network via INSME (International Network for Small and Medium Sized Enterprises), the European Builders Confederation (whose secretary is on the XPRESS Specialist Advisory Board), EURADA and the Slovak Craft Industry Federation and local authorities connected to XPRESS via Climate Alliance (Europe and Italy) and European Green Cities.

Specifically, this survey will measure the occurrence and relevance of barriers against innovation in RES from the point of view of:

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- local authorities who plan to buy innovative green solutions via GPPs
- innovative SMEs who plan to sell their green solutions to the local authorities via GPPs

Executing a national survey among both public purchasers and (SME) suppliers, mapping their respective experiences with and views on RES and the potential of GPP for stimulating RES uptake: for each country the RESS will be extended with a national survey addressing a wider set of suppliers and also specific country characteristics in terms of regulations, weather conditions and energy prices among other variables.

The survey will target innovative SMEs but also companies from the country's larger population of SMEs as a comparative group. The comparative group will resemble the innovative SMEs in pre-selected key company indicators but be distinct in terms of RES innovative capacity.

Data will be also collected to support the sustainability assessment based on the life-cycle approach (*LCA-Life Cycle Assessment*, *LCC-Life Cycle Cost*, *SLCA-Social Life Cycle Assessment*). For data gathering, three specific models will be set up, one for each data type to be collected: environmental, economic and social. General information will be acquired from existing databases (i.e., *Eurostat, EU Commission sources, previous EU projects, country statistics, scientific resources*...) and public authority documents; specific information will be collected through interviews and surveys addressed to local authorities. For example, the collected data will concern the specific energy mix used, the actual financial expenditure, the supply contracts, the GPP strategies.

Existing barriers in the RES sector shall be mapped, systematized and described in the context of their appearance in the European RES sector.

The variety of the occurrence and relevance in different European Regions as well as in different business sectors will be described. This will help to specifically plan the focus groups and workshops.

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Secondary Source Data: GPP contracts from TED

As described within the *XPRESS Strategy* **(D1.2)**, **TED** (Tenders Electronic Daily) is the 'online version of the 'Supplement to the Official Journal' of the EU, dedicated to European public procurement' . It contains valuable information, such as the type of the procurement procedure

used, name, and address of the public purchaser, the value of the procurement, the qualification and award criteria, name, address of the awarded suppliers and whether the supplier is an SME.

The initial analysis of the TED dataset has been performed by the XPRESS partners using the statistical software **STATA**[1]. In order to start the construction of the XPRESS Dataset, all the contract award notices related to RES Technologies were selected through the TED's browsing tool. This was done by filtering the search results by the following **CPV**[2] (*Common Procurement Vocabulary*) **codes** that identify uniquely each contract (72 codes out of the possible 9,454 for Public Procurement contracts in all fields). At the same time, we created a new variable called **Priority** in order to rank CPV codes and the contracts identified on the basis of the topic (more or less relevant for our project):

CODE SELECTION	SHORT CODE SELECTION		Priority (1 = High, 2 = Medium, 3 = Low)
31121300-3	31121300	Wind-energy generators	1
31121310-6	31121310	Windmills	3
31121320-9	31121320	Wind turbines	1
31121330-2	31121330	Wind turbine generators	1
31121331-9	31121331	Turbine rotors	2
31121340-5	31121340	Wind farm	1
38126400-8	38126400	Wind surface observing apparatus	3
45251160-0	45251160	Wind-power installation works	1
09300000-2	9300000	Electricity, heating, solar and nuclear energy	1

[1] https://www.stata.com/

[2] The CPV establishes a single classification system for public procurement aimed at standardising the references used by contracting authorities and entities to describe the subject of procurement contracts.

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CODE SELECTION	SHORT CODE SELECTION		Priority (1 = High, 2 = Medium, 3 = Low)
09330000-1	9330000	Solar energy	1
09331000-8	9331000	Solar panels	1
09331100-9	9331100	Solar collectors for heat production	1
09331200-0	9331200	Solar photovoltaic modules	1
09332000-5	9332000	Solar installation	1
31712347-4	31712347	Power or solar diodes	2
38126200-6	38126200	Solar radiation surface observing apparatus	3
45261215-4	45261215	Solar panel roof-covering work	1
31712331-9	31712331	Photovoltaic cells	1
45251120-8	45251120	Hydro-electric plant construction work	1
45251140-4	45251140	Thermal power plant construction work	3
45251141-1	45251141	Geothermal power station construction work	1
45248000-7	45248000	Construction work for hydro-mechanical structures	3
42511110-5	42511110	Heat pumps	1
42530000-0	42530000	Parts of refrigerating and freezing equipment and heat pumps	1

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CODE SELECTION	SHORT CODE SELECTION		Priority (1 = High, 2 = Medium, 3 = Low)
42533000-1	42533000	Parts of heat pumps	1
09134230-8	9134230	Biodiesel	1
09134231-5	9134231	Biodiesel (B20)	1
09134232-2	9134232	Biodiesel (B100)	1
31124000-1	31124000	Steam-turbine generator and related apparatus	2
42112100-8	42112100	Steam turbines	3
42112200-9	42112200	Hydraulic turbines	3
42113100-5	42113100	Parts of steam turbines	3
51130000-2	51130000	Installation services of steam generators, turbines, compressors and burners	3
42113200-6	42113200	Parts of hydraulic turbines	3
42112210-2	42112210	Water wheels	3
42113400-8	42113400	Parts of water wheels	3
42121000-3	42121000	Hydraulic or pneumatic power engines and motors	2
42121100-4	42121100	Hydraulic or pneumatic cylinders	2
42121200-5	42121200	Hydraulic power engines	2

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CODE SELECTION	SHORT CODE SELECTION		Priority (1 = High, 2 = Medium, 3 = Low)
42121400-7	42121400	Hydraulic power motors	2
42122210-5	42122210	Hydraulic power packs	2
42124150-0	42124150	Parts of hydraulic power engines or motors	2
42124221-9	42124221	Parts of hydraulic power packs	2
09111400-4	9111400	Wood fuels	1
03416000-9	3416000	Wood waste	1
03413000-8	3413000	Fuel wood	1
24327200-4	24327200	Wood charcoal	3
45251142-8	45251142	Wood-fired power station construction work	1
34144900-7	34144900	Electric vehicles	1
34144910-0	34144910	Electric buses	1
51111000-3	51111000	Installation services of electric motors, generators and transformers	2
51111100-4	51111100	Installation services of electric motors	2
31100000-7	31100000	Electric motors, generators and transformers	2
31110000-0	31110000	Electric motors	2

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CODE SELECTION	SHORT CODE SELECTION		Priority (1 = High, 2 = Medium, 3 = Low)
31160000-5	31160000	Parts of electric motors, generators and transformers	2
31161000-2	31161000	Parts for electrical motors and generators	2
50532100-4	50532100	Repair and maintenance services of electric motors	2
71314000-2	71314000	Energy and related services	2
65400000-7	65400000	Other sources of energy supplies and distribution	2
09000000-3	9000000	Petroleum products, fuel, electricity and other sources of energy	2
09310000-5	9310000	Electricity	2
31200000-8	31200000	Electricity distribution and control apparatus	2
31682000-0	31682000	Electricity supplies	2
24111600-1	24111600	Hydrogen	2
09323000-9	9323000	District heating	2
42515000-9	42515000	District heating boiler	3
45251250-8	45251250	District-heating plant construction work	3
45232140-5	45232140	District-heating mains construction work	3

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CODE SELECTION	SHORT CODE SELECTION		Priority (1 = High, 2 = Medium, 3 = Low)
42320000-5	42320000	Waste incinerators	2
45252300-1	45252300	Refuse-incineration plant construction work	3
51135110-1	51135110	Installation services of waste incinerators	2
90513300-9	90513300	Refuse incineration services	3

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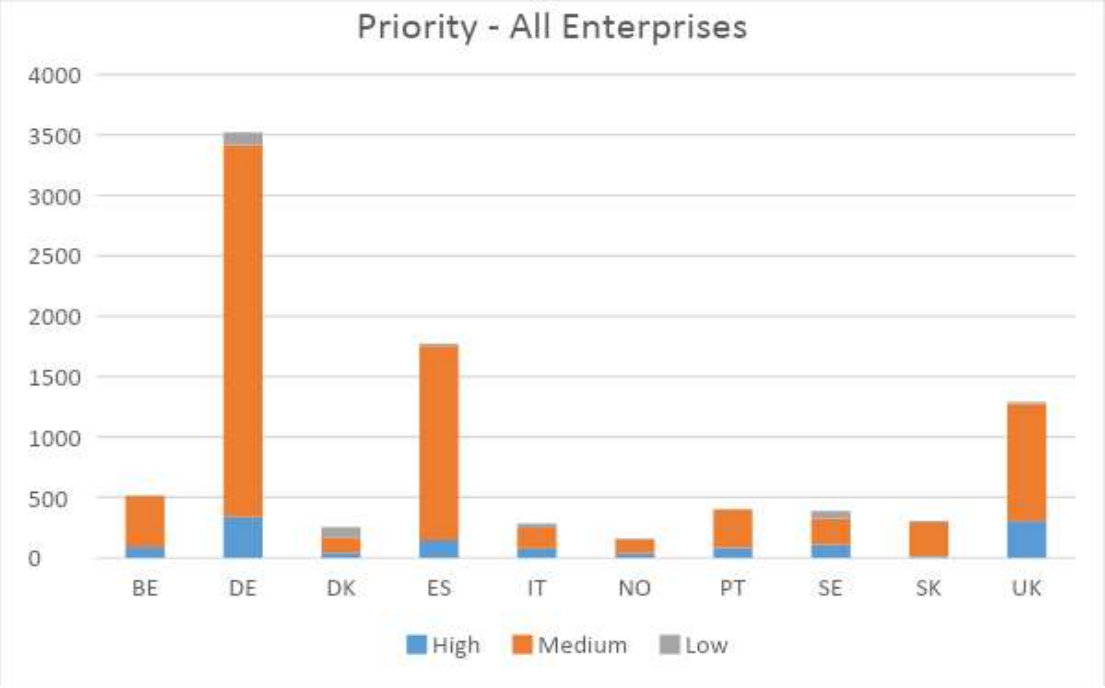
Priority (ALL ENTERPRISES)				
Country	**High**	**Medium**	**Low**	Total
BE	89	419	10	**518**
DE	337	3,081	103	**3,521**
DK	42	128	85	**255**
ES	147	1,606	20	**1,773**
IT	78	170	36	**284**
NO	37	116	10	**163**
PT	83	318	3	**404**
SE	109	216	63	**388**
SK	12	279	14	**305**
UK	303	974	14	**1,291**
Total	1,237	7,307	358	**8,902**



As a result, 8,902 contracts were identified with different degrees of priorities for each one of the partner countries.

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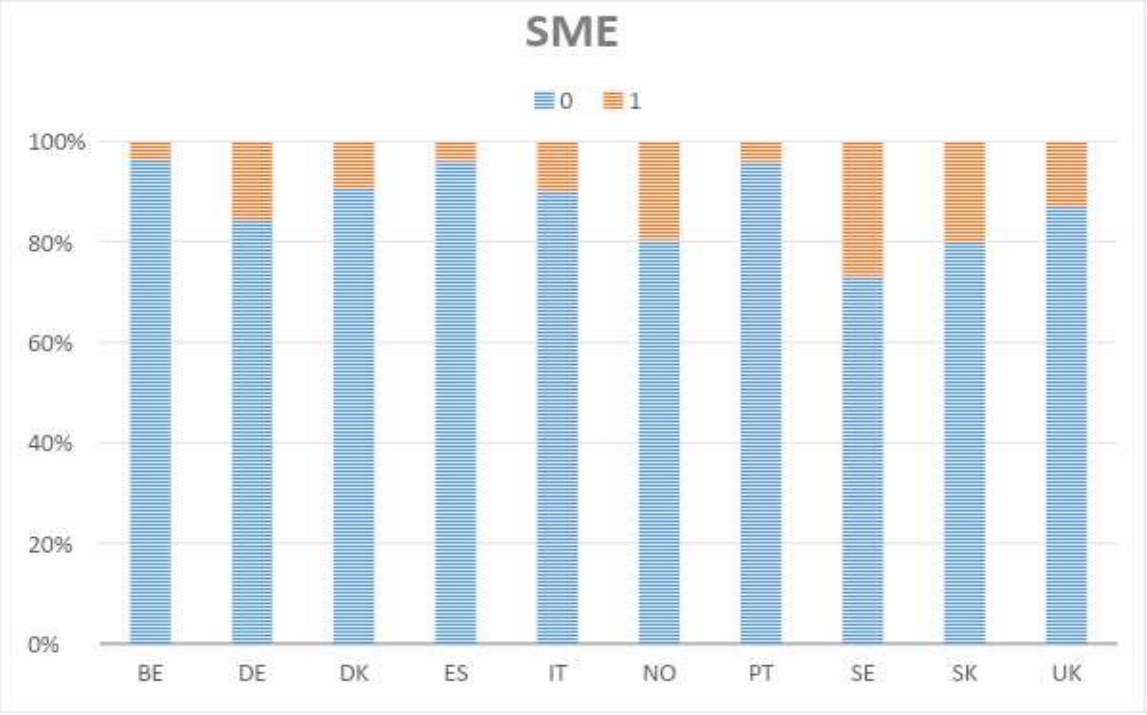
Within this initial selection , using the *statistical software* ***STATA***[3], we also created a *new dummy variable* (which takes values either 0 or 1) called **SME** to have a clear view of the percentage of GPP contracts, within TED, whose counterpart are SMEs:

SME

Country	**0 (%)**	**1 (%)**	Total (%)
BE	96.3	3.7	100
DE	84.5	15.5	100
DK	90.6	9.4	100
ES	96.1	3.9	100
IT	90.1	9.9	100
NO	80.4	19.6	100
PT	96	4	100
SE	73.2	26.8	100
SK	80	20	100
UK	87.1	12.9	100



From this initial screening, it is clear that the proportion of GPP contracts involving SMEs for the XPRESS partner countries is still very low as it is shown by the table below where we selected

[3] https://www.stata.com/

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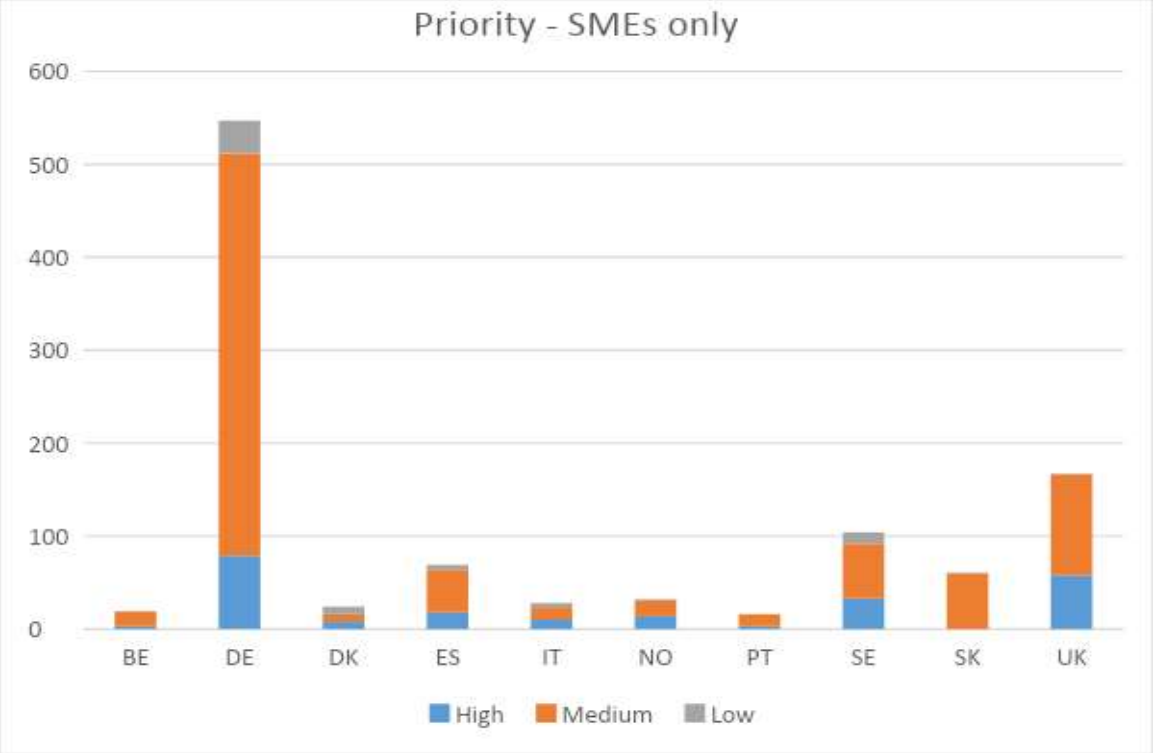
the GPP contracts whose counterparts are SMEs, a total of 1,067 for the XPRESS partner countries:

Priority (SMEs only)				
Country	**High**	**Medium**	**Low**	Total
BE	3	16	0	**19**
DE	79	433	35	**547**
DK	8	8	8	**24**
ES	18	46	5	**69**
IT	10	13	5	**28**
NO	14	17	1	**32**
PT	3	13	0	**16**
SE	33	59	12	**104**
SK	0	60	1	**61**
UK	58	108	1	**167**
Total	226	773	68	**1,067**



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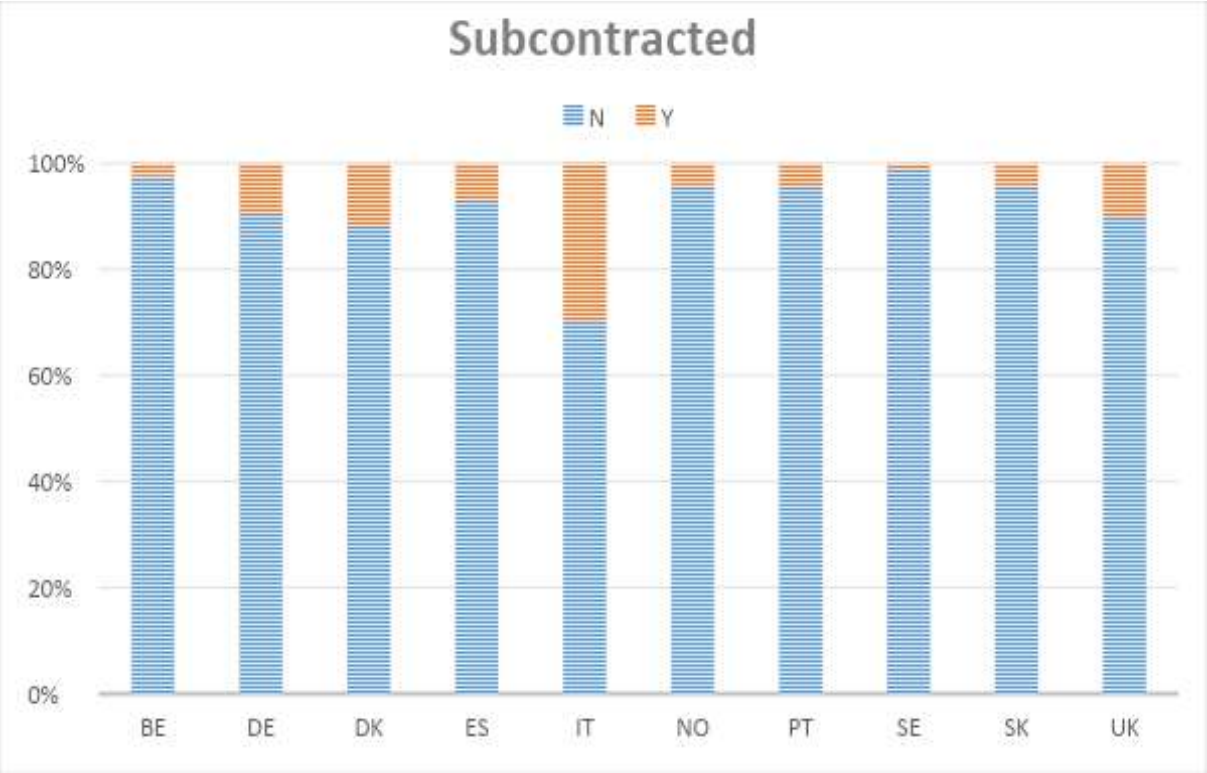
Similarly, the following variable **B_SUBCONTRACTED** was created. This variable provides some information on whether the contract is likely to be subcontracted and it is directly provided by the TED database:

SUBCONTRACTED

Country	N (%)	Y (%)	Total (%)
BE	97.6	2.4	100
DE	90.5	9.5	100
DK	88.4	11.6	100
ES	93	7	100
IT	70.5	29.5	100
NO	95.9	4.1	100
PT	95.7	4.3	100
SE	98.9	1.1	100
SK	95.9	4.1	100
UK	90.1	9.9	100



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Type of Procedure

The values of this variable (expressed in %) are the following:

1. **AWP** "award without prior publication of a contract notice"
2. **COD** "competitive dialogue"
3. **NOC/NOP** "negotiated without a call for competition"
4. **NIC/NIP** "negotiated with a call for competition"
5. **OPE** "open"
6. **RES** "restricted"

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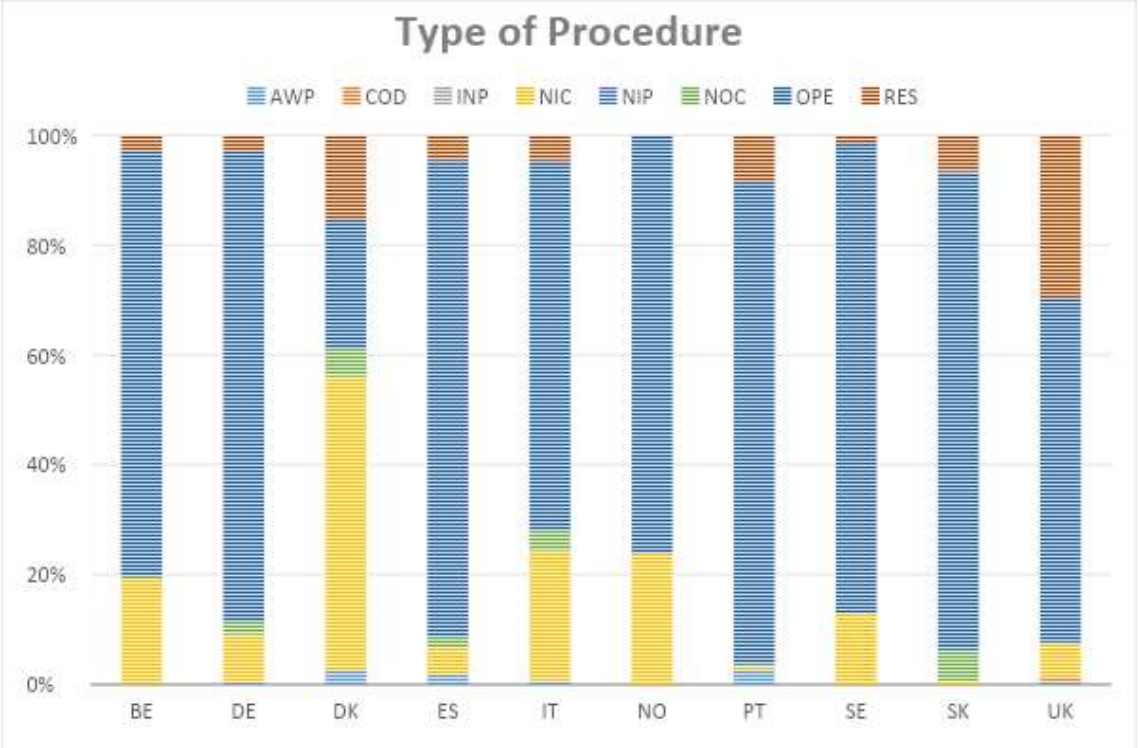
Country	AWP (%)	COD (%)	INP (%)	NIC (%)	NIP (%)	NOC (%)	OPE (%)	RES (%)	Total (%)
BE	0	0.2	0	19.1	0	0.4	**77.4**	2.9	100
DE	0.3	0.1	0	8.7	0	2.4	**85.7**	2.9	100
DK	2.7	0	0	**53.3**	0	5.1	23.5	15.3	100
ES	1.7	0.1	0	4.9	0	2	**86.9**	4.5	100
IT	0.4	0	0.4	23.6	0	3.9	**67.3**	4.6	100
NO	0	0	0	23.9	0	0	**76.1**	0	100
PT	2.7	0	0	0.7	0	0.2	**87.9**	8.4	100
SE	0	0	0	12.9	0	0	**85.8**	1.3	100
SK	0	0	0	0.7	0	5.6	**87.2**	6.6	100
UK	0.4	0.8	0.1	6	0.1	0.3	**62.7**	29.6	100

It is clear that the majority of the procedures are "open". The only exception is represented by Denmark where most of the procedures are "negotiated with a call for competition".



Type of Contract

The possible values of this variable are the following:

1. **W** "Works"
2. **U** "Supplies"
3. **S** "Services"

TYPE_OF_CONTRACT				
Country	S	U	W	Total
BE	1	18	0	19
DE	25	463	59	547
DK	3	13	8	24
ES	6	63	0	69
IT	11	15	2	28
NO	4	26	2	32
PT	0	16	0	16
SE	53	46	5	104
SK	0	60	1	61
UK	82	50	35	167
Total	185	770	112	1,067

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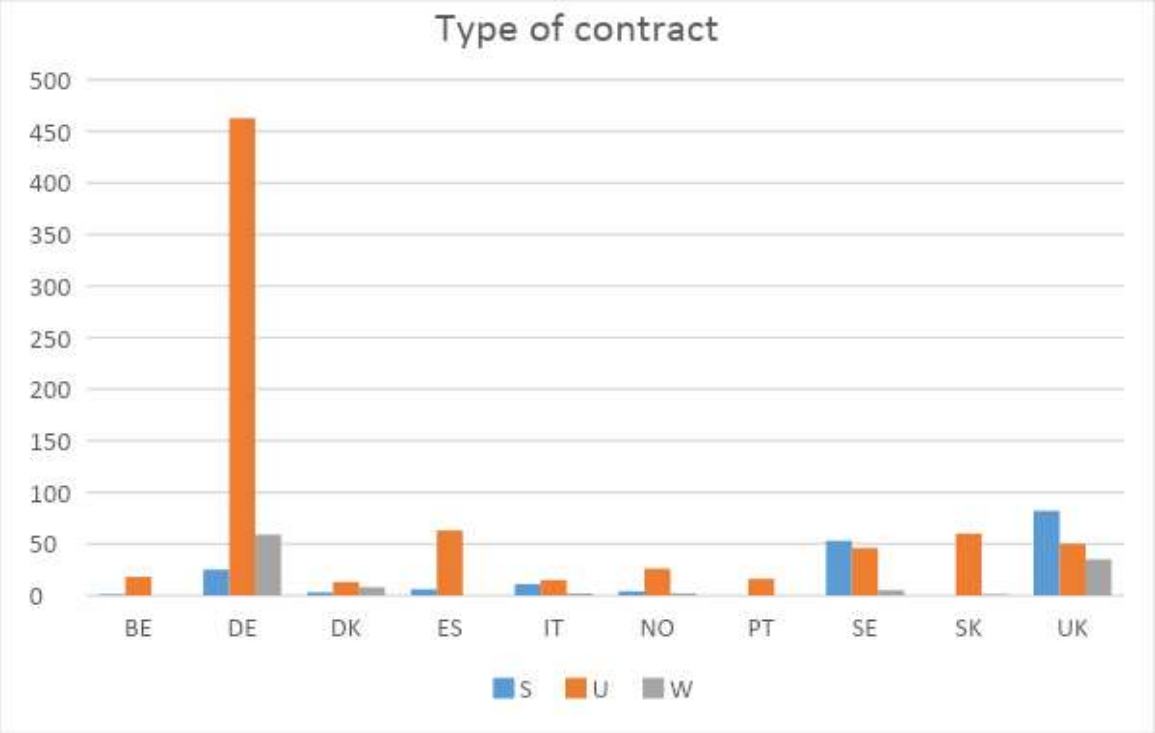

Expressed in percentages:

Country	S (%)	U (%)	W (%)	Total (%)
BE	10.2	**87.3**	2.5	100
DE	3.7	**90.4**	5.9	100
DK	18.8	**47.1**	**34.1**	100
ES	4.2	**95.3**	0.5	100
IT	17.3	**66.5**	16.2	100
NO	17.2	**68.7**	14.1	100
PT	6.9	**91.3**	1.7	100
SE	**40.5**	**50**	9.5	100
SK	3.3	**91.8**	4.9	100
UK	22.3	**58**	19.7	100

Figure 6 – search results sample

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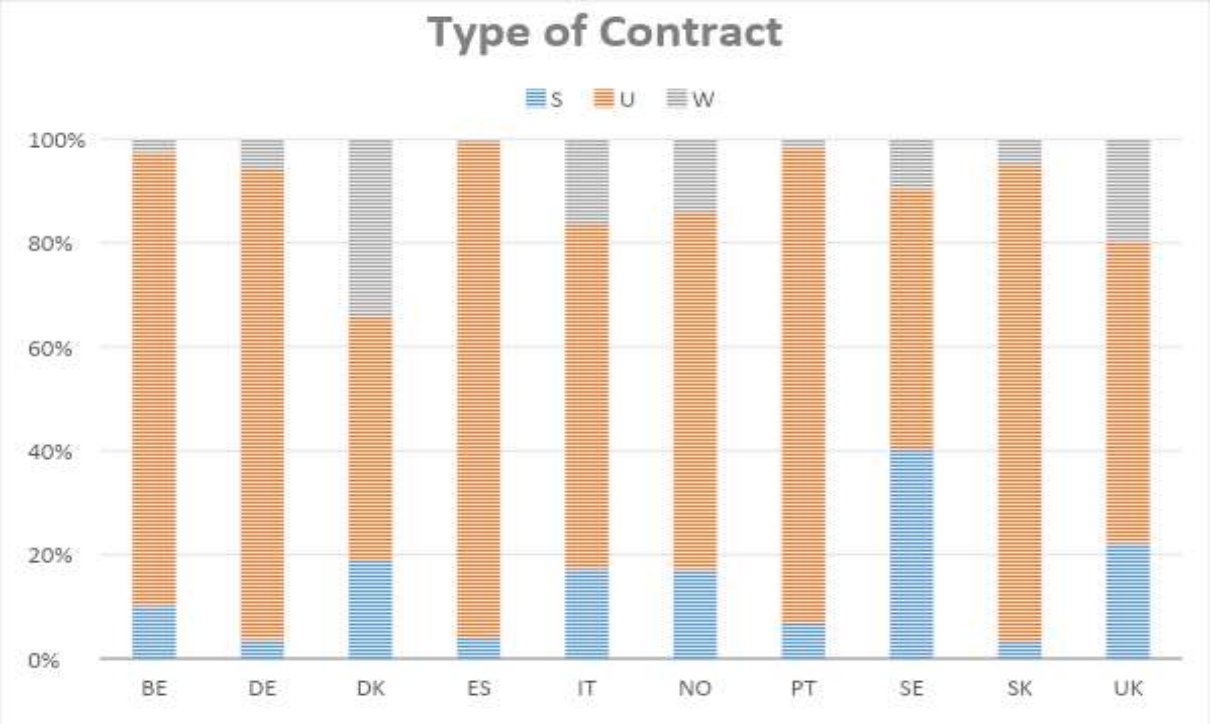

For most of the XPRESS partner countries, most of the GPP contracts are for RES supplies. High portions are going towards works for Denmark and services for Sweden.

Smaller GPP contracts

TED (following the Official Journal of the EU 2017/2365) requires the publication of contracts by local authorities above a value of 221,000 Euros.

Usually other Public Procurement contracts are published on other local web pages (for example, for the UK it is https://www.contractsfinder.service.gov.uk/Search).

Initially we will focus on the contracts from TED and then we will move to the additional contracts.

Below is a description of the ***main national sources of Public Procurement contracts*** for the XPRESS partner countries:

1. **BELGIUM**

Publicprocurement.be (www.publicprocurement.be/) is the federal-level public procurement portal. It is the responsibility of the Public Procurement Offices of both the Federal Public Service for Policy and Support and the Chancellery of the Prime Minister. On it can be found manuals,

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sample documents, and relevant contacts providing information on the different aspects of public procurement, including the electronic processing of public contracts.

Belgian federal government procurement regulations are based on the EU-level regulations. These rules – laid out in the "Law of 17 June 2016 on Public Procurement" – apply to all governments in Belgium, including the Flemish and Walloon regional governments. The Belgian federal-level legislation takes precedence over regional-level legislation, such that any Flemish or Walloon procurement has to respect the minimal rules set out at federal level with the option of having more rules in place.

According to the above Law, contracts with an estimated value of less than 30 000 EUR (excluding VAT) are considered to be of "limited value". This means that they can be awarded via an "accepted invoice", essentially exempting them from most of the normal procurement rules. The requirements to use the online procurement portals do not apply to these contracts of limited value.

Belgian public procurement regulations impose rules for:

- Announcement: In most cases, the government has to announce which contract it wants to have carried out and what the conditions are to compete.
- Type of contract: Is it about services, supplies or works? Different rules apply to each type of assignment.
- Procedure: Depending on the nature of the contract, the government must follow a specific procedure to choose between the various companies that are candidates to perform the contract.
- Execution: After the conclusion of the order, rules also apply for, among other things, the execution time of the order, payment, invoicing, changes.

The Belgian government publishes its public contracts through the Bulletin of Procurers (BDA).

Since 1 January 2011, the announcements in the BDA have been updated in e-Notification, an online platform where all public authorities in Belgium publish their public contracts.

- Entrepreneurs can consult all announcements, specifications and documents online in the daily bulletins or look them up via a simple search module.
- They can also register for free and set up search profiles. Based on these search profiles, they receive an overview of the announcements that concern them by email.

Furthermore, Belgian legislation pays special attention to sustainable public procurement, the so-called "achats durables". To encourage all levels of public administration to meet this very relevant need, a special set of guidelines was issued in 2014 by Royal Decree. The overseeing body is FIDO (the Federal Institute for Sustainable Development). These guidelines are based on the three criteria for sustainable development: (i) protecting the environment and reducing the carbon footprint of government consumption; (ii) encouraging decent work, working conditions and fostering green jobs and (iii) improving the quality of economic growth, the competitiveness

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of companies and the conditions for competition through the creation of a level-playing field that allows sufficient companies to participate in public procurement contracts. Besides the general guidelines, there are special guidelines for energy efficiency, sustainable wood, vehicles and cleaning products.

2. GERMANY

The procurement statistics are collected by the Federal Statistical Office on behalf of the Federal Ministry for Economic Affairs and Energy (BMWi). The compulsory reporting of the procurement statistics in the Federal Statistical Office does not start until October 1, 2020. The first results are expected to be published in the second half of 2021.

At the present time, the transitional regulation of the Ordinance on Public Procurement (Section 7 of the VergStatVO) still applies; in concrete terms, this means that contracting authorities and sector clients send the Federal Ministry for Economic Affairs and Energy (BMWi) an annual statistical list of the contracts awarded in the previous year. Accordingly, the current data are still with the BMWi. An overview about the contracting volumes of past years can be found under the link https://www.bmwi.de/Redaktion/DE/Textsammlungen/Wirtschaft/eu-statistik.html (in German)

The overviews are per year (in pdf form) and range from 2003 to 2020. The yearly lists are based on the data provided to the BMWi by the public clients. ("They make no claim to be correct and complete."). They report ANNUAL TOTAL STATISTICAL POSITION according to § 8 of the VergStatVO. The notifying body is Germany. The lists contain both positions beyond the threshold and below. The aggregated contracts cover three categories:

- Construction contracts
- Service contracts
- Delivery orders

For each category one list provides

- the Contracting authority
- the aggregated amount that was contracted per contracting authorities
- for services: the separate subcategories Social and other special services and Social and other special services - independent institutions are available

and the other list provides data about

- the state
- the aggregated amount that was contracted per contracting authorities
- for services: the separate subcategories Social and other special services

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3. DENMARK

Udbud.dk is administered by the Danish Competition and Consumer Authority. As a supplier, Udbud.dk gives a simple and easy access to procurement notices and public-authority procurement plans. Udbud.dk includes a list of procurements by public authorities in Denmark. Udbud.dk includes national tender procedures, EU procurement procedures and public authority procurement plans.

The website is updated with new notices and advertisements to tender on a daily basis.

One can find a list of active procurement procedures and procurement plans announced by public authorities in Denmark. You can use simple searches and full text searches to find the procurement procedures relevant for your business. See: https://udbud.dk

Comdia (https://www.comdia.com) is a procurement portal that easily and free of charge enables companies to win assignments with the state, municipalities, utilities and other public organizations. Comdia is used by everyone - from small local craftsmen to large nationwide suppliers of goods and services. 30 + public organisations and 8.500 companies are users of the portal, which can be found here: https://www.comdia.com (the website is also in English). In Denmark, SMEs use the Comdia portal , according to interviews with SMEs in the XPRESS project.

4. SPAIN

The (https://contrataciondelestado.es/wps/portal/plataforma) Public Sector Procurement Platform allows the consultation of the tenders published in the contractor's Profiles, that are also hosted in the platform. The platform also uses aggregation mechanisms to publish tenders from public bodies using other platforms.

Besides hosting a contractor's profile for all types of public bodies, the platform also allows the registration of enterprises.

The search engine is one of the most important elements of the Platform. By inserting text and / or modifiers in the edit box enabled for this purpose, the following types of documents can be searched:

- The Specifications (any format).
- Previous announcement.
- Tender Announcement.
- Award Announcement.
- Formalization Announcement.
- Document associated with a Contracting Authority.

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- Documents attached to the Web content.
- Any other document published in the Information area of the Platform

From January 1, 2020, The Ministry of Finance has modified the public procurement thresholds to the new ones established by the EC, this apply to the following laws:

- Law 9/2017, of November 8, on Public Sector Contracts.
- Law 31/2007, of October 30, on contracting procedures in the water, energy, transport and postal services sectors.
- Law 24/2011, of August 1, on public sector contracts in the fields of defense and security.

(source: https://www.elsectorpublico.es/elsp/noticias/1931923/1662130/0/se-modifican-los-umbrales-de-contratacion-publica-para-2020.html)

5. ITALY

The obligations to publish acts relating to public contracts derive from the necessity to comply with the European Community principle of ensuring maximum transparency in order to allow the widest possible participation of economic operators in public tendering procedures.

The regulatory references governing the publication of calls for tenders and the results of tenders by the Contracting Stations can be found in articles 36 c. 9 (in the context of ordinary procedures with a value below the EU threshold see articles 60 and 61 of the Code) 70, 71, 72 and 98 of Legislative Decree no. 50/2016 (the Public Contracts Code, hereinafter the "Code") and the Ministerial Decree of 2 December 2016 issued by the MIT - Ministry of Infrastructure and Transport (hereinafter the Ministerial Decree).

The publication by the Contracting Stations of calls for tenders or related notices (so-called "legal publicity") concerns all tender procedures with public evidence, such as ordinary procedures (open and restricted) and dynamic acquisition systems, regardless of their economic value, which must be taken into consideration for the sole purpose of identifying the channels through which the notices must be published; in fact, it is necessary to make a distinction between contracts with a value below and above the EU thresholds referred to in art. 35, paragraph 1 of the Code.

A further factor that affects the manner of publication of the tender notices to be taken into consideration has to do with the type of contract, i.e. if it refers to supply and services or to works.

As provided for in articles 29 c. 2, 73 c. 4 and 216 c. 11 of the Code, the notices and calls for tender should be published at national level on the MIT IT platform and on the digital platform set up at A.N.A.C. (http://portaletrasparenza.anticorruzione.it/microstrategy/html/index.htm).

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Until the date of the A.N.A.C. platform being fully operative, the obligation of publication at national level should continue to be fulfilled through the special series dedicated to public contracts in the Gazzetta Ufficiale della Repubblica Italiana (GURI).

Methods of publication of calls for tenders

Notices of ordinary tender **procedures relating to supply and service contracts with a value below the EU threshold** must be published on the platform GURI (https://www.gazzettaufficiale.it) and within 2 days, on the buyer's profile and on the MIT IT platform (https://portaleappalti.mit.gov.it/PortaleAppalti/it/homepage.wp

https://www.serviziocontrattipubblici.it/SPInApp) also through regional computerised systems (art. 73 of the Code and art. 2 of the Ministerial Decree).

Notices of ordinary tender **procedures for works contracts with a value of less than € 500,000.00** must be published on the official notice board of the Municipality where the works are carried out in accordance with art. 36, paragraph 9 of the Code and art. 2, paragraph 6 of the Ministerial Decree, as well as on the client's profile and on the MIT IT platform also through regional computerised systems.

Notices of ordinary tender **procedures concerning works contracts and concessions with a value higher than € 500,000.00** and lower than the EU threshold must be published on the GURI, with an excerpt in a national newspaper and a local newspaper in the place where the contracts are carried out (art. 3 c. 1 letter a of the Ministerial Decree), on the client's profile and on the MIT IT platform also through regional computerised systems.

With regard to the results of the tender, the channels through which publication must take place are the same as those provided for the calls for tender previously processed. The articles regulating this type of notice are 98 of the Code and 4 of the Ministerial Decree.

Mercato Elettronico della Pubblica Amministrazione

www.acquistinretepa.it/

MePA ("Mercato Elettronico della Pubblica Amministrazione") is the Italian public procurement portal focused on the Business 2 Government (B2G) sector.

MePA is a tool of the Ministry of Economy and Finance and it has been initiated and is now managed by Consip (National centralized purchasing entity).

The virtual market is utilized by public entities for the purchase of goods and services within the European thresholds (139.000€ for the Central government authorities and 214.000€ for the other administrations),.

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Overall, there are significant differences between the Italian regions e-procurement requirements, for instance, Lombardy, Emilia Romagna and the Province of Bolzano introduced mandatory requirements for e-procurement platforms meanwhile the other regions use the tool on a voluntary basis. MePA is used by roughly 50% of contracting offices and mainly for standardized goods.

MePA gives the opportunity to the PA entities to scroll within the categories of offers and either directly purchase or make an offer, the system leads to an overall decrease of costs, increase of competitiveness and monitoring tools, in the PA point of view, meanwhile the supplier will benefit from the possibility to reach a new market segment, possibility to choose the geographical area size in which compete, from single province to whole nation.

Within the 2017-2019 period MePA has grown in terms of users (+43%) and value of the purchases (+58% or +€ 13 billions), in 2019 the total number of contracts signed equal to € 692.000.

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6. NORWAY

Doffin

Doffin (https://www.doffin.no/en) is the Norwegian national notification database for public procurement. The website will help Contracting Authorities to create and publish notices in accordance with the regulations, and make it easy for suppliers to find relevant competitions in the public sector.

The purpose of the base of the procurement notices is to:

- Ensure competition and openness about business opportunities
- To forward all procurement notices for the announcement in TED when this is necessary
- Ensure the Control of procurement notices before publishing
- To publish and distribute the procurement notices in a searchable format
- Make relevant statistics in the public sector

Operator for Doffin is EUS Holdings Ltd (EU-Supply). The Agency for Public Management and eGovernment (Difi) manages the DOFFIN on behalf of the Ministry of Trade, Industry and fisheries (NFD).

7. PORTUGAL

Base

"Base" (http://www.base.gov.pt/Base/pt/Homepage) is the name of the Portugese Public Procurement Portal. It is designed to: gather in one place the most important data on public contracts that have been concluded; advertise the publishing of calls for tenders and other procurement procedures, the conclusion of contracts, and any penalties imposed for breaking the Portugese law on PP (the "Public Contracts Code"); share technical information and legislation relevant to PP; and promote awareness of PP.

The website brings together a variety of different Portugese bodies, visible at this link and allows for a number of different types of procedure, to be read about here. Law No 96/2015 of 17 August 2015 (available here in English translation) lays out in law the rules for the use of public procurement electronic platforms.

