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Co-VAL [770356] "Understanding value co-creation in public services for transforming European public administrations"

D2.7 Preliminary Survey Results

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Executive Summary

This report includes preliminary descriptive results of a survey on innovation and the use of co-creation methods. The survey was sent to public sector managers in municipalities and national government organizations in six European countries: France, Hungary, Spain, the Netherlands, Norway and the UK. The countries cover a variety of conditions in terms of size, economic development and political structure.

In total, 3,497 questionnaires were sent out. The valid sample excludes 327 contacts from the full sample that could not reached for various reasons. The final response rate is 32.7%, varying from a low of 14.8% in the UK to a 48.1% in Norway.

Respondents are asked to only respond for their area of responsibility, defined as their work unit. The organization is the government entity that employs the respondent and could be an agency, ministry or department within a municipality or national government.

The descriptive results given in this report provide a guideline for further in-depth analysis using multivariate techniques and provide basic information on frequencies for all survey questions. They evaluate the distribution of responses to all survey questions by four characteristics of the responding unit: 1) country, 2) focus area of the respondent's organization (identified before the survey), 3) the size of the respondent's work unit (four categories for the number of employees), and 4) the type of organization in which the respondent is employed (national government, large municipality, or small municipality). Some of the analyses also compare results across questions. Country results are provided in tables for all questions, but the results for the three other characteristics are only provided in tables if there are a sufficient number of statistically significant correlations.

Fifty respondents (4.8%) only answered the questions in section A on the characteristics of their unit, leaving 985 responses for which it was possible to determine the innovation status (innovator or non-innovator) of the unit. Of these, 817 (82.9%) were innovators and 168 were non-innovators. Thirty of the innovators did not reply to the majority of questions in section C and are excluded from most analyses, leaving a maximum of 787 innovative cases. Statistical significance is defined as p values up to 0.05. Wherever possible, the actual p value is given. Case conservation methods are used to address missing values due to respondents failing to answer one or more sub-questions within a question.

The percentage of innovative work units varies by country from 56.5% in Hungary to 92.7% in the Netherlands and the United Kingdom. Other factors that affect innovation status include the focus area and the type of organization (percent innovators is highest in large municipalities at 88.2%).

Participation in work groups to that meet regularly to discuss or develop innovation has the strongest effect on innovation status, with 53.5% of non-innovative units reporting zero employees participating in work groups versus 3.2% of innovative units. Organizational practices to support innovation are significantly more prevalent among innovative than non-innovative work units. For example, 50.9% of respondents from innovative units report that 'senior management gives high priority to new ideas or new ways of working', versus only 18.9% of respondents from non-innovative work units.

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Non-innovative units are more likely than innovative units to report each of 12 obstacles to innovation as not relevant. When 'not relevant' responses are excluded, a higher percentage of non-innovative than innovative units report each of the 12 obstacles to innovation as of 'high' importance. The most frequently cited 'high' importance obstacle for non-innovators is a lack of knowledge on how to innovate (cited by 49.2%), followed by senior management concerns over risk (cited by 33.6%). The most frequently cited 'high' importance obstacles for innovative units are a lack of knowledge on how to innovate (cited by 19.6%) and a lack of support from politicians (cited by 17.3%). There are significant differences in all obstacles by country, with respondents from Spain assigning the greatest importance to obstacles and Norway the least.

Most of the questions focus on a single 'most important innovation' (MII) identified by the respondent. A maximum of 787 respondents from innovative work units answered questions in this section of the questionnaire. In total, 15.6% of MIIs were in the pilot or testing stage, 54% were partially implemented with ongoing improvements underway, and 30.1% were completely implemented. In regards to novelty, 43.2% of the MIIs were improvements to previous services or processes, while 32.7% provided a new service or process and 24.1% a new service and process. The implementation stage is correlated with novelty, with completely implemented innovations more likely to be both a new service and a new process (29.2%). The majority of MIIs, 93.3% involve a process while 39.4% involve a service (many innovations include both a process and service component).

The most commonly reported purpose of the MII was to 'improve quality for users' (cited by 67.2%), followed by 'improve internal efficiencies'), cited by 57.6%.

Unit size is significantly correlated with the share of units reporting that the MII decreased costs, noted by 48.5% of units with 250+ employees versus 30.8% of units with less than 10 employees. Size is also correlated with the share reporting that costs increased (14.4% of large units versus 9.0% of small units).

The most common source of the idea for the MII is the respondent or their colleagues, reported by 68.4% of respondents. In all countries the most commonly reported sources for the idea are within government. Non-governmental sources (citizens, businesses, community groups etc.) are the least commonly cited (all below 10%).

The most commonly reported 'high' importance driver is 'government regulations, policies or priorities' at 37.8%, followed by demand from individuals (22.9%) and an urgent problem or crisis (21.6%). With the exception of a budget increase, there are statistically significant differences in the distribution of the importance of drivers among all countries. Other characteristics of the responding unit had little effect on drivers, suggesting that national differences in economic or political factors might explain differences in drivers, but this requires multivariate analysis for confirmation.

Data are available for three types of innovation inputs: provision of extra staff or funding, person-months required to develop the innovation, and assistance, advice, technology or other inputs from outside the unit. Over half of respondents (55.4%) report no extra funding or staff for their MII, while

14.2% report both extra staff and funding. The size of the unit is positively correlated with the receipt of extra resources. On average, 64.6% of respondents reported that their MII required less than 12 months to develop, with the highest shares in Spain (67.2%) and France (58.8%). The most cited source of external assistance was other work units within your organization (cited by 69.5%), followed by businesses including consultants (41.4%). The source 'design firms, innovation labs and living labs' were the least frequently cited (14.3%).

Question C12 asks about the use of eight good practice methods for innovation. The most commonly cited method was to assign a dedicated team to the project (76.5%), followed by 'brainstorming or idea generation to identify solutions' (71.5%). Three methods used in design thinking, such as 'conduct research to identify the challenges to be identified by this innovation', 'conduct research to identify different types of users for this innovation', and the 'development of a prototype' were the least commonly used methods, cited by 48.2%, 39.1%, and 42.1% respectively.

Respondents were asked in question C13 about five methods of involving users in the development of the MII. This is the main question of relevance to co-creation use. In total, 85.2% of respondents reported the use of at least one of the five co-creation methods. On average, respondents used 2.33 methods for involving users, ranging from 1.96 in Spain to 2.73 in the UK. Co-creation is used more intensively when the innovation involves a service (2.44 methods used on average) than for a process (2.21 method used on average). The intensity of use of co-creation also increases with the availability of resources. An average of 2.0 co-creation methods are used when extra staff or funding is not provided, compared to an average of 2.7 when extra resources are received.

In total, 46.5% of respondents reported that the MII had been evaluated after implementation. A higher share of services (51.3%) are evaluated than processes (41.0%). Most of the respondents that evaluated their MII (86.2%) had either made changes to improve user experience or expected to make changes in the future.

Respondents were asked about the contribution of users to six outcomes from their MII, three of which concerned internal innovation processes and three post implementation effects. Effects on internal innovation processes were rare, with only 6.5% and 9.4% of respondents reporting 'high' benefits from a reduction in development costs or time. Post implementation effects were more common, with 50.2% reporting 'high' benefits for improving fit with user needs and 47% reporting 'high' benefits from an improved quality. For all effects, the level of benefit is positively correlated with co-creation intensity.

Nine outcomes from the most important innovation were investigated. After excluding 'not relevant' and 'too early to tell' assessments, 71.3% of the outcomes were 'positive' according the respondents' perceptions, 25.3% were neutral, and 3.4% were negative. The co-creation intensity has no effect these outcomes, but intensity is correlated with all assessments, including 'not relevant' and 'too early to estimate'. Respondents with a 'not relevant' and 'too early to estimate' assessment used fewer co-creation methods than respondents that reported positive effects.

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1 Introduction

This report includes preliminary descriptive results of the survey sent to public sector managers at municipalities and national government organizations in France, Hungary, Spain, the Netherlands, Norway and the UK. The questionnaire used for the survey is provided in Annex A.

1.1 Purpose and Scope

The descriptive results provide a guideline for further in-depth analysis of the CO-Val questionnaire survey using regression and other multivariate techniques such as QCA (Qualitative Comparative Analysis) or PCA (Principle Component Analysis). Important information for further research is provided in this report, including identifying the number of respondents that answered specific questions and frequency distributions for all survey questions for up to four main characteristics of the responding unit: country of location, the main focus area of the responding unit, obtained from pre-existing data instead of from the survey; the size (number of employees) of the responding unit, and the type of organization to which the unit belongs (national, large municipal, or small municipal government).

The purpose of the survey is to estimate the prevalence of co-creation methods in the innovation activities of public sector organizations, the factors that influence the use of co-creation, obstacles to the use of co-creation, and the effect of co-creation on innovation activities (for example does it reduce development costs or time) and innovation outcomes. The definition of co-creation that guided the design of survey questions is the involvement of potential users in activities to develop and implement an innovation. Several questions, briefly described below, are directly relevant to the use of co-creation, all of which refer to a single 'most important innovation' reported by the respondents.