Importantly, notices of the start of PP procedures are sent to the Base portal after having been published in the gazette "Imprensa Nacional - Casa da Moeda", which is updated daily.

According to the Base website, all notices must be published on the portal. Some, though, must also be published in the Official Journal of the European Union when their value is at or above the following levels:

- €5 548 000 for public works contracts
- €144 000 for purchases of goods or services by the State
- €22,000 for purchases of goods or services by any other contracting entity.

Tender notices relating to the concession of public works (be it an open procedure, a restricted procedure or a negotiated procedure) must always be published in the Official Journal of the European Union.

8. SWEDEN

In Sweden, there are several databases available to public authorities to add tenders. They are mostly paid services that SMEs can find tenders and respond to them. They also send notifications to SMEs on upcoming tenders. National agency for public procurement has a page that almost all these sites are listed[4].

E-avrop

E-Avrop (www.e-avrop.com) is a Swedish company that provides knowledge and products for the digital purchasing process. We provide system support for purchasing analysis, e-procurement and e-commerce in the public sector. According to our users, our system is easy to learn and easy to use. Our system is continuously developed in consultation with our customers

[4] https://www.upphandlingsmyndigheten.se/upphandla/Processen-for-LOU/upphandlingen/annonsera/

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who are experts in procurement and purchasing. Together with our customers, we contribute to improve a procurement process enabling the good deal.

Visma Tendsign

Visma Tendsign (https://www.visma.com/procurement/procurement-system/) is Sweden's leading cloud service for digital procurement and a crucial tool for hundreds of authorities, municipalities, county councils and most private companies. With TendSign as a contractor, you can streamline your work process easily and effectively. You work completely digitally with your procurements in structured documents that are easily shared with colleagues.

Kommers Annons

Kommers Annons (www.kommersannons.se) is a portal for suppliers who want to find ongoing procurements, submit tenders and manage e-commerce. The use varies between different customers. Some organizations have their own Commerce Advertising portals. You currently need a separate user account for each portal**. It is free to use Kommers Annons.**

Licitio

UdbudsVagten (www.licitio.se) is part of the Mercell group, which is the leading supplier of digital tender and procurement platforms in the Nordic region. The Mercell group is currently on an exciting international growth journey together with Viking Venture, which specializes in investing in Nordic B2B SaaS companies. The Mercell group has existed since 1999, is represented in 12 countries in Europe - including Denmark, Norway and Sweden - and currently has 220 employees in ten countries in Europe.

Mercell

Mercell (www.mercell.se) provides public sector procurement throughout Europe. In addition, Mercell mediates exclusive procurements from private companies in various industries. Every day, Mercell announces approximately 2,500 procurements and we at Mercell tailor monitoring solutions for your company and the areas in which you operate. Mercell also provides award decisions and information on outgoing framework agreements.

Offentliga upphandlingar

Offentliga upphandlingar (www.ofentligaupphandlingar.se) has gathered Sweden's and Europe's current public procurements in one place. You can be sure to find what you are looking for regardless of size, industry area, type of contracting entity and threshold value.

Visma Opic

Opic Upphandlingskoll (www.opic.com) is the market's most used service for finding business opportunities in the public sector. With a tailored monitoring profile, you are always updated with interesting procurements. Everything available in a user-friendly, web-based tool that works just as well to use in the mobile and tablet as in the computer.

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9. SLOVAKIA

The database (https://www.uvo.gov.sk/vestnik/oznamenia/zoznam) is administered by the National Office for Public Procurement. The register consists of all types of procurements, above thresholds and below thresholds, too.

In 2019 there was recorded 2798 procedures with total amount of 4 635 Mio. EUR, there of under national thresholds were 1387 procedures in amount of 695 Mio EUR (split in 1800 final contracts), and above thresholds were 1411 procedures with amount of 3 940 Mio. EUR (3000 contracts).

Below are the main thresholds as informed by the Slovak legislation act:

a. 70 000 eur, for goods´ delivery except food (no under threshold for food exist) and for most services´ delivery,

b. 260 000 eur, for specific services' delivery,

c. 180 000 eur, for building services´ delivery

10. United Kingdom

Contracts Finder

The main national database for the UK is Contracts Finder: https://www.gov.uk/contracts-finder

Government tenders with a value over £10,000 and local government tenders with a value over £25,000 are required to be posted here. It contains both historic (i.e. "Closed" and "Awarded") tenders as well as current "Open" tenders. It includes options to filter by "suitable for SMEs", "Awarded to SME", "Value", "Sector", etc.

For tenders pre-2015, these are archived here: https://data.gov.uk/data/contracts-finder-archive/

Scotland, Wales and Northern Ireland each also have their own sites for publishing open tenders:

- Public Contracts Scotland:

  https://www.publiccontractsscotland.gov.uk/search/search_mainpage.aspx

- Sell2Wales: https://www.sell2wales.gov.wales/

- ESourcing and ETenders Northern Ireland:

  https://e-sourcingni.bravosolution.co.uk/web/login.shtml &
  https://etendersni.gov.uk/epps/home.do

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Primary Source Data: Renewable Energy Sources Survey (RESS)

A substantial source of the XPRESS data (primary source data) is represented by the information that will be collected via the RESS. Below we report the two questionnaires (one for the SMEs and one for the Public Authorities PAs) which are planned to be published on the XPRESS Portal shortly.

A shorter version (*draft RESS*) of these questions was presented to the relevant stakeholders during the XPRESS co-creation workshops.

The questions are based on three related Innobarometer-Eurobarometer surveys[5] which have been conducted on behalf of the European Commission and the responsible Directorate-General(s), particular modules are commissioned by the European Parliament. The survey results are regularly published in official reports by the European Commission or rather by the European Parliament. These surveys are:

1. ***Flash Eurobarometer 456***: SMEs, resource efficiency and green markets' survey
2. ***Flash Eurobarometer 315***: Attitudes of European entrepreneurs towards eco-innovation
3. ***Flash 415 Innobarometer***, 2015 – "The innovation trends at EU enterprises" survey

The objective of this revision is to align the RESS with existing datasets in order to have a suitable term of comparison for the upcoming results of the XPRESS analysis. Below we report the final RESS questions and the answers from the corresponding existing datasets which have informed the RESS. For each survey, we present relevant tables which are the result of direct analysis of the data (using the statistical software **STATA**) which will be used by the XPRESS partners as a comparison to conduct the financial, economic, social and environmental analysis of the interaction between SMEs and PAs towards the implementation of RES technologies via Public Procurement. Further analisys of these datasets will be performed as they will be combined with the Primary source data generated by the XPRESS project resulting into the *extended XPRESS dataset* (secondary + primary data).

1.1.1. The Flash Eurobarometer 456: SMEs, resource efficiency and green markets'

The 'Flash Eurobarometer 456: SMEs, resource efficiency and green markets' survey follows up on past Eurobarometer surveys (FL342 in 2012, FL381 in 2013 and FL426 in 2015) in reviewing the current levels of resource efficiency actions and the state of the green market amongst Europe's SMEs, as well as in neighbouring countries and in the US. Topics covered include current and planned resource efficiency actions, barriers when implementing resource

[5] https://www.gesis.org/eurobarometer-data-service/home

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efficiency actions, the role and impact of different types of external support used by SMEs for the production of green products or services and the current state of the green markets.

This survey inspired the following set of **RESS questions**:

Questions for SMEs:

1. Does your company offer green products or services related to Renewable Energy Sources - RES?
    a. Yes, and you have been for less than one year
    b. Yes, and you have been for the last 1-3 years
    c. Yes, and you have been for more than 3 years
    d. No, but you are planning to do so in the next year
    e. No, but you are planning to do so in the next 2 years
    f. No, and you are not planning to do so

2. How much did green products or services related to RES represent in your annual turnover of the latest available fiscal year?
    a. Not applicable;
    b. Up to 5% ;
    c. 6-10% ;
    d. 11-30% ;
    e. 31-50% ;
    f. 51-75% ;
    g. More than 75%

3. What type(s) of external support does your company receive for the production of its green products or services related to RES? (Multiple choices allowed)
    a. Public funding such as grants, guarantees or loans;
    b. Private funding (e.g. from a bank, investment company or venture capital fund);
    c. Private funding from friends or relatives;

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d. Advice or other non-financial assistance from public administration(s);

e. Advice or other non-financial assistance from private consulting and audit companies;

f. Advice or other non-financial assistance from business associations;

g. No external support;

h. Not applicable

4. What type of support would help you the most to launch or expand your range of green products or services related to RES? (Multiple choices allowed)

   a. Financial support to help enterprises bidding for public tenders;

   b. Legal support to help enterprises bidding for public tenders;

   c. Financial incentives for developing products, services or new production processes;

   d. Assistance with identifying potential markets or customers;

   e. Standardisation and simplification of tender procedures;

   f. Technical support and consultancy for the development of products, services and production processes;

   g. Consultancy services for marketing or distribution;

   h. Refurbished or new public buildings that are technology ready;

   i. No support;

   j. Not applicable

Questions for Public Authorities:

These questions were crafted by the XPRESS partnership so as to mirror the questions addressed to the SMEs:

1. Does your administration buy green products or services related to Renewable Energy Sources (RES)?

   a. Yes, and you have been for less than one year

   b. Yes, and you have been for the last 1-3 years

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c. Yes, and you have been for more than 3 years

d. No, but you are planning to do so in the next year

e. No, but you are planning to do so in the next 2 years

f. No, and you are not planning to do so

2. How much did green products or services related to RES represent in your annual costs of the latest available fiscal year?

   a. Up to 5% ;

   b. 6-10% ;

   c. 11-30% ;

   d. 31-50% ;

   e. 51-75% ;

   f. More than 75%

   g. Not applicable

3. What type(s) of support would you be ready to supply to small and medium-sized enterprises (SMEs) to help them develop green products or services in the RES market? (Multiple choices allowed)

   a. Financial support to help enterprises bidding for the tender

   b. Legal support to help enterprises bidding for the tender

   c. Financial incentives for developing and selling products, services or new production processes via public procurement;

   d. Standardisation and simplification of tender procedures;

   e. Technical support and consultancy for dealing with tender procedures;

   f. Technical support and consultancy for the installation of green technologies;

   g. Refurbishing and / or creating public buildings that are technology ready;

   h. No support

1.1.2. The Flash Eurobarometer 456 answers

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Below we present a selection of the original Eurobarometer questions that have been used for the final version of RESS. For each question, we provide the answers collected from the SMEs belonging to the XPRESS partner countries. These answers explain the choice of the corresponding RESS questions. All the results are expressed in percentages.

Does your company offer green products or services?

Country code	Yes	No but you are planning to do so in the next 2 years	No and you are not planning to do so	Total
BE	30.2	9.7	54.5	100
DE	33.5	5	58.2	100
DK	32.5	4.5	59.3	100
ES	29.8	9.4	57.1	100
IT	17.2	4.5	74.8	100
NO	44.7	6.5	45.1	100
PT	32	12.8	43.3	100
SE	46.7	5.2	43.4	100
SK	32.4	6	56.7	100
UK	25.8	8.6	56.4	100

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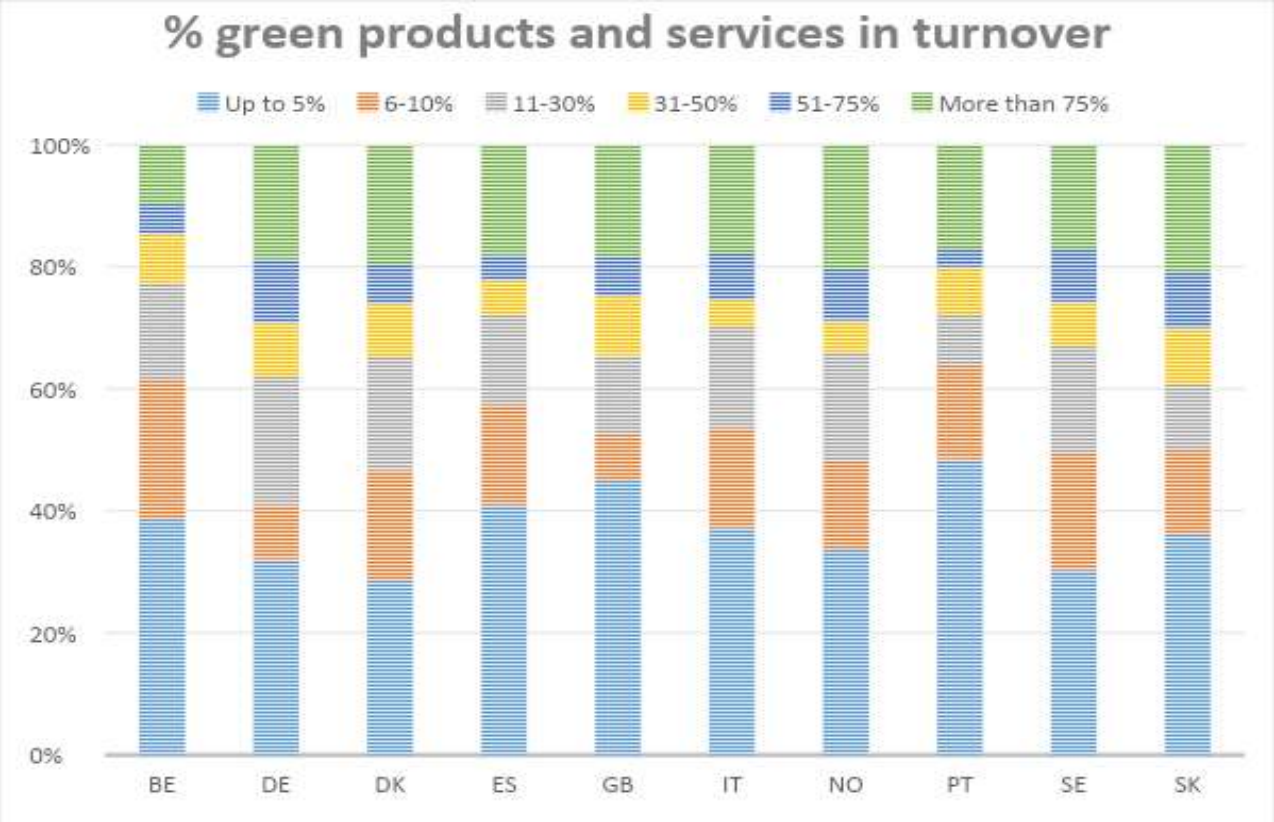
% green products and services in turnover

Country	Up to 5%	6-10%	11-30%	31-50%	51-75%	More than 75%	Total
BE	34.3	20	14.3	7.1	4.3	8.6	100
DE	27.7	7.7	18.1	7.7	9	16.1	100
DK	26.3	16.4	17.1	7.9	5.9	17.8	100
ES	36	14.4	12.9	5	3.6	15.8	100
GB	35	5.8	10	7.5	5	14.2	100
IT	31.3	13.8	13.8	3.8	6.3	15	100
NO	30.5	13	16	4.6	7.6	18.3	100
PT	41.2	13.1	7.2	6.5	2.6	14.4	100
SE	27.2	17.1	15.7	6.5	7.8	15.2	100
SK	31.1	11.9	9.3	7.9	7.9	17.9	100



For how long has your company been selling green products or services?

Country	Less than one year	Between 1 and 3 years	More than 3 years	Total
BE	8.6	17.1	72.9	100
DE	2.6	14.2	80.6	100
DK	5.9	13.8	79.6	100
ES	9.4	22.3	66.9	100
GB	6.7	19.2	72.5	100
IT	3.8	16.3	77.5	100
NO	8.4	16	74.8	100
PT	3.9	24.8	68	100
SE	3.7	21.7	73.3	100
SK	0.7	16.6	78.8	100

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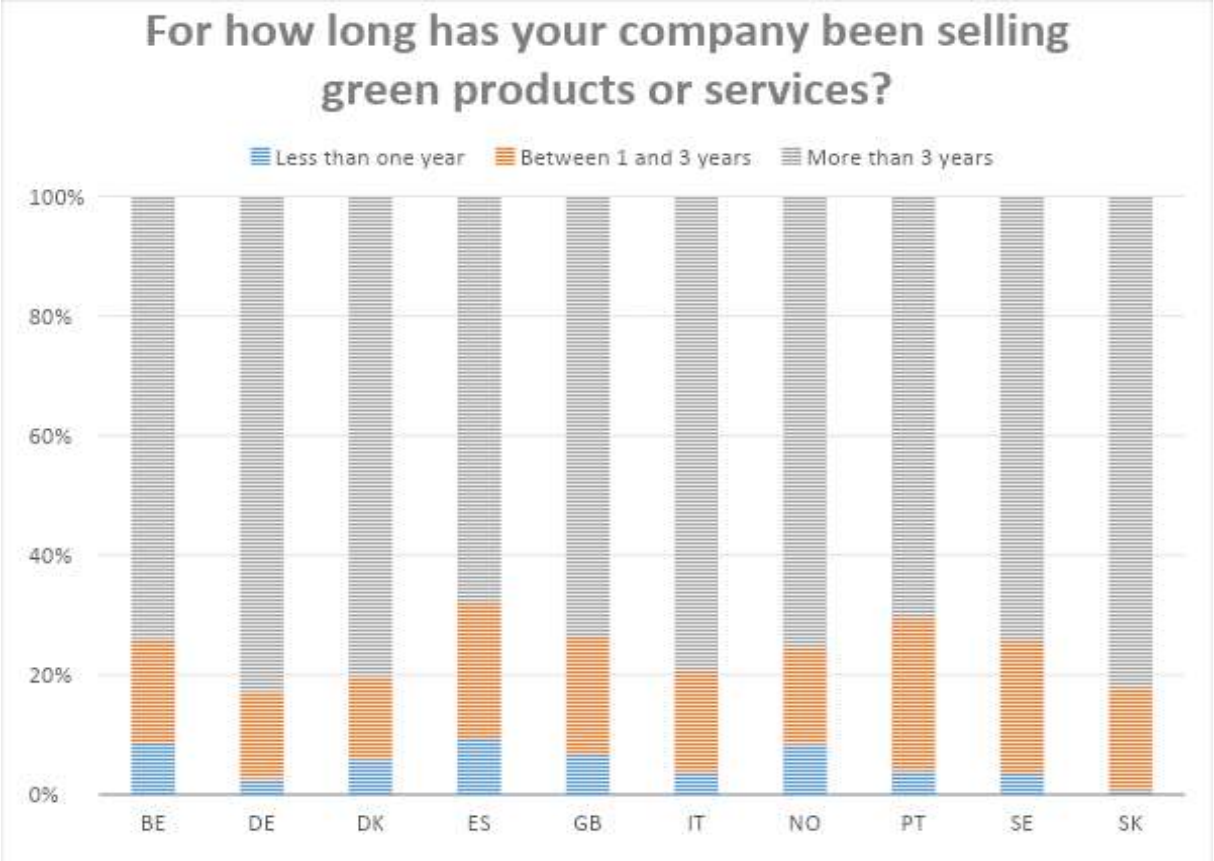

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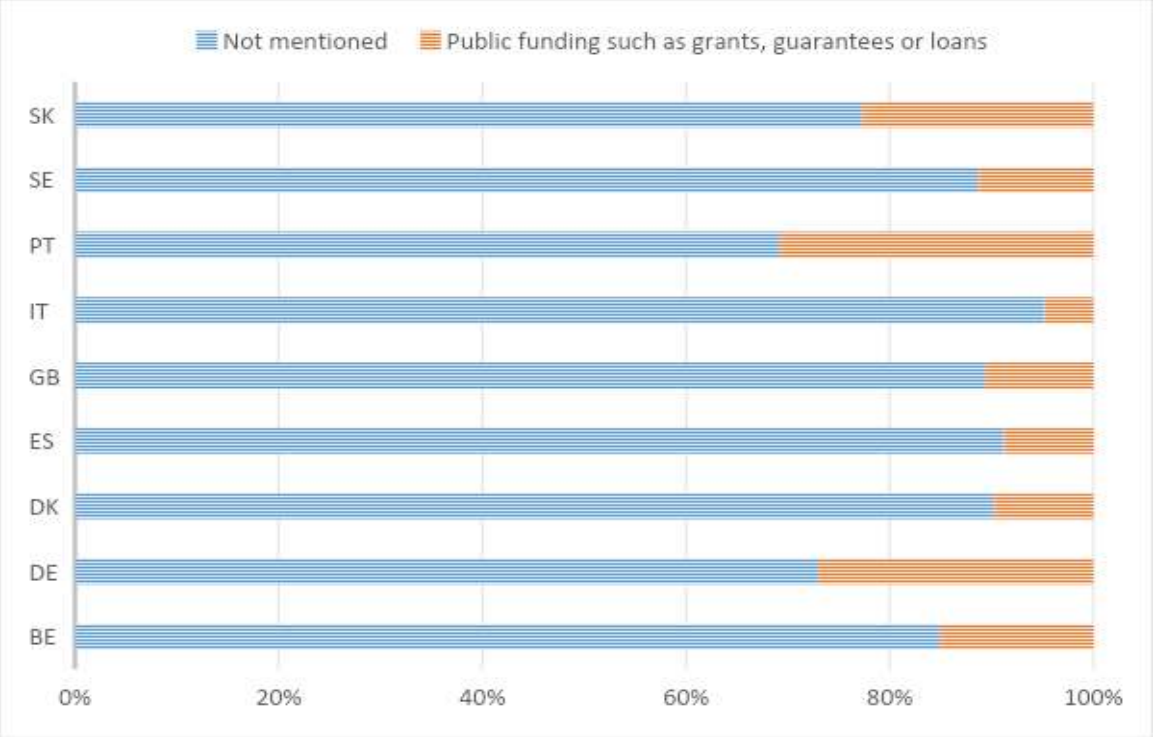
DX1 Which type of external support does your company get for the production of green products or services?

Country	Not mentioned	Public funding such as grants, guarantees or loans	Total
BE	84.9	15.1	100
DE	73	27	100
DK	90.2	9.8	100
ES	91.2	8.8	100
GB	89.4	10.6	100
IT	95.2	4.8	100
PT	69.2	30.8	100
SE	88.7	11.3	100
SK	77.3	22.7	100



Country	Not mentioned	Private funding from a bank, investment company or venture capital fund	Total
BE	77.4	22.6	100
DE	69.8	30.2	100
DK	87.8	12.2	100
ES	73.5	26.5	100
GB	87.2	12.8	100
IT	76.2	23.8	100
PT	69.2	30.8	100
SE	88.7	11.3	100
SK	81.8	18.2	100

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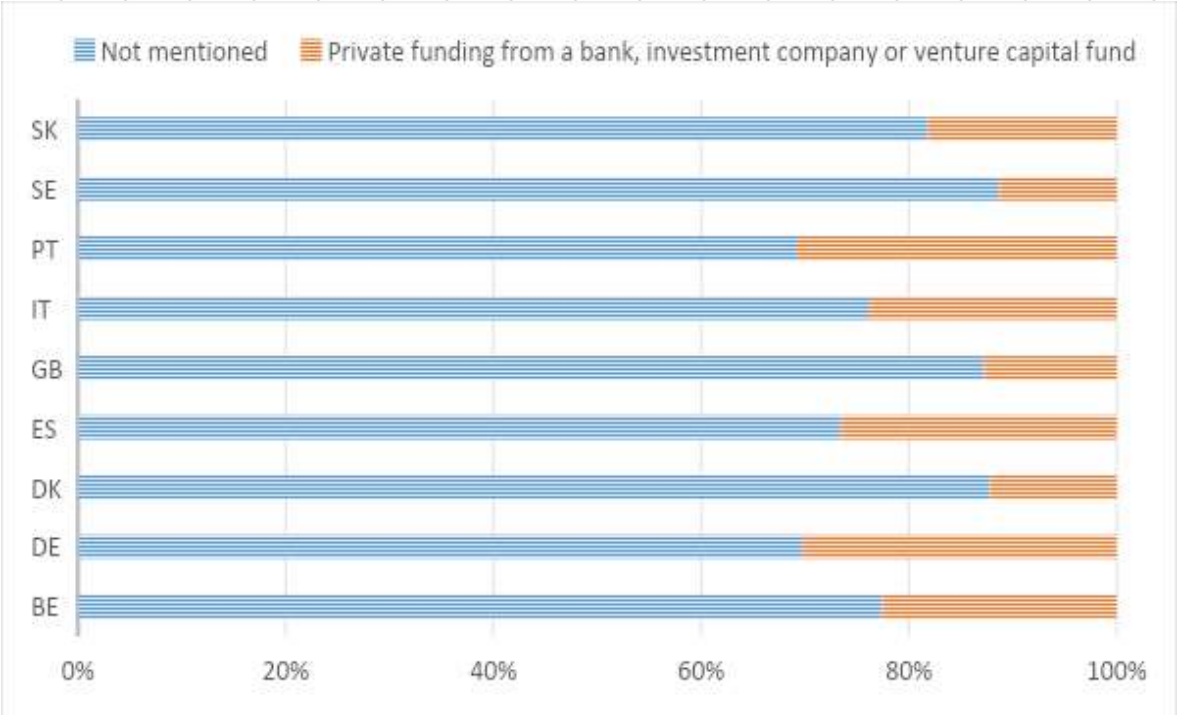

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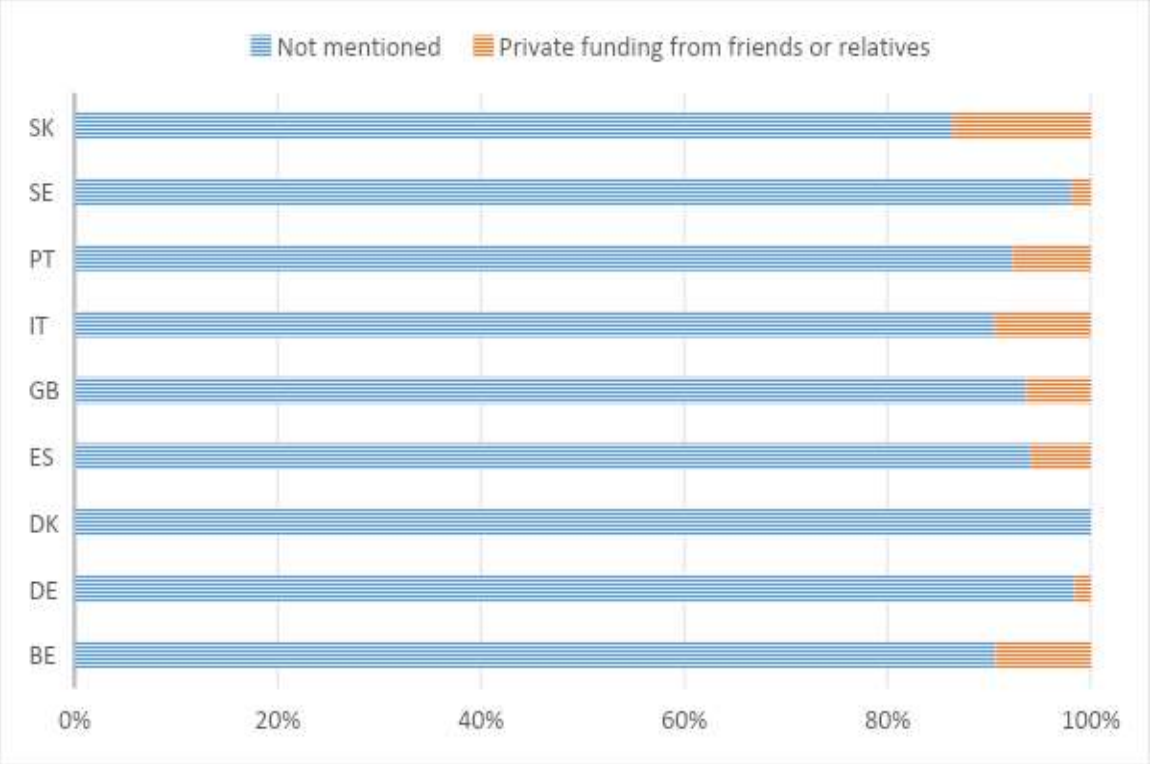
Country	Not mentioned	Private funding from friends or relatives	Total
BE	90.6	9.4	100
DE	98.4	1.6	100
DK	100	0	100
ES	94.1	5.9	100
GB	93.6	6.4	100
IT	90.5	9.5	100
PT	92.3	7.7	100
SE	98.1	1.9	100
SK	86.4	13.6	100



Country	Not mentioned	Advice or other non-financial assistance from public administration	Total
BE	75.5	24.5	100
DE	74.6	25.4	100
DK	80.5	19.5	100
ES	97.1	2.9	100
GB	78.7	21.3	100
IT	81	19	100
PT	69.2	30.8	100
SE	88.7	11.3	100
SK	95.5	4.5	100

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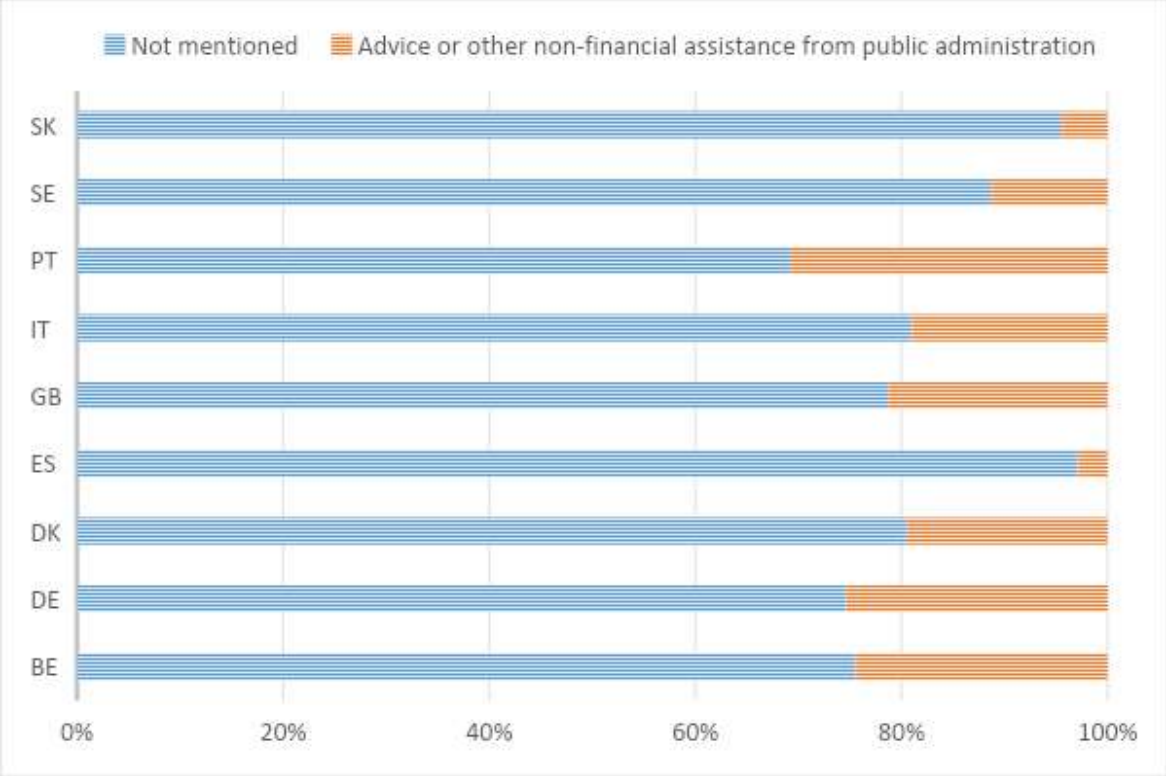

Country	Not mentioned	Advice or other non-financial assistance from private consulting and audit companies	Total
BE	60.4	39.6	100
DE	76.2	23.8	100
DK	56.1	43.9	100
ES	47.1	52.9	100
GB	76.6	23.4	100
IT	71.4	28.6	100
PT	53.8	46.2	100
SE	67.9	32.1	100
SK	86.4	13.6	100

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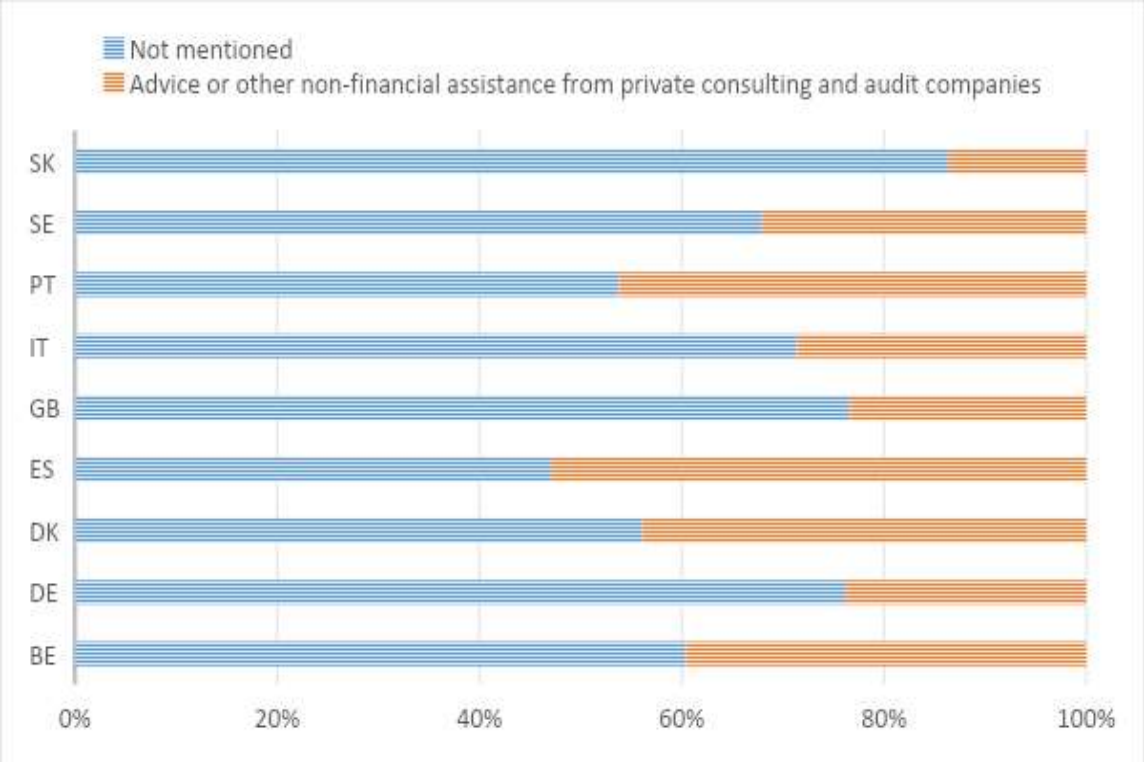

Country	Not mentioned	Advice or other non-financial assistance from business associations	Total
BE	60.4	39.6	100
DE	60.3	39.7	100
DK	46.3	53.7	100
ES	67.6	32.4	100
GB	57.4	42.6	100
IT	90.5	9.5	100
PT	53.8	46.2	100
SE	77.4	22.6	100
SK	90.9	9.1	100

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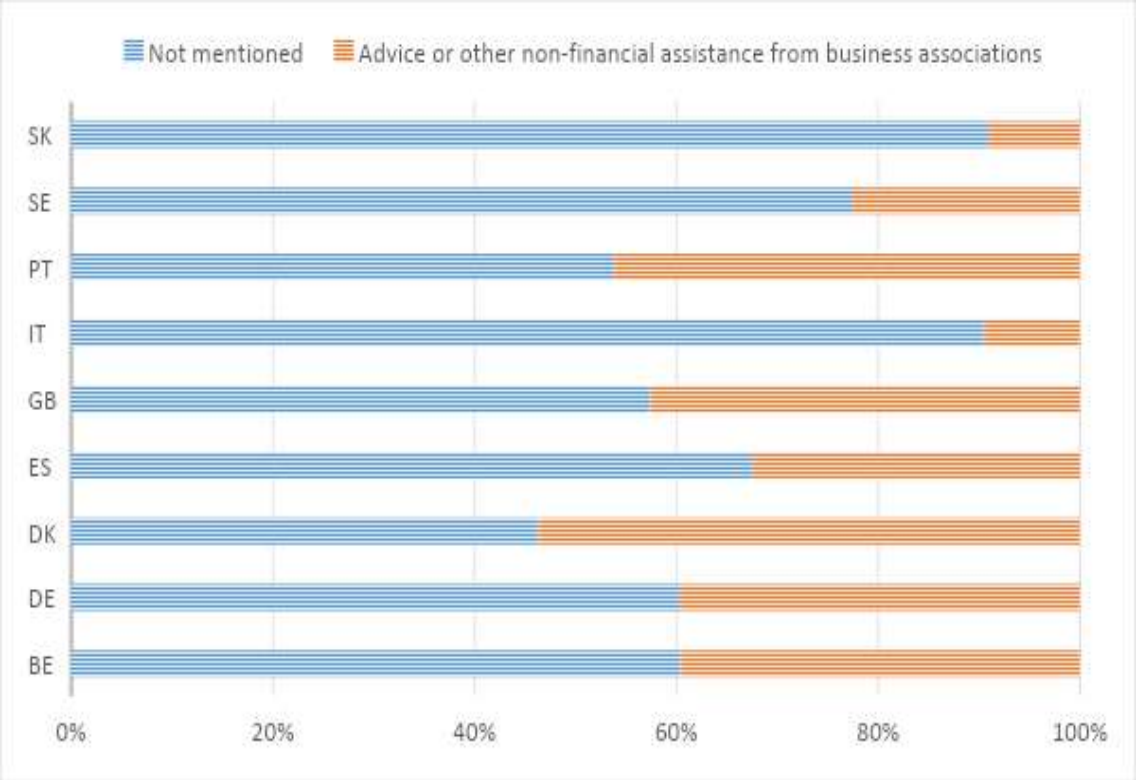

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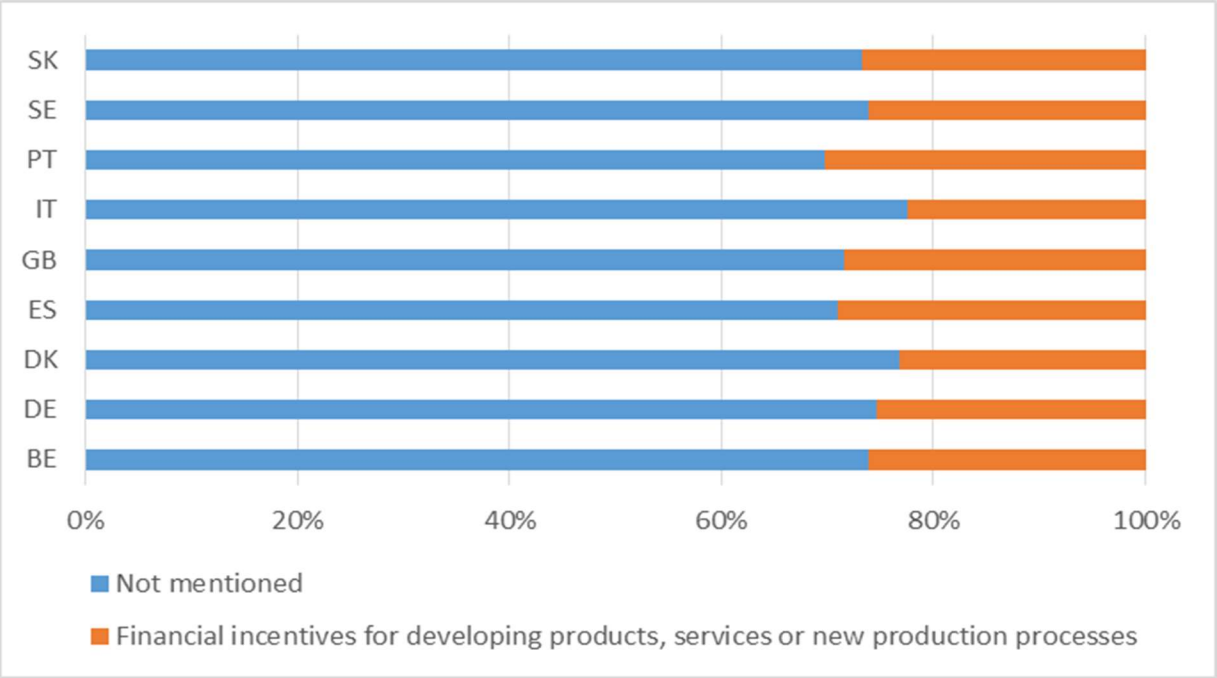
What type of support would help you the most to launch your range of green products or services?