Question C11 asks about the use of several external sources of inputs to this innovation and includes a sub-question on 'design firms, innovation labs or living labs'. These organizations often provide co-creation services. Question C12 asks about eight different methods that were used to develop the most important innovation and includes five methods that are part of a design-thinking process. Co-creation can be included within a design-thinking process. Question 13 asks about 5 methods to obtain inputs from users. Each method covers a different stage of the innovation process. Question C14 asks if the innovation was evaluated after implementation and if yes, if changes were made or planned as a result of the evaluation gathering information on user experiences. Question C15 asks about the contribution of users to the development of the innovation, such as reduced costs, development time, risk of innovation failure and reduced need to revise the innovation after implementation. Question 17 on obstacles asks about difficulties in finding users to participate in developing the innovation and management resistance to including user input.

The questionnaire also obtains data on control variables such as the size (number of employees) of the respondent's unit, the job tenure of the respondent in his or her current position and the types of services offered by the unit. Innovation status (whether the respondent 's unit is innovative or not) is determined by question B1, which asks if the work unit implemented any of 9 types of innovations in the preceding two years and also includes an 'other' option. Other control variables are available from data obtained on the work unit before the survey, such as the country of location, the type of organization to which the unit belongs (national, large municipality, small municipality) and the focus area of the unit (education services, health services, etc.).

Two questions cover organizational factors that could influence the use of co-creation, including the use of work groups that meet regularly to discuss or develop innovations (question B2) and senior management and employee attitudes to innovation question B3).

Four questions provide information on the characteristics of the most important innovation, which could influence the use of co-creation methods. These include question C2 on the users of this innovation, question C3 on the original purpose of the innovation, question C5 on if the innovation is a service, process or both and if it is entirely new or an improvement on existing services or processes.

Two questions cover political and social influences on the innovation, including question C7 on the source of the ideas for the innovation and question C8 on factors driving the innovation.

Three questions cover inputs to the innovation, the first two of which also provide information on the importance of the innovation or the amount of effort expended on the innovation. Question C9 asks if the work unit had received extra funding or staff to develop the innovation and QC10 asks about the number of person months used to develop the innovation from the idea stage until implementation. Question 11 asks if the work unit obtained assistance to develop the innovation from external sources.

Outcomes are measured in two questions. Question 6 asks about the expected effect of the innovation on the costs of processes or services. Question 16 asks about the effects of the innovation on nine outcomes, of which five are internal outcomes that affect government processes (simpler procedures, reduced costs, etc.), three affect users (user experience, user access to

information, service quality) and one affects both internal processes and users (safety of employees or individuals).

The preliminary report does not provide results for six open text questions: other types of services in question A3a, other types of innovations in question B1, a description of the most important innovation (MII) in question C1, other types of users of the MII in question C3, and other original purposes of the MII in question C4. These questions are in the process of being translated into English and coded. Coding of 'other' options will result in a change to defined questions in the same group. For example, many of the descriptions of other types of services in question A3a are likely to fit within the seven defined types of services in this question. Once all translation and coding is completed, the contents of this preliminary report for these six questions will be updated as needed.

The descriptions of the MII will be coded into 11 additional variables. The protocol for coding the open text data on the MII is provided in Annex B. A descriptive analysis for these 11 variables will also be included in an update of the preliminary report.

1.2 Structure of the Deliverable

This report is structured as follows: section 2 describes the response rates and other methodological issues of relevance to this report, section 3 gives basic descriptive results that differentiate innovative and non-innovative responding units, and section 4 discusses the main conclusions.

2 Survey response rates and methodological issues

This section gives a brief description of the survey response rates and relevant methodological issues for the descriptive analyses. A more detailed description of the survey response rates and database characteristics can be found in Deliverable D2.6.

Table 2.1 provides statistics on the sample, the responses by postal mail or online mail, and the response rates for the full sample and by country. In total, 3,497 questionnaires were sent out. The valid sample excludes 327 contacts from the full sample that could not reached for various reasons, such as the person identified no longer worked at the organization, or the address was incorrect. Respondents were first contacted by postal mail and in a second stage follow-up stage they were asked to complete an online survey. Of the 1,036 total replies, 709 (68.4%) were received by post and 327 (31.6%) were received through the online platform.

Table 2.1 Response rates by organizational level, total sample and by country

TOTAL SAMPLE /Level	Sample sent	Valid sample	Mailed replies	Online replies	Total replies	Response rate
Small Municipalities	921	820	167	96	263	32.1%
Large Municipalities	855	778	179	73	252	32.4%
National	1721	1572	363	158	521	33.1%
Total	**3497**	**3170**	**709**	**327**	**1036**	**32.7%**

TOTAL SAMPLE /Level	Total	NL	UK	NO	FR	HU	ES
Small Municipalities	32.1%	48.6%	13.6%	49.6%	31.7%	35.9%	30.1%
Large Municipalities	32.4%	48.9%	18.2%	53.2%	27.5%	41.3%	28.5%
National	33.1%	45.0%	13.7%	45.0%	27.2%	32.6%	45.8%
Total	**32.7%**	**46.9%**	**14.8%**	**48.1%**	**28.5%**	**35.6%**	**37.7%**

The total response rate is 32.7%, but there is substantial variation by country. The highest response rate is for Norway at 48.1%, followed by the Netherlands (46.9%), Spain (37.7%), Hungary (35.6%),

France (28.5%) and the UK (14.8%). The response rate for the UK is considerably lower compared to the other countries. The exact survey methodology (see D2.4) has been used in every country including the UK. This included hand signing the cover and reminder letters in most cases, otherwise an electronic signature was used. We have no explanation as to why the response rate for the UK is so low. For the UK, UNU-MERIT implemented additional practices to the standard methodology in an effort to improve the number of responses, such as hand writing the addresses on the envelopes to make the letter more personalized and reduce the probability that envelopes were perceived as junk mail. Unfortunately, this additional effort did not lead to more responses from the UK. The low response rate for the UK means that results for the UK need to be interpreted very cautiously.

A common concern in survey research on innovation is that innovative units may be more likely to respond to an innovation survey than non-innovative units, since the survey will be of greater interest and relevance to the innovators. This effect can occur even when the cover letter stresses the importance of non-innovators to also complete the questionnaire, as was the case for this survey. When this bias is present, low response rates (caused by non-innovators not participating in the survey) is positively correlated with the percentage of respondents that are innovators. To check for this effect, the national response rate was correlated with the national innovation rate obtained from Table 3.1. There is no relationship, with the correlation coefficient (R^2) equal to 0.0005.

2.1 Eligible cases, case conservation and missing values

Two issues with producing descriptive results are that respondents are not eligible to respond to all questions and respondents often skip questions that they are expected to answer.

In respect to eligibility, two examples are as follows. Non-innovators are not asked to respond to all questions in section C except for the final question (C17) on obstacles to innovation, while innovators that did not or do not intend to evaluate their MII are not eligible to answer question 14b on whether or not user experiences were included in the evaluation. In order to produce accurate and relevant results, in most analyses non eligible respondents need to be identified and excluded from calculations.

The treatment of incomplete or missing values as a result of respondents skipping questions requires particular care in order to conserve cases. Up to 10% of the responses to a question can

include a missing value for one or more sub-questions. The default is to exclude all cases with a missing value for a variable of interest. However, this is likely to decrease accuracy if the pattern of responses shows that a respondent has selectively skipped questions, for instance by only answering questions that they find relevant. Several rules of thumb are used to address missing values in questions that include sub-questions (Arundel et al, 2015).

The questionnaire includes questions for which only one answer is requested (questions A1, A2, A3b, B2, C2, C7b, C10, C14, and C14b), while the remaining questions request multiple responses. If a respondent does not respond to a question for which only one answer is requested, the response is treated as missing and the respondent is excluded from all analyses using the question. For example, question A1 is missing if a respondent checks none of the five options on the number of employees in their work unit.

There are three types of questions that ask for multiple responses: check lists (questions A3a, B1, C3, C4, C6, C7a, and C9) where the respondent is asked to tick all that apply; multiple 'yes' or 'no' questions plus a "Don't know" option (questions C5, C11, C12, and C13); and scalar questions, including an importance scale (high, medium, low, 'none', 'not relevant'), a 'fully', 'partly' or 'not at all scale', and a scale ranging from 'positive effects' to 'not relevant' (questions B3, C8, C11, C15, C16 and C17).

For check-list questions at least one option needs to be checked for all sub-questions to be included in analyses (these are assigned a 'no' value). There is one exception to this rule that is likely to be due to a question design error. Question B1, used to differentiate innovators and non-innovators, includes a large box after the 'other' option, followed by the option 'none of the above'. The expectation is that all respondents would either select one of the nine options for an innovation or select 'none of the above'. However, the large box for 'other' could have caused some respondents to fail to see the final 'none of the above' option. An analysis of other questions in section C identified a small number of clearly innovative units for which no option was selected in question B1. These cases were consequently coded as innovative.

For multiple 'yes or no' questions the rule of thumb is that missing values are recoded as a 'no' or "don't know" response if at least one of the sub-questions receives a 'yes' response. For scalar questions, missing values are recoded as "Don't know" if at least one response other than "Don't know" is provided. The rationale for this rule of thumb is that respondents often save effort by only

checking those items that they find of relevance or importance to them. For question C16 there is no logical category for recoding missing values because the options 'too early to estimate' and 'not relevant' are not equivalent to a 'Don't know' or 'no' response. For this question missing values are not recoded.

Another issue is how to treat 'don't know' responses. For scalar variables these are treated as a 'no' response, on the grounds that if a factor is important, such as one of the obstacles to innovation, the respondent would remember and recognize its importance. In contrast, 'not relevant' responses are treated separately and are not recoded. In some analyses, such as question C16 on the effects of the MII on different outcomes, respondents that responded 'not relevant' to a specific outcome are excluded from analyses of the outcome. In contrast, respondents that use 'not relevant' to the questions on obstacles are included because a 'not relevant' obstacle is by definition not an obstacle.

The above rules for inclusion (eligibility) and exclusion, combined with respondents that do not answer any of the sub-questions in a question, result in varying numbers of respondents to a question. To assist interpretation, most of the tables include the number of respondents (N) who are included in the analysis.

Main figures and other important information

Fifty respondents (4.8%) only answered the questions in section A on the characteristics of their unit, leaving 985 responses for which it was possible to determine the innovation status (innovator or non-innovator) of the unit. Of these, 817 (82.9%) were innovators and 167 were non-innovators. Thirty of the innovators did not reply to the majority of questions in section C and are excluded from most analyses, leaving a maximum of 787 innovative cases. Statistical significance is defined as p values up to 0.05. Wherever possible, the actual p value is given. The results for all questions are evaluated by four characteristics of the responding unit: 1) country, 2) focus area of the respondent's organization (identified before the survey), 3) the size of the respondent's work unit (four categories for the number of employees), and 4) the type of organization in which the respondent is employed (national government, large municipality, or small municipality). In addition, questions on innovation status (whether the respondent's unit innovates or not) are evaluated by the job tenure of the respondent in their current position. Results for country are provided in tabular format for all questions. Results for other characteristics of the respondent's

unit are only provided in tables if there are sufficient significant differences to make this worthwhile. Otherwise significant results are only discussed in the text.

3 Innovators versus non-innovators

Innovative work units (innovators) reported one or more types of nine innovations in the previous two years in response to Question B1, whereas non-innovative work units (non-innovators) reported no innovations.[1] Non-innovators were not asked to reply to the questions on the most important innovation (section C), but data for both non-innovators and innovators are available for several characteristics of the unit, two questions on general support for innovation, and a question on obstacles to innovation. For the entire sample, 17.1% of respondents did not report an innovation in the previous two years and 82.9% reported an innovation.

3.1 Innovation status by the characteristics of the work unit

The percentage of respondents that report an innovation in the previous two years can be influenced by several characteristics of the work unit, including the country of location, the size of the work unit (number of employees), the type of organization (a unit within a national, large municipal, or small municipal government) and the focus area of the government division where the unit is located, and the length of time that the respondent has been in their current position. The results show significant differences by country, size and type of organization, a small but significant difference for focus area, and no difference by the respondent's time in current position.

The share of innovative units varies from a low of 56.5% in Hungary to a high of 92.7% in both the Netherlands and the United Kingdom (see Table 2). In general, the share of innovators is lower in Spain, France and Hungary than in the Netherlands, Norway and the United Kingdom. For the latter three countries there is very little difference in the share of innovators.

Table 3.1 Percent innovation status by country (Question B1)

Country	N	Non-innovator	Innovator	
Spain	264	20.5	79.5	100.0%
France	197	14.2	85.8	100.0%
Hungary	124	43.5	56.5	100.0%
Netherlands	137	7.3	92.7	100.0%
Norway	167	9.0	91.0	100.0%

[1] 17 respondents left question B1 blank but answered other questions that permitted them to be identified as either non-innovators or innovators. These additional respondents are included in the results.

United Kingdom	96	7.3	92.7	100.0%
Total	985	17.1	82.9	100.0%

Differences by country are statistically significant ($p < .000$).

Table 3 gives the distribution of non-innovative and innovative units by employment. Smaller units are significantly smaller than larger units, with a positive correlation between unit size and the share of innovators.

Table 3.2 Percent innovation status by the number of employees in the respondent's unit

Employees	N	Non-innovator	Innovator	
< 10	235	37.4	62.6	100%
10-49	431	13.7	86.3	100%
50-249	207	7.7	92.3	100%
250+	102	2.9	97.1	100%
Total	980	17.0	83.0	100%

Differences by the size of the unit and the trend are statistically significant ($p < .000$). Excludes five respondents that did not know the size of their unit.

The effect of the focus area is not as large as that for employment and country (see Table 3.3). An above average share of units that provide services to businesses are non-innovators (27.5%), while the highest share of innovators is observed in health and internal government services (86.0%). The type of organization also influences innovation status (see Table 3.4), with the share of innovators higher in municipalities than in units that are part of national governments.

Table 3.3 Percent innovation status by focus area

Area	N	Non-innovator	Innovator	
Health	86	14.0	86.0	100%
Education	146	17.8	82.2	100%
Social	242	12.8	87.2	100%
Business	51	27.5	72.5	100%
Internal gov.	193	14.0	86.0	100%

Other	209	21.1	78.9	100%
Total	927	16.6	83.4	100%

p =0.044. Data on focus are is not available for 58 cases.

Table 3.4 Percent innovation status by type of organization

Area	N	Non-innovator	Innovator	
National	501	19.8	80.2	100%
Large municipality	237	11.8	88.2	100%
Small municipality	247	16.6	83.4	100%
Total	985	17.1	82.9	100%

p =0.027.

There are no significant differences for innovation status by the time that the respondent has been in his or her current position (results not provided in a table, p =0.846). This suggests little or no bias that could be due to respondents with a shorter job history being unaware of innovations within the last two years in their unit. For example, 22.8% of respondents for non-innovative units have been in their current position for less than 2 years and 42.5% for more than 5 years, compared to 24.7% and 40.3% of respondents, respectively, from innovative units. Due to a lack of significance, results by job tenure are only provided occasionally.

3.2 General support for innovation

The presence of organizational practices to support innovation has been identified in other research on public sector innovation to positively influence innovation status (and innovation outcomes). The questionnaire queries two types of practices: the inclusion of staff in unit-level innovation work groups and the effects of practices at the level of the organization to support innovation on the attitudes of senior management towards innovation and the attitudes of employees towards their work.

Table 3.5 gives results for the percentage of employees that participate in innovation work groups on a regular basis. A much higher share of respondents for non-innovative units report that none of their employees participate in such groups (53.5%) than respondents for innovative units (3.2%).

Table 3.5 Percent innovation status by percent employees involved in work groups that met regularly to discuss or develop innovations, question B2

Employees	Non-innovator	Innovator	Total
N	157	803	960
None	53.5	3.2	11.5
Less than 25%	24.2	38.2	35.9
25% to less than 50%	7.0	24.4	21.6
50% to less than 75%	3.2	12.3	10.8
75% or more	3.2	20.7	17.8
	100%	100.0%	100%

$p < 0.000$. No data on work group involvement for 25 cases.

Table 3.6 gives results for the percentage of respondents who report that each of five organizational-level or attitudes 'fully' applies to their work unit. Other response options included 'partly' and 'not at all'. All practices or attitudes are significantly more prevalent among innovators, with the largest differences observed for the level of support from senior management and smaller differences for employee attitudes. For example, 50.9% of respondents from innovative units report that 'senior management gives high priority to new ideas or new ways of working', versus only 18.9% of respondents from non-innovative work units. In comparison, the difference for employee attitudes to 'empowerment and ownership of their work' varies from 28.4% for innovators to 20.1% for non-innovators (although still statistically significant).

Table 3.6 Percent of respondents by innovation status reporting that each innovation support factor 'fully' applies to their organization, question B3

	Non-innovator	Innovator	N
Senior management gives high priority to new ideas or new ways of working	18.9%	50.9%	937
Senior management supports taking risks in order to innovate	5.6%	27.4%	934
Senior management supports an innovation culture that includes all employees in innovation activities	11.9%	39.4%	935

Employees are highly motivated to think of new ideas and take part in their development	11.9%	24.3%	937
Employees have a feeling of empowerment and ownership of their work	20.1%	28.4%	933

Notes: All differences between non-innovators and innovators are statistically significant with $p < 0.000$. Statistical analysis based on full data set for the distribution of 'fully', 'partly' and 'not at all' responses.

3.3 Obstacles to innovation

Both non-innovative and innovative units were asked to answer a question on the importance of obstacles to developing or implementing an innovation. For innovative units the question is limited to the most important innovation, whereas the respondents for non-innovative units were asked to assess the importance of obstacles to 'hindering innovation in your work unit'. Respondents were asked to assess if each of 12 obstacles was of high, medium, low or 'none' importance or if the obstacle was 'not relevant'.

A comparison of the distribution of responses between non-innovative and innovative units finds that there is a statistically significant difference ($p < 0.000$) for every one of the 12 obstacles. Compared to innovative units, a higher percentage of respondents from non-innovative units report that each obstacle is of 'high' importance and a lower percentage report that each obstacle is of no ('none') importance.

Research for both private sector firms and public sector organizations have found that non-innovators are often unaware of the effects of different obstacles due to a lack of experience in dealing with them. As shown in Table 3.7, this could explain the much higher percentage of respondents from non-innovative versus innovative units that report that each obstacle is 'not relevant'.

The highest shares of 'not relevant' responses for non-innovators are for factors involving higher levels within the public sector hierarchy, such as senior management or politicians, and legal requirements or regulations. For example, political or senior management pressure is viewed as 'not-relevant' for 32.3% of non-innovative units compared to only 8.8% of innovative units (the largest observed difference which is reported 3.7 times more often by non-innovative units than innovative units). An exception is difficulties in finding potential users to participate in developing an innovation. Factors that are likely to directly affect the respondent (insufficient financial

resources or staff and a lack of knowledge on how to innovate) are least likely to be deemed 'not relevant' by respondents from both non-innovative and innovative units.