Country	Not mentioned	Financial incentives for developing products, services or new production processes	Total
BE	73,8	26,2	100
DE	74,7	25,3	100
DK	76,8	23,2	100
ES	71	29	100
GB	71,6	28,4	100
IT	77,5	22,5	100
PT	69,8	30,2	100
SE	73,9	26,1	100
SK	73,3	26,7	100



Country	Not mentioned	Assistance with identifying potential markets or c	Total
BE	81,5	18,5	100
DE	76,7	23,3	100
DK	86,2	13,8	100
ES	70	30	100
GB	82,5	17,5	100
IT	90	10	100
PT	78,4	21,6	100
SE	82,3	17,7	100
SK	84,2	15,8	100

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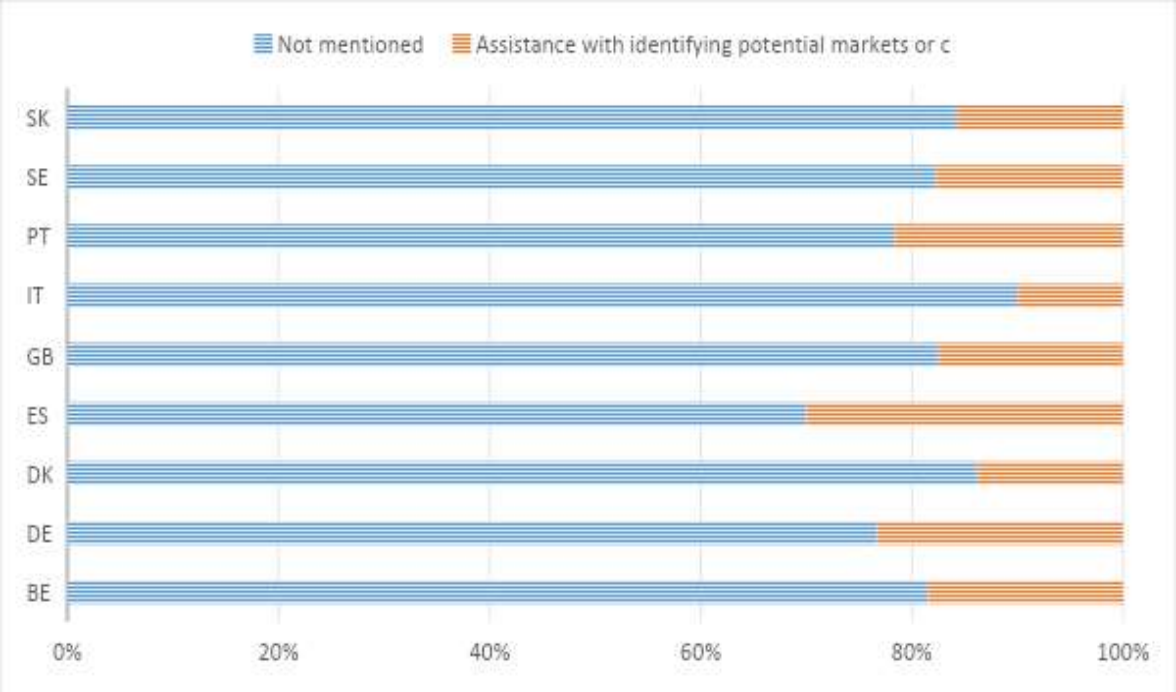

Country	Not mentioned	Technical support and consultancy for the development of products, services and production processes	Total
BE	76,5	23,5	100
DE	84,2	15,8	100
DK	82,2	17,8	100
ES	72,6	27,4	100
GB	85,5	14,5	100
IT	89,7	10,3	100
PT	72,4	27,6	100
SE	74,8	25,2	100
SK	86,6	13,4	100

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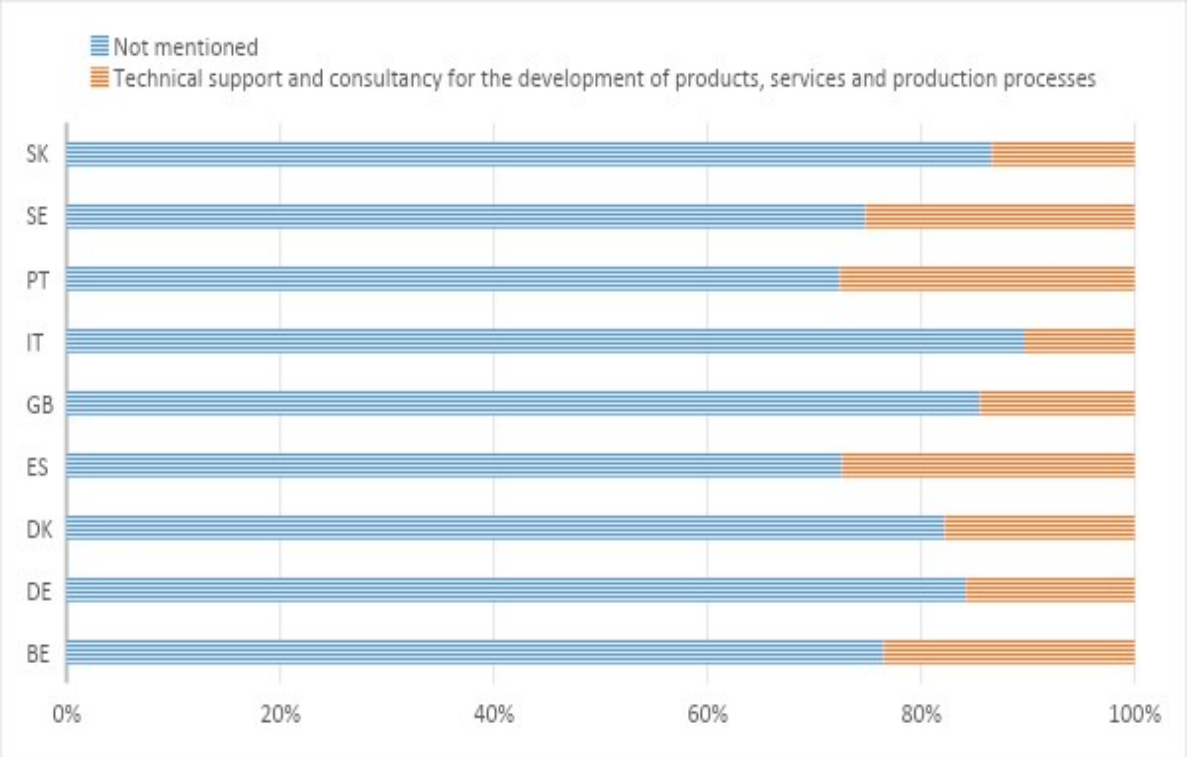

Country	Not mentioned	Consultancy services for marketing or distribution	Total
BE	85,6	14,4	100
DE	86	14	100
DK	91,9	8,1	100
ES	87,1	12,9	100
GB	91,4	8,6	100
IT	93,5	6,5	100
PT	85,8	14,2	100
SE	87,2	12,8	100
SK	88,7	11,3	100

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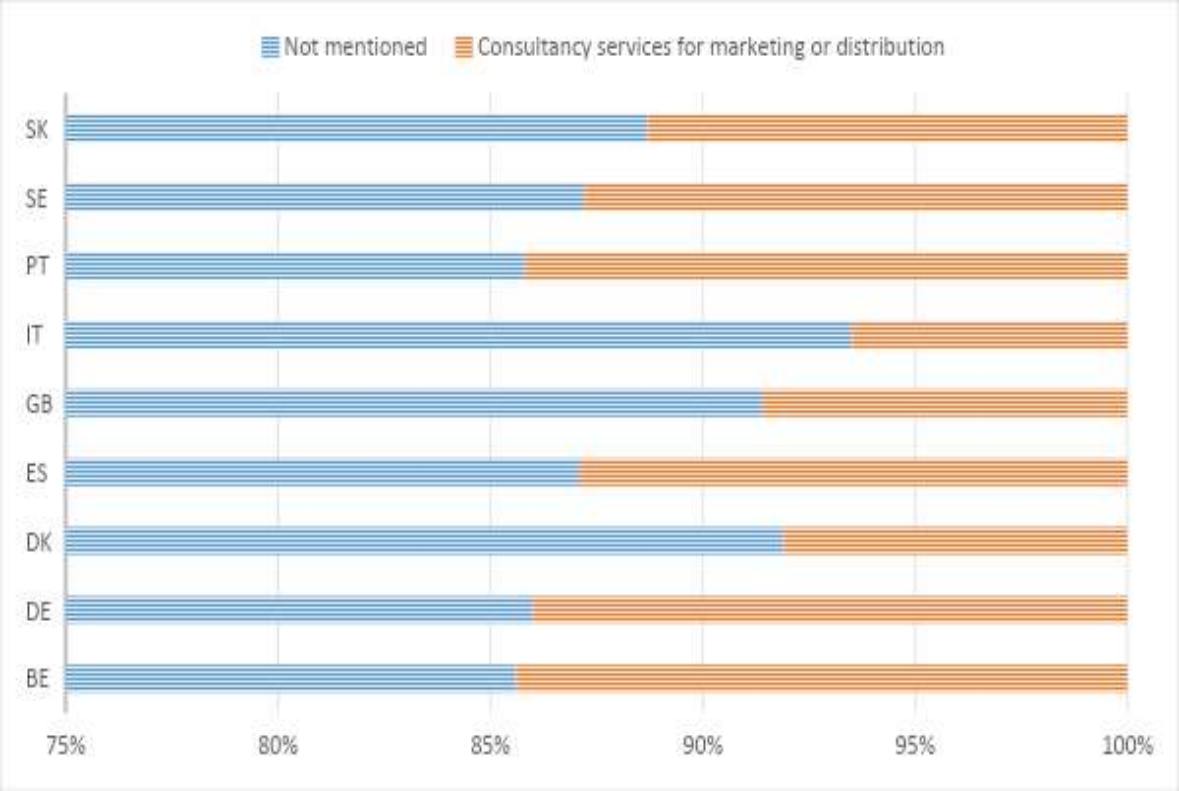

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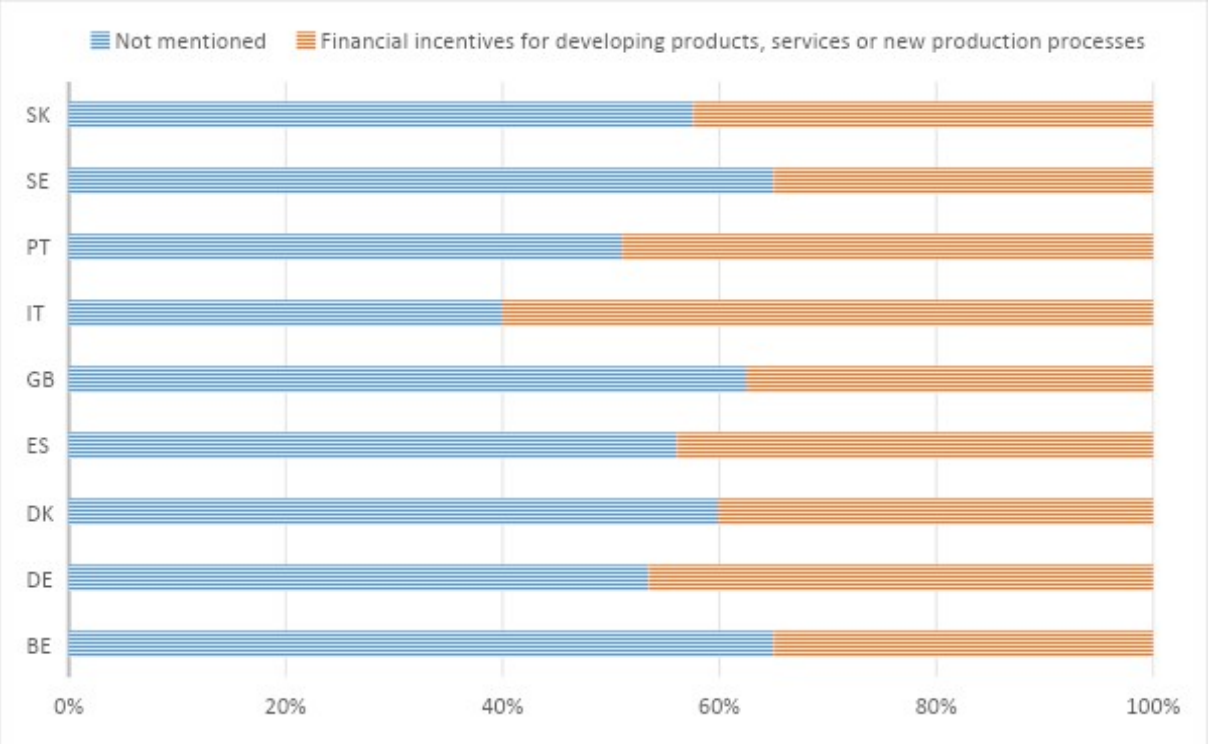
What type of support would help you the most to expand your range of green products?

Country	Not mentioned	Financial incentives for developing products, services or new production processes	Total
BE	65	35	100
DE	53,5	46,5	100
DK	59,9	40,1	100
ES	56,1	43,9	100
GB	62,5	37,5	100
IT	40	60	100
PT	51	49	100
SE	65	35	100
SK	57,6	42,4	100



Country	Not mentioned	Assistance with identifying potential markets or customers	Total
BE	73,6	26,4	100
DE	63,2	36,8	100
DK	63,2	36,8	100
ES	58,3	41,7	100
GB	70	30	100
IT	72,5	27,5	100
PT	68,6	31,4	100
SE	72,8	27,2	100
SK	76,8	23,2	100

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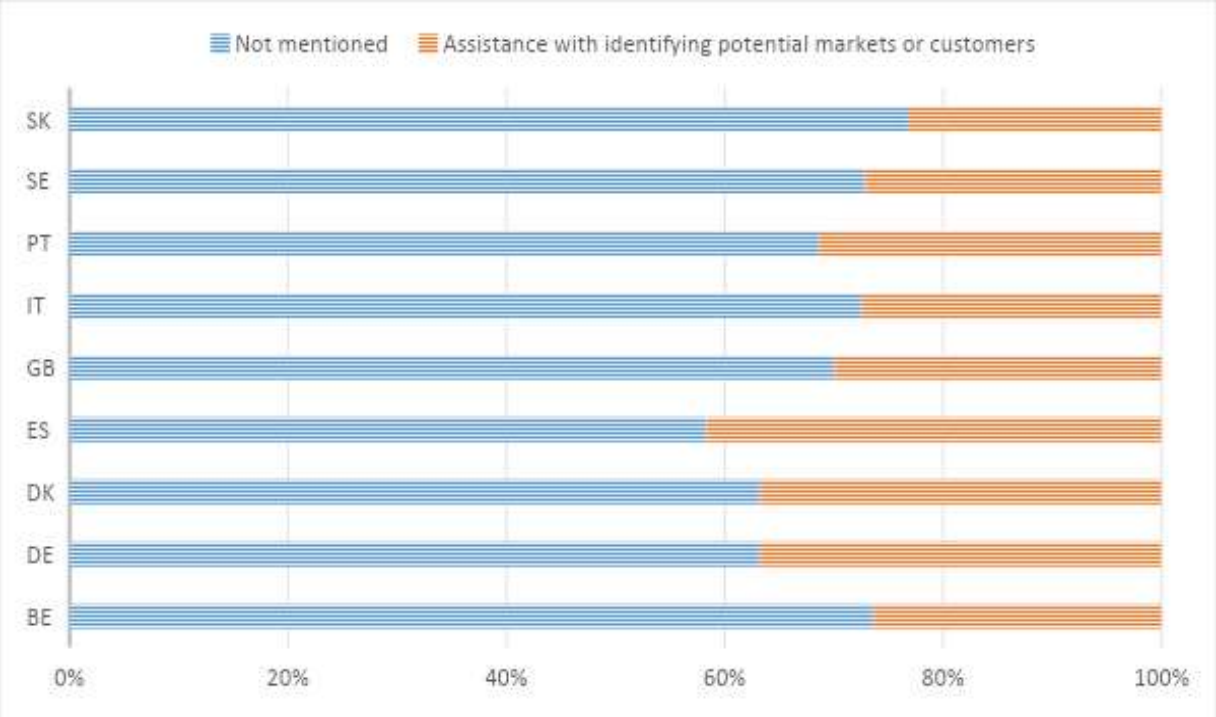

Country	Not mentioned	Technical support and consultancy for the development of products, services and production processes	Total
BE	73,6	26,4	100
DE	73,5	26,5	100
DK	69,1	30,9	100
ES	72,7	27,3	100
GB	72,5	27,5	100
IT	90	10	100
PT	61,4	38,6	100
SE	63,6	36,4	100
SK	84,8	15,2	100

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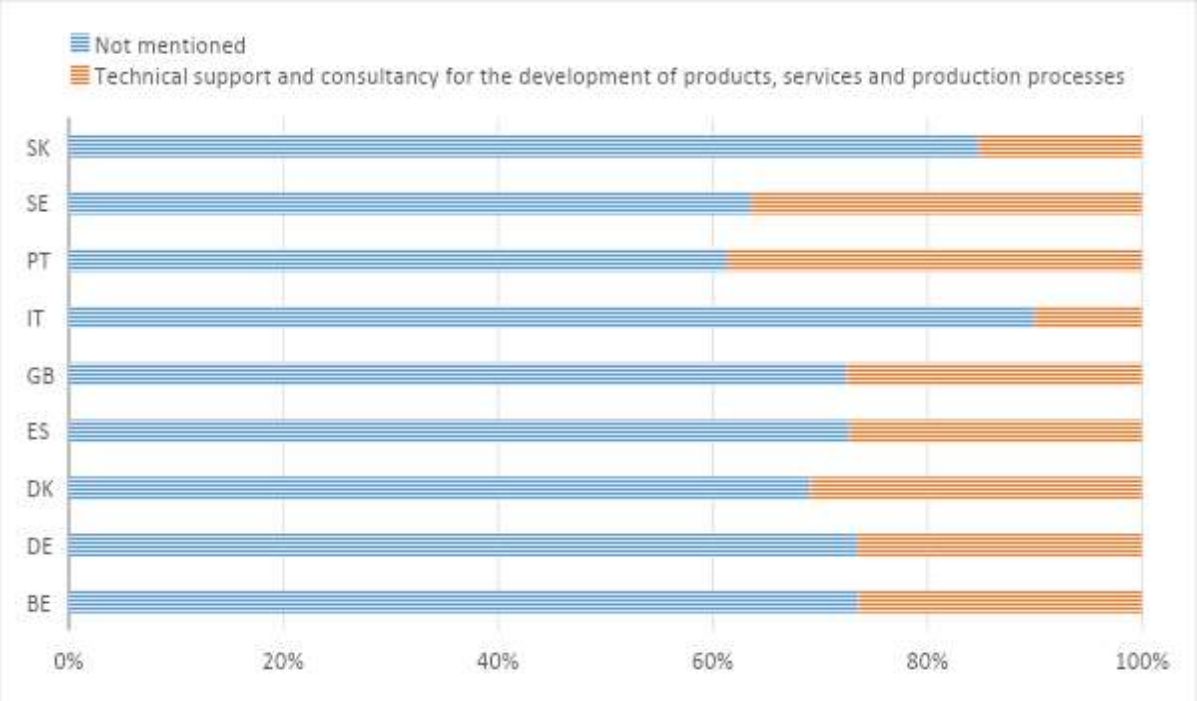

Country	Not mentioned	Consultancy services for marketing or distribution	Total
BE	72,9	27,1	100
DE	65,2	34,8	100
DK	78,9	21,1	100
ES	84,9	15,1	100
GB	84,2	15,8	100
IT	83,8	16,3	100
PT	80,4	19,6	100
SE	83,4	16,6	100
SK	88,1	11,9	100

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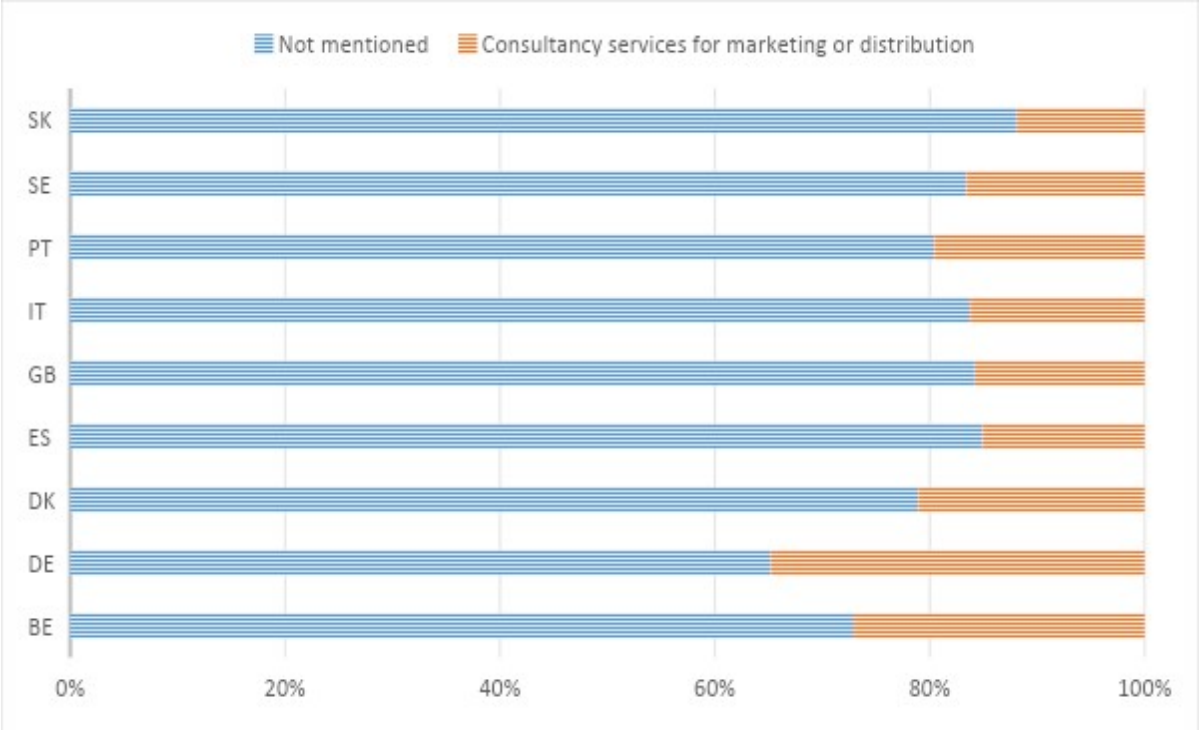

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1.1.3. Flash Eurobarometer 315: Attitudes of European entrepreneurs towards eco-innovation

This Eurobarometer survey (Attitudes of European entrepreneurs towards eco-innovation) investigates the role of eco-innovation in SME responses to the challenge of high material prices and material scarcity. Below we present a selection of the questions that have been used for the final version of RESS. For each question, we provide the answers collected from the SMEs belonging to the XPRESS partner countries.

This survey inspired the following set of **RESS questions:**

Questions for SMEs:

1. What is the main area of activity of your company?
    a. Energy
    b. Construction
    c. Water supply; sewerage; waste management
    d. Manufacture

e. Food services

f. Other sectors

2. Since 2015, has your company introduced a new or significantly improved **eco-innovative product[6] or service** to the **RES** market? Y/N

3. Since 2015, has your company introduced a new or significantly improved **eco-innovative production process** or method to the **RES** market? Y/N

4. Since 2015, has your company introduced a new or significantly improved **eco-innovative organisational innovation** to the **RES** market? Y/N

5. Since 2015, what was the share of innovation investments in **RES** compared to the total investments in RES in your company?

   a. More than 50%

   b. Between 30% and 49%

   c. Between 10% and 29%

   d. Less than 10%

   e. No innovative activities

   f. Not applicable

6. What are the **main barriers** to accelerating eco-innovation in **RES** for your business (multiple choices allowed)?

   a. Lack of funds within enterprise

   b. Lack of external financing

   c. Lack of trust by financial institutions

   d. Uncertain return on investment or too long payback period for eco-innovation

   e. Lack of qualified personnel and technological capabilities within the enterprise

   f. Limited access to external information and knowledge

   g. Lack of suitable business partners

   h. Lack of collaboration with research institutes and universities

   i. Uncertain demand from the market

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[6] **Eco-innovation** is any innovation resulting in significant progress towards the goal of sustainable development, by reducing the impacts of our production modes on the environment, enhancing nature's resilience to environmental pressures, or achieving a more efficient and responsible use of natural resources.

j. Reducing material use is not an innovation priority

k. Reducing energy use is not an innovation priority

l. Technical and technological lock-ins in economy (e.g. old technical infrastructures)

m. Market dominated by established enterprises

n. Existing regulations (including restrictions due to public procurement policies, e.g. the use of frameworks), legal framework and structures setting up barriers or not providing incentives to eco-innovation

o. Difficulties in maintaining intellectual property rights

p. Insufficient access to existing subsidies and fiscal incentives

q. Financial requirements and cost of bidding within public procurement

r. Long payback periods related to public procurement

7. In the experience of your business, what are the **key drivers** for accelerating eco-innovation in **RES** (multiple choices allowed)?

a. Technological and management capabilities within the enterprise

b. Secure or increase existing market share

c. Current or expected high material price (as an incentive to innovate to use less materials)

d. Limited access to materials (as an incentive to innovate to use less materials)

e. Expected future material scarcity

f. Collaboration with research institutes, agencies and universities

g. Good access to external information and knowledge

h. Good business partners

i. Current high energy price (as an incentive to innovative to use less energy)

j. Expected future increases in energy price

k. Existing regulations, including standards

l. Expected future regulations imposing new standards

m. Access to existing subsidies and fiscal incentive

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n. Increasing market demand for green products

o. Dialogue with Public Authorities (PAs) prior to public tenders

p. Fearing financial constraints imposed by financial institutes incl. banks which are protecting themselves against the risk of "stranded assets"

q. Being able to expand business by issuing green bonds

r. Financial returns / project profitability

s. Future business opportunities

t. Reputational benefits

8. Questions for Public Authorities:

These questions were crafted by the XPRESS partnership so as to mirror the questions addressed to the SMEs:

1. Since 2015, has your administration procured within public buildings and/ or public transportation a new or significantly improved **eco-innovative[7] RES related product or service? Y/N**

2. Since 2015, has your administration procured within public buildings and/ or public transportation a new or significantly improved **RES related eco-innovative production process or method? Y/N**

3. Since 2015, has your administration procured within public buildings and/ or public transportation a new or significantly improved **RES related organisational innovation? Y/N**

4. Since 2015, what was the share of **RES related eco- innovation investments** compared to the total investments (including R&D) in your administration?

    a. More than 50%

    b. Between 30% and 49%

    c. Between 10% and 29%

    d. Less than 10%

    e. No innovative activities

[7] **Eco-innovation** is any innovation resulting in significant progress towards the goal of sustainable development, by reducing the impacts of our production modes on the environment, enhancing nature's resilience to environmental pressures, or achieving a more efficient and responsible use of natural resources.

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5. What are the **main barriers** to accelerating eco-innovation in RES markets for your administration (multiple choices allowed)?

    a. Lack of funds available to your administration

    b. Lack of external financing (such as loans, grants, for example)

    c. Uncertain return on investment or too long payback period for eco-innovation

    d. Lack of qualified personnel and technological capabilities

    e. Finding or using new technologies

    f. Limited access to external information and knowledge

    g. Lack of suitable partners

    h. Identifying the right suppliers (innovative small and medium enterprises)

    i. Lack of collaboration with research institutes and universities

    j. Uncertain demand from the public

    k. Reducing material use is not a innovation priority

    l. Reducing energy use is not a innovation priority

    m. Technical and technological lock-ins in economy (e.g. old technical infrastructure)

    n. Existing regulations (including restrictions due to public procurement policies, e.g. the use of frameworks), legal framework and structures setting up barriers or are not providing incentives to eco-innovation

    o. Lack of political support and restrictions due to organisations' procurement policies, e.g. the use of frameworks.

    p. Insufficient provision of existing subsidies and fiscal incentives to enterprises

    q. Long payback periods related to public procurement

6. In the experience of your organisation with Public Procurement of RES, what are the **key drivers** for accelerating eco-innovation in these markets?

    a. Technological and management capabilities

    b. Collaboration with research institutes, agencies and universities

    c. Good access to external information and knowledge

    d. Good institutional partners

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e. Current high energy price (as an incentive to innovative to use less energy)

f. Expected future increases in energy price

g. Existing regulations, including standards

h. Expected future regulations imposing new standards

i. Access to existing subsidies and fiscal incentive

j. Increasing public demand for green products and services

k. Dialogue with SMEs prior to public tenders

l. Building of new markets initiated by public authorities and regulation

m. De-risking of eco-investments via support from financial institutions

n. “Caretakers" (motivated individuals) in an administration

o. Political decision makers

p. Networks/cooperation with other initiatives/cities

1.1.4. The Flash Eurobarometer 315 answers

Below we present the set of Eurobarometer data which inspired the above RESS questions. All the results are expressed in percentages.

Q6 What is the main activity of your company?

Country	Agriculture and fishing	Construction	Water supply; sewerage; waste management and remediation activities	Manufacture	Food services	Total
BE	3,5	38,8	4,5	44,8	8,5	100
DE	6	26	3,2	58,8	6	100
DK	1,5	38,3	4	51,2	5	100
ES	6,4	39,6	1,2	47,2	5,6	100
IT	3,2	22,7	2,8	66,9	4,4	100
PT	6,5	25,9	2,5	59,2	6	100
SE	4	29	4	55	8	100
SK	15,5	22,5	6	51	5	100
UK	3,2	33,1	1,2	47,4	15,1	100

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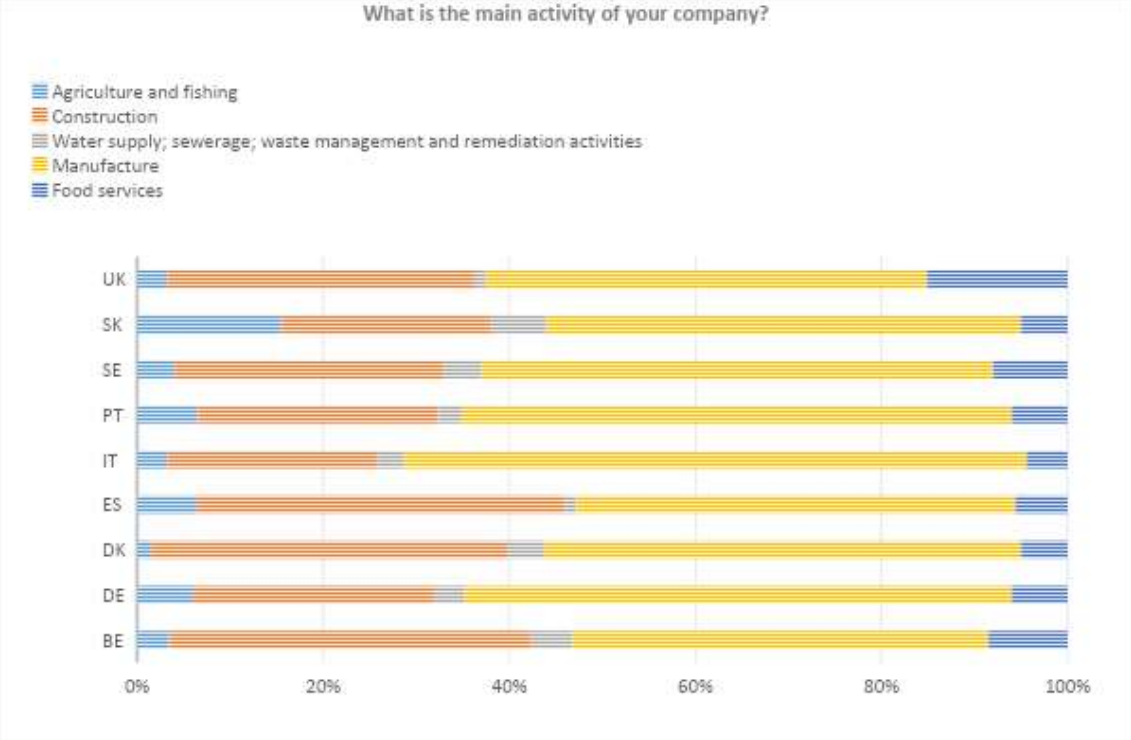

A new or significantly improved eco-innovative product or service?

Country	Yes	No	DK/NA	Total
BE	20,4	74,6	5	100
DE	25,2	74,4	0,4	100
DK	20,4	78,6	1	100
ES	22,4	77,2	0,4	100
IT	30,3	65,7	4	100
PT	30,8	66,2	3	100
SE	21	76	3	100
SK	21	74,5	4,5	100
UK	25,9	68,5	5,6	100

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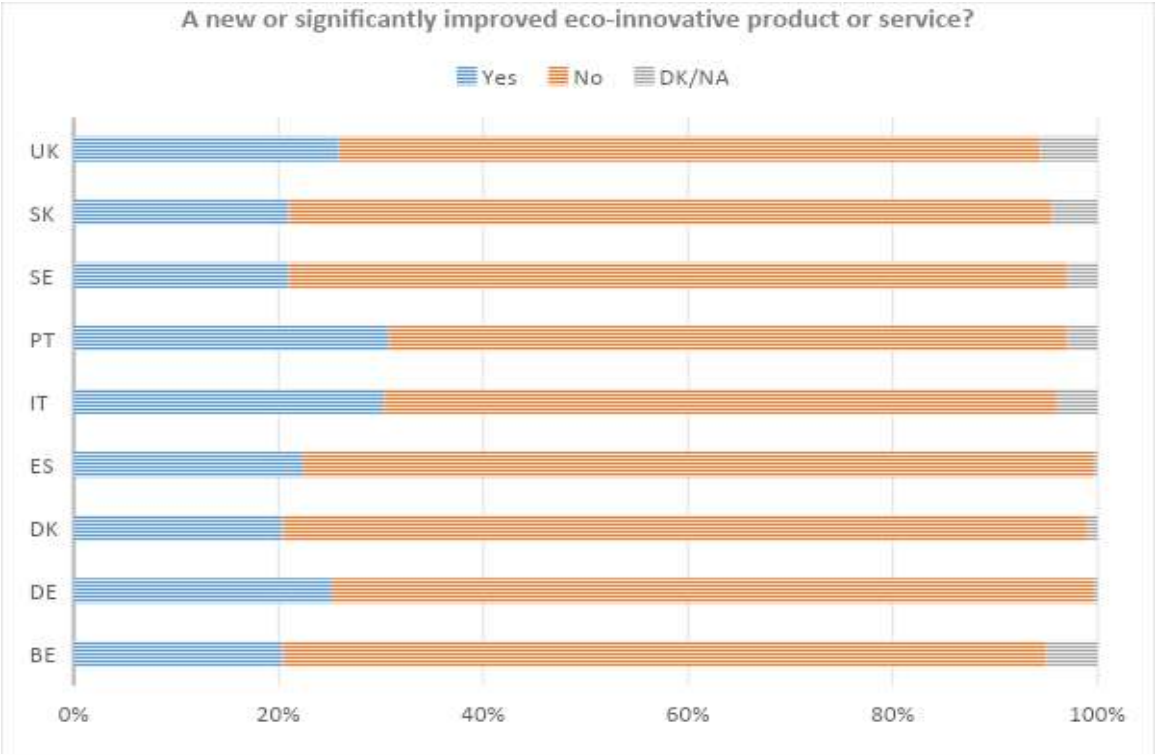

A new or significantly improved eco-innovative process or method?

Country	Yes	No	DK/NA	Total
BE	25,4	70,6	4	100
DE	26,4	73,2	0,4	100
DK	26,9	72,6	0,5	100
ES	34	65,6	0,4	100
IT	28,3	69,7	2	100
PT	36,8	59,2	4	100
SE	31	65,5	3,5	100
SK	25,5	69	5,5	100
UK	28,3	64,5	7,2	100

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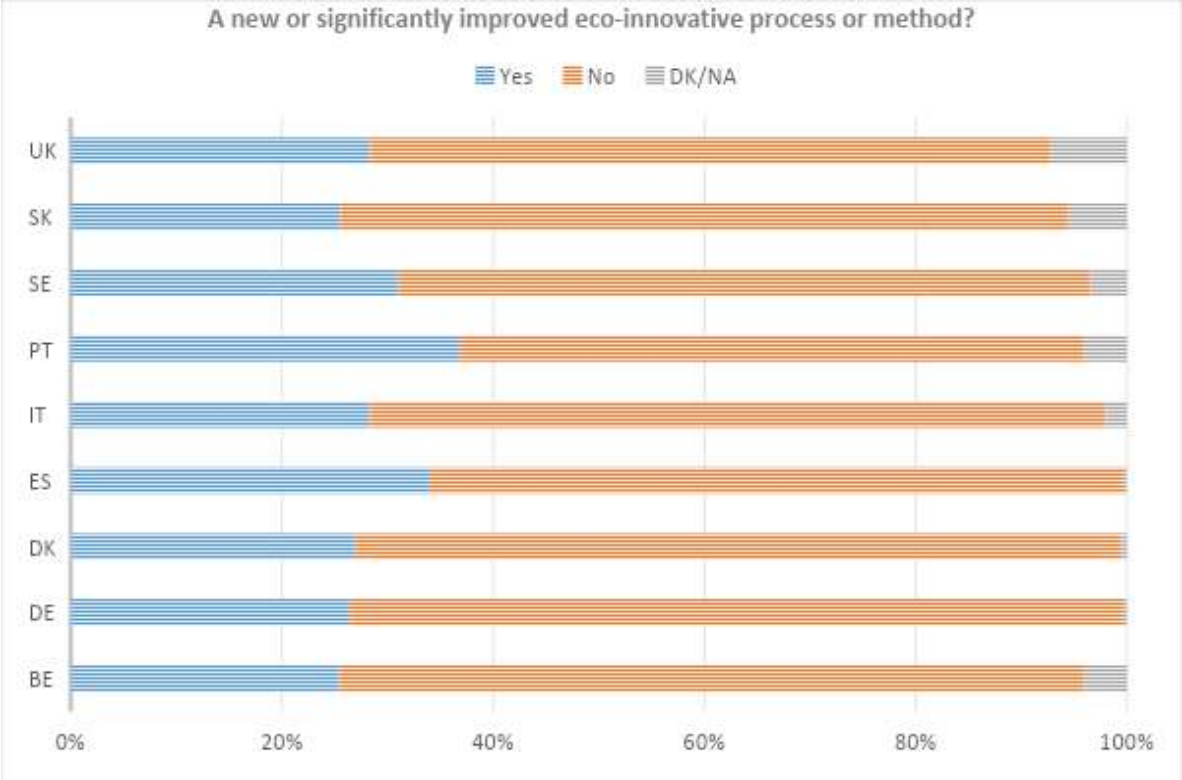

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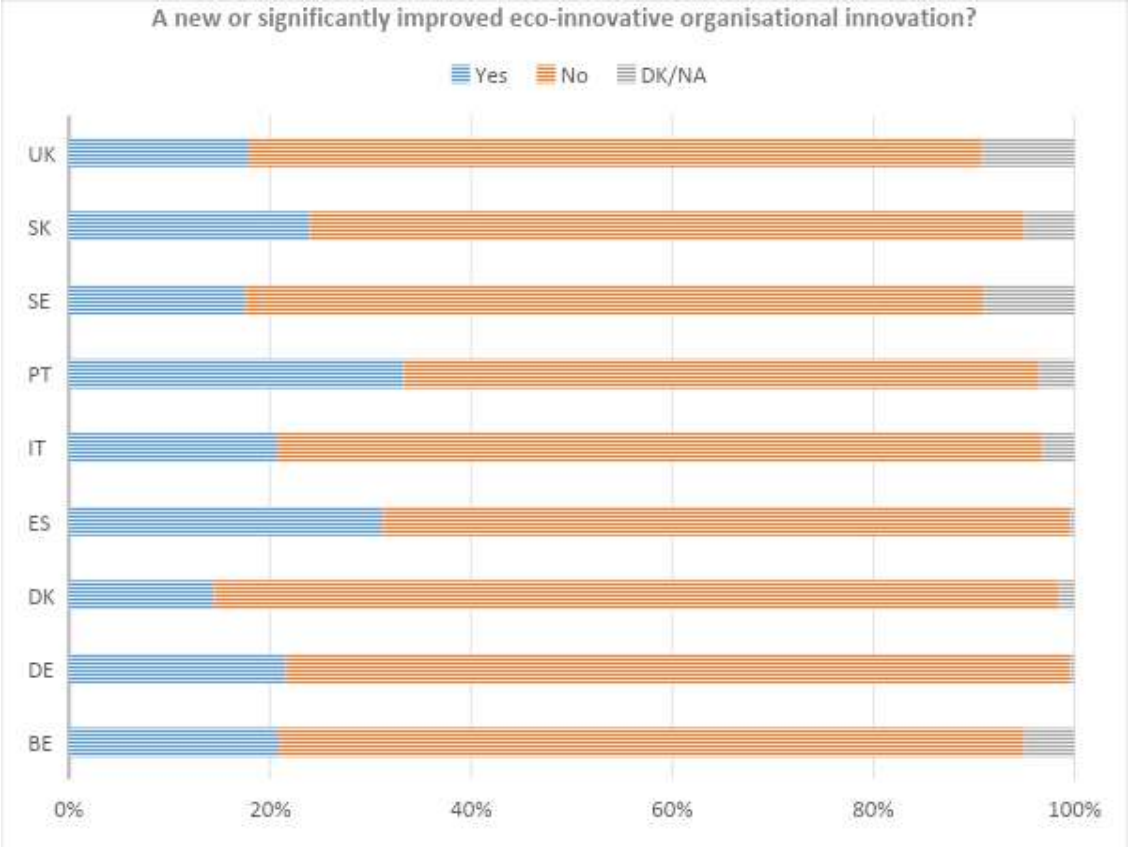
A new or significantly improved eco-innovative organisational innovation?

Country	Yes	No	DK/NA	Total
BE	20,9	74,1	5	100
DE	21,6	78	0,4	100
DK	14,4	84,1	1,5	100
ES	31,2	68,4	0,4	100
IT	20,7	76,1	3,2	100
PT	33,3	63,2	3,5	100
SE	17,5	73,5	9	100
SK	24	71	5	100
UK	17,9	72,9	9,2	100



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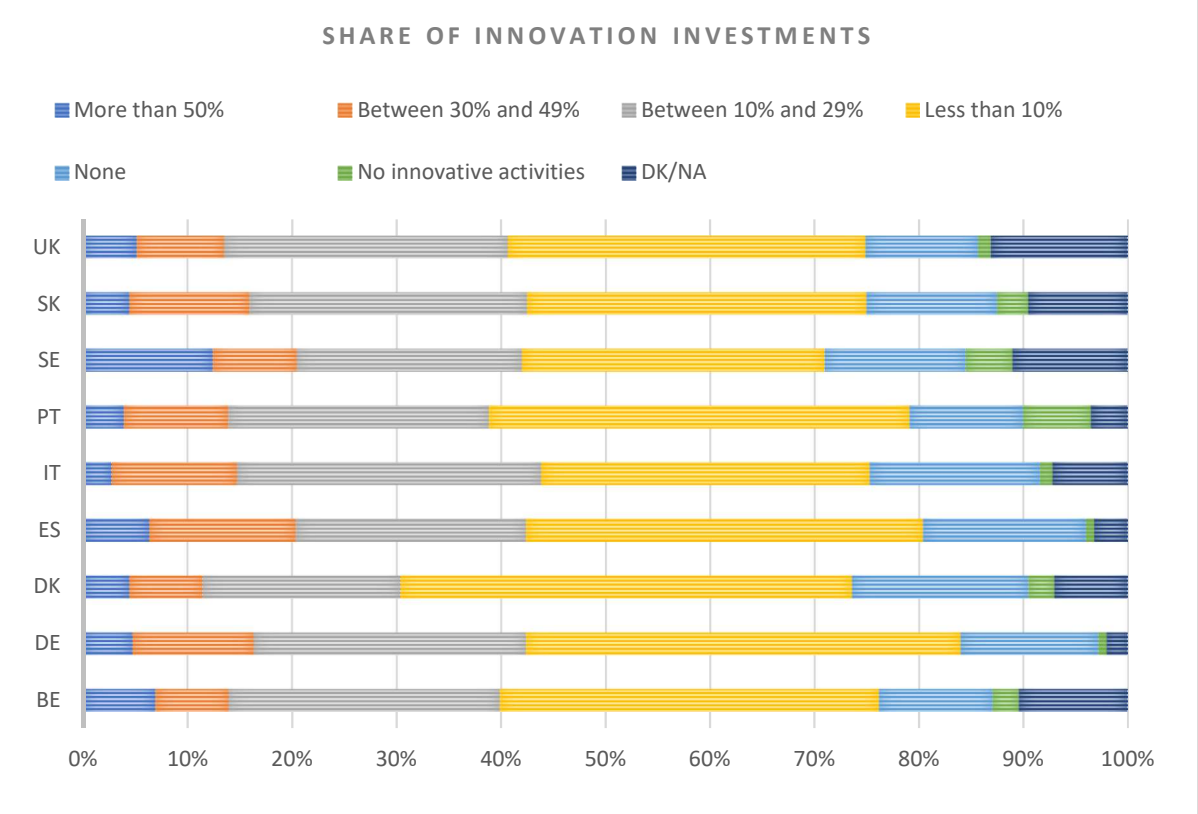
Over the last 5 years what was the share of innovation investments in your company?

Country	More than 50%	Between 30% and 49%	Between 10% and 29%	Less than 10%	None	No innovative activities	DK/NA	Total
BE	7	7	25,9	36,3	10,9	2,5	10,4	100
DE	4,8	11,6	26	41,6	13,2	0,8	2	100
DK	4,5	7	18,9	43,3	16,9	2,5	7	100
ES	6,4	14	22	38	15,6	0,8	3,2	100
IT	2,8	12	29,1	31,5	16,3	1,2	7,2	100
PT	4	10	24,9	40,3	10,9	6,5	3,5	100
SE	12,5	8	21,5	29	13,5	4,5	11	100
SK	4,5	11,5	26,5	32,5	12,5	3	9,5	100
UK	5,2	8,4	27,1	34,3	10,8	1,2	13,1	100



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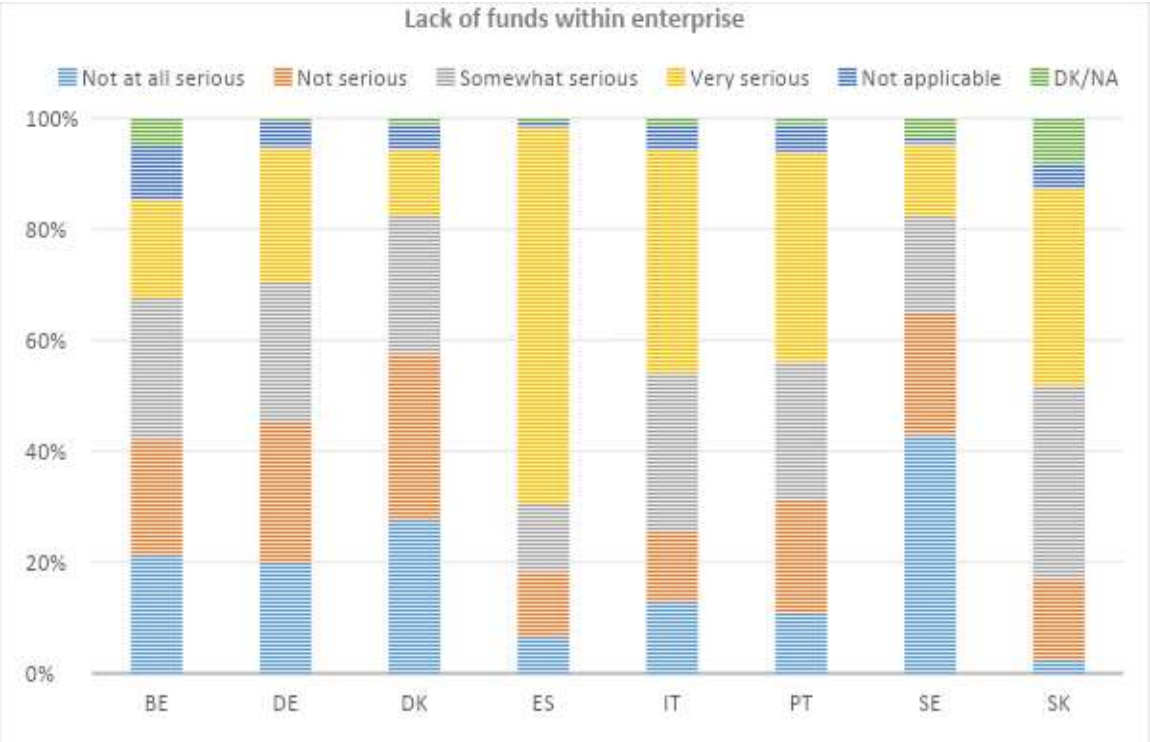
What are the main barriers to accelerate eco-innovation?

	Lack of funds within enterprise						
Country	Not at all serious	Not serious	Somewhat serious	Very serious	Not applicable	DK/NA	Total
BE	21.4	20.9	25.4	17.9	9.5	5	100
DE	20	25.2	25.2	24.4	4.8	0.4	100
DK	27.9	29.9	24.9	11.9	4.5	1	100
ES	6.8	11.6	12.4	67.6	0.8	0.8	100
IT	13.1	12.4	28.7	40.2	4.4	1.2	100
PT	10.9	20.4	24.9	37.8	5	1	100
SE	43	22	17.5	13	1	3.5	100
SK	2.5	14.5	35	35.5	4.5	8	100



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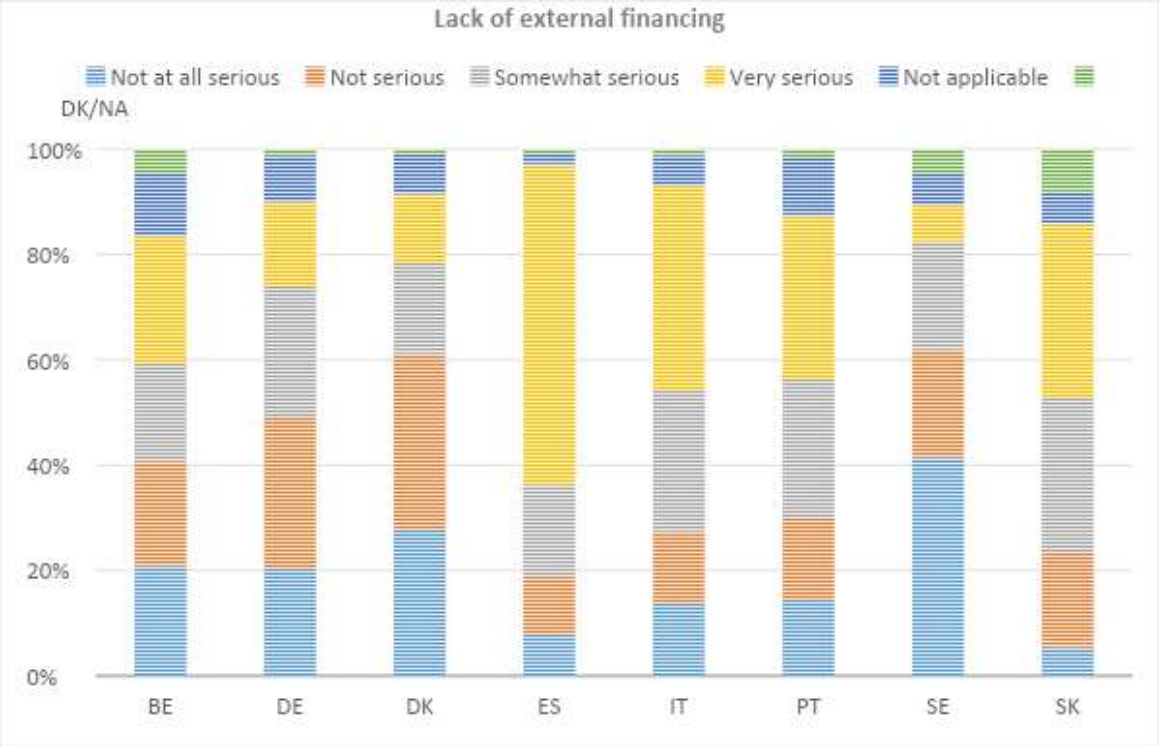
	Lack of external financing						
Country	Not at all serious	Not serious	Somewhat serious	Very serious	Not applicable	DK/NA	Total
BE	20.9	19.9	18.4	24.4	11.9	4.5	100
DE	20.4	28.8	24.8	16	8.8	1.2	100
DK	27.9	33.3	17.4	12.9	7.5	1	100
ES	8	10.8	17.6	60.8	2	0.8	100
IT	13.9	13.5	26.7	39	5.6	1.2	100
PT	14.4	15.4	26.4	31.3	10.9	1.5	100
SE	41.5	20.5	20.5	7	6	4.5	100
SK	5.5	18	29.5	33	6	8	100



	. Uncertain return on investment or too long payback period for eco-innovation						
Country	Not at all serious	Not serious	Somewhat serious	Very serious	Not applicable	DK/NA	Total
BE	14.4	18.4	28.4	21.9	11.9	5	100
DE	10.8	15.2	29.2	32	9.6	3.2	100
DK	11.4	19.4	37.3	22.9	6	3	100
ES	6	9.2	26.8	52.8	2.8	2.4	100
IT	13.9	19.5	28.3	30.3	5.2	2.8	100
PT	10	20.9	29.9	31.8	6.5	1	100
SE	21	15	30.5	19.5	5.5	8.5	100
SK	2	9.5	36.5	38.5	5	8.5	100

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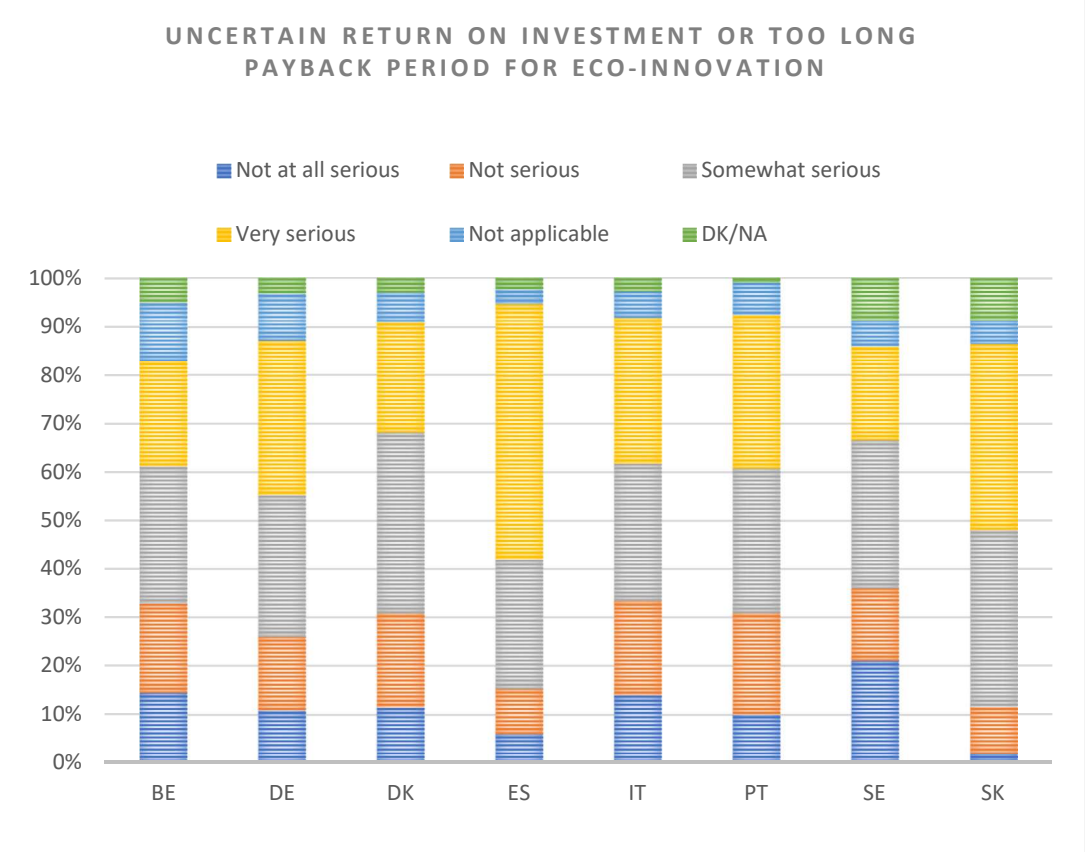

	Lack of qualified personnel and technological capabilities within the enterprise						
Country	Not at all serious	Not serious	Somewhat serious	Very serious	Not applicable	DK/NA	Total
BE	12.9	15.9	21.9	38.3	9	2	100
DE	19.6	23.2	28	24	5.2	0	100
DK	23.9	35.3	28.4	8	4.5	0	100
ES	19.2	19.2	22.8	36.4	2	0.4	100
IT	20.3	23.1	26.7	21.9	7.2	0.8	100
PT	18.9	21.4	20.9	32.8	5.5	0.5	100
SE	22	26.5	29.5	16	2.5	3.5	100
SK	12.5	28.5	31	18	4	6	100

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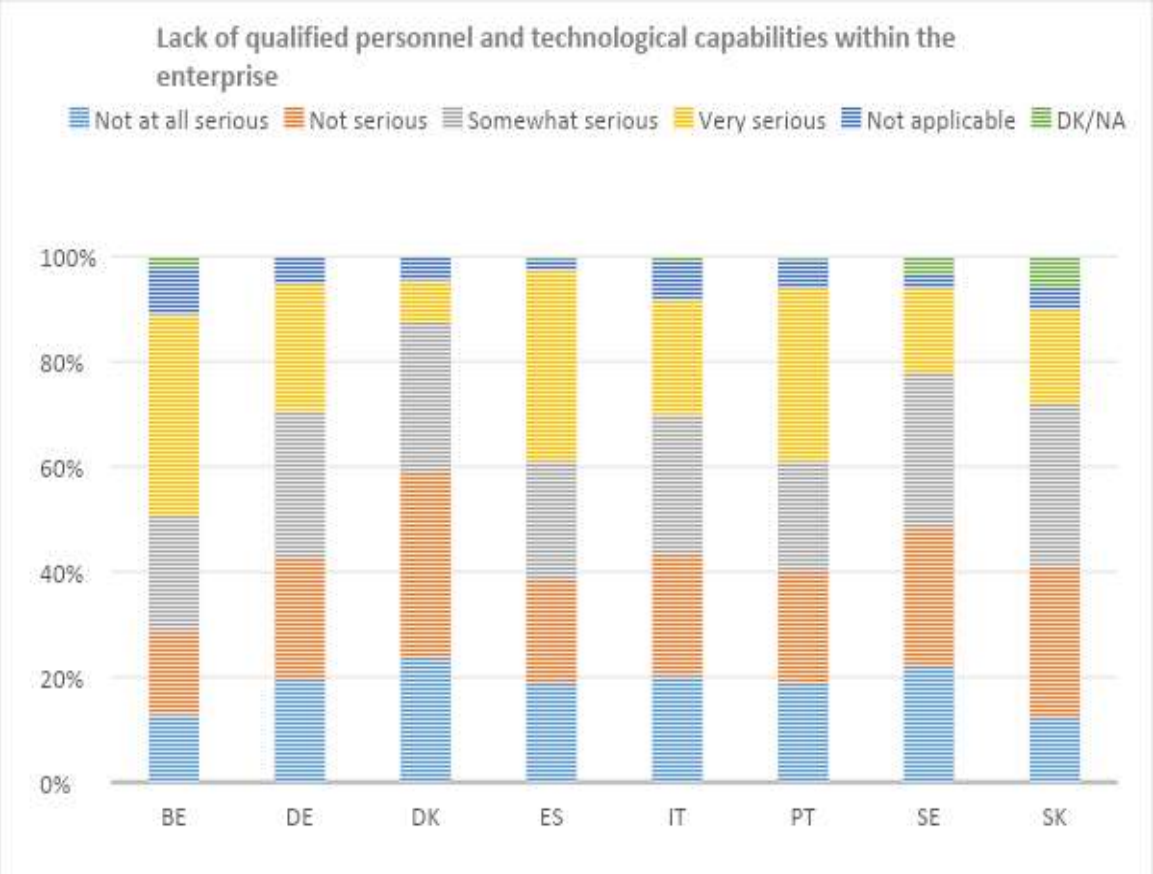

	Limited access to external information and knowledge						
Country	Not at all serious	Not serious	Somewhat serious	Very serious	Not applicable	DK/NA	Total
BE	16.9	24.4	25.9	21.4	8.5	3	100
DE	23.2	31.2	22.4	13.2	9.2	0.8	100
DK	25.9	38.3	22.9	3.5	6	3.5	100
ES	17.2	20.8	23.6	35.2	2.8	0.4	100
IT	17.5	23.5	29.9	18.3	7.2	3.6	100
PT	18.4	19.9	28.9	20.4	11.4	1	100
SE	30.5	23.5	27.5	8	3.5	7	100
SK	8	33.5	33.5	11	6	8	100

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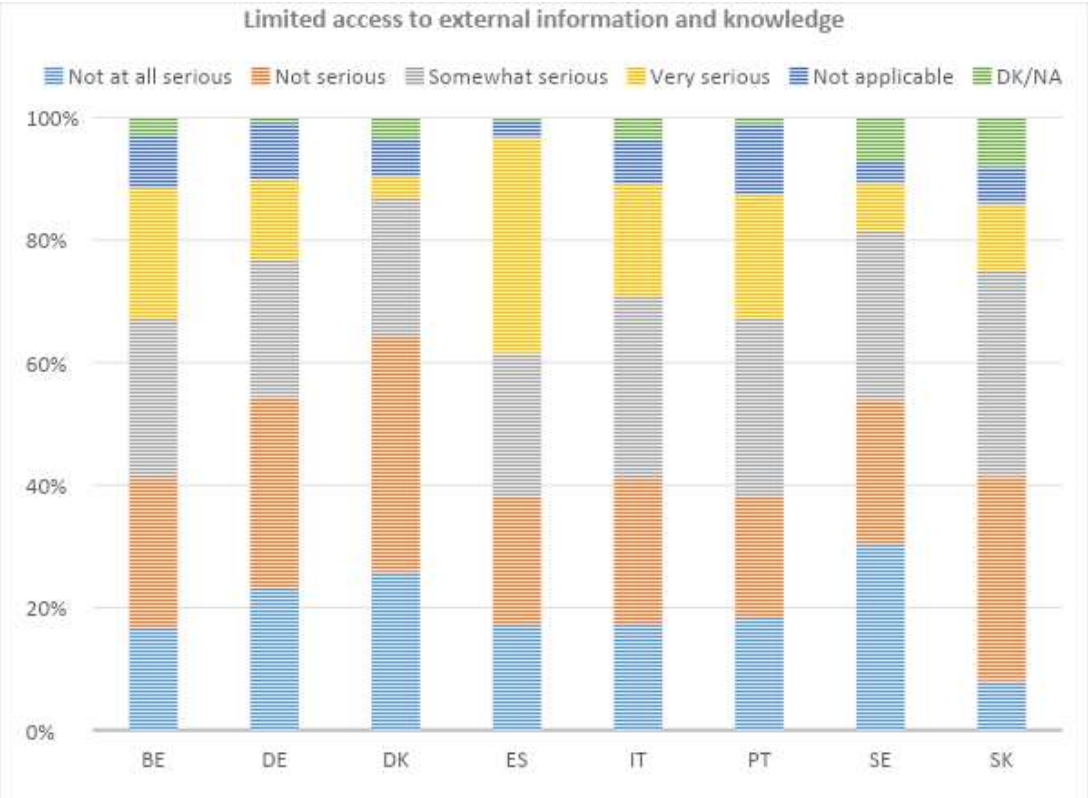

	Lack of suitable business partners						
Country	Not at all serious	Not serious	Somewhat serious	Very serious	Not applicable	DK/NA	Total
BE	17.9	29.9	15.9	16.4	16.4	3.5	100
DE	24	36.4	18.8	12.4	8	0.4	100
DK	27.9	38.3	16.9	6.5	6.5	4	100
ES	30.8	25.6	17.2	20.4	5.6	0.4	100
IT	19.1	24.7	23.1	21.5	8.8	2.8	100
PT	13.9	16.9	35.8	22.9	9.5	1	100
SE	38.5	23	20.5	8	4	6	100
SK	7.5	27	36.5	18	4.5	6.5	100

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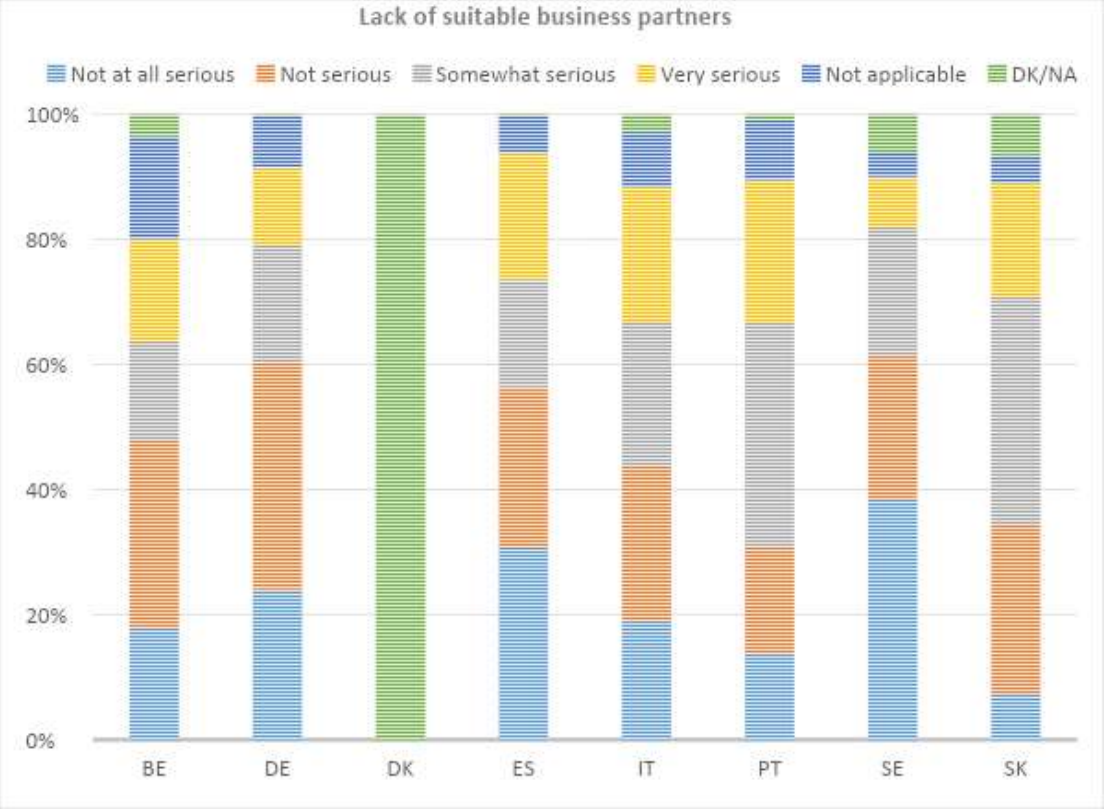

	Lack of collaboration with research institutes and universities						
Country	Not at all serious	Not serious	Somewhat serious	Very serious	Not applicable	DK/NA	Total
BE	21.9	17.9	19.9	12.4	23.4	4.5	100
DE	20	28.4	18.4	6.8	24.4	2	100
DK	28.9	32.3	14.4	6	16.4	2	100
ES	15.6	16	26	28.8	11.6	2	100
IT	13.9	24.3	21.9	17.9	17.9	4	100
PT	17.9	18.4	23.4	18.4	20.4	1.5	100
SE	31	28	14.5	5	15	6.5	100
SK	9.5	34	23	11	13	9.5	100

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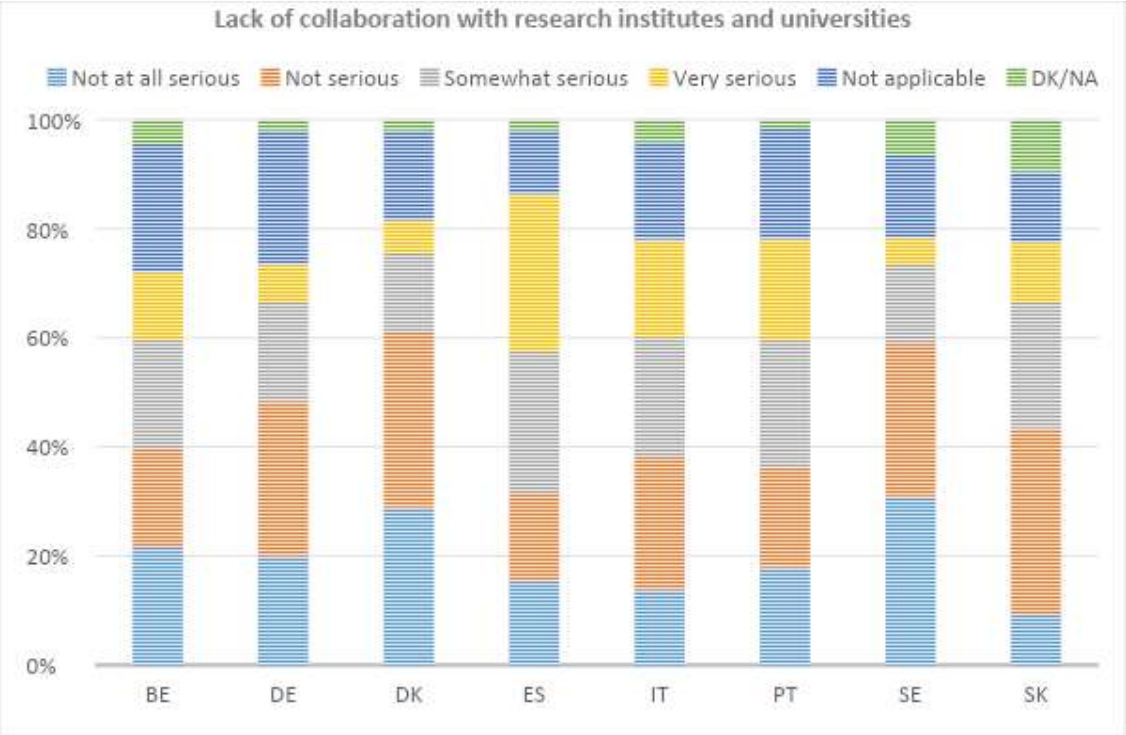

	Uncertain demand from the market						
Country	Not at all serious	Not serious	Somewhat serious	Very serious	Not applicable	DK/NA	Total
BE	16.4	16.9	30.3	26.9	5.5	4	100
DE	15.2	18	28.4	29.2	7.6	1.6	100
DK	12.9	18.4	39.3	21.4	7.5	0.5	100
ES	5.6	10	21.6	60.8	1.6	0.4	100
IT	8.4	15.1	35.5	35.1	4.8	1.2	100
PT	9	13.4	33.3	36.3	7	1	100
SE	23.5	20	32.5	15.5	3	5.5	100
SK	5.5	11	35.5	35	5	8	100

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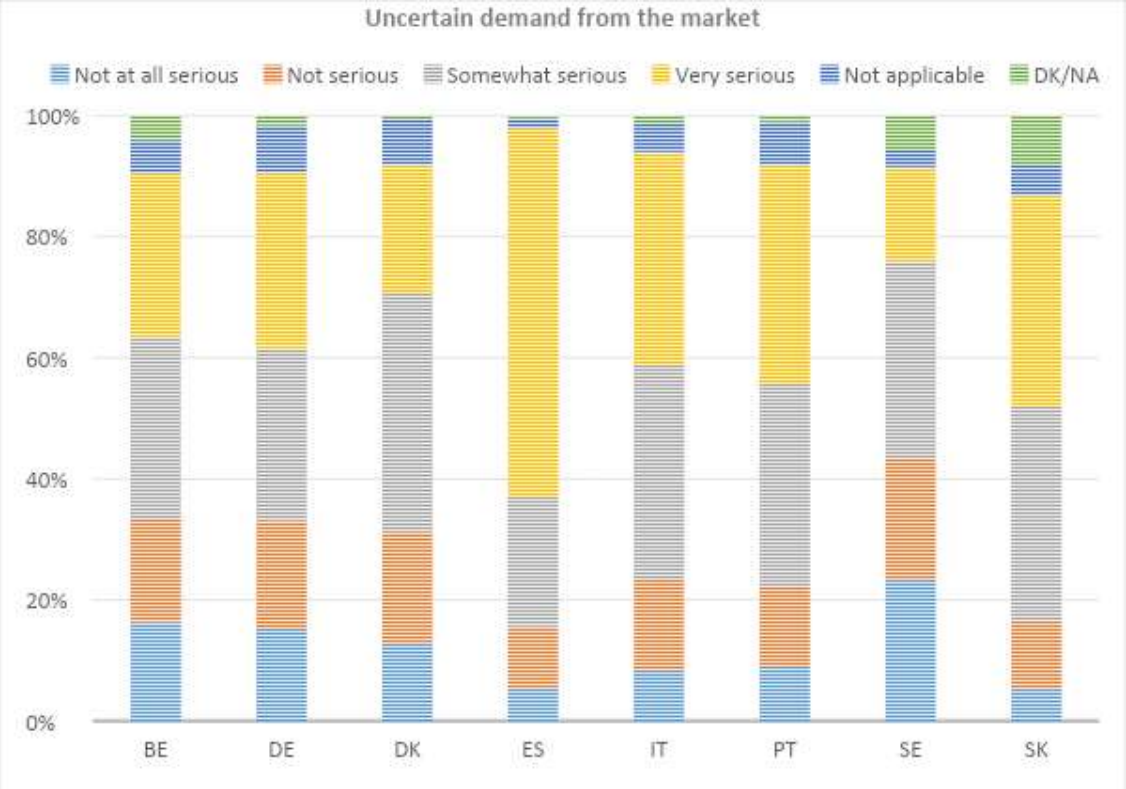

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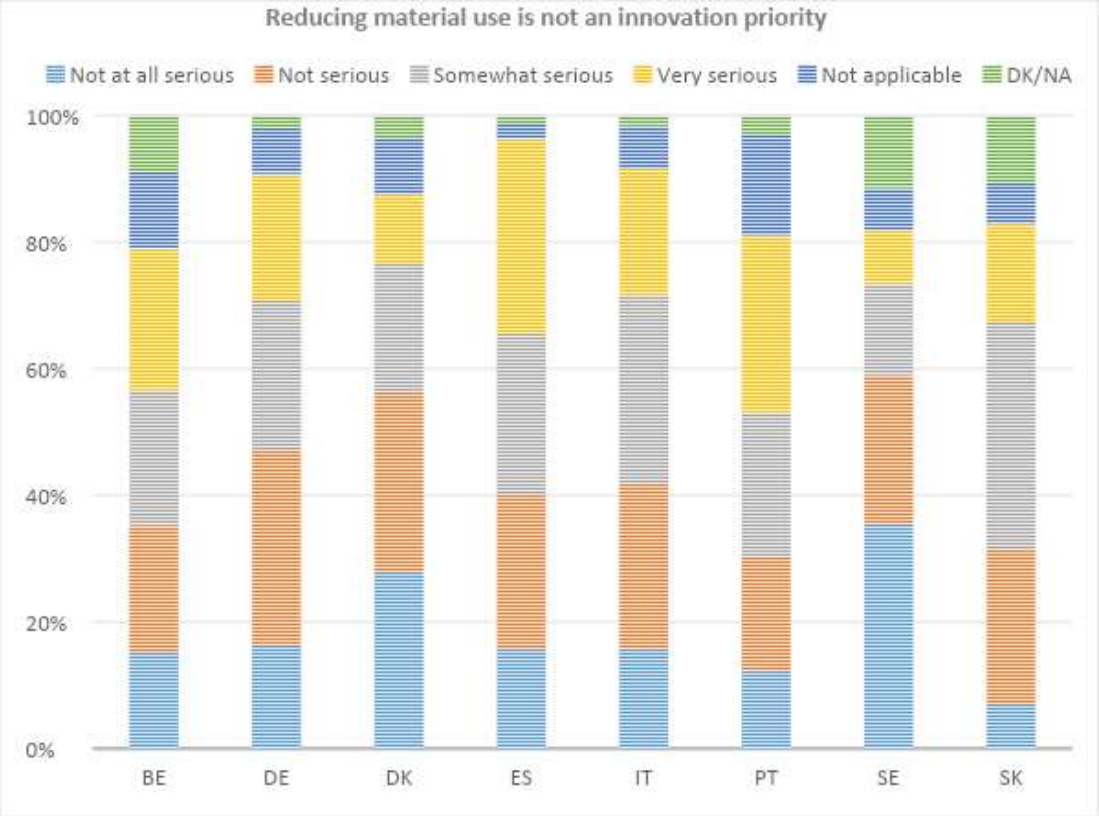
	Reducing material use is not an innovation priority						
Country	Not at all serious	Not serious	Somewhat serious	Very serious	Not applicable	DK/NA	Total
BE	15.4	19.9	21.4	22.4	11.9	9	100
DE	16.4	30.8	23.6	20	7.2	2	100
DK	27.9	28.4	20.4	10.9	9	3.5	100
ES	16	24	25.6	30.8	2.4	1.2	100
IT	15.9	25.9	29.9	19.9	6.8	1.6	100
PT	12.4	17.9	22.9	27.9	15.9	3	100
SE	35.5	23.5	14.5	8.5	6.5	11.5	100
SK	7	24.5	36	15.5	6.5	10.5	100



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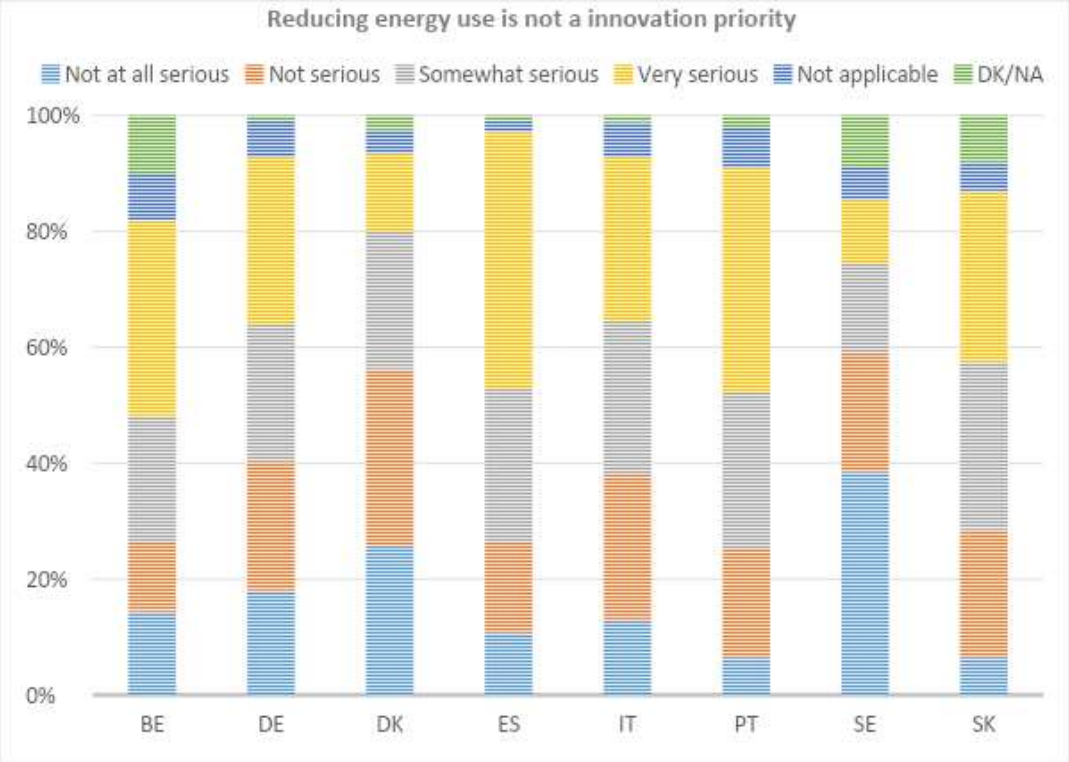
	Reducing energy use is not a innovation priority						
Country	Not at all serious	Not serious	Somewhat serious	Very serious	Not applicable	DK/NA	Total
BE	14.4	11.9	21.9	33.8	8	10	100
DE	18	22.4	23.6	28.8	6.4	0.8	100
DK	25.9	30.3	23.9	13.4	4	2.5	100
ES	10.8	15.6	26.4	44.4	2	0.8	100
IT	13.1	25.1	26.3	28.3	6	1.2	100
PT	6.5	18.9	26.9	38.8	7	2	100
SE	38.5	20.5	15.5	11	5.5	9	100
SK	6.5	22	29	29.5	5	8	100



	Technical and technological lock-ins in economy						
Country	Not at all serious	Not serious	Somewhat serious	Very serious	Not applicable	DK/NA	Total
BE	17.4	21.9	24.4	21.9	10	4.5	100
DE	17.2	26	29.2	14	10.4	3.2	100
DK	25.4	33.8	21.4	4.5	6.5	8.5	100
ES	14.4	15.6	23.2	42.4	3.2	1.2	100
IT	17.5	20.3	29.5	22.7	7.6	2.4	100
PT	10	17.9	31.3	26.4	12.9	1.5	100
SE	37.5	19.5	18	12.5	4	8.5	100
SK	6	25	32	16	8.5	12.5	100

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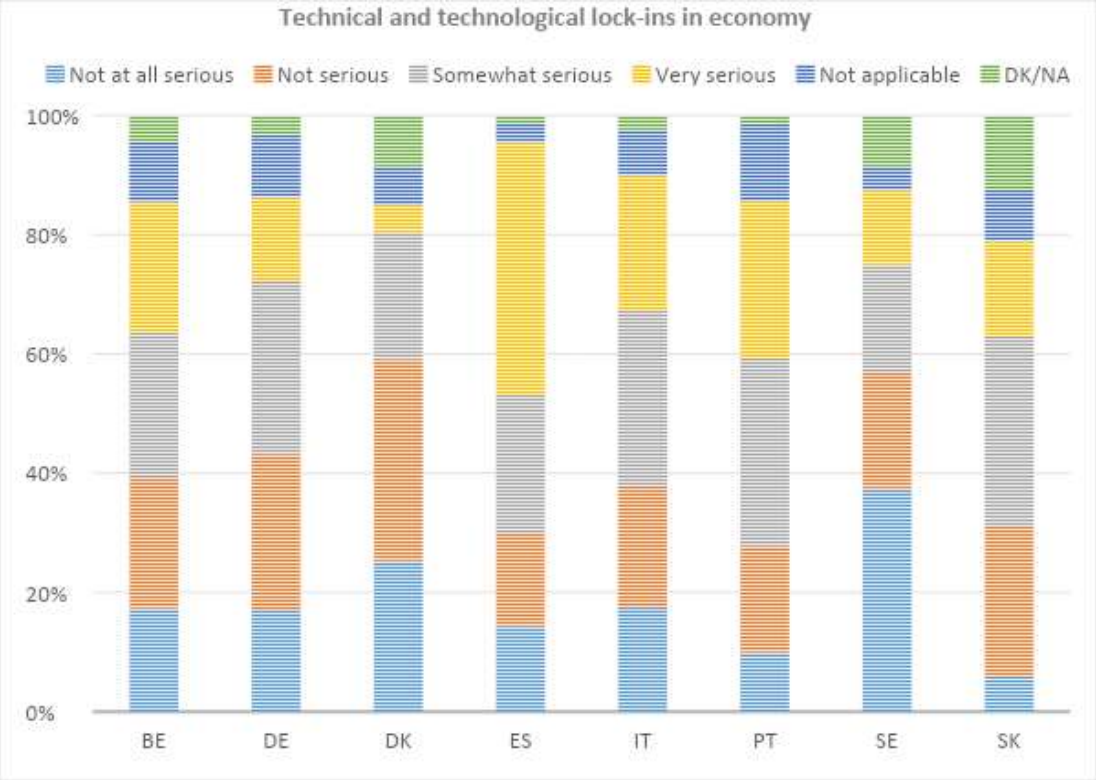

	Market dominated by established enterprises						
Country	Not at all serious	Not serious	Somewhat serious	Very serious	Not applicable	DK/NA	Total
BE	14.4	18.9	30.3	23.9	7.5	5	100
DE	15.2	22	28	25.6	7.6	1.6	100
DK	24.9	31.3	21.4	13.4	5.5	3.5	100
ES	13.6	20	24.4	40	1.2	0.8	100
IT	19.5	19.9	28.7	23.1	6.8	2	100
PT	12.9	20.4	31.3	27.4	7	1	100
SE	28.5	26.5	23	10.5	5.5	6	100
SK	8	17.5	33	26	6	9.5	100

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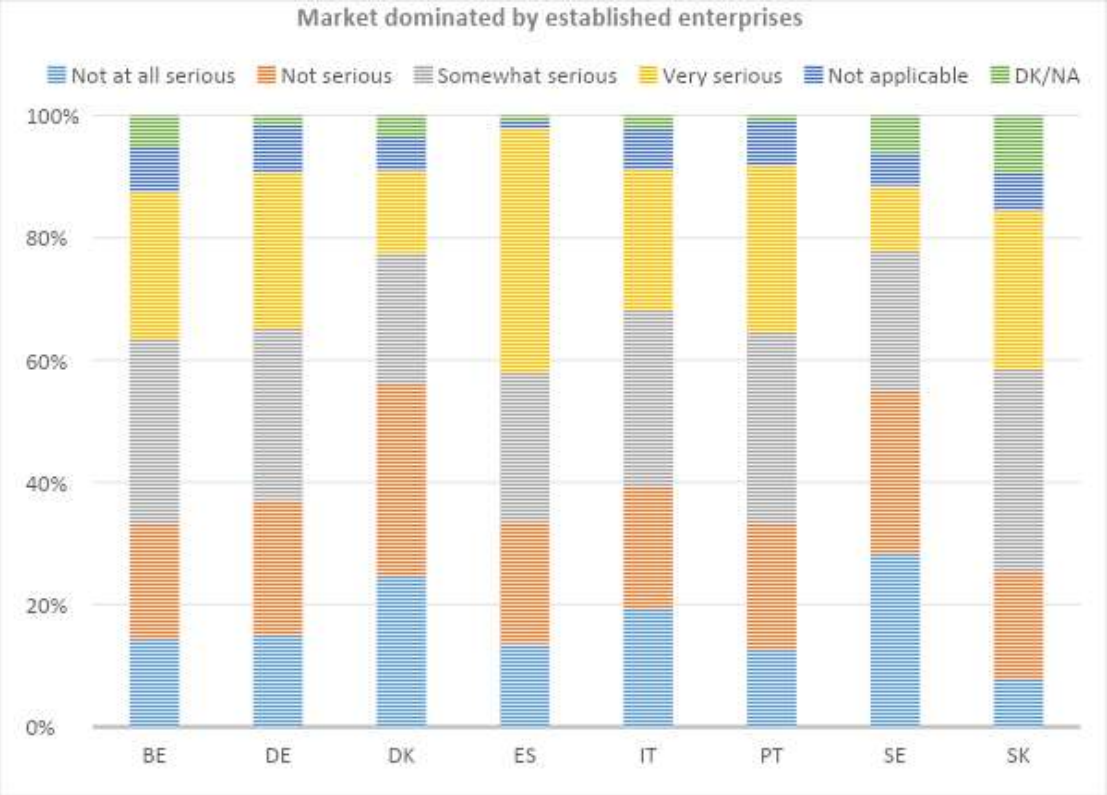

	Existing regulations and structures not providing incentives to eco-innovation						
Country	Not at all serious	Not serious	Somewhat serious	Very serious	Not applicable	DK/NA	Total
BE	14.4	16.9	30.3	18.9	10.9	8.5	100
DE	12.8	30.4	32.4	17.6	5.2	1.6	100
DK	14.9	29.4	27.9	13.4	8.5	6	100
ES	6.4	20.4	31.6	36	3.6	2	100
IT	13.9	17.1	29.9	28.7	6.8	3.6	100
PT	11.9	18.4	35.3	24.4	8.5	1.5	100
SE	24.5	16	25	11	7.5	16	100
SK	6	20	33	21.5	6	13.5	100

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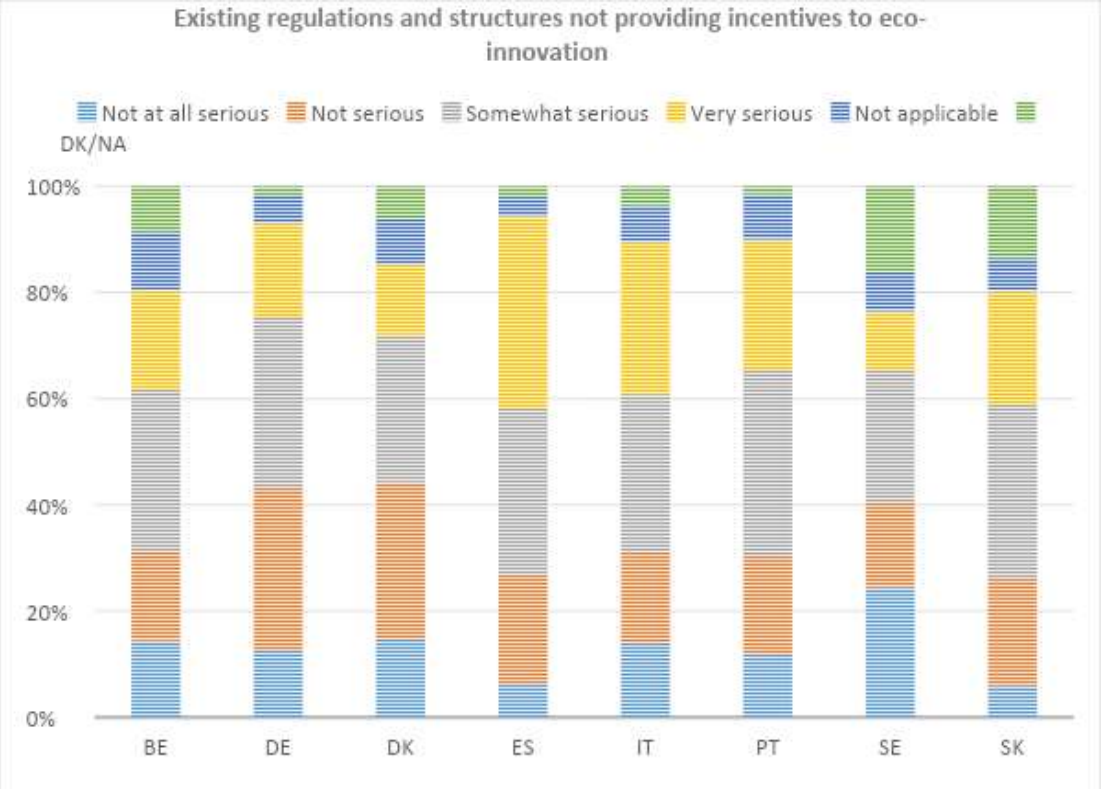

	Insufficient access to existing subsidies and fiscal incentives						
Country	Not at all serious	Not serious	Somewhat serious	Very serious	Not applicable	DK/NA	Total
BE	12.4	16.9	29.4	24.9	10.9	5.5	100
DE	15.2	21.2	24	27.2	10.8	1.6	100
DK	20.9	25.4	27.9	12.4	7	6.5	100
ES	6	13.6	25.2	52	2	1.2	100
IT	11.6	15.9	34.3	29.9	6	2.4	100
PT	10.9	10.4	32.3	30.8	12.9	2.5	100
SE	27	17.5	28	10.5	6.5	10.5	100
SK	7	14	26	38	7.5	7.5	100

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What are the key drivers to accelerated eco-innovation?