Table 3.7 Percent respondents reporting that each obstacle is not relevant, for non-innovative and innovative units, question C17 (ranked in descending order for non-innovators)

Obstacle	N (NI/I)	Non-innovator (NI)	Innovator (I)	Ratio (NI/I)
Political or senior management pressure	143/703	32.3%	8.8%	3.7
Lack of support by politicians	146/697	29.5%	19.8%	1.5
Difficult to find potential users for testing	146/704	24.7%	12.1%	2.0
Other legal requirements or regulations	146/701	23.3%	16.8%	1.4
Management resistance to user input	145/702	22.8%	10.3%	2.2
Senior management concerns over risk	145/699	22.8%	8.7%	2.6
Legal or regulatory obstacles to user input	146/703	21.9%	13.5%	1.6
Insufficient demand from users	143/700	21.7%	13.9%	1.6
Lack of support by senior management	148/703	20.3%	8.0%	2.5
Lack of a supportive culture for innovation	150/703	16.7%	6.3%	2.7
Lack of knowledge on how to innovate	148/706	15.5%	6.1%	2.5
Insufficient financial resources or staff	148/709	12.2%	6.3%	1.9

All differences in the distribution of responses between non-innovative and innovative units across the five response options (high, medium, low, none, and not relevant) are statistically significant (p =0.000).

Table 3.8 gives the percentage of respondents from non-innovative and innovative units that report that each obstacle is of no ('none') importance and 'high' importance, after excluding 'not relevant' responses. A smaller percentage of respondents for non-innovative than innovative units report that all 12 obstacles are of no importance while a higher percentage report that all obstacles are of high importance. This suggests that obstacles have a greater effect in preventing innovation among non-innovators than in hindering the development of an innovation among innovators. For example, the most cited 'high' importance obstacle for both non-innovative and innovative units, 'lack of knowledge on how to innovate', is cited by 49.2% of non-innovators, but by only 19.6% of innovators.

Table 3.8 Percent respondents reporting that each obstacle is of no ('none') importance and 'high' importance for non-innovative and innovative units, question C17
(ranked in descending order for high importance for non-innovators)

	No importance		High importance	
Obstacle	**Non-innovator**	**Innovator**	**Non-innovator**	**Innovator**
Lack of knowledge on how to innovate	3.1%	23.5%	49.2%	19.6%
Senior management concerns over risk	9.6%	23.5%	33.6%	11.6%
Lack of support by politicians	10.4%	26.1%	27.2%	17.3%
Political or senior management pressure	19.6%	37.0%	25.8%	14.2%
Other legal requirements or regulations	21.4%	53.1%	23.3%	8.2%
Difficult to find potential users for testing	15.3%	50.1%	21.2%	5.1%
Management resistance to user input	16.1%	37.5%	18.8%	7.5%
Lack of a supportive culture for innovation	18.8%	46.1%	17.9%	10.8%
Insufficient financial resources or staff	11.6%	5.6%	17.9%	2.8%
Legal or regulatory obstacles to user input	17.3%	46.2%	16.4%	6.1%
Lack of support by senior management	19.3%	50.8%	12.3%	8.1%
Insufficient demand from users	30.4%	57.3%	8.0%	3.2%

All differences in the distribution of responses between non-innovative and innovative units across the four response options (high, medium, low, and none) are statistically significant (p =0.000). Excludes 'not relevant' responses.

The next most cited 'high' importance obstacles for non-innovators concern higher levels within the hierarchy, with 'senior management concerns over risk' cited by 33.6%, 'lack of support by politicians' cited by 27.2%, and 'political or senior management pressure' cited by 25.8%. The least cited obstacle is 'insufficient demand by users', cited by 8.0% of non-innovators. A similar pattern applies to the innovators, except that the share of respondents assigning 'high' importance to each obstacle is lower.

National differences in obstacles

Given the importance of higher-level obstacles to policy, it is of interest to explore differences by country, since the organization or governance of the public sector is likely to differ among the six countries covered in the survey. The analysis is limited to the share of respondents from innovative units that assign medium or high importance to each obstacle after excluding 'not relevant' responses. There are insufficient 'high' responses to provide results by country. Non-innovative units are not evaluated due to small samples at the country level.

These results by country need to be interpreted cautiously because they do not control for the effect of other factors that could influence the importance of obstacles, such as differences in the distribution by country of reporting units (national, municipal, etc.), the size of the unit, or the job level of the respondent.

Table 3.9 provides the results. Percentages marked in a bold font identify the highest value for the obstacle across the countries while italics identifies the lowest value across countries. Yellow highlights identify the highest one or two value (if close) within a country.

Table 3.9 Percent of high or medium importance responses for innovators only using question C17, by country

	ES	FR	HU	NL	NO	UK	Mean	P
Political or senior management pressure	38.2	29.5	38.6	**50.5**	*22.3*	42.3	36.3	0.001
Lack of a supportive culture for innovation	**58.7**	40.8	40.7	49.5	36.4	*32.4*	45.5	0.001
Lack of support by senior management	**30.3**	16.3	*14.3*	25.7	15.4	17.3	21.5	0.097
Lack of support by politicians	**27.6**	24.4	16.3	20.2	*15.6*	18.5	21.8	0.017
Senior management concerns over risk	31.0	23.9	*20.7*	34.6	25.2	**38.7**	29.3	0.013
Lack of knowledge on how to innovate	**52.8**	39.7	*29.8*	54.5	38.5	37.8	44.5	0.017
Difficult to find potential users for testing	29.8	22.4	**34.6**	25.5	*16.3*	12.9	23.9	0.005
Management resistance to user input	**21.4**	17.2	*5.6*	17.8	10.5	17.6	16.3	0.000
Legal or regulatory obstacles to user input	**32.5**	14.4	21.2	26.0	*10.2*	20.0	21.9	0.000
Other legal requirements or regulations	**38.9**	23.4	26.3	30.7	*16.8*	22.1	27.6	0.000
Insufficient financial resources or staff	**68.9**	43.3	36.8	*50.5*	58.2	52.7	54.4	0.000
Insufficient demand from users	24.4	15.8	**24.5**	18.7	13.4	*5.7*	17.7	0.022
Average	**37.9**	**25.9**	**25.8**	**33.7**	**23.2**	**26.5**	**30.1**	

Across countries, respondents from Spain (ES) have the highest average value for the percentage of obstacles that are of medium or high importance (37.9%), followed by the Netherlands at 33.7%. All other countries have similar averages, ranging from a low of 23.2% for Norway to a high of 26.5% for the UK. Within countries, the most frequently cited obstacle is ‘insufficient financial resources or staff’ for all countries except Hungary, followed by a ‘lack of a supportive culture for innovation’ in Spain, France and Hungary.

4 Most important innovation

Respondents from innovative units were asked to describe their most important service innovation in the previous two years that was partly or entirely developed by their work unit. Respondents without a service innovation were asked to describe their most important process innovations. Importance was defined in the questionnaire "in terms of the expected or realized benefits of the innovation'. The remaining questions in the survey for innovators referred to this most important innovation.

Out of the 817 respondents from innovative units, 718 provided a description of their most important innovation, but an additional 69 respondents from innovative units answered some of the questions in section C without providing a description. Thirty innovative units did not reply to a large majority of the questions in section C are excluded from most analyses of the most important innovation, leaving a maximum of 787 for most analyses.

4.1 Implementation stage

Although the OECD defines (2018) an innovation as a new or significantly changed product or process that has been implemented, previous experience with public sector managers shows that a significant share of managers' report innovations that are underway (in the pilot stage) or partially implemented (with continuing improvements underway). This could be due to several reasons: managers tend to focus on their most recent significant innovation and innovations in the public sector take a long time to fully implement in order to avoid failure (Goldspink and Kay, 2012). Consequently, the survey collected data on the level of completion because it could affect other variables such as outcomes.

Table 4.1 gives the results for the implementation stage by country. Although there are differences by country, they are minor and do not reach statistical significance. On average, 15.6% of the most important innovations are in the pilot or testing stage, slightly more than half (54.3%) were partially implemented and 30.1% were fully implemented.

Table 4.1 Implementation stage of the Most Important Innovation using question C2, by country

	N	Currently piloted or tested	Partially implemented (continuing improvements underway)	Completely implemented	
Spain	206	18.0	54.4	27.7	100.0
France	159	14.5	54.1	31.4	100.0
Hungary	68	8.8	57.4	33.8	100.0
Netherlands	122	9.0	58.2	32.8	100.0
Norway	146	19.2	54.8	26.0	100.0
UK	82	20.7	45.1	34.1	100.0
	783	**15.6**	**54.3**	**30.1**	100.0

There are no statistically significant differences in the implementation stage by the size of the unit, the type of organization, or the unit's focus area (results not shown). In contrast, there is a significant difference ($p < 0.000$) by the job tenure of the respondent in their current position. Compared to respondents who have been in their job for less than two years, respondents who have been in their job for two years or more are less likely to report an innovation in the pilot stage and more likely to report a fully implemented innovation (see Table 4.2).

Table 4.2 Implementation stage for the Most Important Innovation using question C2,by job tenure of respondent in current position

		Less than six months	Six months to less than two years	Two years to less than five years	Five years or more
	N	*32*	*162*	*269*	*315*
Currently piloted or tested		28.1	23.5	17.1	8.9
Partially implemented, with continuing improvements underway		46.9	55.6	52.8	55.2
Completely implemented		25.0	21.0	30.1	35.9
		100.0	100.0	100.0	100.0

p< .000

4.2 Novelty of the most important innovation

Question C5 asks respondents if their MII provides an entirely new process, improves existing processes, provides and entirely new service, and improves existing services. Respondents can answer yes to all of these four options if applicable. Although respondents were asked to report an MII that was a service, only 39.4% of the reported MII involved either a new or improved service, while 93.3% involved a new or improved process. This reflects other research that finds more process than product innovation in the public sector (Arundel and Huber, 2013).