	Technological and management capabilities within the enterprise						
Country	Not at all important	Not important	Somewhat important	Very important	Not applicable	DK/NA	Total
BE	6.5	12.4	30.3	43.8	5.5	1.5	100
DE	4.4	10	37.2	46	2.4	0	100
DK	6	18.4	41.8	27.4	3	3.5	100
ES	4	14	30	48.8	2	1.2	100
IT	6	18.7	35.1	37.8	0.4	2	100
PT	2.5	8.5	33.3	50.7	3.5	1.5	100
SE	6	14	36	38	1	5	100
SK	3	21.5	33	32	3.5	7	100

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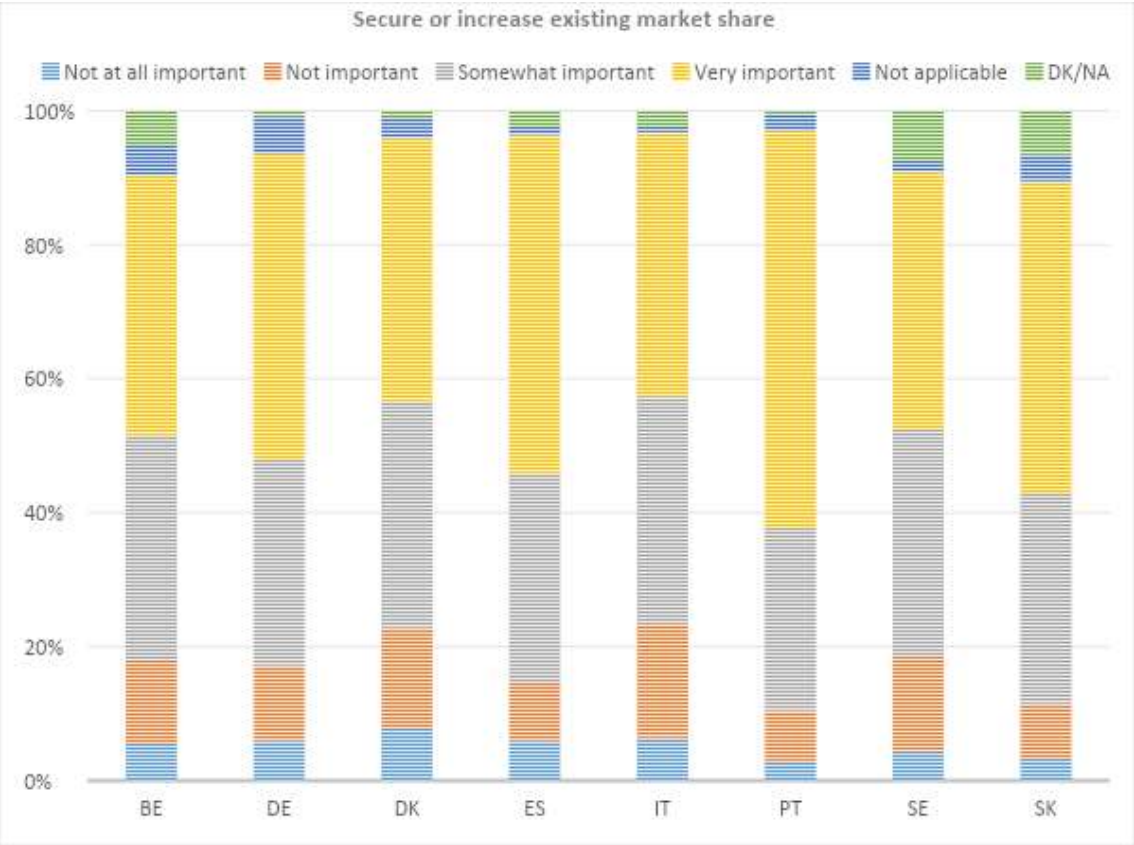
	Secure or increase existing market share						
Country	Not at all important	Not important	Somewhat important	Very important	Not applicable	DK/NA	Total
BE	5.5	12.4	33.8	38.8	4.5	5	100
DE	6	11.2	30.8	45.6	5.6	0.8	100
DK	8	14.9	33.8	39.3	3	1	100
ES	6	8.8	31.2	50.4	1.2	2.4	100
IT	6.4	17.1	33.9	39.4	0.8	2.4	100
PT	3	7.5	27.4	59.2	2.5	0.5	100
SE	4.5	14	34	38.5	1.5	7.5	100
SK	3.5	8	31.5	46.5	4	6.5	100



	Current high material price						
Country	Not at all important	Not important	Somewhat important	Very important	Not applicable	DK/NA	Total
BE	5	7	24.9	56.2	4.5	2.5	100
DE	6.8	16.4	32.4	37.2	7.2	0	100
DK	8.5	16.9	37.3	31.8	5	0.5	100
ES	4.8	7.2	18.4	67.6	1.6	0.4	100
IT	7.6	12.7	37.1	38.6	2.8	1.2	100
PT	4.5	4.5	18.9	66.7	5	0.5	100
SE	8	16.5	30	32.5	6.5	6.5	100
SK	5	10.5	23	49.5	5	7	100

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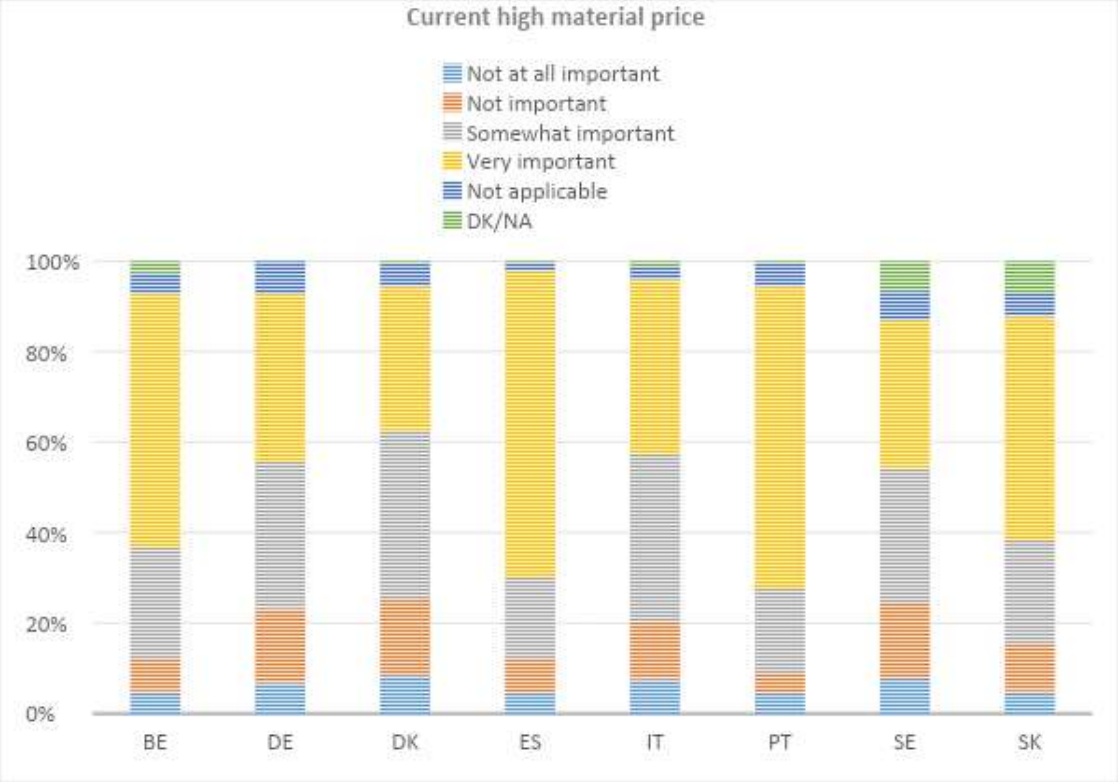

	Limited access to materials						
Country	Not at all important	Not important	Somewhat important	Very important	Not applicable	DK/NA	Total
BE	11.4	22.4	30.3	23.4	9	3.5	100
DE	13.2	21.6	26	33.2	4.8	1.2	100
DK	15.9	28.4	26.4	18.4	7.5	3.5	100
ES	8.4	15.6	23.2	49.6	2	1.2	100
IT	12.7	21.9	30.7	28.3	2.8	3.6	100
PT	7	10.4	23.4	52.2	6	1	100
SE	17	21	24.5	27	5.5	5	100
SK	7	21	29.5	26.5	8.5	7.5	100

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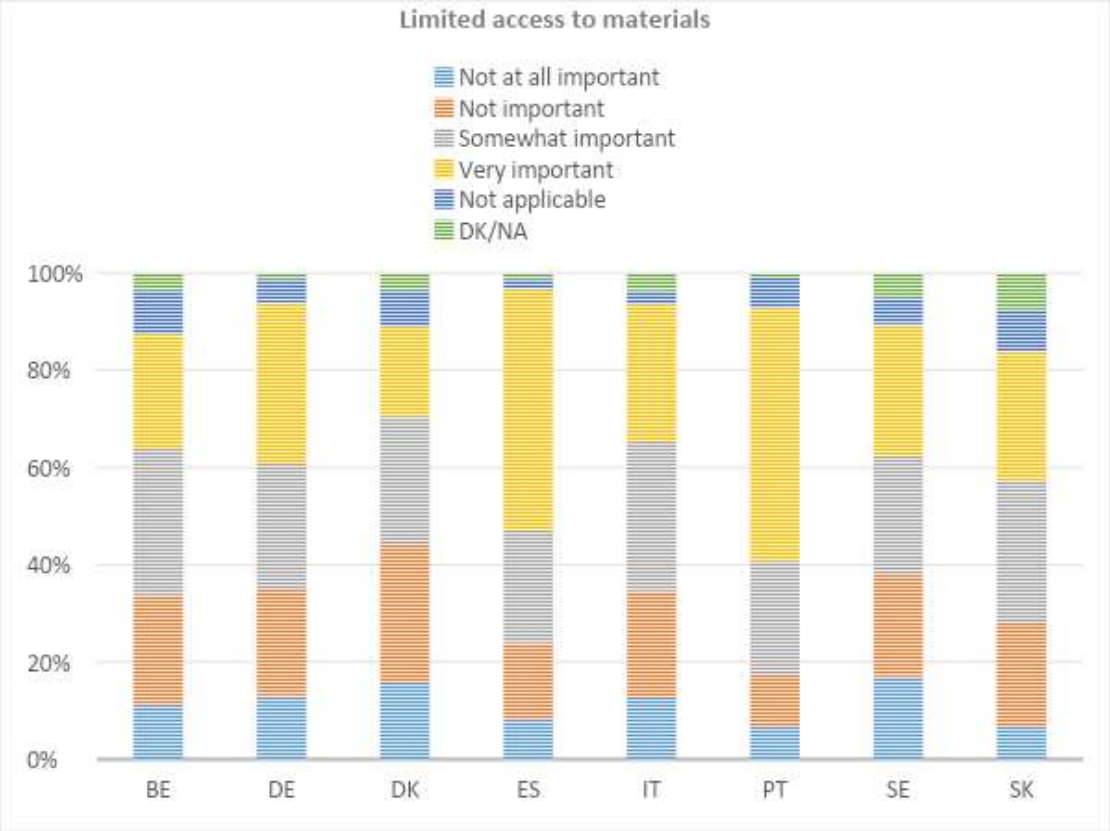

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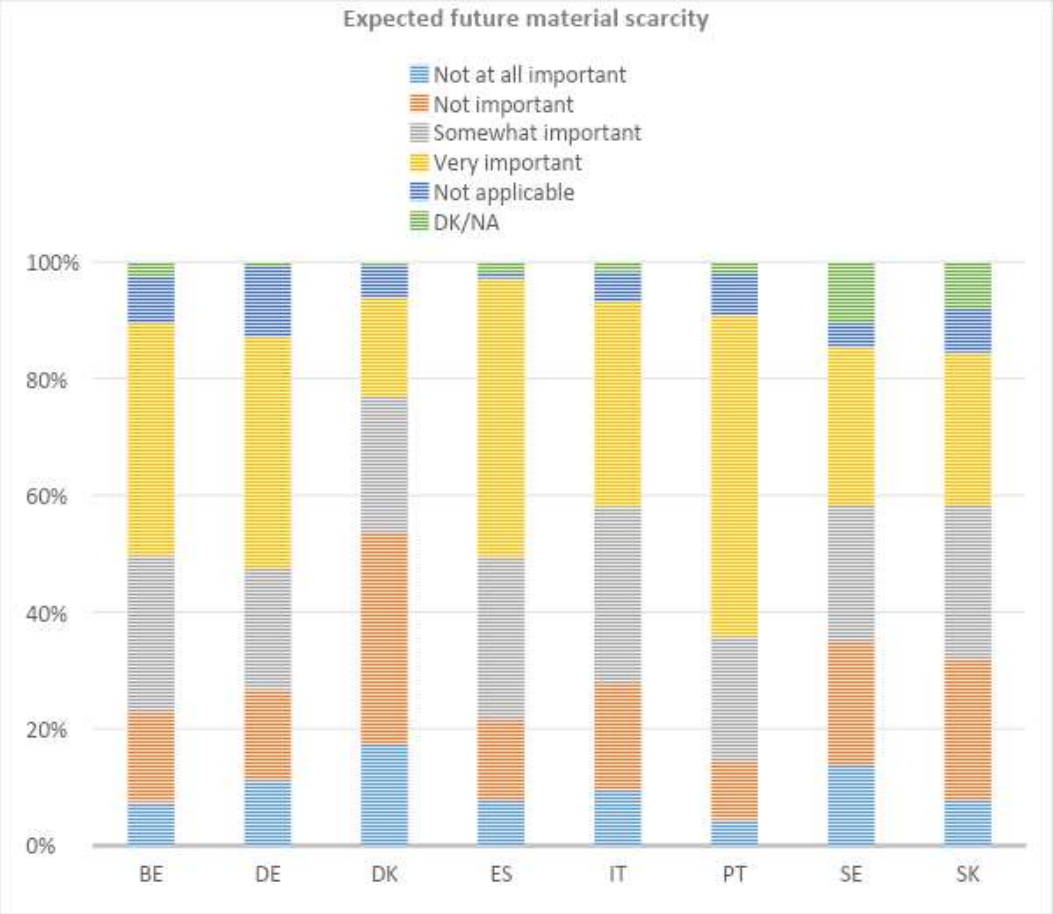
	Expected future material scarcity						
Country	Not at all important	Not important	Somewhat important	Very important	Not applicable	DK/NA	Total
BE	7.5	15.4	26.9	39.8	8	2.5	100
DE	11.2	15.6	20.8	39.6	12	0.8	100
DK	17.4	36.3	23.4	16.9	5.5	0.5	100
ES	8	13.6	28	47.6	0.8	2	100
IT	9.6	18.3	30.3	35.1	5.2	1.6	100
PT	4.5	10	21.4	55.2	7	2	100
SE	14	21	23.5	27	4	10.5	100
SK	8	24	26.5	26	7.5	8	100



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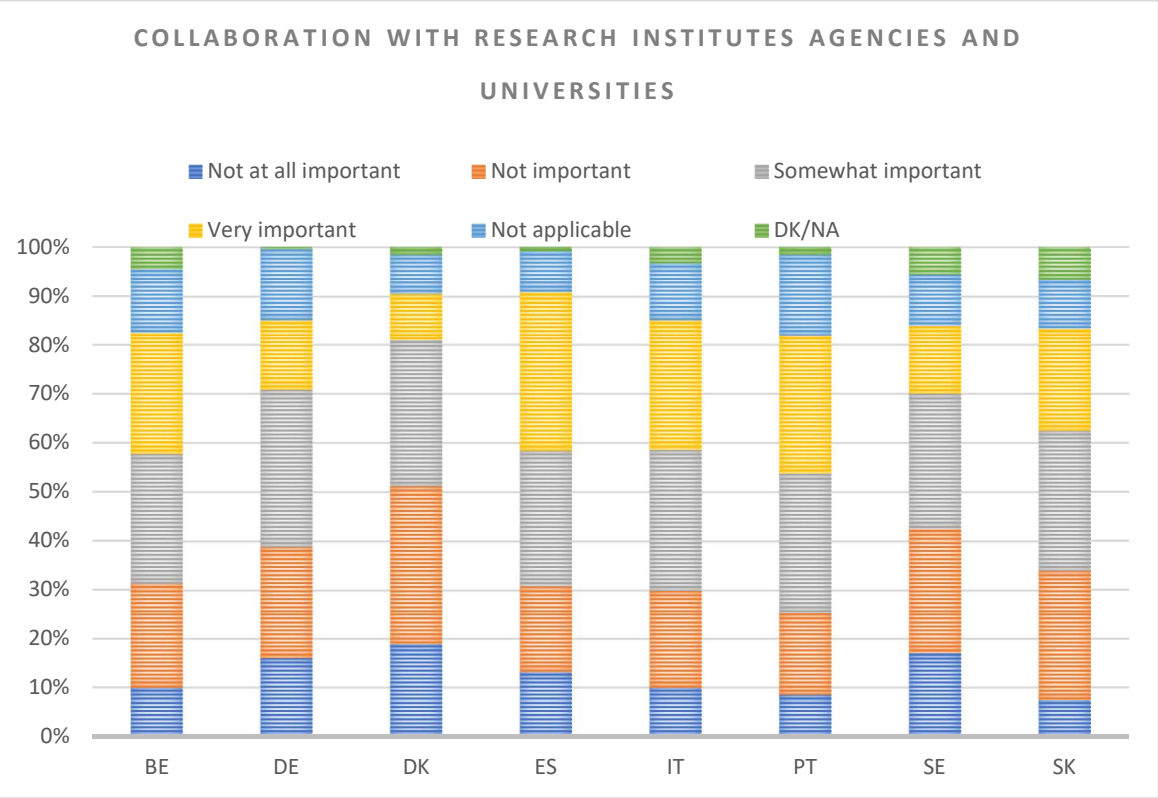
	Collaboration with research institutes agencies and universities						
Country	Not at all important	Not important	Somewhat important	Very important	Not applicable	DK/NA	Total
BE	10	21.4	26.4	24.9	12.9	4.5	100
DE	16	22.8	32	14.4	14.4	0.4	100
DK	18.9	32.3	29.9	9.5	8	1.5	100
ES	13.2	17.6	27.6	32.4	8.4	0.8	100
IT	10	19.9	28.7	26.7	11.6	3.2	100
PT	8.5	16.9	28.4	28.4	16.4	1.5	100
SE	17	25.5	27.5	14	10.5	5.5	100
SK	7.5	26.5	28.5	21	10	6.5	100



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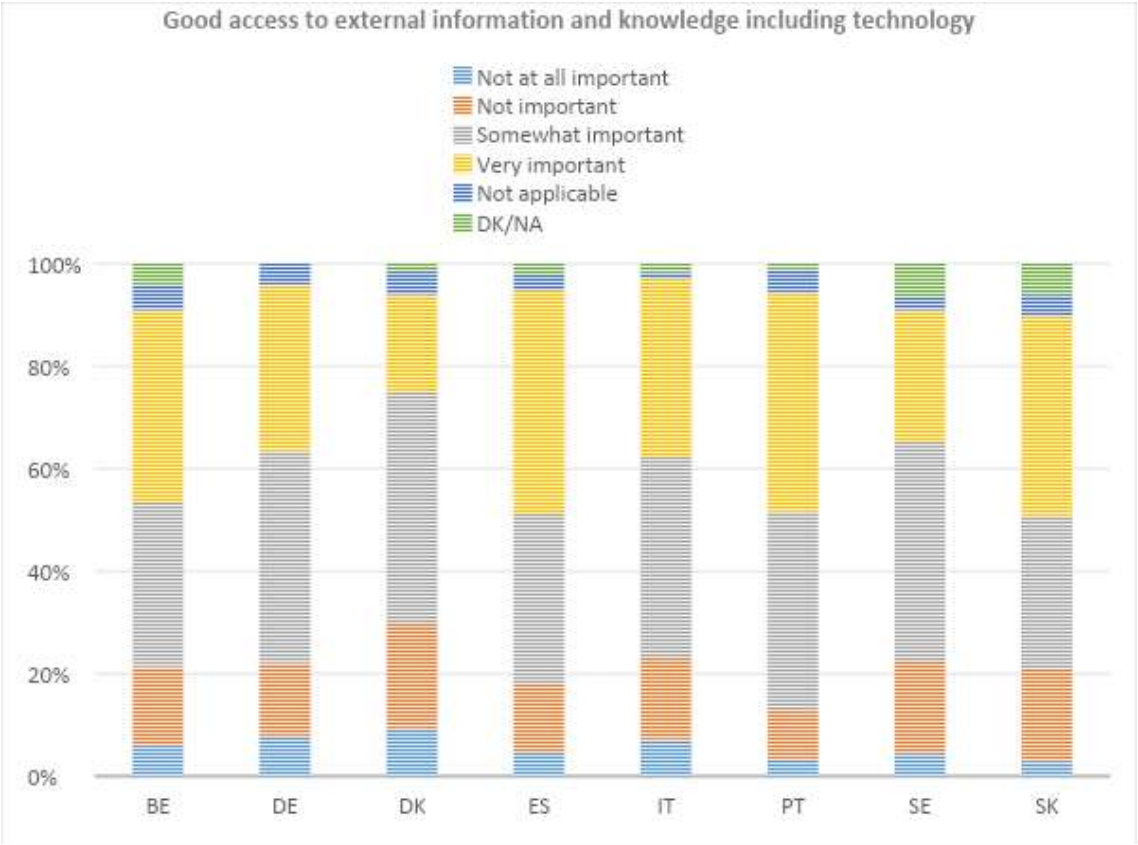
	Good access to external information and knowledge including technology						
Country	Not at all important	Not important	Somewhat important	Very important	Not applicable	DK/NA	Total
BE	6	15.4	32.3	37.3	5	4	100
DE	8	14	41.6	32.4	4	0	100
DK	9.5	20.4	45.3	18.9	4.5	1.5	100
ES	4.8	13.2	33.2	43.6	3.2	2	100
IT	7.2	15.9	39.4	34.7	1.2	1.6	100
PT	3.5	9.5	38.8	42.8	4.5	1	100
SE	4.5	18	43	25.5	2.5	6.5	100
SK	3	18	30	39	4	6	100



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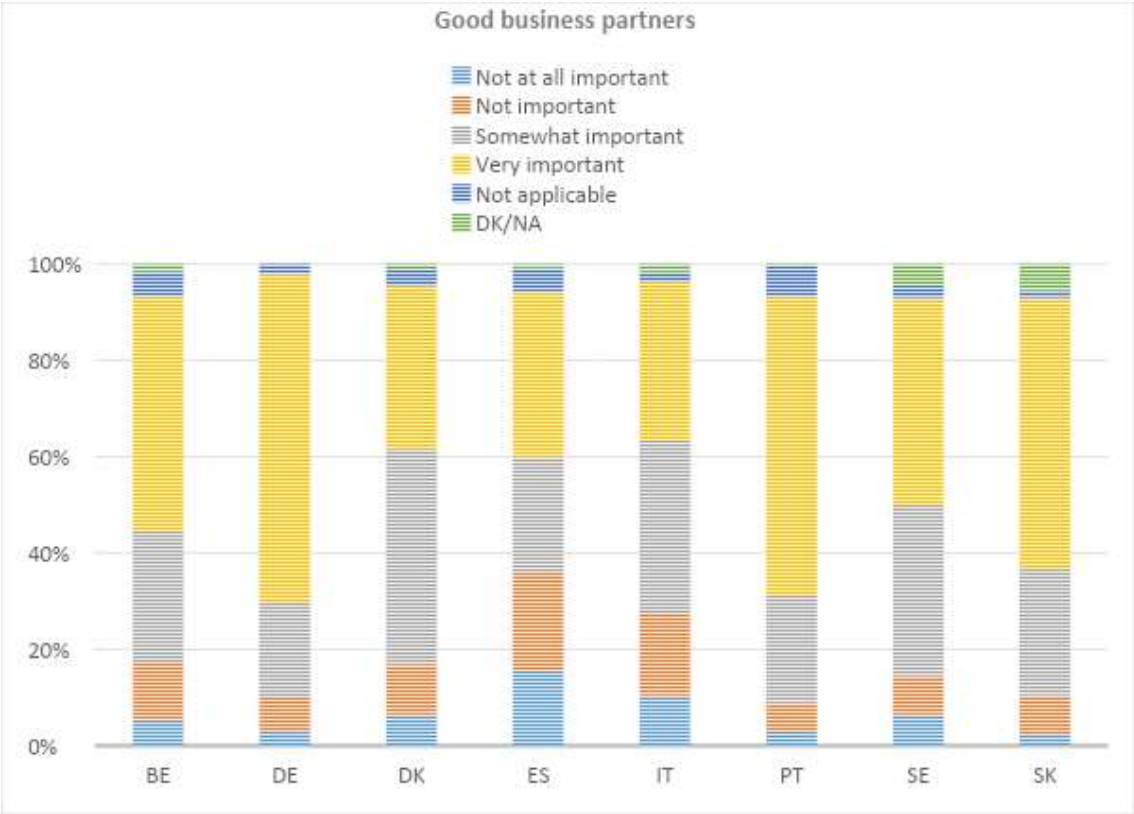
	Good business partners						
Country	Not at all important	Not important	Somewhat important	Very important	Not applicable	DK/NA	Total
BE	5.5	11.9	27.4	48.8	5	1.5	100
DE	3.2	6.8	20	68	2	0	100
DK	6.5	10.4	44.8	33.8	3.5	1	100
ES	15.6	20.4	24	34.4	4.8	0.8	100
IT	10.4	17.1	35.9	33.1	2	1.6	100
PT	3	6	22.4	62.2	6	0.5	100
SE	6.5	8	35.5	43	2.5	4.5	100
SK	2.5	8	26.5	56	1.5	5.5	100



	Current high energy price						
Country	Not at all important	Not important	Somewhat important	Very important	Not applicable	DK/NA	Total
BE	4	5.5	21.4	65.7	2.5	1	100
DE	5.2	10.4	26.4	54.8	3.2	0	100
DK	4.5	13.9	36.8	40.8	3	1	100
ES	1.6	7.6	13.2	76.4	0.8	0.4	100
IT	6.4	16.7	33.1	40.6	2	1.2	100
PT	3.5	2	18.9	70.1	4.5	1	100
SE	8	11	29	43.5	3	5.5	100
SK	3.5	8	22.5	57	3.5	5.5	100

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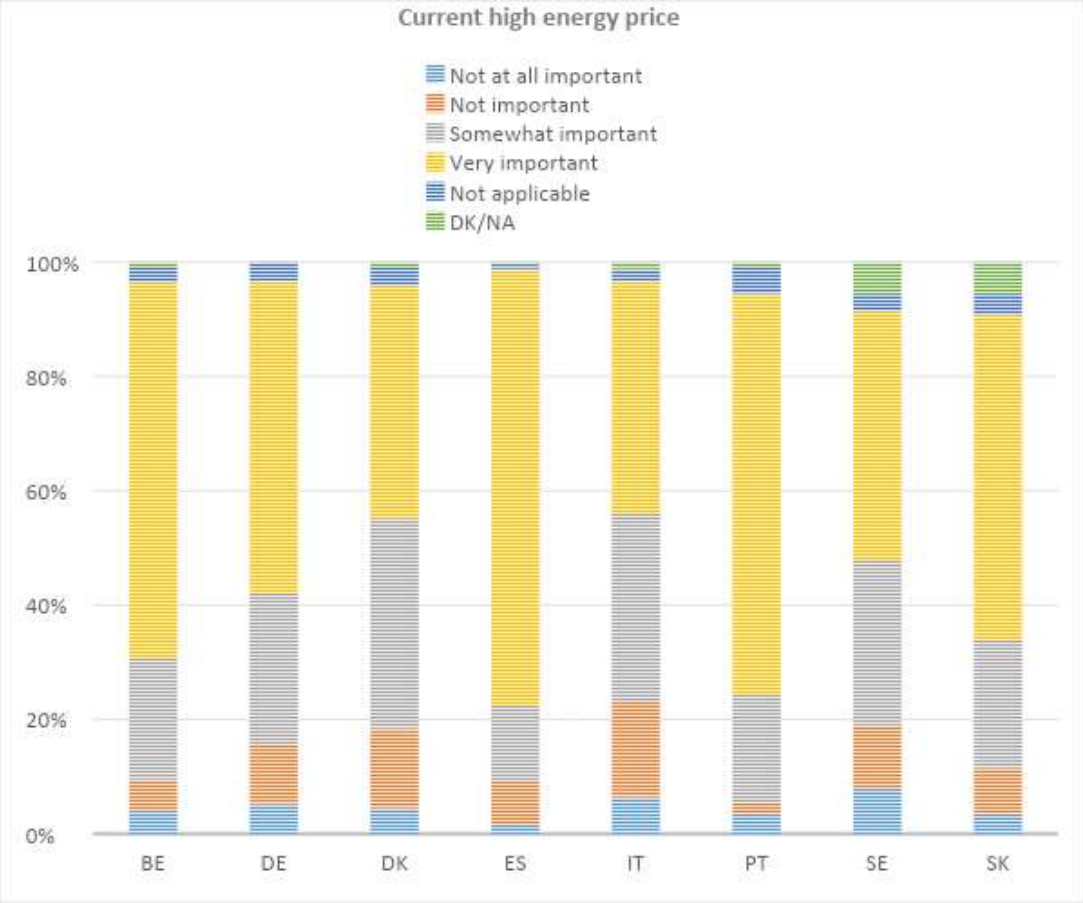

	Expected future increases in energy price						
Country	Not at all important	Not important	Somewhat important	Very important	Not applicable	DK/NA	Total
BE	4	3.5	28.4	60.2	3.5	0.5	100
DE	4.8	6.8	28.4	58.8	0.8	0.4	100
DK	5.5	9	39.8	41.8	3	1	100
ES	2.8	6.8	14.4	74	0.8	1.2	100
IT	8	15.1	30.7	42.6	2	1.6	100
PT	2.5	5.5	11.4	75.6	4.5	0.5	100
SE	6.5	10.5	33.5	42	3.5	4	100
SK	3.5	7	25	55.5	3	6	100

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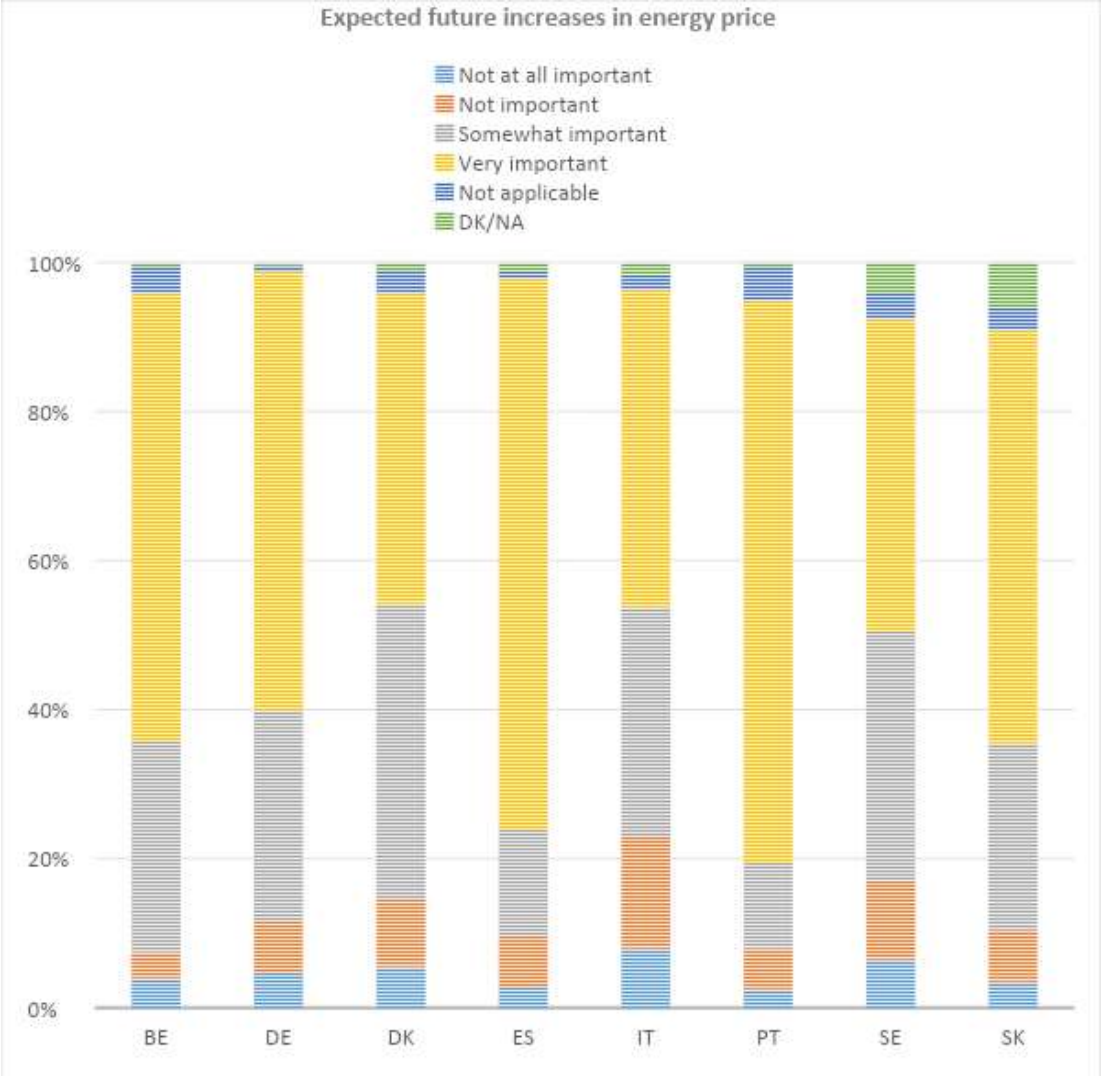

	Existing regulations including standards						
Country	Not at all important	Not important	Somewhat important	Very important	Not applicable	DK/NA	Total
BE	6	8.5	36.8	41.3	3.5	4	100
DE	6.8	24	40.8	23.6	4	0.8	100
DK	13.9	18.4	40.3	20.4	3.5	3.5	100
ES	6.4	15.2	37.6	36.4	1.2	3.2	100
IT	6.8	18.3	37.5	33.1	2.4	2	100
PT	3.5	10.9	46.3	34.8	3	1.5	100
SE	13.5	21	37	12	4.5	12	100
SK	6.5	19	33	27	6	8.5	100

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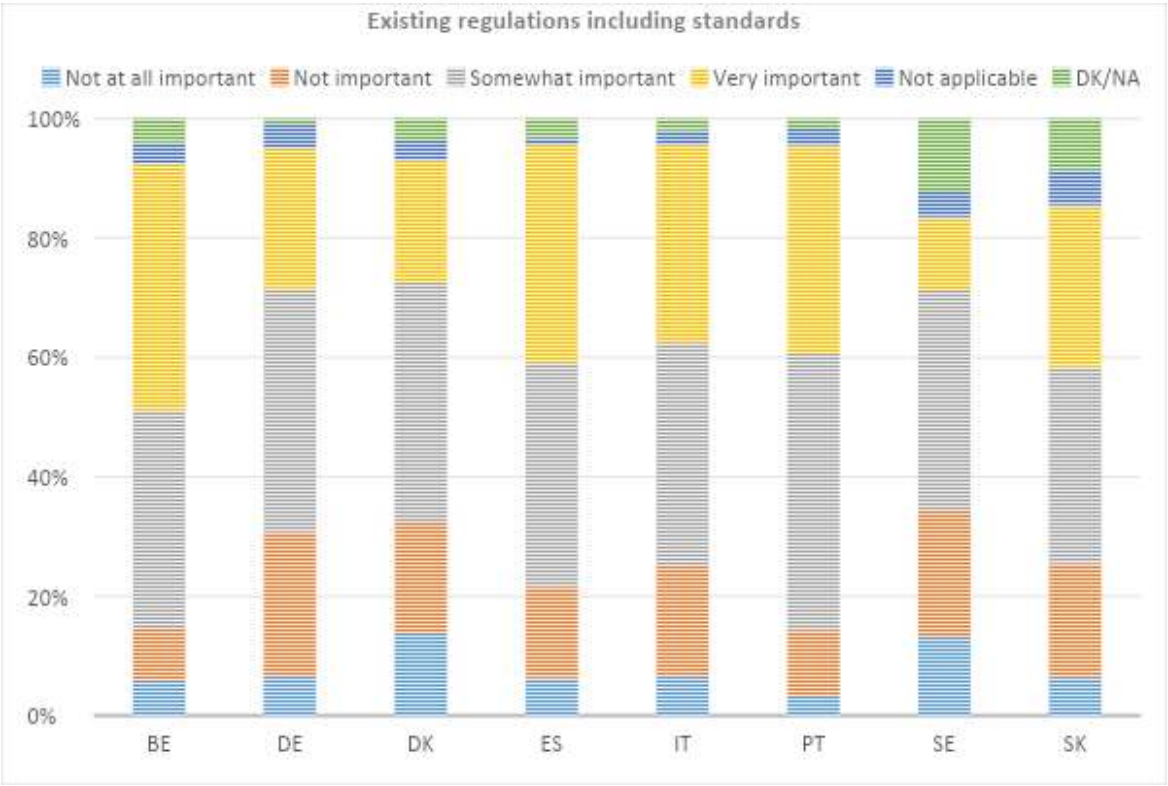

	Expected future regulations imposing new standards						
Country	Not at all important	Not important	Somewhat important	Very important	Not applicable	DK/NA	Total
BE	6.5	8	35.3	41.8	4	4.5	100
DE	12.8	20.4	32.8	28.4	4.8	0.8	100
DK	7	18.4	38.3	28.9	3	4.5	100
ES	4.4	12	36.8	42	1.2	3.6	100
IT	8.4	21.5	32.7	32.3	2	3.2	100
PT	7.5	13.4	45.8	27.4	3.5	2.5	100
SE	12	22	33.5	19.5	5	8	100
SK	5	11.5	34.5	33	5	11	100

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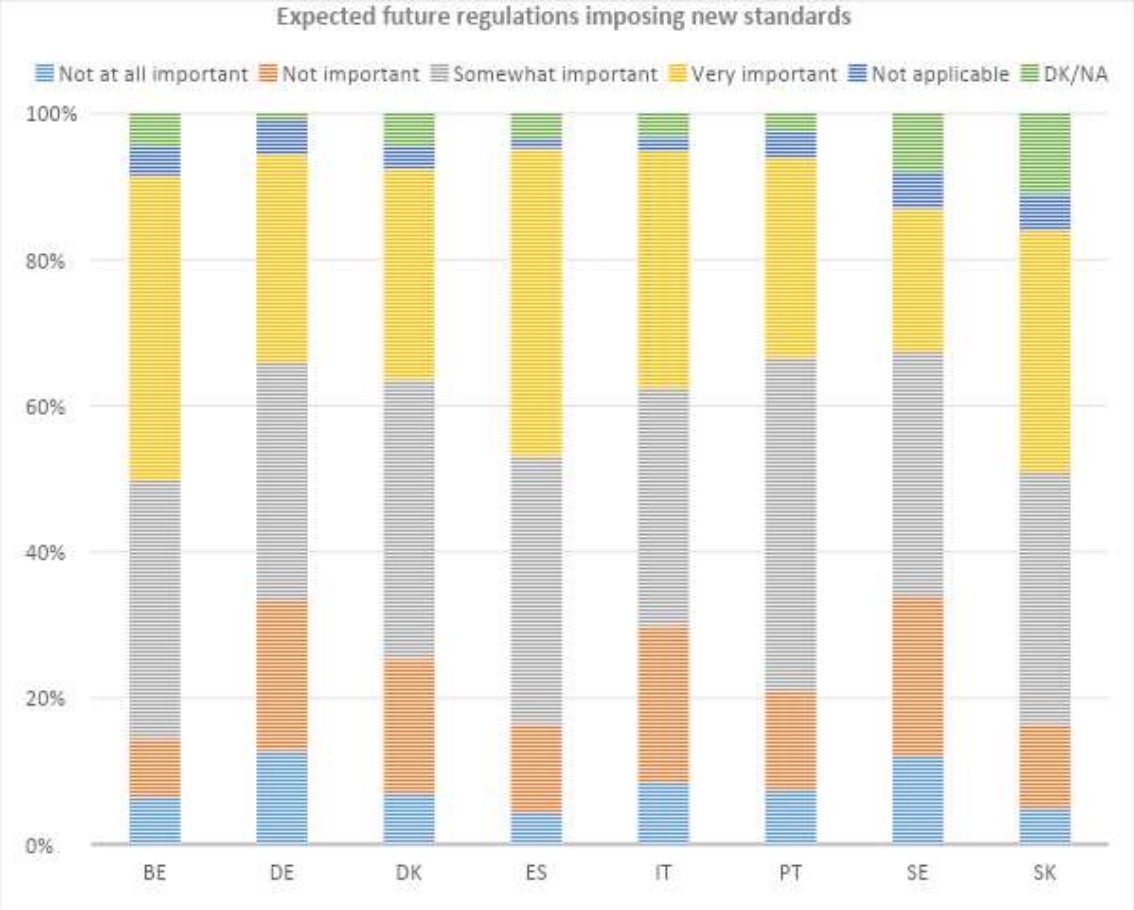

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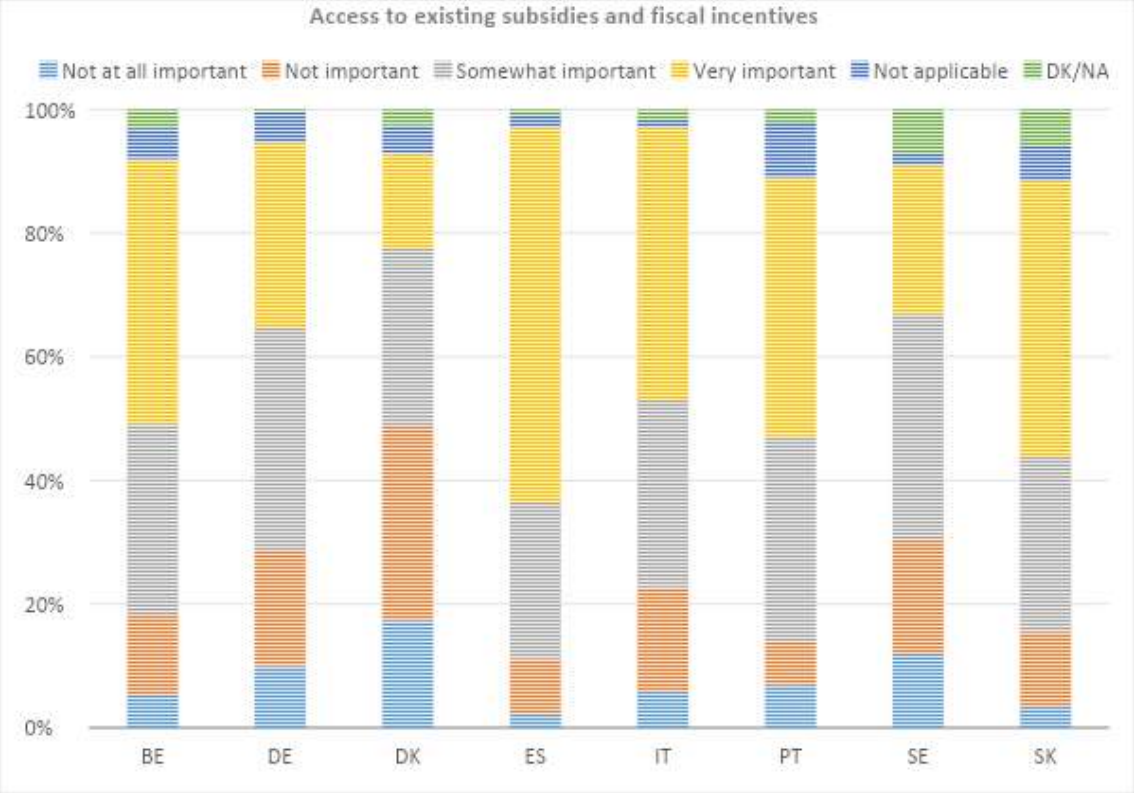
	Access to existing subsidies and fiscal incentives						
Country	Not at all important	Not important	Somewhat important	Very important	Not applicable	DK/NA	Total
BE	5.5	12.9	30.8	42.8	5	3	100
DE	10	18.8	36	30	4.8	0.4	100
DK	17.4	31.3	28.9	15.4	4.5	2.5	100
ES	2.4	8.8	25.2	60.8	2	0.8	100
IT	6	16.7	30.3	44.2	1.2	1.6	100
PT	7	7	33.3	41.8	9	2	100
SE	12	18.5	36.5	24	2	7	100
SK	3.5	12	28.5	44.5	5.5	6	100



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1.1.5. The Flash 415 Innobarometer, "The innovation trends at EU enterprises"

This Flash Eurobarometer survey is aimed at capturing the main trends of EU business as far as innovation related activities are concerned. Carried out in the 28 Member States, as well as in Switzerland and the United States, it was designed to collect information on the profiles of innovative companies, to explore barriers to commercialisation, as well as identify the areas where public funding could best support innovation.