The question is used to produce a measure of the novelty of the MII, where novelty is defined as a service or product that is completely new. Two types of novelty are identified: a new service or process, or an innovation that is both a new service and a new process. The remaining innovations are only improvements in processes, services, or both processes and services. As shown in Table 4.3, on average 43.2% of the MIIs are only improved, 32.7% are either a new service or process, and 24.1% are both a new service and a new process.

Table 4.3 Novelty of the most important innovation using question C5, by country

	N	Only improved	New service or process	New service AND process	
Spain	205	42.0	31.2	26.8	100.0
France	157	40.8	33.8	25.5	100.0
Hungary	69	47.8	24.6	27.5	100.0
Netherlands	122	42.6	36.1	21.3	100.0
Norway	147	44.2	34.7	21.1	100.0
UK	83	45.8	32.5	21.7	100.0
Total	783	43.2	32.7	24.1	100.0

P = 0.887

There are no statistically significant differences in the novelty of the most important innovation by type of organization (p = .293), unit size (p = .676), or focus area of the respondent's organization (p = .306). The relationship between the job tenure of the employee and novelty is also not significant (p = .465), but 51.5% of employees with less than 6 months in their current job reported that the innovation was 'only improved', possibly indicating a lack of familiarity with the innovation.

The implementation stage of the most important innovation is significantly correlated with novelty (see Table 4.4). Respondents that report that their innovation is partially implemented with continuing improvements underway are less likely to report greater novelty while those reporting that the innovation is completely implemented are more likely to report greater novelty.

Table 4.4 Novelty of the most important innovation using question C5, by implementation stage

Implementation stage	N	Only improved	New service or process	New service AND process	
Currently piloted or tested	121	33.1	40.5	26.4	100.0
Partially implemented, with continuing improvements underway	425	49.6	29.9	20.5	100.0
Completely implemented	234	35.9	34.2	29.9	100.0
	780	42.9	32.8	24.2	100.0

P = .001

4.3 Users of the most important innovation

Question C3 asks about the users of the unit's most important innovation. Users can be other government employees, individuals, businesses, community groups or 'other'. The results indicate that the question was poorly understood and consequently this question should be used cautiously in other analyses. The evidence for a poor understanding is that 20.1% of eligible respondents (those who reported a most important innovation) did not answer the question. Furthermore, 36.4% of the 33 respondents with less than 6 months job tenure in their current position did not answer the question (p = 0.009), possibly because they lacked sufficient familiarity with the innovation.

Table 4.5 provides results by country. There are no significant differences for government employees, businesses and 'other' as users, but the rate of reporting for individuals is above average in Hungary and below average in the UK. For non-profits (including community groups), the rate is below average in Spain and above average in the UK.

Table 4.5 Percent respondents reporting each type of user of the most important innovation using question C3, by country

	N	Gov. employees	Individuals	Businesses	Non profits	Other
Spain	165	90.3	87.3	71.5	*52.1*	43.6
France	133	88.0	81.2	63.2	66.2	44.4
Hungary	54	88.9	**96.3**	72.2	66.7	42.6
Netherlands	95	84.2	91.6	68.4	60.0	41.1
Norway	118	82.2	86.4	67.8	59.3	44.1
UK	64	79.7	*73.4*	70.3	**76.6**	43.8
Total	629	86.2	85.9	68.5	61.4	43.4
p		.207	.003	.711	.013	.998

These differences by country could be due to other factors such as national differences in the distribution of respondents by type of government organization (national, large municipality, small municipality). As shown in Table 4.6, the type of government organization has a significant effect on individuals, businesses, and 'others' as users. National governments are more likely than the average to identify businesses and the 'other' group as users and less likely to identify individuals as users. Large municipalities are more likely to report individuals and less likely to report businesses as users.

Table 4.6 Percent respondents reporting each type of user of the most important innovation using question C3, by type of government organization

	N	Gov. employees	Individuals	Businesses	Non profits	Other
National	318	85.8	*79.9*	**75.5**	65.4	**50.0**
Large municipality	158	87.3	**93.7**	64.6	54.4	*33.5*
Small municipality	153	85.6	90.2	*58.2*	60.1	39.9
Total	629	86.2	85.9	68.5	61.4	43.4
p		.883	.000	.000	.064	.002

4.4 Purpose of the most important innovation

Question C4 asks respondents about the original purpose of the most important innovation. The question was answered by 781 of the 787 eligible respondents. Results by country are given in Table 4.7. There are significant differences by country for all purposes except for 'improve adoption'. Overall, the most common purpose is to improve quality for users, followed by improve internal efficiencies.

Table 4.7 Percent respondents reporting each original purpose[1] of the most important innovation using question C4, by country

	N	Improve quality for users	Improve user experience	Improve adoption	Improve internal efficiencies	Address social challenges
Spain	206	65.5	30.6	26.2	59.7	26.2
France	156	69.2	28.2	28.2	**47.4**	**44.9**
Hungary	68	63.2	*22.1*	**35.3**	58.8	**44.1**
Netherlands	121	*58.7*	34.7	22.3	54.5	16.5
Norway	143	**78.2**	**51.0**	*17.0*	**65.3**	*12.2*
UK	83	63.9	49.4	28.9	61.4	34.9
Total	781	67.2	35.9	25.4	57.6	28.3
p		.019	.000	.054	.041	.000

1: Results for 'other' not provided.

There are only significant differences by the type of organization for 'improve internal efficiencies' and 'address social challenges'. National organizations were more likely to report 'improve internal efficiencies' than small municipalities (62.2% versus 49.5%), but less likely to report 'address social challenges' than both large and small municipalities (21.9% compared to 34.2% for large and 34.8% for small municipalities. The focus area only has a significant effect on improving internal efficiencies, cited by 44.3% of units from organizations responsible for education compared to the average of 58.6%.

The size of the respondent's unit has a significant effect on several of the purposes that also increases by the number of employees (significant p for trend) for improve quality, improve user experience, and improve internal efficiencies, as shown in Table 4.8.

Table 4.8 Percent respondents reporting each original purpose[1] of the most important innovation using question C4, by number of employees[2]

Number of employees in unit	N	Improve quality for users	Improve user experience	Improve adoption	Improve internal efficiencies	Address social challenges
< 10	133	60.2	26.3	26.3	47.4	29.3
10 to 49	358	64.8	29.3	22.9	58.4	26.8
50 to 249	186	72.6	44.1	27.4	61.3	26.3
250+	97	76.3	57.7	27.8	62.9	36.1
Total	774	67.2	35.9	25.4	57.7	28.3
p		0.021	<0.000	0.326	0.070	0.442
p for trend		0.005	<0.000	0.317	0.024	0.360

1: Results for 'other' not provided.
2. Excludes three cases that replied 'Don't know' to the question on the number of employees in the unit.

4.4.1 Expected effect of the MII on costs

A separate question related to efficiencies asked about the expected effect of the most important innovation on 'the costs of your processes or services'. There are statistically significant differences by country, as shown in Table 4.9, where Norway and the UK are more likely to report a decrease in costs and France is more likely to report that costs are not relevant to the innovation. Respondents from Norway and the UK are least likely to find costs not relevant. The most commonly reported effect is a decrease in costs (reported by 36.5% of respondents) and the least common effect is an increase in costs (reported by 11.2%).

There are no significant differences in the expected effect of the MII on costs by the type of the unit's organization and only a weak effect by focus area. Conversely, there is a significant effect by the size of the unit, as shown in Table 4.10. A decrease in costs is more frequently reported by larger units, costs are more likely to be viewed as not relevant by smaller units, and an increase in costs is positively correlated with the size of the unit.

Table 4.9 Percent of respondents reporting the expected effect of the most important innovation on the costs of processes or services using question C6, by country

	N	Increase costs	No effect on costs	Decrease costs	Costs not relevant	Don't know	
Spain	206	*9.7*	14.1	32.5	39.8	3.9	100.0%
France	158	*7.6*	*5.1*	30.4	**53.8**	3.2	100.0%
Hungary	68	**16.2**	*8.8*	32.4	41.2	1.5	100.0%
Netherlands	122	12.3	**23.8**	32.0	30.3	1.6	100.0%
Norway	146	14.4	20.5	**45.9**	*13.7*	5.5	100.0%
UK	83	10.8	15.7	**51.8**	*15.7*	6.0	100.0%
Total		11.2	14.7	36.5	33.8	3.7	100.0%

p < .000

Table 4.10 Percent of respondents reporting the expected effect of the most important innovation on the costs of processes or services using question C6, by size of the respondent's unit

Number of employees	N	Increase costs	No effect on costs	Decrease costs	Costs not relevant	Don't know	
< 10	133	9.0	15.0	30.8	**36.8**	8.3	100.0%
10-49	360	10.8	15.0	32.8	**37.8**	3.6	100.0%
50-249	186	12.4	17.7	**40.9**	28.0	1.1	100.0%
250+	97	14.4	7.2	**48.5**	27.8	2.1	100.0%
Total	776	11.3	14.7	36.3	34.0	3.6	100.0%

p = .002

4.5 Source of the idea for the most important innovation

Respondents were asked to identify the source of the idea of their most important innovation and given the option of ticking all relevant sources, followed by a second question that asked them to identify the single most important source if more than one option was selected. Results for the most important source are not available at this time. Table 4.11 provides results by country, ranked in descending order. Since all items could be selected, the results do not sum to 100%.