The survey covered the following areas:

- Profiles of companies that develop innovations, including the most common areas where innovations have occurred since January 2012;
- The impact of innovations on turnover, and the proportion of turnover invested in innovation activities;
- Barriers to commercialisation of both innovative and non-innovative goods and services;
- Preferred types of public support for the commercialisation of goods or services;

- The role of design, and the use of advanced manufacturing technologies;
- Involvement in public procurement and the role innovation plays in this process.

The following definition of 'innovation' was employed in the questionnaire: "Innovation occurs when a company introduces a new or significantly improved good, service, process, marketing strategy or organisational method.

The innovation can be developed by the company itself or has been originally developed by other companies or organisations".

Like most surveys, the identity of the respondents is confidential. What we get from the GESIS surveys is an indication of the prevalence of green innovation in the individual countries and how those in each country view the obstacles, challenges, and policies that would improve their performance in that regard.

This survey inspired the following set of **RESS questions**:

Questions for SMEs:

1. Thinking about possible **public support** for commercialisation of your innovative goods or services in the **RES** market, which of the following types of intervention would have the most positive impact on your company? Support for:

    a. Meeting regulations or standards

    b. Accessing or reinforcing online selling

    c. Participating in conferences, trade fairs, exhibitions, market consultations organized by public buyers

    d. Training staff in how to promote and market innovative goods or services

    e. Applying for, managing or protecting intellectual property rights

    f. Market-testing a product or service before launch

    g. Accessing or reinforcing your presence in export markets

2. Do you plan to increase, reduce or keep unchanged the percentage of investment your company dedicates to innovation in the **RES** market in the next 12 months?

    a. Increase it;

    b. Keep it unchanged;

    c. Reduce it;

    d. You do not plan to invest in innovation in the next 12 months;

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e. Not applicable

3. In the area of eco-innovation in the **RES** market, since January 2015 has your company…? (MULTIPLE ANSWERS POSSIBLE):
    a. Won at least one public procurement contract
    b. Submitted at least one tender for a public procurement contract and the outcome is unknown
    c. Submitted at least one tender for a public procurement contract without success
    d. Investigated opportunities to bid on one or more public procurement contracts, but have never submitted a tender
    e. Has never submitted a tender nor investigated opportunities to bid on a public procurement contract
    f. Not applicable

4. Would you approach public authorities in response to a Prior Information Notice (PIN) via an e-tendering Portal? Y/N
5. In your experience, are environmental criteria part of procurement assessment criteria? Y/N
6. In your experience, are Life Cycle Assessment (LCA) or Life Cycle Cost Assessment (LCCA) or any other environmental labels or certificates used as assignment criteria for RES public procurement? Y/N
7. What is the most problematic phase in the interaction between you and public authorities within public procurement?
    a. before the tender
    b. during the bidding process
    c. after the contract award

Financial questions

8. What is your main financing source (max two choices)
    a. bank

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b. promotional bank
c. venture capital firm
d. supplier (trade credit)
e. FinTech company (platform financing)
f. Multiple relationships to more than two financing sources
g. Internal funds
h. Other sources
i. Prefer not to say

9. How would you describe your financial structure?

j. Equity to total assets ratio below or equal 10 percent
k. Equity to total assets ratio above 10 percent and below or equal 20 percent
l. Equity to total assets ratio above 20 percent and below or equal 30 percent
m. Equity to total assets ratio above 30 percent and below or equal 40 percent
n. Equity to total assets ratio above 40 percent and below or equal 50 percent
o. Higher than 50 percent
p. Prefer not to say

10. What is your preferred means of raising funds? (max two choices)

a. financing through banks or financial intermediaries
b. equity ownership
c. participatory loans
d. green bonds
e. crowdfunding
f. investment through Energy Cooperatives
g. Other instruments
h. Prefer not to say

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11. If your company received an unexpected additional profit or additional equity inflow of 10 % of last year's turnover, how would your enterprise use the additional money? (Multiple choices allowed)

    a. Investing in new general investment projects

    b. Investing in new RES innovation projects

    c. Keeping it as reserves

    d. Providing dividend payout or repayment of shareholders' loans

    e. Paying back bank loans, supplier credit and other liabilities

    f. Other uses

    g. Prefer not to say

12. If your company had access to a substantial loan at a very attractive interest rate and term, what type of investment, if any, would your enterprise perform?

    a. any capital investment

    b. investment in eco innovative projects

    c. no investment

    d. not sure

    e. prefer not to say

Questions for Public Authorities:

These questions were crafted by the XPRESS partnership so as to mirror the questions addressed to the SMEs:

1. Thinking about the procurement of eco-innovative RES related goods or services, which of the following elements would be most effective for your administration? (Multiple choices allowed)

    a. Meeting regulations or standards

    b. Accessing or reinforcing online selling

    c. Participating in conferences, trade fairs, exhibitions

    d. Training staff in how to promote and market innovative goods or services

    e. Applying for, managing or protecting intellectual property rights

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f. Market-testing a product or service before launch

g. Accessing or reinforcing your presence in export markets

h. Capacity-building on RES market

2. In the area of innovative RES related goods or services, do you plan to increase, reduce or keep unchanged the percentage of investment your administration dedicates to innovation, in the next 12 months?

   a. Increase it;

   b. Keep it unchanged;

   c. Reduce it;

   d. You do not plan to invest in innovation in the next 12 months;

   e. Don't know

   f. Not applicable

3. In the area of eco-innovation in RES markets, since January 2015 has your administration…? (MULTIPLE ANSWERS POSSIBLE):

   a. Awarded at least one public procurement contract

   b. Launched at least one call for tenders for a public procurement contract and the outcome is unknown

   c. Launched at least one call for tenders for a public procurement contract without success

   d. Investigated opportunities to offer one or more public procurement contracts, but have never published a call for tenders

   e. Has never published a call for tenders nor investigated opportunities to offer a public procurement contract

   f. Not applicable

4. Are you usually approached by enterprises in response to your Prior Information Notices (PIN) via an e-tendering Portal? Y/N

5. Are environmental criteria part of your procurement assessment criteria? Y/N

6. Are Life Cycle Assessment (LCA) or Life Cycle Cost Assessment (LCCA) or any other environmental labels or certificates used as assignment criteria for RES public procurement? Y/N

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7. What is the most problematic phase in the interaction between you and providers of RES solutions?
    a. before the tender
    b. during the bidding process
    c. after the contract award
8. Does your administration use standard public procurement procedures? Y/N
9. Is your administration using or planning to use more novel approaches such as Pre-Commercial Procurement? Y/N

1.1.6. The Flash 415 Innobarometer, 2015 answers

Below we present a selection of the questions that have been used for the final version of RESS. For each question, we provide the answers collected from the SMEs belonging to the XPRESS partner countries. All the results are expressed in percentages.

% of turnover: Q6A Thinking about possible public support for commercialization

Country	Not mentioned	Meeting regulations or standards	Total
BE	79,1	20,9	100
DE	75,5	24,5	100
DK	81,6	18,4	100
ES	78,6	21,4	100
GB	77,6	22,4	100
IT	85,4	14,6	100
PT	79,9	20,1	100
SE	86	14	100
SK	81,8	18,2	100

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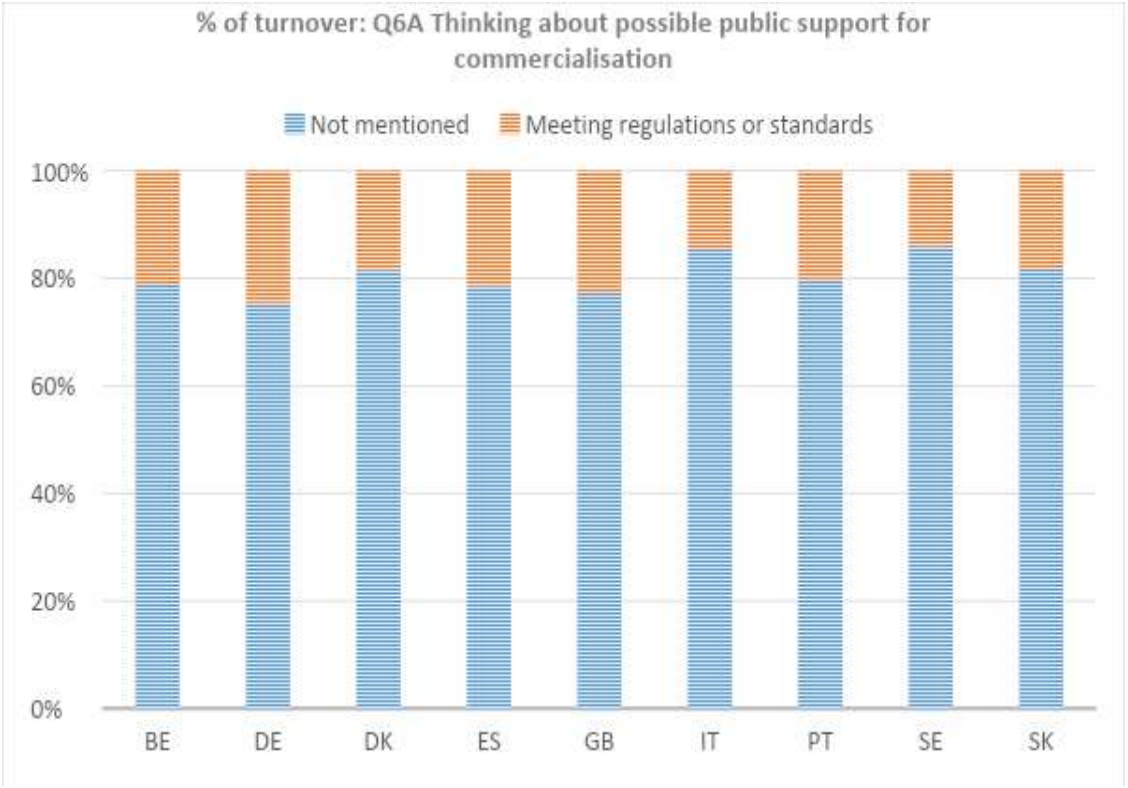

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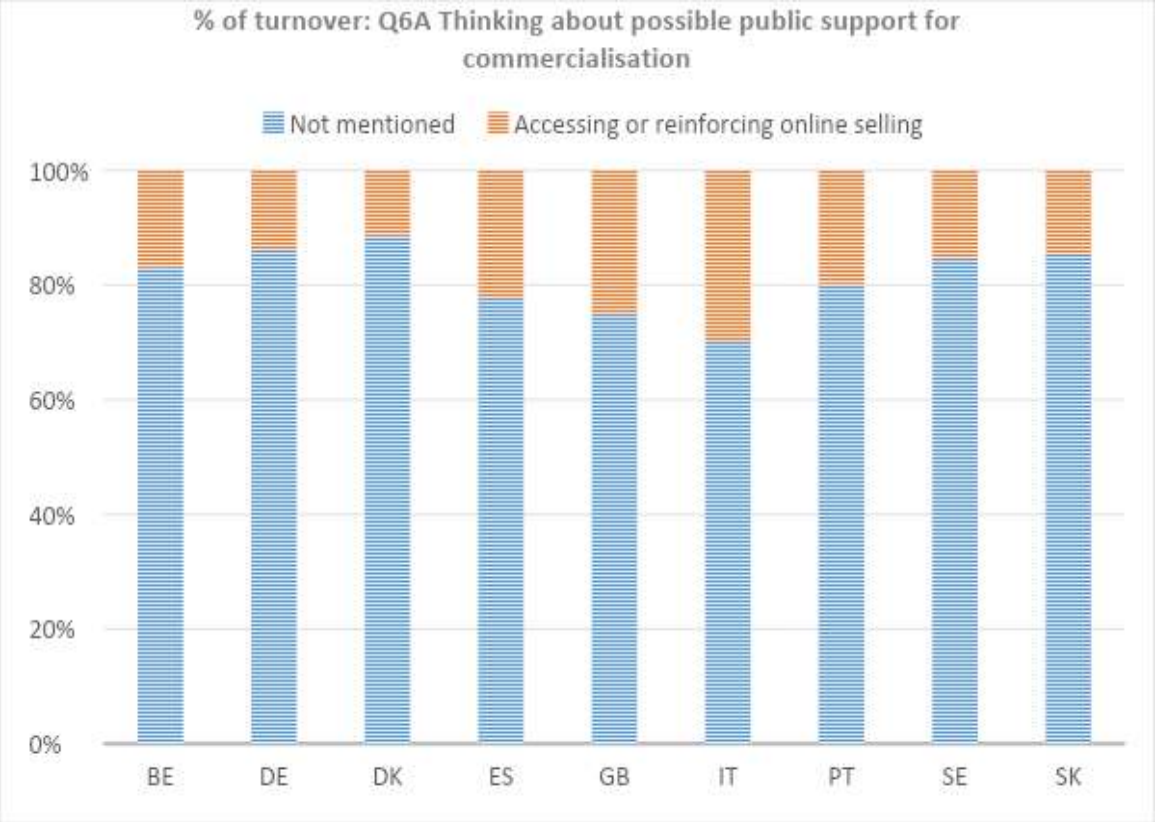
Country	Not mentioned	Accessing or reinforcing online selling	Total
BE	83,2	16,8	100
DE	86,4	13,6	100
DK	88,7	11,3	100
ES	77,9	22,1	100
GB	75	25	100
IT	70,4	29,6	100
PT	80,2	19,8	100
SE	84,9	15,1	100
SK	85,6	14,4	100



Country	Not mentioned	Participating in conferences, trade fairs, exhibitions	Total
BE	**76,9**	**23,1**	**100**
DE	**75,5**	**24,5**	**100**
DK	**82,6**	**17,4**	**100**
ES	**80,5**	**19,5**	**100**
GB	**67,9**	**32,1**	**100**
IT	**83,3**	**16,7**	**100**
PT	**73,9**	**26,1**	**100**
SE	**75,2**	**24,8**	**100**
SK	**74,6**	**25,4**	**100**

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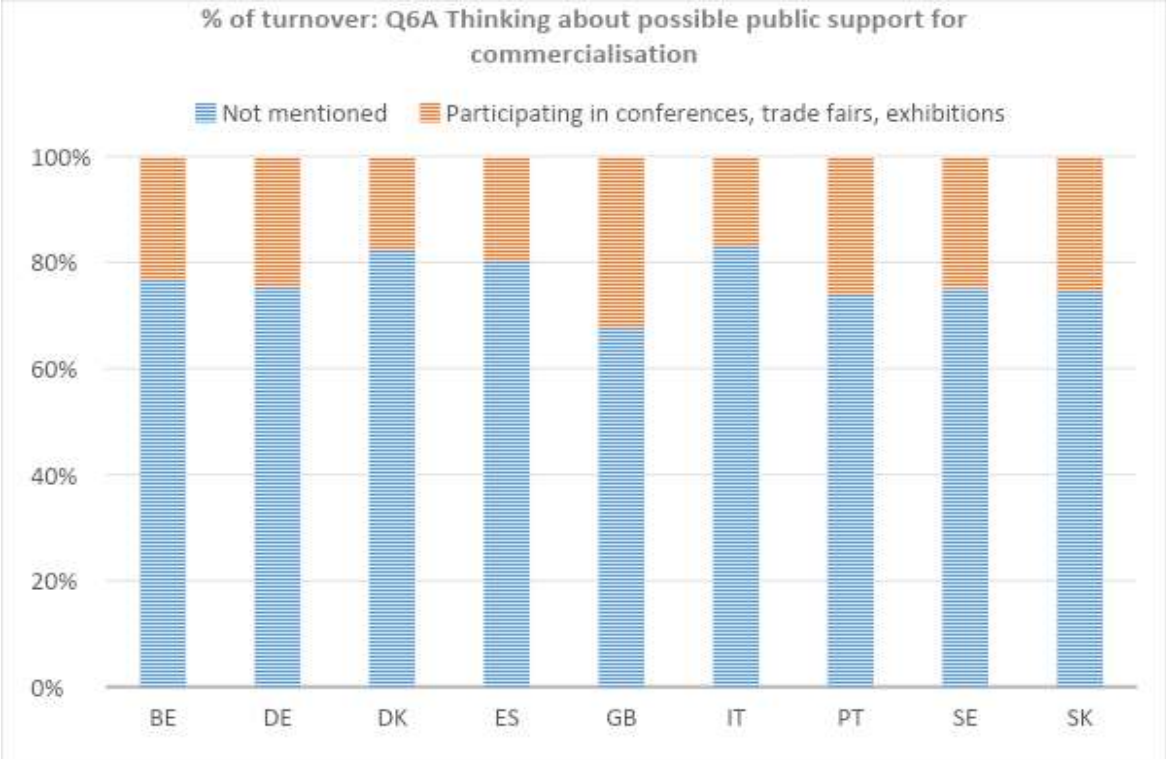

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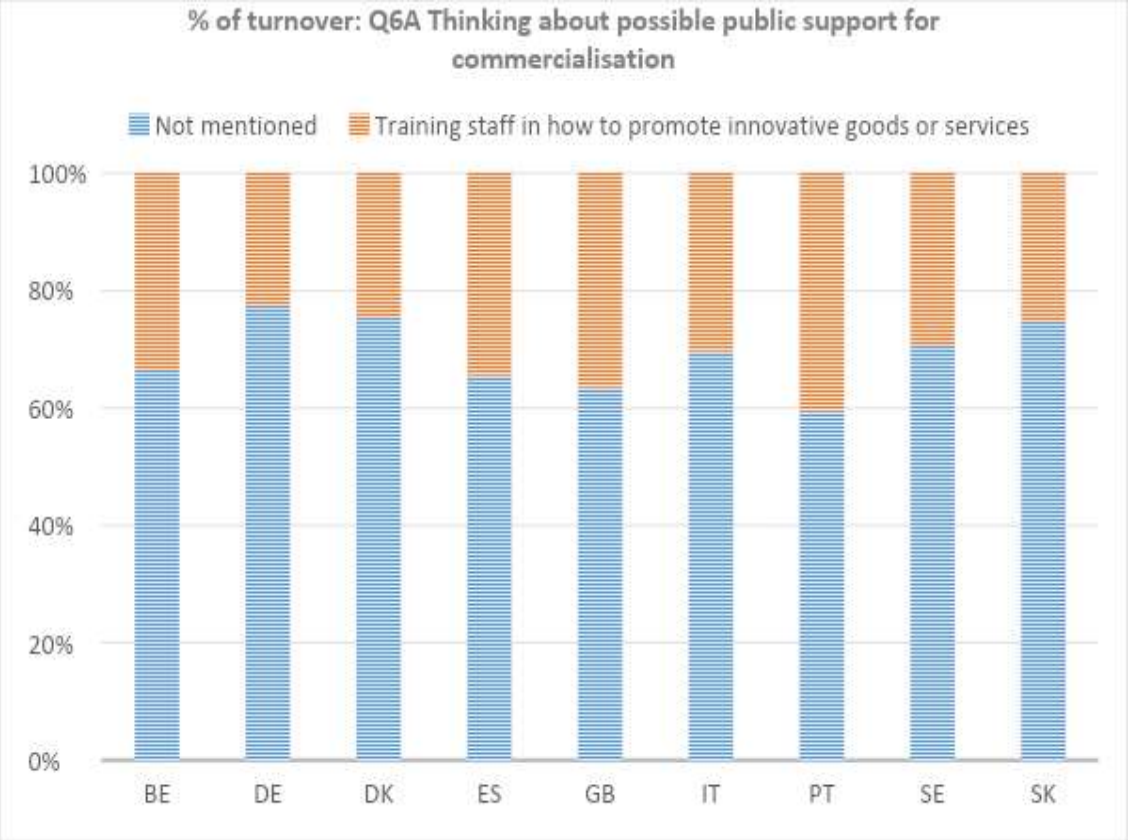
Country	Not mentioned	Training staff in how to promote innovative goods or services	Total
BE	66,4	33,6	100
DE	77,7	22,3	100
DK	75,5	24,5	100
ES	65,6	34,4	100
GB	63,5	36,5	100
IT	69,7	30,3	100
PT	59,5	40,5	100
SE	70,9	29,1	100
SK	74,9	25,1	100



Country	Not mentioned	Applying for, managing or protecting intellectual property rights	Total
BE	92,2	7,8	100
DE	91,9	8,1	100
DK	94,8	5,2	100
ES	94,7	5,3	100
GB	93,6	6,4	100
IT	94,9	5,1	100
PT	96,7	3,3	100
SE	93,8	6,2	100
SK	91,8	8,2	100

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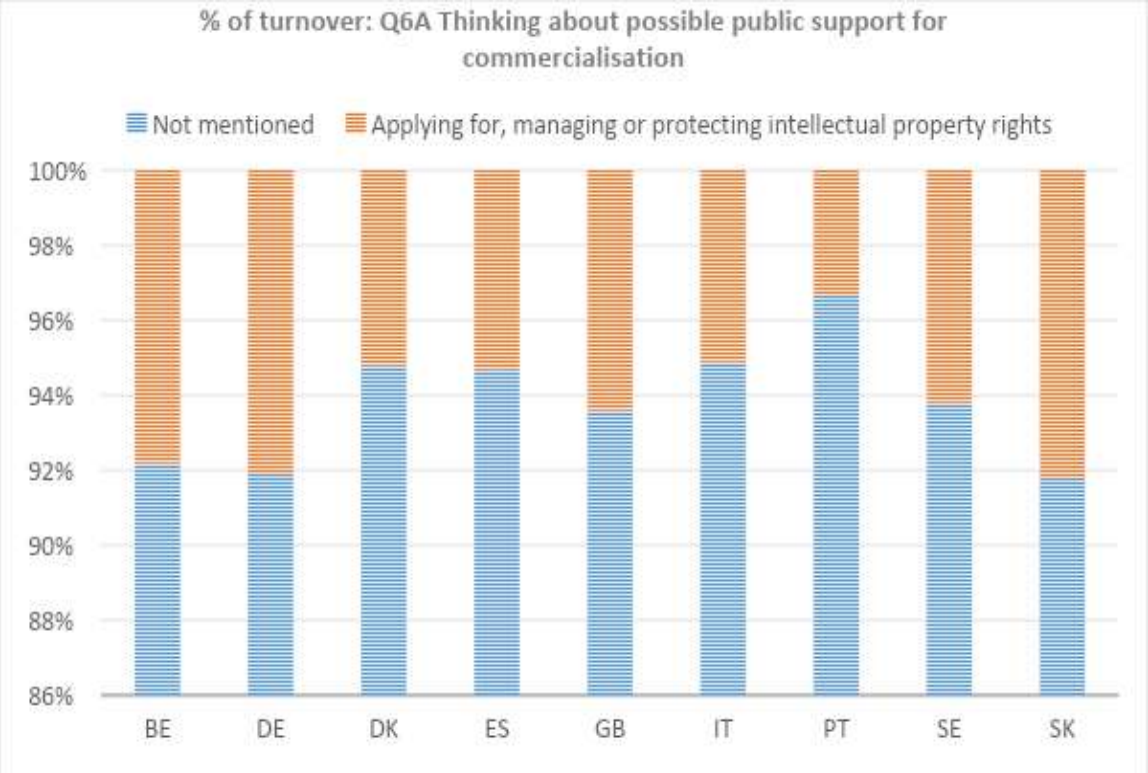

Country	Not mentioned	Market-testing a product or service before launch	Total
BE	89,6	10,4	100
DE	91,6	8,4	100
DK	91,9	8,1	100
ES	87,4	12,6	100
GB	88,8	11,2	100
IT	92,2	7,8	100
PT	88,6	11,4	100
SE	80,2	19,8	100
SK	91,8	8,2	100

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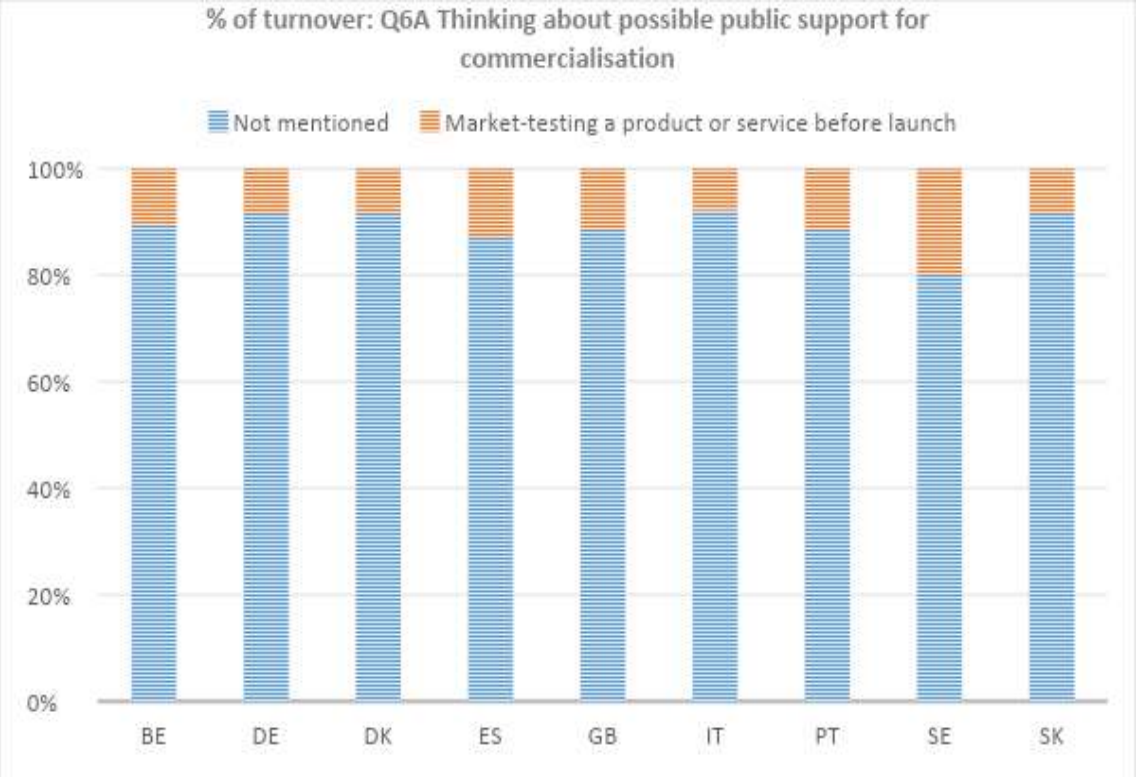

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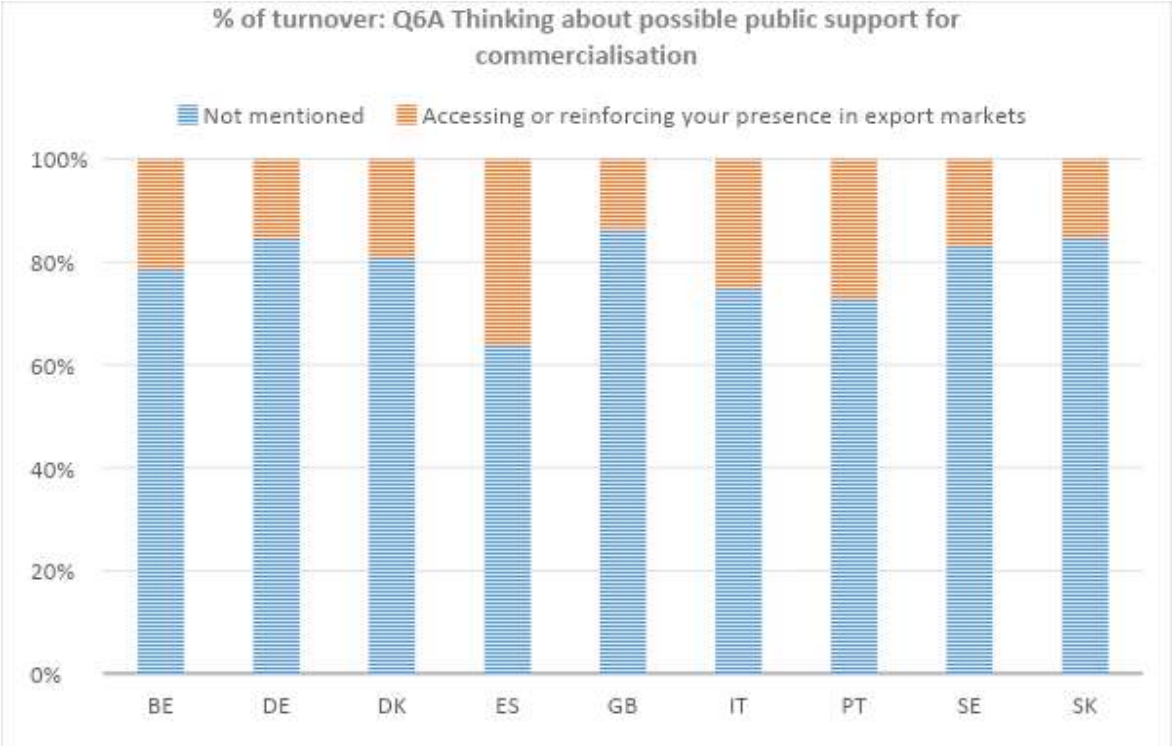
Country	Not mentioned	Accessing or reinforcing your presence in export markets	Total
BE	78,7	21,3	100
DE	84,6	15,4	100
DK	81	19	100
ES	64,1	35,9	100
GB	86,5	13,5	100
IT	75,2	24,8	100
PT	73	27	100
SE	83,3	16,7	100
SK	84,9	15,1	100



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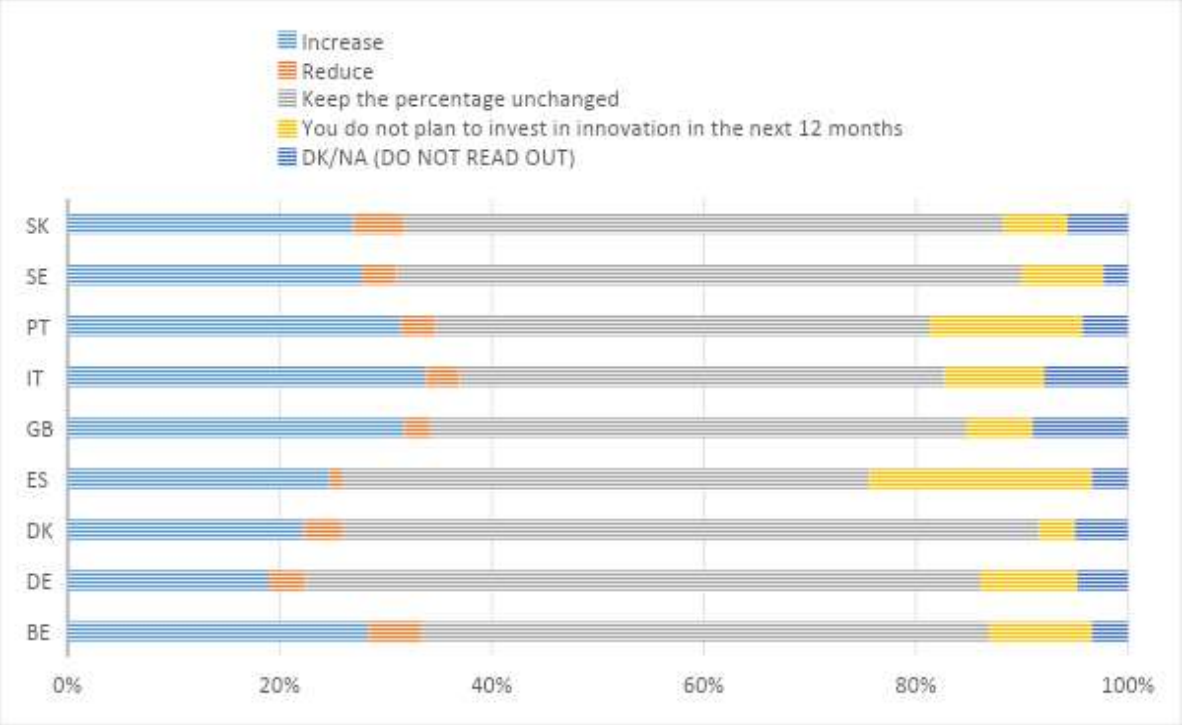
Plan to increase reduce or keep unchanged the % investment on innovation in the RES technologies

Country	Increase	Reduce	Keep the percentage unchanged	You do not plan to invest in innovation in the next 12 months	DK/NA (DO NOT READ OUT)	Total
BE	28,3	5,1	53,4	9,7	3,4	100
DE	19	3,4	63,7	9,1	4,8	100
DK	22,2	3,7	65,6	3,4	5	100
ES	24,7	1,2	49,7	21	3,4	100
GB	31,7	2,5	50,6	6,2	9	100
IT	33,7	3,2	45,7	9,4	7,9	100
PT	31,4	3,3	46,6	14,4	4,3	100
SE	27,7	3,2	59	7,7	2,3	100
SK	26,9	4,8	56,5	6	5,7	100



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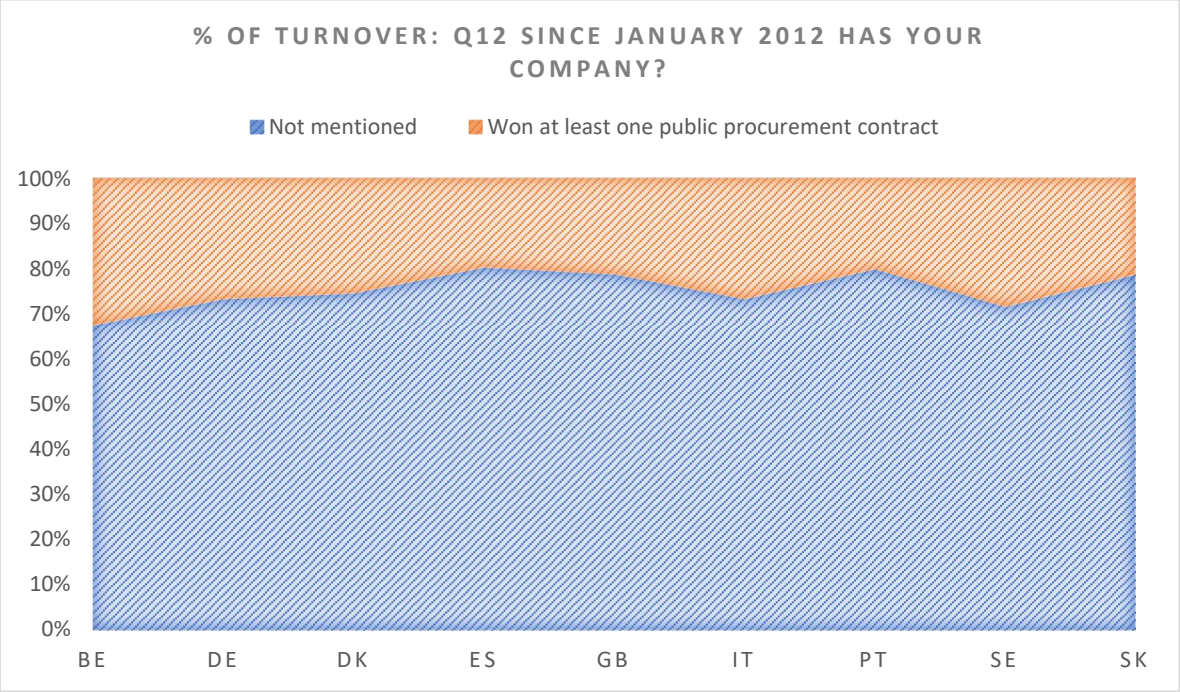
% of turnover: Q12 Since January 2012 has your company….?

Country	Not mentioned	Won at least one public procurement contract	Total
BE	67,5	32,5	100
DE	73,3	26,7	100
DK	74,6	25,4	100
ES	80,3	19,7	100
GB	78,8	21,2	100
IT	73,3	26,7	100
PT	79,9	20,1	100
SE	71,6	28,4	100
SK	78,7	21,3	100



Country	Not mentioned	Submitted at least one tender for a public contract and outcome is unknown	Total
BE	78,9	21,1	100
DE	89,2	10,8	100
DK	91,3	8,7	100
ES	96,2	3,8	100
GB	83,8	16,2	100
IT	89,1	10,9	100
PT	93,8	6,2	100
SE	86,6	13,4	100
SK	91,8	8,2	100

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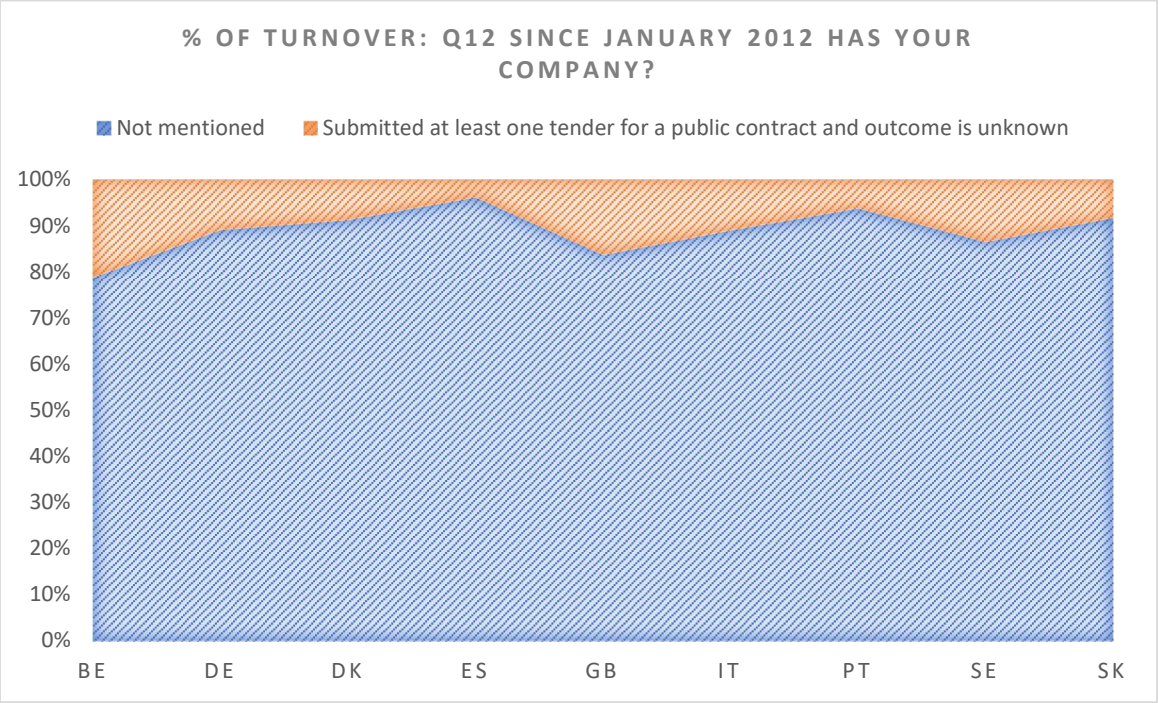

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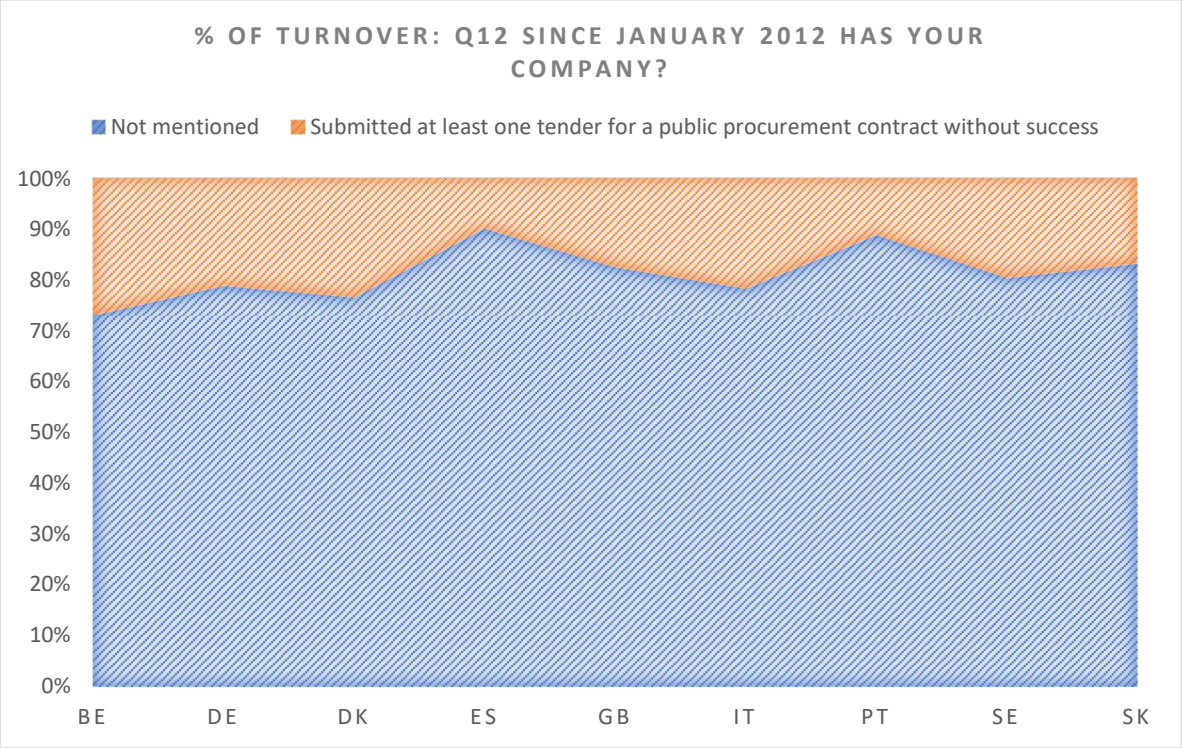
Country	Not mentioned	Submitted at least one tender for a public procurement contract without success	Total
BE	73,3	26,7	100
DE	79,1	20,9	100
DK	76,8	23,2	100
ES	90,2	9,8	100
GB	82,7	17,3	100
IT	78,5	21,5	100
PT	88,9	11,1	100
SE	80,6	19,4	100
SK	83,4	16,6	100



Country	Not mentioned	Investigated opportunities to bid but have never submitted a tender	Total
BE	94,4	5,6	100
DE	96,3	3,7	100
DK	93,5	6,5	100
ES	96,2	3,8	100
GB	94,2	5,8	100
IT	95,5	4,5	100
PT	96,4	3,6	100
SE	93,6	6,4	100
SK	94,2	5,8	100

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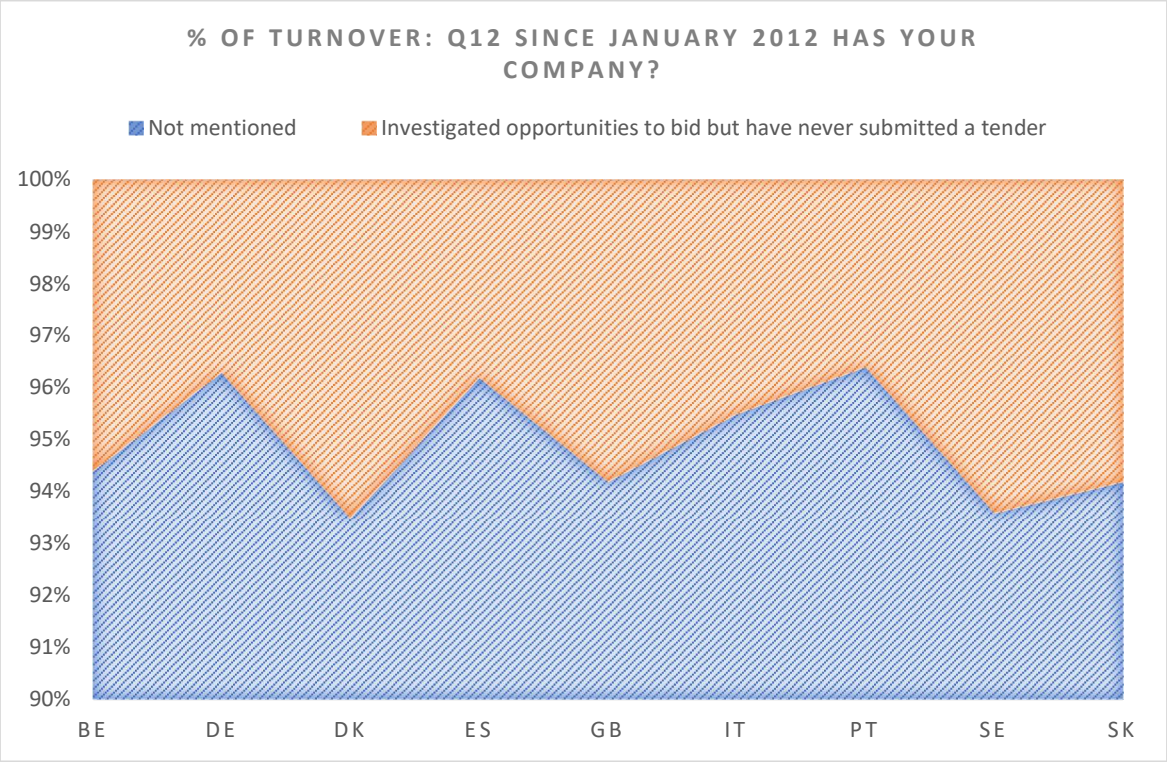

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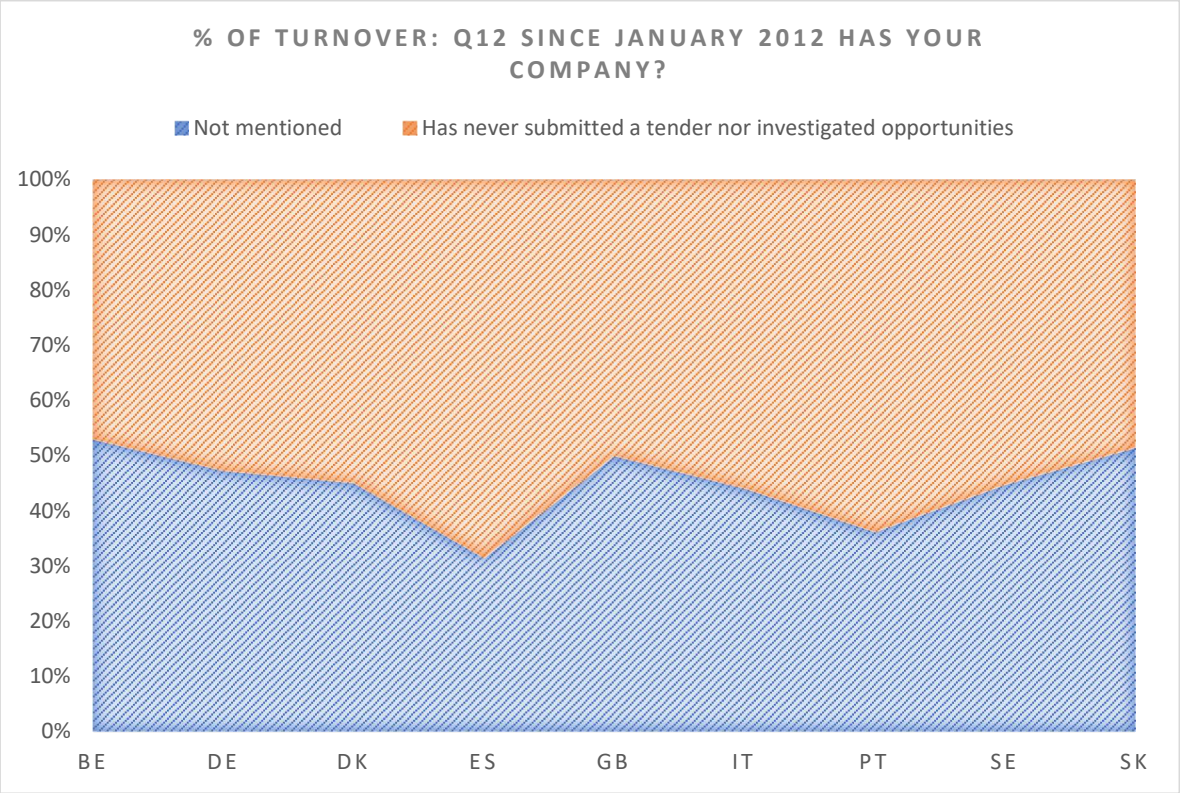
Country	Not mentioned	Has never submitted a tender nor investigated opportunities	Total
BE	53	47	100
DE	47,3	52,7	100
DK	45,1	54,9	100
ES	31,5	68,5	100
GB	50	50	100
IT	44,1	55,9	100
PT	36,2	63,8	100
SE	44,8	55,2	100
SK	51,5	48,5	100



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Secondary Source Data: AMADEUS dataset

As already anticipated within Deliverable 1.2 (XPRESS Strategy), "the Amadeus dataset from Bureau Van Dijk[8] contains financial data (balance sheet data, profit and loss statement data, key financial ratios[9]) firm size variables, ratings, stock prices, ownership, and subsidiaries information for approximately 19 million public and private companies in 34 European countries. We have merged the TED dataset with the Amadeus dataset on the basis of the names of the winners of the Green Public Procurement contracts (from the TED dataset). Using the combined dataset, we have started performing a detailed financial analysis on firms which have been awarded public procurement contracts. The financial analysis will be based on key financial ratios calculated from the available quantitative financial information from both data sets. Here we report some initial highlights:

All the data are denominated in Euros. Here are the main variables presented in the tables: these variables have been created by the XPRESS partners, using the statistical software **STATA**, in order to provide relevant information about the financial situation of the SMEs considered:

1. **AwardRatioE = (award value) / (equity value)**
2. **AwardRatioA = (award value) / (total asset value)**
3. **EURO_EBIT[10] = Earnings before interests (expressed in Euros)**
4. **Equity_Ratio = equity/ total assets**

TED + AMADEUS merged datasets for year 2016

COUNTRY	**SLOVAKIA**					
Variable		Obs	Mean	Std. Dev.	Min	Max
AwardRatioE		23	2229.232	5375.404	1.069448	19587.63
AwardRatioA		23	0.014759	0.013142	0.004944	0.04173
EURO_EBIT		23	7577400	1.65E+07	-1568348	5.55E+07
Equity_Ratio		23	0.001862	0.001801	2.13E-06	0.005521

[8] https://www.bvdinfo.com/en-gb/our-products/data/international/amadeus

[9] Balance Sheet: Assets, Liabilities, Equity and Memo lines (number of employees, export revenue). Assets: Tangible, Intangible. Liabilities: Long Term Debt, Current Liabilities (Bank Loans, Creditors). Shareholder Funds: Capital/Equity, Profit and Loss Account: Sales, EBIT, EBITDA and Memo lines (materials, cost of employees, R&D).

[10] EBIT is used in Corporate Finance as indicator of the financial situation of an enterprise.

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Median values year 2016		
Country		
	AwardRatioE	EURO EBIT
SLOVAKIA	13.1	266,296.00
Total	13.6	266,296.00

TED + AMADEUS merged datasets for year 2017

COUNTRY	DENMARK					
Variable		Obs	Mean	Std. Dev.	Min	Max
AwardRatioA		5	0.000123	3.75E-06	0.000117	0.000127
EURO_EBIT		11	8.00E+07	9.11E+07	308697.5	1.89E+08
Equity_Ratio		10	0.000233	0.00046	0	0.001184

COUNTRY	GERMANY					
Variable		Obs	Mean	Std. Dev.	Min	Max
AwardRatioE		7	2.711659	0.385877	2.293527	3.36413
AwardRatioA		11	0.597163	0.73352	0.040842	1.65994
EURO_EBIT		26	2421423	1314216	-336532	4460623
Equity_Ratio		34	0.012956	0.011874	0	0.05191

COUNTRY	SLOVAKIA					
Variable		Obs	Mean	Std. Dev.	Min	Max
AwardRatioE		9	10.71194	4.182887	3.909378	16.62177
AwardRatioA		9	0.019074	0.008273	0.00555	0.028918
EURO_EBIT		9	38294.22	49637.45	-3341	157555
Equity_Ratio		9	0.001754	0.000438	0.001133	0.002288

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COUNTRY	SPAIN					
Variable		Obs	Mean	Std. Dev.	Min	Max
AwardRatioE		9	81.61235	199.3049	0.401455	603.4247
AwardRatioA		9	0.013335	0.000796	0.012019	0.014805
EURO_EBIT		9	185906.2	99331.85	101679	411379
Equity_Ratio		9	0.013832	0.014277	2.21E-05	0.03306

Median values year 2017		
Country		
	AwardRatioE	**EURO EBIT**
DENMARK		2,117,990.80
GERMANY	2.7	2,496,154.50
SLOVAKIA	12.1	19,334.00
SPAIN	3.8	134,899.00
Total	3.9	1,172,896.00

TED + AMADEUS merged datasets for year 2018

COUNTRY	BELGIUM					
Variable		Obs	Mean	Std. Dev.	Min	Max
AwardRatioA		7	0.458441	0.106774	0.278715	0.560451
EURO_EBIT		7	-1063145	996400	-1907748	893103

COUNTRY	DENMARK					
Variable		Obs	Mean	Std. Dev.	Min	Max
EURO_EBIT		5	-1.77E+07	1.44E+07	-3.38E+07	810488.6
Equity_Ratio		5	0.002385	0.005332	0	0.011922

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COUNTRY	GERMANY					
Variable		Obs	Mean	Std. Dev.	Min	Max
AwardRatioE		30	5.654248	10.86872	1.44E-07	31.61871
AwardRatioA		30	0.038581	0.043535	8.30E-09	0.128147
EURO_EBIT		28	645872.4	1.46E+07	-5.06E+07	1.51E+07
Equity_Ratio		39	0.028215	0.019962	0.003544	0.092027

COUNTRY	ITALY					
Variable		Obs	Mean	Std. Dev.	Min	Max
AwardRatioE		13	6.350033	3.628097	0.093835	10.12887
AwardRatioA		20	0.08647	0.083089	0.005266	0.184785
EURO_EBIT		20	6.76E+07	8.69E+07	321045	2.35E+08
Equity_Ratio		20	0.018342	0.02143	0	0.083287

COUNTRY	NORWAY					
Variable		Obs	Mean	Std. Dev.	Min	Max
AwardRatioE		8	60.20137	66.33015	3.889317	182.9537
AwardRatioA		14	8.316571	19.83167	0	56.9316
EURO_EBIT		14	2272219	4987019	-2677365	1.13E+07
Equity_Ratio		14	0.00554	0.007172	0	0.022936

COUNTRY	SLOVAKIA					
Variable		Obs	Mean	Std. Dev.	Min	Max
AwardRatioE		10	16.85713	8.975512	0	27.23796
AwardRatioA		18	0.056258	0.06304	0	0.161523
EURO_EBIT		18	676539.5	704083.3	2431	1747402
Equity_Ratio		18	0.004014	0.00634	0	0.024749

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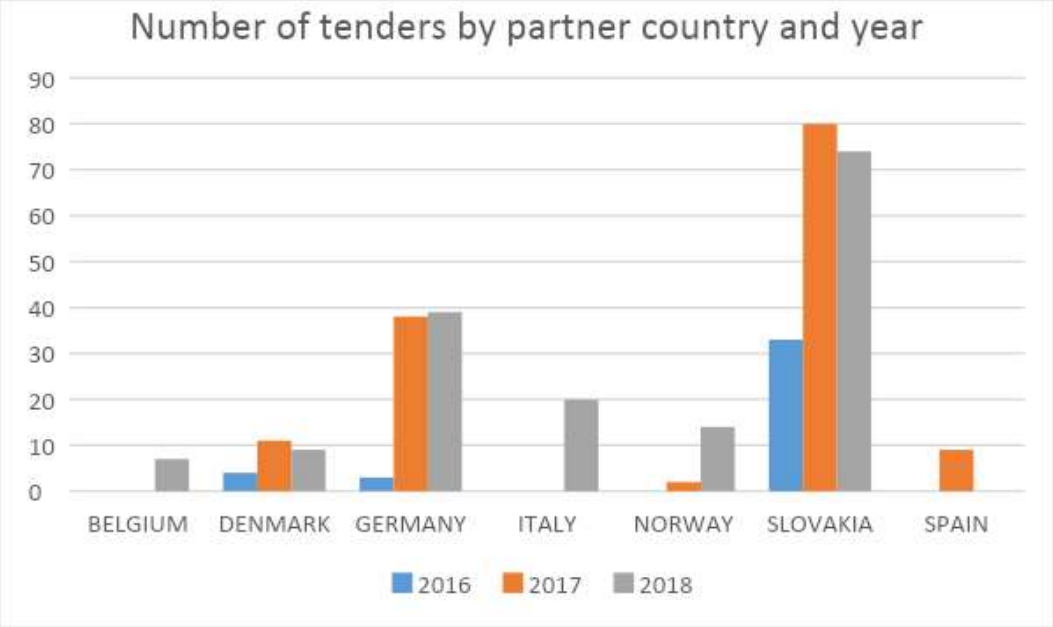
Median values year 2018			
Country			
	AwardRatioE	AwardRatioA	EURO EBIT
BELGIUM		0.5	-1,180,923.00
DENMARK	16.9	0.2	-23,600,928.00
GERMANY	1.5	0	5,062,032.50
ITALY	7.5	0.1	9,079,100.00
NORWAY	43.5	0	273,431.40
SLOVAKIA	17.9	0	492,460.50
Total	4.4	0	1,157,594.00

Number of tenders by partner country and year				
Countries	2016	2017	2018	Total
BELGIUM	0	0	7	7
DENMARK	4	11	9	24
GERMANY	3	38	39	80
ITALY	0	0	20	20
NORWAY	0	2	14	16
SLOVAKIA	33	80	74	187
SPAIN	0	9	0	9



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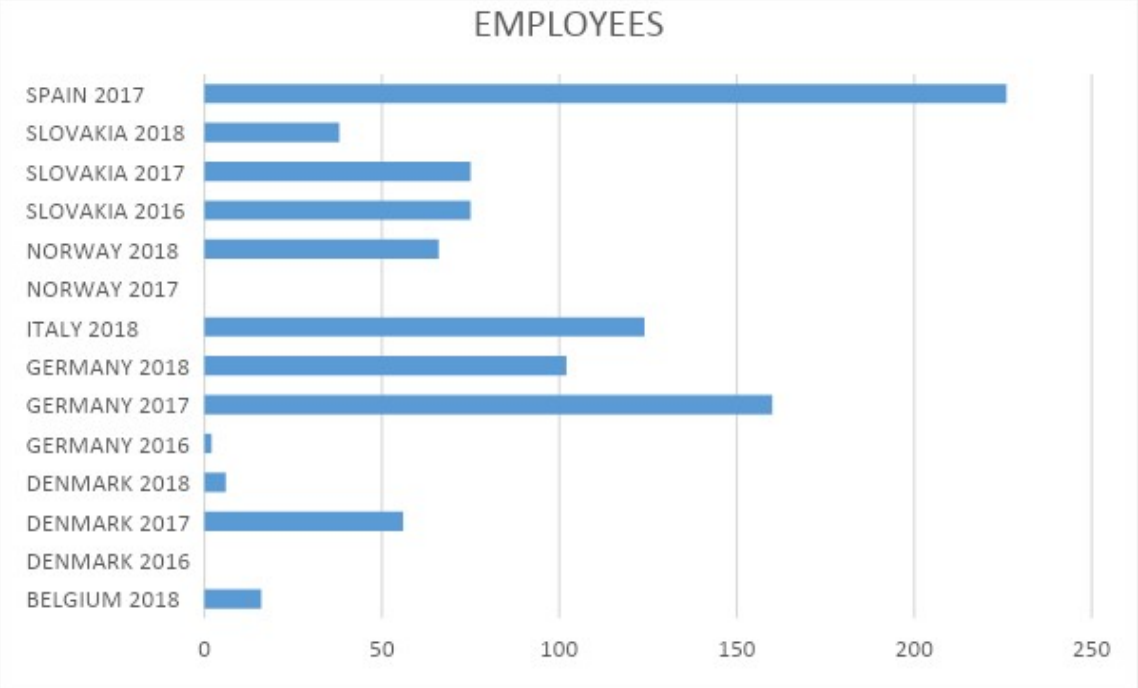
Median number of employees, total assets, turnover by country and year			
	EMPL	tot asset	turnover
BELGIUM 2018	16	56	54
DENMARK 2016	0	946	41
DENMARK 2017	56	1,023	304
DENMARK 2018	6	149,473	186
GERMANY 2016	2	3	3
GERMANY 2017	160	70	75
GERMANY 2018	102	125	99
ITALY 2018	124	138	90
NORWAY 2017	0	1	0
NORWAY 2018	66	144	99
SLOVAKIA 2016	75	46	3
SLOVAKIA 2017	75	7	2
SLOVAKIA 2018	38	9	1
SPAIN 2017	226	22	11



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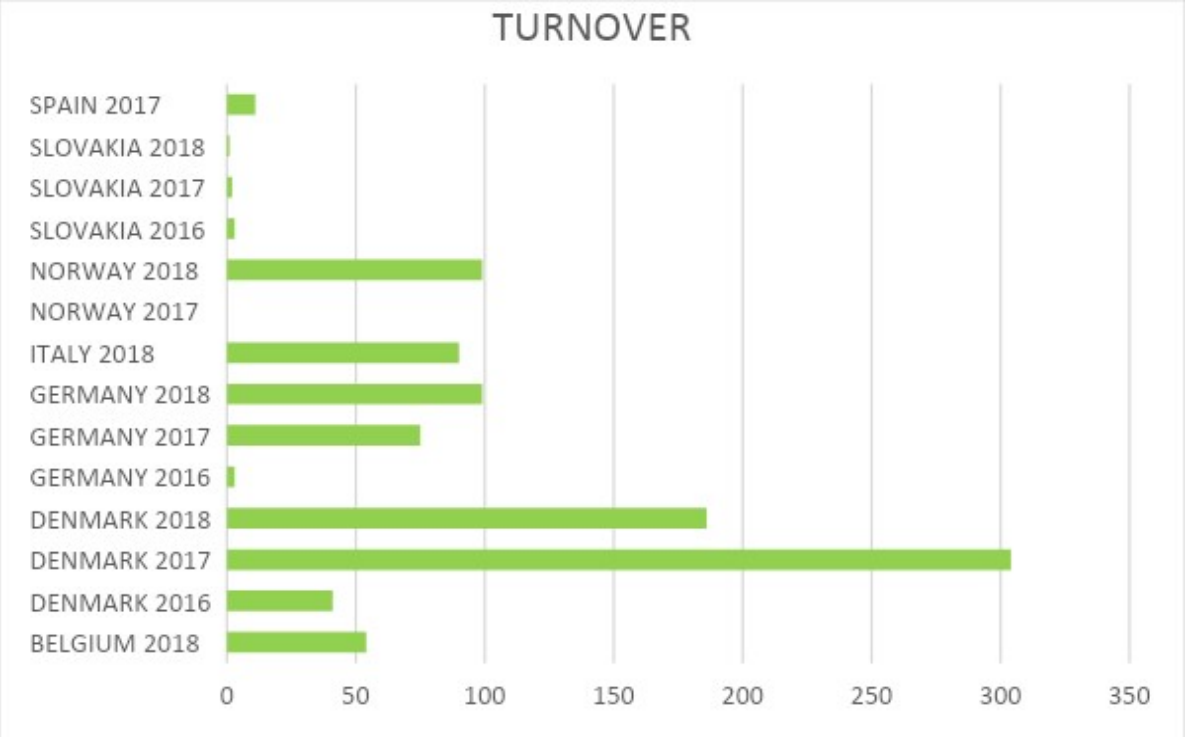

Return on assets, Revenue per employee, Profits per employee			
	RTAS	TPE	PPE
BELGIUM 2018	-2	3,394	27
DENMARK 2016	0		
DENMARK 2017	3	9,913	2,227
DENMARK 2018	0	39,600	385
GERMANY 2016		47	
GERMANY 2017	1	450	8
GERMANY 2018	3	473	38
ITALY 2018	9	615	60
NORWAY 2017	-5		
NORWAY 2018	3	1,403	34
SLOVAKIA 2016	1	50	3
SLOVAKIA 2017	1	20	1
SLOVAKIA 2018	4	36	9
SPAIN 2017	0	48	0

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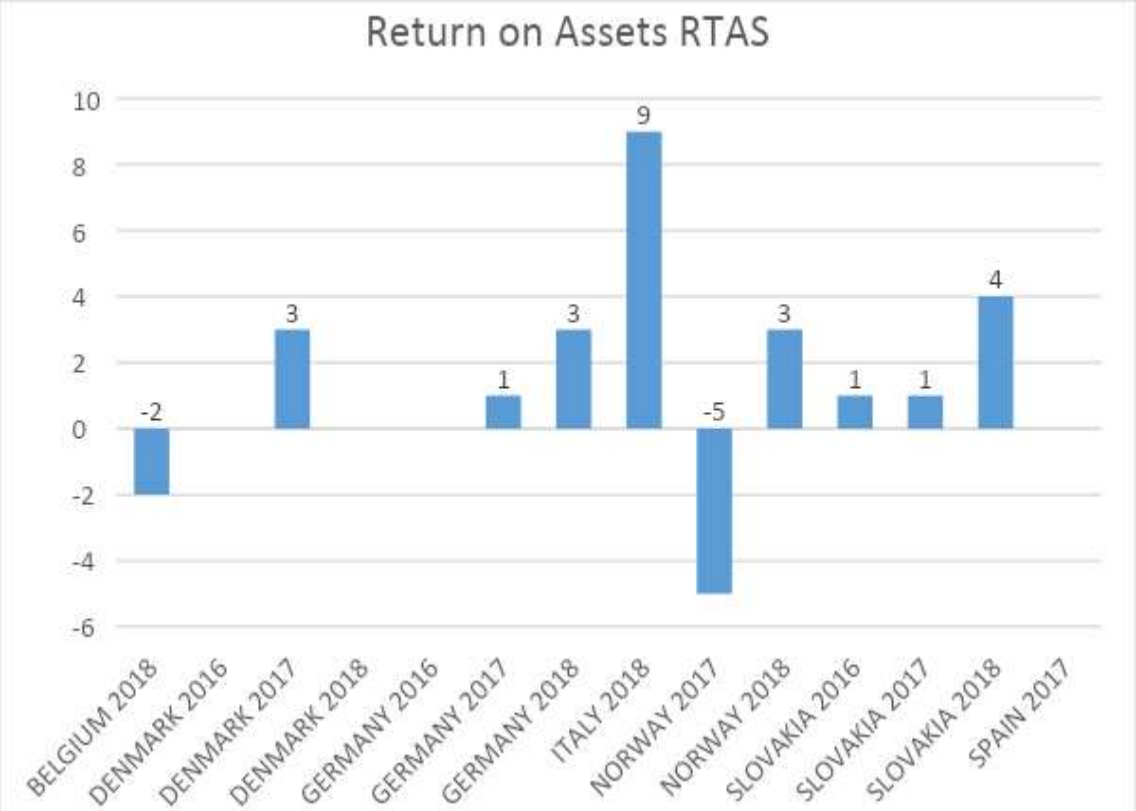

Working capital per employee, Total assets per employee		
	WCPE	TAPE
BELGIUM 2018	48	3,684
DENMARK 2016		
DENMARK 2017	-152	59,031
DENMARK 2018		284,459
GERMANY 2016	22	1,303
GERMANY 2017	18	452
GERMANY 2018	30	636
ITALY 2018	40	915
NORWAY 2017		
NORWAY 2018	122	1,701
SLOVAKIA 2016	2	462
SLOVAKIA 2017	-7	95
SLOVAKIA 2018	-10	149
SPAIN 2017	34	96

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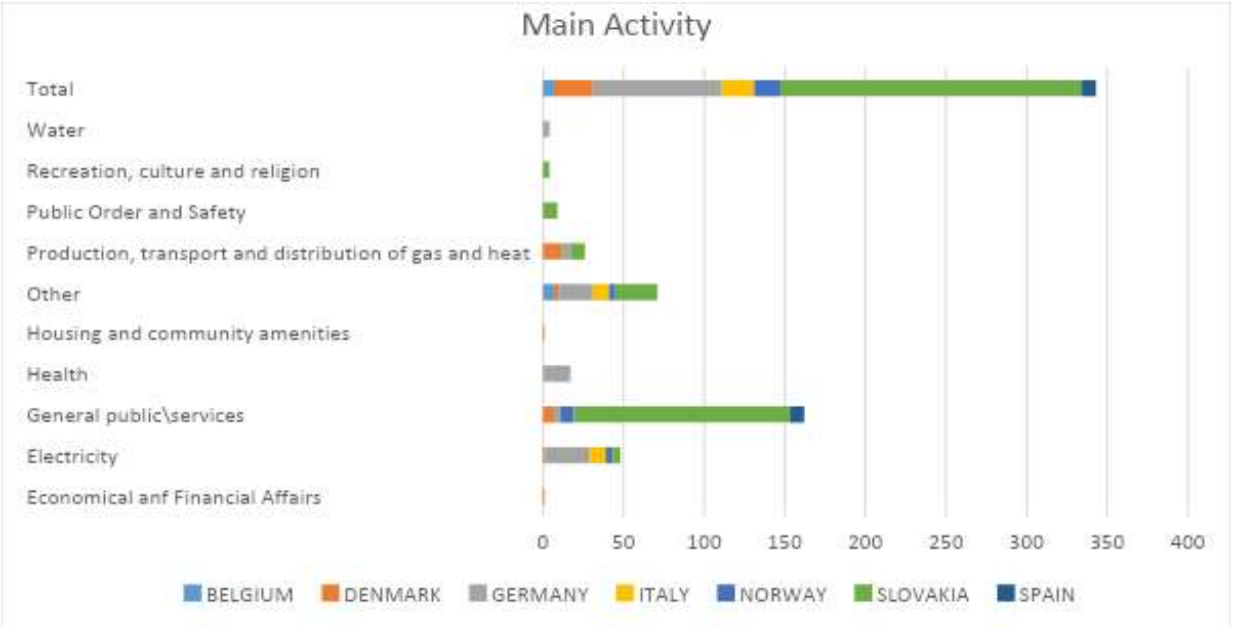
MAIN ACTIVITY	BELGIUM	DENMARK	GERMANY	ITALY	NORWAY	SLOVAKIA	SPAIN	Total
Economical anf Financial Affairs	0	1	0	0	0	0	0	1
Electricity	0	1	28	10	4	5	0	48
General public\services	0	7	4	0	8	134	9	162
Health	0	0	17	0	0	0	0	17
Housing and community amenities	0	1	0	0	0	0	0	1
Other	7	3	21	10	4	26	0	71
Production, transport and distribution of gas and heat	0	11	6	0	0	9	0	26
Public Order and Safety	0	0	0	0	0	9	0	9
Recreation, culture and religion	0	0	0	0	0	4	0	4
Water	0	0	4	0	0	0	0	4
Total	7	24	80	20	16	187	9	343



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Primary Source Data: Case Studies

An additional source of data is represented by the information collected via selected case studies whose results will be published on the XPRESS Portal following the interviews performed by the partnership (at least 2 per partner country).

The questions have been tailored by the XPRESS partnership and inspired partly by the ***Flash Eurobarometer 456***, ***Flash Eurobarometer 315*** and ***Flash 415 Innobarometer*** surveys.

Questions to public authorities:

1. *Engagement (Description of the case/organization)*

a) Please briefly introduce your organization and your background.

b) How long have you been with your current organization?

c) What is your role in the organization?

2. *Sustainability Strategies/Objectives*

a) What are the current sustainability strategies (overall goals, practices) in the municipality?

b) What are the current energy-related strategies and goals in the municipality?

3. *Public Procurement*

a) Does the municipality have a general, overarching strategy or policy for sustainable procurement? Please, describe the strategy/policy.

b) With regard to the development and adoption of RES, has the municipality adopted a specific policy or strategy when it comes to procurement? Please describe.

c) Have there been any changes in the procurement strategy for the municipality that support adopting more renewable solutions? Please describe.

d) Do you plan to increase, reduce or keep unchanged the percentage of investment dedicated to innovation in the next 12 months?

i. Increase

ii. Keep the percentage unchanged

iii. Reduce

iv. You do not plan to invest in innovation in the next 12 months

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v. Don't know

e) In relation to RES related procurement (for example, purchase of solar panels, electrical vehicles, biofuels, and so on) in your municipality, please explain the procurement process and strategies typically adopted by the city.

f) Which procurement procedures are typically used?

i. open or closed procedure, competitive dialogue

ii. negotiation

iii. dynamic purchasing systems

iv. innovation partnership

v. other, please describe.

g) Which organizational units are typically involved in these procurement projects?

h) Can you describe the procurement assessment criteria typically used for RES related procurement?

i. In the qualification of suppliers, e.g. previous experience, competence, turnover, other. Please elaborate.

ii. In the awarding stage (lowest price, economically most advantageous). Please elaborate on the definitions used.

i) Has the municipality used *Life Cycle Analysis* (LCA) when evaluating the bids or the performance of the procurement? If so, please describe and provide some more details. If not, please elaborate on the reasons for not using the LCA criterion and whether you plan to start adopting LCA.

j) Is there any known planned change in assessment criteria in the near future?

4. *Public procurement and supplier engagement*

a) Do you have an established strategy for dialogue with suppliers in the pre-tender phase? Do you communicate your investment plans to enterprises and publicise your activities in order to understand what type of technologies you need (market and technical solution analysis)? Should this form part of the Prior Information Notice (PIN)? Please describe.

b) Has the municipality ever conducted its own pre-tender supplier/market engagement activities for renewable energy-related purchase?

i. If so, please provide details and relevant documents

ii. If not, please provide the reasons

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5. *Public procurement and SME*

a) Does the municipality have an established strategy for more SME engagement in public procurement? Please describe.

b) Have there been any cases of an SME being among the suppliers winning a public contract, (ideally related to renewables) in your municipality?

   i. If so, please provide details (related tender or case document, the process and results of this procurement, barriers, critical success factors?)

   ii. If not, please provide the reasons why (did any SMEs participate in the bidding? Why were they unsuccessful? Financial barriers? Technological barriers? Or others?)

c) Can you reflect on what you perceive to be the potential barriers for SMEs to participate in public purchases? Please describe.

d) Can you reflect on what you consider to be the critical success factors for SMEs to be suppliers to your municipality? Please describe.

e) What is the most problematic phase in the interaction between you and the innovative SMEs?

   i. before the tender

   ii. during the bidding process

   iii. after the contract award

6. *Other*

a) Do you have any other strategic documents and policy documents which you would like to share in relation to this interview?

b) Do you have any other comments? If so, please specify.

Questions to SMEs:

1. *Engagement (Description of the case/organization)*

a) Please briefly introduce your organization and your background.

b) How long have you been with your current organization? What is your role in the organization?

2. *Organizational Strategies and Innovation*

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a) What are the current organizational strategies (overall goals, practices) of your firm?

b) What are the current energy-related strategies and goals of your firm?

c) For how long has your company been selling green products or services?

d) Since 2015, how would you describe your firm's efforts regarding the development and innovation of renewables?

e) Has your company introduced any new or significant improved?

   i. goods

   ii. services

   iii. processes

f) Since 2015, has your company introduced any new or significant improved?

   i. marketing strategies

   ii. organizational methods

g) Since 2015, what percentage (approx.) of your total turnover has been invested in innovation activities?

   i. R&D

   ii. training

   iii. product development

h) What do you think are the main constraints/barriers for the development of your company?

   i. lack of human resources

   ii. lack of financial resources

   iii. lack of new technology

   iv. management issues

   v. legal issues

   vi. marketing issues

   vii. supply or distribution issues

   viii. other, please specify

h) Do you plan to increase, reduce or keep unchanged the percentage of investment dedicated to innovation in the next 12 months?

i. Increase

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ii. Keep the percentage unchanged;

iii. Reduce;

iv. You do not plan to invest in innovation in the next 12 months;

v. Don't know

3. *Regulations and support schemes*

a) Are you aware of any regulations and/or support schemes at the EU, national or municipality level aimed at the development of renewables?

b) Have you received any public funding (grants, guarantees, or loans) and advice or other non-financial assistance from public administrations?

c) Do you perceive the support from public funding in terms of the development and innovation of renewables as adequate and easily accessible? Please elaborate.

d) What type of support does your company rely on for the production of its green products or services?

i. its own financial resources

ii. its own technical expertise

iii. external support, please specify.

e) What type of support would help you the most in order to develop and further improve your renewables-related products/services?

i. financial incentives

ii. market consultant

iii. technological support

iv. other, please specify

f) How satisfied or dissatisfied are you with the level of public support (if any) for your green products or services (from very satisfied to very dissatisfied)?

4. *Public procurement*

a) Do you know if any municipality has adopted a procurement policy or strategy for the development and adoption of renewables? Please describe.

b) Do you know if any municipality has an established strategy for dialogue with suppliers in the pre-tender phase? Please describe.

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c) Have you ever participated in any pre-tender supplier/market engagement activities for renewable energy-related purchase organized by a municipality? If so, please provide further details. Would you approach public authorities in response to the Prior Information Notice (PIN) via the e-tendering Portal?

d) Do you know if any municipality has an established strategy to increase SME engagement in public procurement? Please describe.

5. *Public procurement and SME*

a) Have you ever won a public procurement contract (ideally related to renewables)? If so, please provide additional details and relevant documentation, where possible (related tender or case document, the process and performance of this procurement, barriers, critical success factors).

   i. Were ´environmental criteria´ part of the procurement assessment criteria?

   ii. How has this public contract influenced your firm's financial performance?

   iii. Was *Life Cycle Assessment* (LCA) used as a criterion for this purchase?

b) Have you ever participated in a public procurement tender process without being awarded a contract (ideally related to renewables)? If so, please provide details (related tender or case document, the process and performance of this procurement, barriers, critical success factors, reasons for not being awarded the contract, etc)

c) If the answers to a) and b) are NO, please answer the following questions:

   i. Have you ever investigated opportunities to bid on one or more public procurement contracts, but have never submitted a tender?

   ii. What type of barriers did you face when trying to participate in public procurement (financial barriers, technological barriers, other barriers, please specify)?

d) Can you reflect on what can be the potential barriers for SMEs to participate in public purchases? Please describe.

e) What is the most problematic phase in the interaction between you and the public authorities?

   i. before the tender

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ii. during the bidding process

iii. after the contract award

f) Can you reflect on what you consider the critical success factors for SMEs to become suppliers to public customers such as municipalities and regions? Please describe.

6. *Other*

c) Do you have other relevant documents which you would like to share in relation to this interview?

d) Do you have any other comments? If so, please specify.

LCA data

LCA dataset description for selected RE technologies

This section aims to critically describe and contextualise within the XPRESS framework the utilized datasets for a LCA screening of a selection of RE technologies related to past GPP tenders. These datasets will be extended during the WP4 tasks and throughout the whole project.

for routine or low-value procurements, purchasers can utilize environmental declarations or eco-labels from suppliers together with guidance documents, where full LCAs can be saved for especially complex or unique procurements with sufficient resources (Jenssen & de Boer, 2019)

The GPP context

The power of public procurement can be an important driver for environmentally friendly procurement. The public sector, in fact, can influence green procurement both by designing adequate policies and by leveraging “green” markets through the significant volume of public purchases. As a result, we can expect Green Public Procurement (GPP) to potentially play a role in changing unsustainable consumption and production patterns, and in fact it is an increasingly used tool, albeit implemented at different rates in different countries / regions.

The basic concept of GPP is based on the integration of environmental criteria for public procurement of products and services (Evans et al., 2010). GPP is defined in the communication of the European Commission as "a process whereby public authorities seek to purchase goods, services and works with a reduced environmental impact during their life cycle compared to goods, services and works with the same function. which would otherwise

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be contracted out." (COM (2008) 400, p. 4). Similar definitions can be found in relation to OECD and APEC countries (Gimenez-Pujol and Castano, 2013; Bouwer et al., 2006).

Although the terms used by countries are different, the existing central idea emphasized in the definitions is that of a demand-driven policy tool for achieving desirable environmental outcomes and for promoting green services and products using public procurement.

In their critical review "*Green Public Procurement, missing concepts and future trends*", Cheng et al. (2018) argue that the bulk of the discussion concerning GPP in the last 20 years has been focused on policy and policy design, looking mostly at specific sectors and areas, together with the related outcomes. A branch of the GPP literature has used a wide-ranging qualitative approach to mapping and analysis of current GPP governance and uptake, while attempting to identify the barriers and opportunities for GPP uptake under the current regulatory framework. Efforts were also made to investigate and evaluate the "greenness" of the public procurement and how to integrate environmental considerations into procurement processes.

The "broad suggestions that seem to emerge" from their analysis are:

1. an overall lack of theoretical studies to assess GPP as an environmental policy instrument, as well as to fully understand its innovation properties. With respect to the environmental criteria issue, further comprehensive research is required due to the significant role it plays in GPP and the heterogeneous ways in which it can be integrated into the whole process of public procurement.
2. the tender evaluation method is, in general, poorly designed with respect to environmentally relevant dimensions and lacks appropriate research. Understanding the characteristics and impacts of different award arrangements, as well as constraints in the process, will make GPP a more feasible policy tool.
3. effectiveness of GPP also lacks a comprehensive analysis in terms of environmental performance tracking and measurement. This identifies one of the scientific and policy challenges to GPP related research, as the evaluation of the actual performance of green public purchases is crucial to achieve a better understanding of GPP potential in the context of the environmental policies toolbox.
4. Another topic is the barriers to the adoption of the GPP for the suppliers, in particular the small and medium sizes, there are few studies on this issue and for several Public Administrations the problem is often finding green suppliers. There are few studies on this issue.

***XPRESS* fits perfectly in the wake of this, and the last two issues** in particular:

a. the comprehensive analysis in terms of environmental performance tracking and measurement and

b. the barriers of the adoption of the GPP for the suppliers, in particular the small and medium size enterprises (SMEs).

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It will be important to point out the policies that drive the level of the GPP, and analyse the tools available to verify the positive benefit of the GPP and compare the relation between environmental performance with economic performance. On the side of economic benefits, there is still no clear and concrete evidence and further investigation are needed in that case.

Statistics of RE technologies at the European level

Referring to the latest Eurobarometer "SMEs, resource efficiency and green markets" published in 2018 and focusing attention particularly on the issue of renewable energy, we can find that:

- The current actions SMEs are taking to be more resource efficient for more than half is minimising waste (65%), saving energy (63%) and saving materials (57%). **More than one in ten are using predominantly renewable energy (14%)**.
- **the larger the SME, the more likely it is to be** doing each of the following: recycling by reusing material or waste within the company; designing products that are easier to maintain, repair or reuse; selling their scrap material to another company; or **using predominantly renewable energy**.
- **Industrial SMEs are the most likely to be using predominantly renewable energy (19%** vs 12%-14%), and they are also the most likely to be recycling, particularly compared to services SMEs (46% vs. 38%).
- At least three in ten SMEs in **Sweden (35%), Germany and Austria (both 32%)** are using predominantly renewable energy, compared to 3% of SMEs in Latvia and 4% in Bulgaria, Estonia, Lithuania, Poland and Romania (Figure below).

Q1 What actions is your company undertaking to be more resource efficient? (MULTIPLE ANSWERS POSSIBLE)
(% - USING PREDOMINANTLY RENEWABLE ENERGY (E.G. INCLUDING OWN PRODUCTION THROUGH SOLAR PANELS, ETC.))

Base: All SMEs (N=12,907)

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- In 24 EU Member States, SMEs are now more likely to be using predominantly renewable energy, compared to 2015. The changes are generally smaller (compared to e.g. minimising waste or saving water), with the largest increase amongst SMEs in Germany (+12 pp).
- 22% of companies asked about additional resource efficiency actions they were planning to implement in the next 2 years answered that they were planning to use predominantly renewable energy.
- More than one third of SMEs in Austria (39%), the Netherlands (36%) and Germany (35%) are planning additional actions to use predominantly renewable energy, compared to 4% in Estonia, 5% in Lithuania and 7% in Bulgaria (Figure below).

Q2 Over the next two years, what are the additional resource efficiency actions that your company is planning to implement ? (MULTIPLE ANSWERS POSSIBLE)
(% - USE PREDOMINANTLY RENEWABLE ENERGY (E.G. INCLUDING OWN PRODUCTION THROUGH SOLAR PANELS, ETC.))

Base: All SMEs (N=12,907)

- Changes in the proportion of SMEs who have additional plans to use predominantly renewable energy are generally smaller compared to energy saving or waste minimisation, although there has been an increase in 18 EU Member States. The largest increases are observed amongst SMEs in Germany (+22 pp), Italy (+18 pp) and Austria (+18 pp).

GPP criteria for RE sources and technologies

Besides an extended LCA dataset for a selection of RE technologies applied to the context of each one of the ten EU country partners of the project, XPRESS also aims at performing two case-studies per country where specific and first-hand data will be collected and utilized for a tailored LCA-LCC. An ultimate goal of the project is that, after analysing the case- and country-specific life-cycle datasets and results, the XPRESS team will be in an excellent position to define, at least qualitatively, a set of **criteria for GPP tenders related to RE sources and RE technologies**, similar to the already existing ones for other product categories like road construction and maintenance (Garbarino et al., 2016) or computers and IT equipment (Dodd et al., 2016).