In all countries the most frequently reported source is 'yourself or colleagues at a similar management level. In all countries the most commonly reported sources are within government, broadly defined, to include politicians and 'other government organizations', although elected politicians are cited by less than 20% of respondents, with the exception of France (29.1%) and Hungary (30.9%). Potential sources of co-creation with non-governmental sources (individuals, businesses and community groups or non-profits) are the least likely to be cited. This could be because a higher percentage of the most important innovations involve internal processes (93.3%) than services (39.3%).

Table 4.11 Percent respondents selecting each item as a source of the idea for the most important innovation using question 7, by country

Source	ES	FR	HU	NL	NO	UK	Total
Yourself or colleagues	70.7	79.7	50.0	72.4	60.7	63.4	68.4
Senior managers	42.0	36.7	48.5	29.3	34.5	54.9	39.4
Staff at lower job levels	31.7	29.7	11.8	55.3	51.0	34.1	37.1
Other government orgs	21.5	25.3	27.9	25.2	15.9	25.6	22.8
Elected politicians	18.5	29.1	30.9	14.6	11.0	12.2	19.1
Citizens or residents	6.8	11.4	14.7	18.7	2.8	7.3	9.6
Businesses	7.3	7.6	8.8	8.9	8.3	15.9	8.8
Community/ non-profits	6.8	7.6	8.8	12.2	3.4	15.9	8.3
Other	7.3	4.4	4.4	5.7	9.0	9.8	6.8

4.6 Factors driving the most important innovation

Question C8 asks respondents about the importance of six factors as drivers for the development of the most important innovation. Respondents were give five response options: high, medium, low and no (none) importance as well as a 'Don't know' option. The latter is recoded to be equivalent to 'none'. To conserve cases, respondents who answered at least one of the six questions but left others blank were assumed to have responded 'don't know' to the other options. Only 10 of the 787 eligible respondents did not answer any of the six C8 questions. Table 4.12 gives the percentage

of respondents by country that gave a 'high' importance to each of the options. Statistical significance is calculated using the full set of responses.

Table 4.12 Percent respondents giving high importance to each of six factors in driving the development of the most important innovation using question C8, by country

	N	Budget increase	Budget decrease	Government regulations policies	Urgent problem or crisis	Demand from individuals	Demand from business
Spain	204	9.8	*3.9*	**44.6**	**30.9**	27.9	19.6
France	157	10.2	*5.1*	**46.5**	19.7	17.2	*16.6*
Hungary	67	*7.5*	10.4	**46.3**	22.4	**46.3**	26.9
Netherlands	122	9.0	9.8	*25.4*	20.5	28.7	**28.7**
Norway	145	**15.9**	8.3	31.0	*8.3*	*4.1*	15.2
UK	82	*8.5*	**18.3**	28.0	**26.8**	26.8	20.7
Total	777	10.6	8.0	37.8	21.6	22.9	20.3
P		0.439	0.000	0.000	0.000	0.000	0.001

The most commonly reported 'high' importance driver is 'government regulations, policies or priorities' at 37.8%, followed by demand from individuals (22.9%) and an urgent problem or crisis (21.6%). With the exception of a budget increase, there are statistically significant differences in the distribution of the importance of drivers among all countries. Some of these could plausibly be due to differences in economic conditions or political cultures, such as the much higher share of UK respondents that report a budget decrease as a high importance driver (18.3% compared to the average of 8.0%) or the very low share of Norwegian respondents that innovate in response to a crisis (8.3% versus the average of 21.6%).

Within Spain, the most frequently cited high-importance factors are 'Government regulations, policies or priorities' and 'a problem or crisis requiring an urgent response'. In France government regulations etc. (46.5%) is cited over twice as often than all other factors and is of similar high importance in Hungary (46.3%), where demand from individuals is of equal importance. The most cited factors in the Netherlands are demand from businesses (28.7%) and individuals (28.7%). In the UK the most cited factors, with an identical share (26.8%) of respondents, are an urgent problem or crisis and demand from individuals.

Although suggestive, caution is advised before drawing country specific conclusions from descriptive analyses, since the results could be due to differences in other factors across countries such as the type of organization, focus area or size of the unit. However, as shown below, these other factors have little effect, suggesting that differences in national cultures or economic conditions could be influencing innovation drivers.

There are no statistically significant differences by the size of the unit and only one difference each for the geographic type and focus area. For geographic type, the share of respondents giving a 'high' importance to 'demand from businesses, community groups or other organizations' is 15.7% compared to 22.6% for national government units and 20.5% for small municipal government units. For focus area, the share of units that give high importance to demand from individuals is higher than the average of 22.4% for respondents from units providing health (29.9%) and social services (26.6%).

4.7 Innovation inputs

Three questions ask about inputs into the most important innovation, including:

- provision of extra funding or staff (question C9)
- person-months required to develop and implement the innovation (C10)[2], and
- assistance, advice, technology or other inputs from six sources outside the unit.

4.7.1 Extra funding or staff

Table 4.13 provides the results for extra resources for the MII by country. Over half of respondents, 55.4%, report no extra resources in terms of staff or funding and only 14.2% receive both types of resources. Hungary and Spain have the highest shares of respondents reporting no extra funding, at 75.0% and 68.5% respectively. The UK has the highest share of respondents that report extra resources and the highest share that report receiving both extra staff and funds.

Table 4.13 Percent respondents reporting receipt of extra funding or staff to develop the most important innovation using question C9, by country

[2] Person months are defined as 'one person working full-time for one month'. The definition of full-time is based on national norms and consequently can vary across countries. Respondents were asked to count all time spent by government employees from the initial idea until implementation, including time before the last two years if relevant. They were instructed to exclude time by external consultants.

	N	No extra staff or funding received	Extra funding only	Extra staff only	Extra funding and staff	
Spain	200	**68.5**	*11.0*	9.0	11.5	100.0%
France	153	47.1	19.6	**13.1**	20.3	100.0%
Hungary	68	**75.0**	20.6	*2.9*	*1.5*	100.0%
Netherlands	122	49.2	25.4	**10.7**	14.8	100.0%
Norway	145	49.7	**37.9**	4.8	7.6	100.0%
UK	81	42.0	16.0	11.1	**30.9**	100.0%
Total	769	55.4	21.5	9.0	14.2	100.0%

P < .000

There is no statistically significant difference in the receipt of extra funds or staff by type of unit or by the unit's focus area. In contrast, there is a significant trend by the size of the unit, as shown in Table 4.14. Unit size is inversely correlated with no extra resources for the innovation and positively correlated with extra staff only and extra funding and staff.

Table 4.14 Percent respondents reporting receipt of extra funding or staff to develop the most important innovation using question C9, by size of unit

Employees	N	No extra staff or funding received	Extra funding only	Extra staff only	Extra funding and staff	
<10	129	61.2	16.3	8.5	14.0	100.0%
10 - 49	355	57.5	22.5	9.6	10.4	100.0%
50 - 249	184	55.4	21.7	7.1	15.8	100.0%
250+	94	41.5	24.5	11.7	22.3	100.0%
Total	762	55.6	21.5	9.1	13.8	100.0%

P < .000

4.7.2 Person months

Previous research has found that it is difficult for public sector managers to estimate expenditures on an innovation because data on labour costs, a major input, is often not collected. However, the majority of public sector managers are able to estimate the person months expended on an innovation if the question uses categorical response options. This survey confirms this finding, with only 8.2% of respondents reporting that they did not know the answer.

Table 4.15 provides the distribution of person-months expended on the most important innovation by country. 5% of respondents reported no person months, possibly because these innovations were essentially 'bought in' with unit personal spending no time on the innovation. The lowest shares of these types of innovations are reported in the UK, the Netherlands and Norway. These three countries also have the highest shares of respondents reporting that the innovation required more than 24 months to develop and implement. On average, 64.6% of respondents reported that their most important innovation required less than 12 months to develop, with the highest shares in Spain (67.2%), France (68.2%) and Hungary (58.8%).

Table 4.15 Distribution of person months expended on the most important innovation using question C10, by country

	N	None	< 3 months	3 to 12 months	12 to 24 months	24+ months	Don't know	
Spain	204	6.9	35.8	31.4	7.8	8.3	9.8	100%
France	157	6.4	33.8	34.4	8.9	10.8	5.7	100%
Hungary	68	8.8	33.8	25.0	14.7	4.4	13.2	100%
Netherlands	122	2.5	18.9	28.7	20.5	23.0	6.6	100%
Norway	144	2.8	16.7	35.4	13.2	22.2	9.7	100%
UK	82	2.4	15.9	40.2	19.5	17.1	4.9	100%
Total	777	5.0	26.9	32.7	12.9	14.3	8.2	100%

P < .000.

Statistically significant differences in the distribution of person months are also found for the type of organization (p < .000) and by the size of the unit (p < .000). The focus area has not significant effect (p = .055). Results for organizational type and size are reported in Table 4.16, for two groups: up to 12 person months and over 12 person months. A higher percentage of respondents for units in national and large municipalities report over 12 person months. There is a statistically significant trend by unit size, with the percentage of respondents reporting more than 12 person months increasing with size (p <.000 for linear trend).