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Public authorities could apply such criteria in the initial stages of a tender process to screen suppliers based on the environmental performance of the specific product or service. The LCA results from WP4 could eventually specify an environmental performance threshold for bidders, or assign specific weights to the environmental performance of potential suppliers, or define qualitative and quantitatively (wherever possible) a set of criteria specific for the RE technologies, products or services eventually assessed. Here below we present a table with some possible GPP criteria that were derived after the first LCA screening phase of a selection of five generic RE technologies (presented in detail in the deliverable D2.5).

RE technologies	**Critical parameters**	**Possible GPP criteria**
ALL technologies	Lifetime; recyclability/repairability; recycled material content;	Extended lifetime (award criterion), durability guarantee; Eco-design features: repairability/recyclability; Recycled material content (EPD or verified PEF) (award criterion)
Solar PV	Solar incidence angle (orientation, tracking system); Annual irradiation (location); PV cell efficiency ; Wafer & cell manufacturing data	Minimum efficiency (qualifying threshold) or Benchmarking efficiency (award criterion)
Electric Vehicles	Type of battery (power density, lifetime, weight); NMC Battery manufacturing (materials, energy, emissions…); Type of EV (size, weight, lifetime); Electricity input (energy mix)	Battery second-life plan (award criterion) Car or battery leasing option (procurement of service rather than product)
Heat pumps	Electricity input (energy mix); SFP	Minimum SFP (qualifying threshold) or Benchmarking SFP (award criterion) Heat service procurement with minimum EF threshold (qualifying criterion) or benchmarking EF (award criterion)

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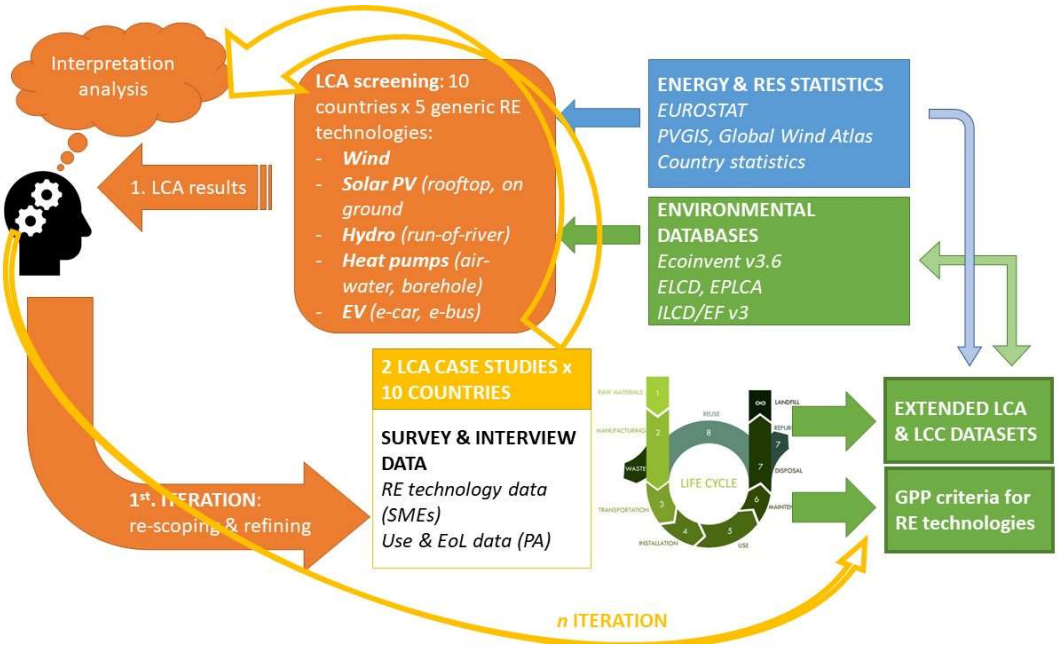

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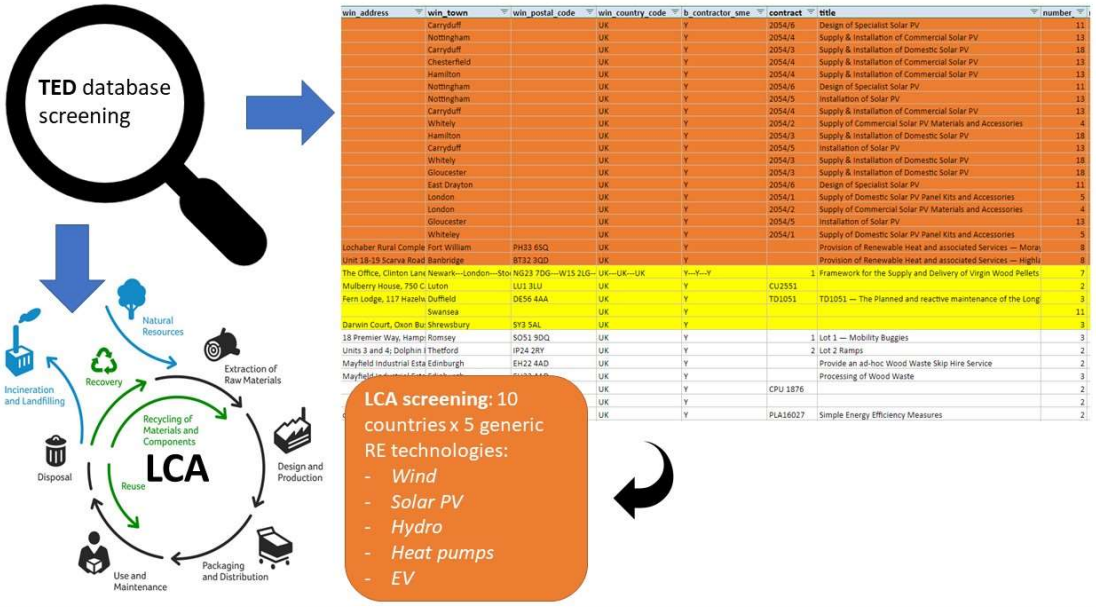

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Primary Source Data: Insights from XPRESS co-creation workshops

These co-creation workshops had to be postponed and they have been re-organised as online events because of the COVID-19 pandemic. Therefore, their results are presented within this current deliverable (rather than D1.1).

BELGIUM

Summary of the main ideas coming out from the parallel sessions

Barriers and possible solutions in the collaboration between Public Authorities and enterprises within GPPs

The main obstacle is to establish the relation with the procure department. Timing is not the same, different mindset, have to find a balance between public procurement officers and SMEs (which have a "try and see" approach). Entrepreneurs have less administrative internal political barriers and go forward for tests, but wait for months for procedures, legal advice, etc. à time consuming and waste of resources. We got lucky because people we work with trusted their technologies. Two possible solutions were proposed: 1. taking the time to comply with any request for the clients; 2. collaborating with third parties, such as departments and university labs. Moreover, political support is a very important factor.

How to support policymakers in boosting the RES market through GPP

Alexandre Scander Mahfoudh: a current question we have is: "how do we embed new technologies in the criteria of our tenders?" Cities would like to promote new types of technologies more environmentally friendly, but don't know how to include these features in the tender criteria.

Interaction between SMEs and Public Authorities

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	Obstacles	Solutions
SME/ **Private sector**	➢ Small companies cannot compete for PP if the other participants are big players. Innovation cost. ➢ Flemish workers are not so skilled in the field of GPP. It's still a niche sector. ➢ Complex rules and procedures of PP. ➢ Covid-19 period. Companies are not sure whether an investment on RES will worth. Financial risk. ➢ The main obstacle is to establish the relation with the procure department	✓ Generally, the contracts are too small in size (not enough for a large company) or too big (not realistically manageable for a small company). Ideally, they should be medium-sized contracts. ✓ The Government of Flanders has been working on SPP since 2008. In 2015, the government of Flanders launched the Flemish Plan on Procurement. Public administration in future will explain the rules and procedures better to SMEs. ✓ Public grants on GPP are required to boost a greener economy.
Authorities/ **Public sector**	➢ RES and Green solutions in general are too expensive. "Help" is required from the government with some grants. ➢ Administrative procedures are too complicated and complex. Lack of certainty of receiving a reply within a fixed deadline. ➢ Entrepreneurs have less administrative internal political barriers and go forward for tests, but wait for months for procedures, legal advice. ➢ Especially small SMEs are not ready yet to observe fixed common standards.	✓ Public grants on GPP are required to boost a greener economy. ✓ A more proactive public administration is required. ✓ Changes in some general criteria to facilitate access to GP from the companies. ✓ Stronger collaboration between public administrations and universities could be useful to cut out some "dead time".

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ITALY

Summary of the main ideas coming out from the parallel sessions

The speeches by Sergio Zabot and Annalisa Corrado have been followed up by a co-creation session during which Silvano Falocco, Director at Fondazione Ecosistemi and Patrizia Giancotti, from the office "Sustainable Development Promotion" of Città Metropolitana di Roma Capitale shared their experience with the audience by offering further elements to explore.

Silvano Falocco, highlighted the need for **adequate financial** instruments to support public authorities. Without these efficient financial models, it will be very challenging to exploit the advantages that can be generated by green and sustainable technologies.

Mr. Falocco also stressed that there is a lack of technical competencies in the public authorities that slow down the path towards the adoption of environmental criteria.

According to Mr Falocco a shift is needed, and PA must be able to monitor, check and establish an open dialogue with contractors.

The primary role of a PA is to represent a model to be followed for the territories, stated Patrizia Giancotti. She reported the example of a big project implemented by Città Metropolitana di Roma Capitale called "Provincia solare", a project financing whose final aim was to convert all school buildings to solar energy. The initial project targeted around 300 buildings, but since part of them were located in city centres and were subjected to historical and architectural constraints, at the end "Provincia solare" covered 200 buildings only. This experience has not been particularly relevant about the revenues but reached significant results in terms of environmental impact.

During the open discussion participants shared their views by highlighting that if on the one hand it is of interest to deal with the savings that can be generated by energy efficiency, on the other one it is also crucial to follow the new EU deal focused on circular economy. In addition representatives from SMEs stressed that the bureaucracy and the long term public administrations have in managing contracts and projects that do not fit with small companies need to make profit in short terms therefore a solution to create an environment that involves micro and small companies should be found. One of the ways could be represented by a collaboration between ESCos and local MSMEs in the form of subcontracting.

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Interaction between SMEs and Public Authorities

During the workshop the speakers reported some elements that help to define the interaction between SMEs and Public Authorities. In particular it has been highlighted that the complexity of public procurement together with the red tape and the long time spent by public administrations in managing contracts and projects clash with the need of SMEs to have short term profits.

SMEs also are disadvantaged towards big competitors, since they do not have the resources to manage contracts with a considerable duration (usually between 10 to 15 years). Besides what above, lack of information, information asymmetries together with the little knowledge of the Public Authority especially at a technical level when it comes to EPC (energy performance contracting) hinder the path towards the adoption of environmental criteria.

The first interaction between innovative SMEs and Public Authorities has been stressed as the most problematic phase of the process, the Prior Information Notice (PIN) could be very useful but the lack of knowledge of this tool by SMEs pointed out the necessity for PAs to better promote its importance.

In regard to financing, SMEs highlighted the issues related to the lack of liquidity and the difficulty in having the bank's trust since they do not take into consideration project's revenues when they evaluate the companies' reliability and this represents also a remarkable obstacle for SMEs considering the resources needed to establish contracts with PAs.

	Obstacles	**Solutions**
SME/ **Private sector**	➢ Complexity of the public procurement ➢ Contracts' size and duration ➢ Investments in renewables present considerable financial risks ➢ Lack of information about green technologies ➢ Incumbent firms with a dominant position in the market ➢ Lack of liquidity, solidity, and bankability for the SMEs ➢ Regulatory instability and diversity of incentives.	✓ Establishment of SMEs consortia to have a stronger position towards the banks ✓ Collaboration between ESCos and local MSMEs in the form of subcontracting ✓ Reinforcement of public-private partnerships.

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Authorities/ **Public sector**	➢ Administrative barriers in introducing innovative technologies ➢ The first interaction between innovative SMEs and Public Authorities is the most problematic phase of the process ➢ Information asymmetries that prevent the buyer to effectively monitor how the ESCo is operating ➢ Drafting contracts that foresee the future scenario given the long time the process requires (10 to 15 years) ➢ Low technical competences on EPC . ➢ Identification of SMEs that can offer innovative services.	✓ Public authority should establish a solid governance in order to manage the information asymmetry ✓ Enhance the knowledge of Public authorities on EPC especially at a technical level.

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NORWAY

Summary of the workshop

Interaction between SMEs and Public Authorities

Before the GPPs (Green Public Procurement) take place, SMEs can approach public authorities (PA) by attending marketing dialogue conferences. PAs will issue the market dialogue notice on the e-tendering portal in Norway, DOFFIN (Database for offentlige innkjøp: database for public procurement). During the marketing dialogue meeting, PAs can communicate their investment plans to enterprises and publicize their activities in order to understand what type of technologies they need.

PAs should try to co-operate with other organizations, for example local Chambers of Commerce and/or media, that may help to spread information about the upcoming procurement and where information can be found.

Make a pre-information notice in the EU Journal (TED) and in your country's procurement databases and channels, to keep potential suppliers informed about the possibility to receive information and be prepared for the upcoming requirements.

Criteria imposed by PAs to potential participants

PA should write the qualification and award criteria to make sure small and medium sized suppliers can join the tendering. PA should use the information from the market consultation to create a performance-based or functional specification.

The procurer should give bidders enough time to achieve the relevant EMS or ecolabel, and to meet the rest of appropriate requirements

Tender evaluation process

PAs should use the clarification option in the evaluation process. If the PAs only give categorical rejection without giving the company the possibility to clarify/resend information, this can create the impression of a public sector that is more concerned with perfect offers than good deliveries.

Obstacles and Solutions

	Obstacles	**Solutions**
SME/ **Private sector**	➢ The public buyers lack of knowledge about the solar/renewable energy ➢ Solar/renewable energy usually means high cost ➢ Complex rules and procedures of PP ➢ public buyers always see the risk and hold back	✓ Educate the public buyers ✓ Be proactive, approach the public buyers, ex. Through market dialogue ✓ *Give feedback to the public buyers on the process, which can be the SMEs´ chance to shape the tendering process* ✓ to get familiar with the Environmental Management System (EMS)

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	➢ Very time consuming to make bid for public tenders ➢ SMEs usually lack knowledge about the public procurement process, and they need assistance to participate. ➢ Very few small companies can afford to spend many hours trying to understand complicated tendering requirements, gathering legal business documents, quality-assured subcontractors, writing comprehensive texts and achieve know-how about how to load and send the offer via electronic tendering systems.	
Authorities/ **Public sector**	➢ Green solutions are more expensive than "traditional" solutions ➢ Inefficient regulations and habits in local governments and municipalities	✓ Public buyers need to plan the cost/make the budget early enough if they decide to go for renewables ✓ *Approach the market through open market consultation* ✓ *Initial core activity where the first dialogue between demand and supply side takes place*

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		✓ *Make an extra effort to invite small and medium-sized suppliers* ✓ *Ask for ´tomorrow-solutions´ smaller suppliers /start-ups often have brilliance ideas, but they need to test them in a bigger scale* ✓ Make contract terms which are easy to understand. ✓ *Write the qualification and award criteria to make sure small and medium sized suppliers can join the tendering* ✓ *Do not describe the solution, but use the information from the market consultation to create a performance-based or functional specification* ✓ Releasing advance procurement notice about the upcoming procurement ✓ Prequalification. If the SME does not qualify legally, it is best to know this before the big job begins.

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		✓ Larger contracts should be divided into smaller contracts. This will attract more SMEs ✓ try to cooperate with other organizations, for example local Chambers of Commerce and/or media, that may help to spread information about the upcoming procurement and where information can be found. ✓ Give information about help centers which can assist small companies with public tenders ✓ Make a pre-information notice in the EU Journal (TED) and in your country's procurement databases and channels, to keep potential suppliers informed about the possibility to receive information and be prepared for the upcoming requirements ✓ Make contract terms which are easy to understand.

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SPAIN

- **Summary of the main ideas coming out from the parallel sessions**

A dynamic was developed dividing the audience into three groups, each group discussed a different topic related to GPP and SMEs, as follows.

PAs and SMEs collaboration on GPP: Barriers and possible solutions.

The first one was **Barriers and possible solutions to improve the collaboration between** Public Authorities and SMEs within the process of GPP. Main findings regarding **problems** were:

- There is still a **lack of knowledge on LCC**, **certificates**, **SMEs with innovative products**, etc..
- At the same time it is **difficult for public authorities to identify SMEs which fulfill sustainability criteria**. Especially in smaller municipalities there is a lack of capacities and skilled staff.
- Finally there was a discussion on **how to consider distances and GHG emissions related to transport of goods in tenders**.

On the other hand, a set of **solutions** were explained:

- The use of **LCC**, **Joint Public Procurement (JPP)**, **the improvement of knowledge by contacts to different SMEs**, **the visualization of the benefits of GPP**. As further solutions the **establishment of a supramunicipal channel to support green procurement**, the **systematization** on how to include certain aspects in the **specifications and how to proceed to their assessment**, the introduction of **new distributors by public entities**, the implementation of **new communication channels between SMEs and authorities** to know the supply of new technologies and the promotion of good practice have been mentioned.

Barriers and possible solutions to improve the collaboration between PAs and SMEs within the GPP process

Barriers	Barriers	Solutions	Solutions
• Need for good coordination to lead the collaboration	• In small local entities there is no knowledge and the staff is	• Training and pedagogy • Use LCC	• Establish a supra-municipal channel to

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• There is no clear differentiation of companies that meet requirements. In rural areas, in some sectors there are no alternatives. • Difficulties to know if there are companies that can meet certain environmental requirements / conditions that PAs would like to introduce in the specifications • More expensive products for new solutions	not trained, nor does they have time. • Know what is important and what other aspects must be prioritized or valued, in the sense that companies that can meet a certain condition can be located very far from the object of the contract (with which, they would generate more trips, energy consumption, etc. .). Assess all these aspects in the specifications. • New distribution companies	• Establish simple indicators for supplier qualification • Contact with companies. Know the development of different technologies • View contributions • Collective purchase to lower costs	support green contracting • Systematize how to include certain aspects in the specifications and how to proceed with their assessment • Introduction of new distributors by public entities, communication of good practices • Implement new communication channels between SMEs and Public Authorities to learn about the offer of new technologies

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Interaction between SMEs and Public Authorities

Second one was **Interaction between SMEs and Public Authorities within the process of GPP.**

Main findings from this group are summarized:

- **<u>Previously to the GPP</u>** the critical point is to know exactly the **technical and legal criteria to be included in the tender,** and where to include them. Another, but not less

important, is **knowing the market before publishing it**, if there are potential SMEs interested or ready to participate in the process.

- **During the GPP process**, the critical point is to evaluate **the requirements of the tender**, in this sense, sometimes it is very difficult when there is not enough technical knowledge in the public authority. Another important point is the **legal and technical security within the tendering process i**n order to have a successful GPP process within the public authority itself, as it has to follow many steps and is evaluated in different departments within the public authority.
- **After the GPP process**, the critical point is the **service monitoring once the contract has been awarded.** In order to widespread GPP among public authorities it is very important to **disseminate the successful cases from public authorities that have already implemented the GPP.**

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Interaction between SMEs and PAs within the GPP process

Before starting the process	During the GPP process	After finalising the process
• From the side of a local purchasing entity, we do not have enough technical knowledge to assess the proposal and to design the tender. • On the part of a public entity, the addition of requirements makes tenders long and complicated	•	•

How to support Public Authorities and SMEs to promote the market of RES through GPP

The main recommendations on this topic are summarized in two blocks - Public Authorities and SMEs actions:

- **Public Authorities**: **training for administrative staff and technicians** in technologies and public procurement, **central procurement available for small administrations**, **working groups with SMEs and stakeholders**, integration of **green criteria** in specifications of procurement.
- **SMEs**: **synergies and collaboration with SME-Administration**, **tax benefits** instead of subsidies, **incentives to SMEs to participate in GPP.**

How to support Public Authorities and SMEs to promote the market of RES through GPP?

Public Authorities	Public Authorities	SMEs	SMEs
Municipal Technicians Training • Make known to administrative or technical staff the technologies and financing possibilities **Deserted tenders** • We find ourselves with the problem that many companies do not use or start with certain projects, since their investment-result forecast does not find incentives, which could be "solved" with incentives such as a reduction	**Backbone element - Purchasing Central** • Facilitating access to green public procurement **Information** • More information to know the technologies in RES and their possible results in attractive projects • Integration of criteria in specifications, plans and agreements for their inclusion; workshops and meetings with SMEs to adjust to reality	**Public-Private Collaboration** • Synergies and coordination between companies and administration.	**Grants/Subsidies indicators** **Tax aid instead of subsidies** **Ease of offering guarantees**

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in certain taxes or bonuses. **Working tables Public Authorities with SMEs** ● At the local level, collaborative work tables between the municipalities and SMEs of the municipality for joint collaboration.	**Consider long-term savings**		

	Obstacles	Solutions
SME/ **Private sector**	➢ Lack of good coordination to lead this kind of collaboration. ➢ Hard to keep updated with the latest regulations and opportunities. ➢ Tender requirements prevent SMEs from participating.	✓ Inclusion of LCC in tenders is not seen as a burden for SMEs. ✓ Open communication channels to introduce innovations available. ✓ Tax reduction instead of grants. ✓ Open communication channels to learn about new tenders/grants.
Authorities/ **Public sector**	➢ Difficulties to find out if there are companies that can cope with high environmental standards.	✓ Capacity building on RES and LCA. ✓ Inclusion of a standardised methodology for the

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	➢ Innovative products are more expensive. ➢ In small cities or rural areas, there is low supply of innovative products. ➢ In small cities or rural areas, specialized staff is not available. ➢ Public procurement is a long and complex process.	comparison of alternatives (such as, LCC). ✓ Promote collective purchase to reduce costs (JGPP or procurement centre at regional, local level). ✓ Generate spaces for PAs and SMEs collaborations (workshops and roundtables)

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SWEDEN

Summary of the main ideas coming out from the parallel sessions

How can environmental considerations in public procurement increase innovation in renewable energy?

There are several barriers that lead to procurement not driving innovation and sustainability in renewable energy. For public procurers, these include:

- Lack of competence and resources - public procurers come late in the procurement process and cannot do procurements that drives innovation and sustainability
- Risks in the form of review - if procurement becomes more innovative, it can open for more review
- Culture - "we do as we always did". It is difficult to break into habitual patterns and think in new ways in the procurements to be carried out

For companies it is about:

- Competence and resources - competence in public procurement is missing
- Financial risks - it takes time and costs to submit bids without being sure of winning the tender
- Legal aspects related to energy efficiency and eco-design

At the same time, there are good opportunities to drive innovation and sustainability in procurement regulations and how it can be applied. There are several success factors:

- Making demands through putting criteria in public procurement drive development in the market. Procurement is important for opening-up the innovation power of companies.
- Dialogue at an early stage is central to finding a balance and proportionality regarding the requirements to be set. The companies are demanding more dialogue but are not sure where to turn. The procurers encourage companies to make contact and participate in different types of RFIs.
- Training and support in submitting tenders are necessary. There is support available through tendering schools, the national agency for public procurement, and from consultants.
- The purchasing processes also need to be simplified to make it easier for companies to participate.

How can environmental considerations in public procurement contribute to the implementation of sustainable development goals?

The national agency for public procurement has developed a procurement process that is applied, among other things, by the Luleå municipality. The emphasis is on zone 1 with the aim of ensuring that the procurements to be implemented are in line with the sustainability goals and the visions of the municipality. Environmental considerations can then be ensured through qualification requirements, obligatory requirements, award criteria or special contract terms.

Balancing requirements and ambitions are different in each procurement and it should be done through considering the market's degree of maturity and development. Therefore, a lot of time needs to be spent on the early dialogue and discussing needs and the effects that the public sector wants to achieve. It will not always be possible to take environmental considerations into every procurement as it can often require more time and resources. Priority therefore becomes very important.

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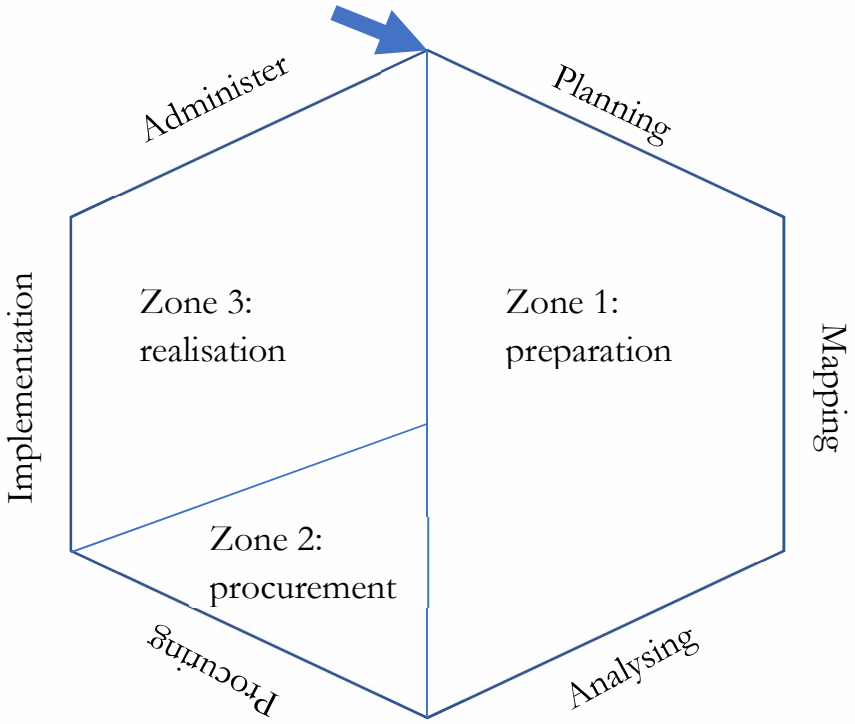

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How can decision makers be supported to increase environmental considerations in public procurement?

It is about anchoring work and an increased understanding of public procurement and its importance. It is a matter of conveying what value public procurement can contribute. In order to drive innovation and sustainability, more time and resources will be required in zone 1. If it is possible to explain and show to decision-makers that more time and resources early in the process (zone 1) creates values that reduce climate impact, then environmental considerations will be boosted in public procurement.

Summation

There are good opportunities in the Swedish regulations in accordance with EU directives for driving innovation and sustainability. To get there, a new approach and a new approach to public procurement is required. It needs to be permeated by speed, simplicity, dialogue and balanced requirements. Now there is an opening to develop the purchasing process so that the XPRESS project can play an important role in it.

Interaction between SMEs and Public Authorities

Before the GPPs (Green Public Procurement) take place

How do SMEs approach PAs via GPPs? Does it happen via issuing the Prior Information Notice (PIN) to start market engagement? If so, would SMEs approach PAs in response to the PIN via the e-tendering Portal?

SMEs use different approaches to reach public authorities. Searching for tenders through databases, dialogue with procurers, attending matchmaking hold by procurers, and PIN. They use both e-tendering and conventional methods such as calling and visiting procuring unit.

Would PAs alert SMEs to the existence of the PIN?

Yes. The conventional methods are publishing the information on external portal.

How will SMEs finance their activities? Do they ask for support from PAs? Is this a question PAs should ask in the PIN?

Financing operations of SME through investment demands public authorities to invest in SME and share in their risk. It is not a popular model in Sweden. On the contrary there are third parties that help small companies receive loans from banks and governmental institutes.

How do PAs communicate their investment plans to enterprises and publicise their activities in order to understand what type of technologies they need (market and technical solution analysis)? Should this form part of the PIN?

They hold supplier meetings to inform them about upcoming procurements, plans, and encourage them to get to know each other. Also, they update information on the web based on what the politicians decide for the organizations.

What are the criteria imposed by PAs to potential participants? Should this form part of the PIN?

Sustainability criteria, purchase spend on categories, standards and guidelines that public authority will adapt, new approaches such as LCC, LCA. Also, application of specific guidelines for special procurements that they used to in a different way.

During GPP assignment

Interaction between PAs and SMEs during the tendering process

Asking questions, asking for help to understand the tender document, sending the response to tender

Transparency criteria (scoring/weightings)

It is very important to have transparent criteria and a clear and well-defined weighting system in the tender otherwise there is a risk for review due to breaking against five principles of public

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procurement. Procurers can end up in court and paying penalty fee for breaking against equal treatment, proportionality, anti-discrimination.

Furthermore, complicated tenders or tenders with too narrow criteria can end up in a low response rate since Sweden is a small country and there are not so many suppliers in each category. Hence, for RES it is very popular to use functional criteria which procurer is after the result not the way supplier gets to the result.

Tender evaluation process

Economically the most advantageous formula is becoming more popular than the lowest price bid. It is because that procurer can use different criteria and give weight to it. LCC has been practiced by some municipalities and some are even shifting toward Life cycle analysis. However, it is time consuming and a bit vague since finding the information about product and service during the whole life cycle is cumbersome.

Tender conclusion and debriefs

Decisions announce and some authorities inform all attending suppliers with a letter and sometimes even the score. Some other small municipalities just announce the winner since they do not have time.

After GPP assignment

Tender Follow up

Tenders follow up through planned and unplanned supplier visits and questionnaires sent to suppliers.

Report on how the work is performed

Reports will be written based on supplier response to questionnaire and results of supplier visit. There are supplier exclusion terms in the tender documents that can be practiced if necessary.

Transparency on payment timing

The payments are often on time and transparent since the budgeting is already made. However, due to pandemic some alteration might happen, or some future procurements stop since the municipalities in Sweden are independent in their decision making and each municipality has its own priorities.

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	Obstacles	Solutions
SME/ **Private sector**	➢ Small businesses are at a disadvantage compared to big players ➢ Lack of experienced professional workers ➢ Complex rules and procedures of PP ➢ Quantifying the return on investment in RES - cities prefer short-term benefits ➢ Lack of private capital for research and development of innovative technologies	✓ Breaking tenders to small parts, functional criteria, dialogue with suppliers ✓ Added value formula, not placing all the environmental criteria as obligatory criteria, ✓ Functional criteria, dialogue with suppliers, simplification ✓ Pilot tenders, dividing tenders on the size to keep big existing players and opening ng up for newcomers ✓ Functional criteria, innovation procurement to sometimes finance initiation projects
Authorities/ **Public sector**	➢ Green solutions are more expensive than "traditional" solutions (paper, electric cars), which causes a problem with effective investment of public funds ➢ Overall, there is a lack of resources for investment into new technologies and modern workflows	✓ LCC tools are developed by national agency for public procurement to procure RES through LCC tools ✓ Staircase method enable suppliers to win the contract and special contract terms give the advantage of adding harder criteria during the contract time to expect more from supplier in purchase of new equipment and services

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	➢ Inefficient regulations and habits in local governments and municipalities ➢ Poor building conditions requires additional investments in the deployment of RES (e.g. solar panels) ➢ Administrative barriers in introducing innovative technologies ➢ Other, please specify	✓ Simplification through dialogue with supplier prior to tender preparation, changing mindset and daring to break routines ✓ Tax return motivation, long term payback ✓ Procuring innovation by public authorities in different stages such as concept, prototype, test product, approved product, tested product

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UK

Summary of the main ideas coming out from the parallel sessions

The discussion highlighted the need for a closer collaboration between SMEs and public authorities as well as for the facilitation of access to information related to GPP.

Furthermore, the role of MSMEs is of paramount importance, but it is crucial that enterprises acquire the competencies required and that PAs analyse how to simplify tender management in order for MSMEs to easily access tenders.

Interaction between SMEs and Public Authorities

The interaction between SMEs and Public Authorities is a very challenging issue as the lack of information about the public procurement hinders SMEs' participation in tenders.

The Prior Information Notice (PIN) could potentially be a very useful tool for both public authorities and companies, but in order to fully exploit this potential PAs should promote awareness campaigns or implement initiatives to increase SMEs awareness of this.

A further issue with regard to the interaction between SMEs and Public Authorities is related to financing: companies tend to refer to private actors to ask for support and this happens mainly because approaching PAs usually requires many efforts and is considerably time consuming. An efficient, timely and easy-to-access system that facilitates the access to

information would be crucial to enhance the participation that would be of benefit for all the actors involved.

	Obstacles	Solutions
SME/ **Private sector**	➢ Administrative burdens ➢ Procurements' timeline rigidity ➢ Lack of information ➢ Lack of competencies ➢ Lack of in-house bidding sources ➢ Projects' evaluation criteria	✓ A set of simplified common criteria ✓ Create new procurement typologies that better deal with time issues. ✓ Adoption of simplified tools and systems ✓ Offer of supporting tools and capacity buildings to help SMEs in the bid writing ✓ Adoption of new contracting models (i.e. Dynamic Purchasing System) ✓ To take projects' potential replicability into account would enhance SMEs growth opportunities.
Authorities/ **Public sector**	➢ Identification of local SMEs ➢ Difficulties in finds companies with the needed competences	✓ Establishment of simplified tools or platforms where PAs could include their needs and SMEs their services/competences ✓ Organizing workshops/trainings to guide SMEs representatives in better understanding what the market is looking for.

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ANNEX - LCA datasets and tools

European Platform on Life Cycle Assessment (EPLCA)

The European Platform of Life Cycle Assessment (EPLCA), a project initiated by the Institute for Environment and Sustainability (IES), has the objective of promoting Life Cycle Thinking (LCT) and providing appropriate support to business and public administrations within the European Union (EU), as well as in close coordination with international activities. It provides core Life Cycle Inventory (LCI) data from front-running EU-level business associations and, where not available, other sources. The EPLCA is embedded in the Life Cycle Data Network (LCDN).

The LCDN is a web-based infrastructure composed of Nodes which are managed independently. Datasets are published by the developer (consultants, research groups, member states, businesses) through their own Node. In order to make the data interoperable and exchangeable, there is a harmonization protocol on the data format and quality requirements. In order to be included in the LCDN, the candidate datasets need to meet the **ILCD (**International Reference Life Cycle Data System) **entry-level requirements**. These requirements have been established to guarantee a minimum level of documentation, methodological consistency among datasets, and coherence in terms of format and nomenclature, and to provide the user with useful information on data quality.

- Review
- Quality
- Nomenclature
- Documentations
- Methods

The JRC has released two new nodes, that will respond to specific needs of data sharing, for LCI datasets developed within EU-funded research projects, and for small data providers (i.e. those that needs to share less than 10 process datasets) ensuring also for those entities the possibility to share data without the obligation of the node development and maintenance.

The two new nodes are available at the following links

- node for the EU-Funded Research Projects: https://eplca.jrc.ec.europa.eu/EUFRP/
- node for Small Data Providers Database: https://eplca.jrc.ec.europa.eu/SDPDB/

Several energy-related data were provided, since energy is a key input to most environmental analyses of products or processes. Several data providers have nowadays the capacity to create and maintain their own nodes, and share the data through https://eplca.jrc.ec.europa.eu/LCDN/.

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As for the data quality, Garraín et al. (2015) performed a background qualitative analysis of the former European reference Life Cycle Database (ELCD, now LCDN) energy datasets: The evaluation has been based on the quality indicators developed within the ILCD handbook (EC-JRC, 2010a, 2010b, 2011):

- Technological representativeness (TeR),
- Geographical representativeness (GR),
- Time-related representativeness (TiR),
- Completeness (C),
- Precision/Uncertainty (P) and
- Methodological appropriateness and consistency (M).

Each of those has been evaluated according to the degree of accomplishment of the criterion (from 1 to 5), and an overall DQR of the datasets has been calculated by summing up the achieved quality rating for each of the quality criteria indicator, divided by the total number of considered indicators, as described in Garraín et al. (2015).

Ecoinvent

Life cycle inventories (LCI) of electricity generation and supply are among the main determining factors regarding life cycle assessment (LCA) results. Therefore, consistency and representativeness of these data are crucial.

For the LCA screening, the Ecoinvent version 3 (v3) has been used, where the electricity sector has been updated and substantially extended (Treyer & Bauer, 2016). Methods involved extraction of data and analysis from several publicly accessible databases and statistics, as well as from LCA literature. Depending on the power generation technology, either plant-specific or region-specific average data have been used for creating the new power generation inventories representing specific geographies.

All datasets include a specific technology level in order to support marginal mixes used in the consequential version of Ecoinvent. The use of parameters, variables and mathematical relations enhances transparency.

Life cycle costing data

Life Cycle Costing (LCC) is still scarcely used in public procurement and public institutions are still in the process of understanding its potential value for sustainable procurement, although the recent European Directive on Public Procurement is strongly pushing to position LCC as a central piece of sustainable sourcing (De Giacomo et al., 2018). Moreover, it is still unclear how public institutions can develop their adoption of LCC practices, leveraging their experience on green

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sourcing. LCC guidelines exist for certain product categories and specific methods have been developed in this regard (Estevan & Schaefer, 2017; Langdon, 2007).

According to De Giacomo et al. 2018, GPP experience can encourage public authorities to adopt LCC, through the development of learning and capabilities in handling "life-cycle" related concepts and tools. GPP is not simply an environmental criterion in procurement procedures, but plays a key role by introducing the life cycle perspective and life cycle costing.

Although they represent different concepts and tools, GPP and LCC can be both considered part of the sustainability culture of an organization. The environmental and economic dimensions of GPP and LCC respectively can be integrated within the context of sustainable purchasing and cannot be considered separate components of sustainability. As was mentioned in the Spanish co-creation workshop of the XPRESS project, the technicians and public officers preparing the tenders should not consider the purchasing price alone as a single or overarching indicator to be relied upon for the final decision. Instead, the use phase (including maintenance and running costs) as well as dismantling, decommissioning and End-of-Life costs should already be factored in on public procurement tenders (as required by European regulation), to properly evaluate the full cost-effectiveness of a service or a product that is to be purchased via public procurement. In this context, the life-cycle approach, LCA methodology and life-cycle thinking will be applied in the LCC assessment of the study-cases.

The Eurostat database will be used to collect the electricity prices in each EU country, as well as different fuels, generic labour costs and environmental taxes that may apply (Eurostat, 2019). Additional info and data may be taken from available national economic input-output tables, like the European Exiobase. This is a publicly available, free database developed by the European Joint Research Centre. It is a multi-regional, environmentally extended Input-Output table representing the environmental pressure of the economic trade between the EU-28 member countries and the rest of the world. The monetary flows among sectors have been translated into average environmental pressures (CML 2001) per group category. In order to do this, all traded goods have been grouped into 200 sectors for 49 countries/regions across the database.

All EU countries appear separated, as well as the main economic country-actors in the world, such as China, US, Brazil, India, Turkey, Russia, South Africa, Australia, Canada and Mexico. Other minor countries (from an economic-trade point of view), appear aggregated into geographic regions, like "Rest of World - Asia and Pacific", etc. The database has been developed with an Export-oriented perspective, so it presumes that the environmental burden of all economic activities lay on Producers' rather than on Consumers' (import countries) side. This is simply one "allocation" criterion that needs to be taken for consistency in the database, but arguments exist for both criteria (Producer perspective makes more sense for local/regional impacts like eutrophication, toxicity impacts, photochemical oxidation, etc., while Consumer perspective makes more sense for global impacts like global warming, since Demand is the ultimate driver of Production). When adding up the environmental impacts of all the economic activities of every country, the same total figures are obtained through either approach. The particular

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burdens of a country will of course change significantly when one approach or the other is taken, e.g. China's environmental footprint will be much higher from a Producer perspective.

Recommendations and future improvements

This cited extended analysis of the electricity datasets was aimed at providing better founded information related to its data quality, following the indicators developed and described within the ILCD handbook (EC-JRC, 2011). It has had two main consequences:

1. the implementation of the quality indicators to the energy-related datasets has been used to understand the room for improvement in future versions of the datasets.
2. it has also served to identify whether these data quality indicators are applicable and useful for the database developers in general, as well as for the LCA practitioners.

Results obtained from this analysis ensure the quality of the energy-related datasets to any LCA practitioner, and provide insights related to the limitations and assumptions underlying in the datasets modelling. Giving this information, the LCA practitioner will be able to decide whether the use of the datasets is appropriate based on the goal and scope of the analysis to be conducted.

The datasets have been modelled based on an extensive review of the most relevant literature and statistics.

In terms of the quality criteria, the analysed datasets showed a very good performance in the majority of the criteria, especially in those criteria related to TeR, C and M.

Concerning the different technologies analysed, ELCD datasets have the best quality rating in the majority of the technologies, with the exception of electricity from PV dataset where M criterion performs worse than in other databases. Several recommendations have been also made to overcome these limitations.

Moreover, in some renewable technologies (PV or biomass) regional specificities are not always well considered in terms of capacity factors, forest management, etc. In these cases, it would be desirable to split the dataset in different country specific or bioclimatic regions datasets.

Modelling the End of Life (EoL) of the systems appears to be a difficult task due to the novelty of some technologies and the lack of data from other technologies (e.g. solar PV, and natural gas plant dismantling). As such, efforts on this challenge will not take place in the near term.

Regarding the use of authoritative sources, the database makes extensive use of the statistical information provided by the IEA. This is of course an authoritative source. However, **for the European context it seems appropriate to use the data reported by each country to Eurostat**. In order to improve precision, it would be advisable to make a more extensive use of Business Associations and Authoritative sources data that have been proposed throughout the analysis.

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The SHARES tool

The use of renewable energy sources is seen as a key element in energy policy, reducing the dependence on fuel imported from non-EU countries, reducing emissions from fossil fuel sources, and decoupling energy costs from oil prices. Directive 2009/28/EC on promotion of the use of energy from renewable sources established accounting criteria for the 2020 targets on renewable energy sources.

The SHARES tool focuses on the harmonised calculation of the share of energy from renewable sources. The main benefit derived from the SHARES tool is that Member States are engaged to go through the exact same method in order to calculate the desired values. Its application prevents any irregularities from varying parameters and rules used in different calculation methods.

Results of the completed SHARES exercises are available in Statistics Explained article *Renewable energy statistics* and Eurostat database.

Eionet Report - ETC/CME 2019/8

The report outlines - with reference to year 2017 - the progress made in the deployment of renewable energy sources (RES) in the European Union (EU) as a whole, and at country, market and technology level.

The results confirm that the EU RES share has remained in line with the indicative trajectory designed to achieve the mandatory EU RES targets for 2020: a 20% RES share in energy consumption and the sub-target of 10 % RES for transport. However, to achieve these objectives with certainty, further efforts to deploy renewable energy sources across the EU are needed, in particular given the rebound in final energy consumption in some EU Member States in recent years.

The additional consumption of renewable energy sources throughout Europe since 2005, has had a number of side benefits: it enabled the EU to reduce its demand for fossil fuels with more than 12% and the associated greenhouse gas emissions (GHG) with 10%, than if renewable energy sources had remained at the same level as in 2005. For the effect on air pollutant emissions, the outcomes are mixed: the additional consumption of RES since 2005 led to decreases in the emissions of NOx and SO2, but to increases in the emissions of PM10, PM2,5 and VOCs, mainly due to the combustion of biomass.

Besides calculations based on RES consumption data reported by Member States, the report also provides early estimates from the European Environment Agency (EEA) for all these developments in 2018.

In the final part, the global perspective is taken into account. It indicates that the EU transformed its energy production base between 2005 and 2017 at a speed which surpassed that of other world regions. Although the EU is still the world leader in sustainable energy capacity per capita, it was surpassed by China in terms of total installed capacity since 2013.

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through literature data and available databases), with the LCA case-studies that will be carried out during the next phases of the project. The case studies however, will be based on as much primary data as possible, collected through individual interviews with public authorities and SMEs, in order to perform a full LCA for each case study.

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