Table 4.16 Distribution of person months expended on the most important innovation using question C10, by type and size of the organization

	N	Up to one year	One year +

National	351	64.1	35.9	100%
Large municipality	187	68.4	31.6	100%
Small municipality	185	85.9	14.1	100%
Size (employees)				
< 10	122	84.4	15.6	100%
10 – 49	329	74.5	25.5	100%
50 – 249	174	64.4	35.6	100%
250+	91	52.7	47.3	100%

Notes: Excludes "Don't know" responses. P < .000 by type of organization and for size.

4.7.3 Assistance from external sources

Table 4.17 gives results for the percentage of respondents that obtained assistance, advice, technology or other inputs for their most important innovation from six sources external to their unit. The most frequently used source is 'other work units within your organization', cited by 69.5% of respondents, followed by 'businesses including consultants', cited by 41.4%. The least cited source is 'design firms, innovation labs or living labs', cited by 14.3%. For four of the six sources there are statistically significant differences by country. The Netherlands and the UK are more likely to draw on other work units within their organization, while Norway is more likely than the average to draw on businesses and sources linked to co-creation, such as design firms, innovation labs or living labs. The use of external sources by Spanish respondents is close to the average, except for design firms etc., which are reported by only 4.4%. French respondents are considerably less likely to report sources of ICT (24.2% versus the average of 40.0%).

Table 4.17 Percent respondents obtaining assistance, advice, technology or other inputs for the most important innovation from six sources using question C11, by country

	N	Other work units within your org.	Other gov't orgs	Universities / public research institutes	Businesses incl. consultants	Design firms, innov. labs, living labs	ICT software or equip. suppliers
Spain	205	69.3	31.7	17.6	41.5	*4.4*	41.5
France	157	61.8	45.9	17.2	34.4	17.8	*24.2*
Hungary	68	64.7	41.2	11.8	*16.2*	14.7	48.5
Netherlands	122	**84.4**	33.6	18.0	51.6	17.2	43.4
Norway	141	62.4	34.8	25.5	**49.6**	**19.9**	49.6

UK	82	**79.3**	37.8	28.0	46.3	18.3	37.8
Total	775	69.5	36.9	19.6	41.4	14.3	40.0
P		0.002	.101	0.055	<0.000	<0.000	<0.000

Notes: All respondents that gave a 'yes' or 'no' to at least one of the six options are included in the analyses. This assumes that a blank response to a question is because the respondent does not know the answer, suggesting that the source was not memorable and therefore likely to be unimportant.

The type of government organization has a significant effect on the use of four sources, as shown in Table 4.18. 'Other work units within your organization' is less frequently reported by small municipalities (58.3%), probably because they have fewer alternative units to draw upon. In addition, small municipalities are less likely to source inputs from all other external sources with the exception of 'other government organizations'. Compared to the average, large municipalities are more likely to obtain inputs from businesses, design firms etc., and ICT suppliers.

The mean number of external sources is 2.22. This varies significantly by the type of government organization: 2.38 for large municipal, 2.34 for national, and 1.82 for small municipal organizations ($p < .0000$).

Table 4.18 Percent respondents that obtained assistance, advice, technology or other inputs for the most important innovation from six sources using question C11, by type of government organization

	N	Other work units within your org.	Other gov't orgs	Universities / public research institutes	Businesses incl. consultants	Design firms, innov. labs, living labs	ICT software or equip. suppliers
National	385	71.7	41.3	22.3	43.4	14.3	40.8
Large municipality	198	76.3	*29.8*	17.7	**48.0**	**18.2**	**47.5**
Small municipality	192	*58.3*	35.4	*16.1*	*30.7*	*10.4*	*30.7*
Total	775	69.5	36.9	19.6	41.4	14.3	40.0
p		<.000	.022	.154	.001	.091	.003

There are only two significant differences by the focus area of the respondent's unit. Units active in health and education were more likely than the average to obtain inputs from universities or public research organizations (32.8% for health and 27.4% for education versus the average of 20.3%) and

units active in social services and businesses were less likely to use this source (12.6% and 11.4% respectively) (p =.001). In addition, units that provide internal services to their government organization were more likely than the average to obtain inputs from ICT providers (48.1% versus 39.6%, p = .015).

There are three significant differences by size, with larger units more likely than smaller units to obtain inputs from businesses (p < .000), design firms etc. (p = .002) and from ICT providers (p = .020).

4.8 Development methods

Question the use of eight good practice methods for innovation that were used to develop the most important innovation (see Table 4.19). The most commonly used method was to 'assign a dedicated team to this innovation' followed by 'brainstorming. Three methods used in design thinking, such as 'conduct research to identify the challenges to be identified by this innovation', 'conduct research to identify different types of users for this innovation', and the 'development of a prototype' were the least commonly used methods, with research on users reported by 39.1% of all respondents.

Table 4.19 Percent respondents giving high importance to each of eight methods to develop the most important innovation using question C12, by country

	Responsible individual in charge	Dedicated team	Review good practices	Research challenges	Research users	Brain-storming	Proto-type	Pilot testing	Mean
Spain	69.8	72.2	*53.2*	58.0	45.4	*50.2*	39.5	*59.5*	4.48
France	**80.0**	71.6	62.6	56.8	**52.3**	69.7	40.0	61.3	4.94
Hungary	67.2	*50.7*	59.7	*20.9*	*16.4*	67.2	49.3	65.7	*3.97*
Netherlands	63.9	**86.9**	63.1	54.9	43.4	**93.4**	41.0	**76.2**	**5.23**
Norway	*46.4*	**90.7**	62.1	*22.9*	*17.1*	78.6	43.6	73.6	4.35
UK	50.0	77.5	**73.8**	**63.7**	48.8	87.5	46.3	71.3	5.19
Total	64.4	76.5	61.0	48.2	39.1	71.5	42.1	66.8	4.70
P	< .000	< .000	.046	< .000	< .000	< .000	.700	.008	< .000

Notes: total number of respondents is 769 (205 for Spain, 155 for France, 67 for Hungary, 122 for the Netherlands, 140 for Norway, 80 for the UK).

As shown in Table 4.19, there are significant differences in the use of all methods by country except for the use of prototypes. On average, respondents use 4.7 of the eight good practice methods, with significant differences by country ($p < .001$). The lowest average use is in Hungary with 3.97 methods and the highest is in the Netherlands, with 5.23 methods reported.

There are no statistically significant differences in the use of each method by the focus area of the unit. There are two significant differences by the type of the organization: for a review of good practices and the development of a prototype, where national organizations are less likely than municipalities to review good practices (55.8% versus approximately 66% of small and large municipalities) and more likely to develop prototypes (48.7% versus 39.6% for large municipalities and 31.8% for small municipalities). There are significant positive trends by the size of the unit for assigning 'a dedicated team to this innovation' and for pilot testing of the innovation.

4.9 Involvement of users in developing the innovation

The involvement of users (co-creation) in the most important innovation was covered in question C13, which asks about the involvement of users in five different stages of innovation development, and in question C14 on post-implementation evaluation of the innovation. Of note, users can include government staff involved in using a process innovation or citizens or residents that use a service.

4.9.1 Use of five co-creation methods

In total, 85.2% of eligible respondents reported the use of at least one of the five co-creation methods, while 14.8% reported none of them, suggesting that they did not involve users in the development of their most important innovation. There are significant differences by country for four of the five methods (see Table 4.20), with the exception of the 'real-time studies of how users experience or use a prototype of this innovation'.

Table 4.20 Percent respondents using five co-creation methods for user input in the development of the most important innovation using question C13, by country

	N	Analysis of data on user previous experiences	In-depth one-on-one research with users	Focus groups with users	Users in brain-storming workshops	Real-time studies of user experiences

Spain	202	50.0	45.0	*39.6*	*26.7*	32.7
France	153	*38.6*	**64.1**	52.3	45.1	41.2
Hungary	68	**67.6**	*23.5*	39.7	36.8	**47.1**
Netherlands	120	58.3	48.3	45.0	**75.8**	30.0
Norway	136	57.4	39.0	44.1	57.4	33.8
UK	80	48.8	**68.8**	**57.5**	61.3	33.8
Total	759	51.8	48.9	45.7	48.2	35.6
P		0.001	<0.000	0.045	<0.000	0.123

Similar to the earlier Question 12 on development methods, there are no statistically significant differences in the use of the five co-creation methods by focus area, but there are two significant differences by type of organization and two by size. By organizational type, national units are more likely than municipalities to conduct 'one-to-one in-depth conversations with users to identify challenges or unmet needs' (55.5% versus an average of 42% for municipalities) and small municipalities are more likely to include users in brainstorming or idea generation workshops than units in large municipalities or national government (61.4% versus an average of 48.5%). Unit size shows weak positive trends for analyzing 'data on the experiences of users with previous or similar innovations' and for 'real-time studies of how users experience or use a prototype of this innovation'.

The intensity with which users are involved in co-creation is estimated by summing the number of methods used to involve users, which can vary between zero and 5. The average number of methods used by country is shown in Table 4.21. The UK has the highest number of co-creation methods used at 2.33 while Spain has the lowest number, at 1.96.

Table 4.21 Mean number of co-creation methods involving users in developing the most important innovation using question C13, by country

	N	Mean number
Spain	199	1.96
France	149	2.47
Hungary	68	2.14

Netherlands	119	2.57
Norway	133	2.34
UK	78	2.73
Total	747	2.33

P < .000

The focus area has no effect on the mean number of co-creation methods used, but there are significant differences by the type of organization (national = 2.47, large municipalities = 2.31, small municipalities = 2.05; p = .008) and by size, with the mean varying from 2.08 for units with less than 10 employees and 2.68 for units with 250 or more employees (p = .005).

Co-creation methods could be more likely to be used for services than for internal processes and if the most important innovation is costly in terms of the amount of resources required to develop it. The questionnaire provides two measures of resources: if the unit received extra staff or funding to develop the innovation and the amount of person-months required to develop it.

Co-creation is used more intensively when the innovation involves a service than when it involves a process. An average of 2.21 co-creation methods are used for most important innovations that only involve a process compared to 2.44 co-creation methods when the innovation has a service component (p = .041). There is a stronger relationship between co-creation intensity and the receipt of extra resources, both in terms of extra staff or funding and the amount of person months required to develop the innovation. An average of 2.0 co-creation methods are used when no extra resources are provided compared to 2.7 co-creation methods when extra resources are received for the most important innovation (p < .000). For person months, the average number of co-creation methods increases from 1.87 when less than three person-months were required to 2.92 when two or more years were required to develop the innovation (p < .000).

4.9.2 Post implementation evaluation

Question C14 asked respondents if the most important innovation had been 'evaluated after implementation'. In total 46.5% of respondents reported that the innovation had been evaluated, 43.7% reported that it had not been evaluated but that it would be in the future, and 9.8% reported no evaluation and no plans for evaluation in the future (see Table 4.22). There are significant

differences by country, with an above average rate of evaluation in Hungary (64.2%). The highest share of no evaluation and no plans for evaluation is in Spain (13.8%).

In case evaluation is more likely when the MII has a service component, the rate of evaluation for services versus only processes was also compared. A higher percentage of MIIs that are services undergo evaluation than processes (51.3% versus 41.0%, p = .004).

Table 4.22 Percent respondents with post implementation evaluation of the most important innovation using question C14, by country

	N	Yes	No, and no plans for evaluation	No, but the innovation will be evaluated in the future	
Spain	203	47.3	**13.8**	38.9	100.0
France	154	38.3	10.4	**51.3**	100.0
Hungary	67	**64.2**	11.9	23.9	100.0
Netherlands	121	54.5	5.8	39.7	100.0
Norway	137	40.1	7.3	52.6	100.0
UK	80	43.8	7.5	48.8	100.0
Total		46.5	9.8	43.7	100.0

p < .000

The effect of the amount of resources used to develop the innovation could increase the use of evaluation to ensure that good results are obtained. The receipt of extra staff or funding has a significant effect on the use of evaluation, with is used for 41.7% of most important innovations without extra staff or funding versus 49.3% of most important innovations that received extra stuff or funding support (p = 0.33). However, the number of person months required to develop the most important innovation had no effect on the use of evaluation (p = .525).

The 46.5% of respondents that reported evaluation (354) were asked if user experiences were included in the evaluation. Two yes options were provided: 'yes, and no changes to the innovation required to improve user experience', and 'yes, and changes to the innovation were required (or planned in the future to improve user experience)'. The results by country are given in Table 4.23. The differences by country are not statistically significant. In total, only 13.8% reported no

evaluation of user experience. The most common outcome (62.1%) was an evaluation of user experience that led to required or planned for changes to improve user experience. Limited to the 86.2% of respondents that evaluated user experience, further improvements (already completed or planned) were required by 72.0%.

There are no significant differences in the effects of evaluation by the type of organization (p = .765), the focus area (p = .296), or the size of the respondent's unit (p = .835). There is also no difference in the effects of evaluation between services and processes, with 74.9% of services requiring further improvements compared to 76.9% of processes (p = .390).

Table 4.23 Percent respondents that included user experience in the evaluation of their most important innovation using question C14b, by country

	N	Yes: no changes required to improve user experience	Yes: changes required or planned to improve user experience	No evaluation of user experience	
Spain	95	22.1	56.8	21.1	100.0
France	59	16.9	74.6	8.5	100.0
Hungary	43	18.6	74.4	7.0	100.0
Netherlands	65	27.7	61.5	10.8	100.0
Norway	52	26.9	53.8	19.2	100.0
UK	34	38.2	52.9	8.8	100.0
Total	348	24.1	62.1	13.8	100.0

p = .06 (not significant)

4.10 Contribution of users to development of the most important innovation

Question C15 asks respondents 'how important was the contribution of users to the development of your most important innovation' for six outcomes. Three of the questions cover the effects of including users in the innovation process itself ('reduced development costs', 'reduced development time', 'reduced need to revise the innovation after implementation', but the other three questions cover post-implementation effects ('improved fit with user needs (uptake, understanding, acceptance, etc.)', 'improved quality' and 'reduced risk of innovation failure'.

As the question is asked on an importance scale, respondents who answered at least one of the six questions but left others blank are assumed to have responded 'don't know' to the other options. 'Don't know' responses are also assumed to be the equivalent of a 'none' response because a lack of knowledge suggests that the effect was likely to be small and consequently of little importance.[3] Results by country for the percentage of respondents rating the level of benefit from user involvement for each effect as 'high' importance are given in Table 4.24. Statistical significance is calculated using the full distribution of 'high', 'medium' and 'low' importance and 'none' responses.

Table 4.24 Percent respondents giving high importance to each of six measures of user contribution to developing the most important innovation using question C15, by country

	N	Reduce develop-ment costs	Reduce development time	Reduce need to revise innovation after implementation	Improve fit with user needs	Improve quality	Reduce risk innovation failure
Spain	191	*5.2*	**12.6**	15.2	*40.3*	*40.3*	*25.7*
France	146	8.2	10.3	15.1	54.8	47.9	28.8
Hungary	64	*4.7*	7.8	*10.9*	51.6	50.0	29.7
Netherlands	114	**7.9**	10.5	**30.7**	**66.7**	**59.6**	**38.3**
Norway	130	5.4	6.2	18.5	43.1	46.2	32.3
UK	80	7.5	*5.0*	23.8	52.5	42.5	35.0
Total	725	6.5	9.4	18.8	50.2	47.0	30.9
P		.026	.002	.012	.005	.024	.010

The average share of 'high' importance is lower for the three outcomes that affect the innovation process at 13.7% than for the three post implementation outcomes of 42.7%. The most highly rated outcome is to improve the fit with user needs (50.2%) followed by an improvement in quality (47.0%). The lowest rated outcome is to reduce development costs (6.5%).

[3] In addition, 44 respondents that did not report any user involvement in question C13 also did not respond to any of the C15 questions on the effects of users involvement, possibly because the question was not relevant to them since it was not possible for them to observe user contributions. However, to prevent including respondents that did not answer C15 because they had ceased to answer all questions, 2 if these 44 respondents that did not answer any of the C16 questions were excluded from the eligible number of respondents to question C15.

All outcomes show statistically significant differences by country. The Netherlands is the leader on five of the six outcomes (the exception is reduce development times) while Spain has the lowest ratings for four outcomes. There is one significant difference by type of organization, two by focus area, and two by unit size. For 'reduced need to revise' the innovation, national units provide higher ratings than the average. Units that serve businesses are more likely than the average to report reduced development time (14.3% versus 9.4%) and units in education are more likely to report a reduced need to revise the innovation (27.4% versus 18.8%). The two size effects occur among units with 50-249 employees (there is no trend effect) and are due to a lower number of 'none' responses for 'improved fit with user needs' and 'improved quality'.

The effects of involving users should be influenced by the intensity with which users are involved in co-creation, measured by the number of stages that users are involved in developing the innovation in question C13. As shown in Table 4.25, there is a significant positive correlation between the number of users and the intensity of co-creation for all six effects, with the mean co-creation intensity increasing as the contribution of users increases from 'none' to 'high'. For example, the mean co-creation intensity for 'reduced risk of innovation failure' is 1.29 for 'none', 2.21 for 'low', 2.60 for 'medium' and 3.03 for 'high' levels of benefit from user involvement.

Table 4.25 Relationship between the intensity of use of co-creation and the contribution of users to the development of the most important innovation, mean number of co-creation methods used

	Level of benefit from user involvement			
Effect	**None**	**Low**	**Medium**	**High**
Reduced development costs	1.94	2.98	2.80	2.96
Reduced development time	1.82	2.76	2.82	2.91
Reduced need to revise the innovation after implementation	1.58	2.35	2.72	3.17
Improved fit with user needs (uptake, acceptance, etc.)	0.86	1.80	2.34	2.96
Improved quality	0.94	2.26	2.30	2.92
Reduced risk of innovation failure	1.29	2.21	2.60	3.03

All results for the level of benefit for each effect are statistically significant using ANOVA ($p < .000$), N = 721 for all effects.

4.11 Outcomes of the most important innovation

Question C15 asks respondents about nine types of outcomes from the most important innovation.[4] These include five outcomes that affect internal processes ('simpler procedures', 'time to deliver a service', 'ability to target a service to those who need it', 'employee satisfaction' and 'reducing costs'), three outcomes that affect users ('user experience of a service', 'user access to information', and 'service quality') and one that affects both ('safety of employees or individuals (citizens, residents, etc.)). Five response options were offered: positive effect, neutral effect, negative effect, too early to estimate, and not relevant.

Table 4.26 provides results for all respondents after excluding 'not relevant' and 'too early to estimate' responses. The most important innovation can be 'not relevant' if it has no influence on the outcome, for instance an internal business process may have no effect on user access to information. The outcome can also not be measured if it is 'too early to estimate' the effects. As shown in Table 4.26, most self-reported outcomes that are relevant and measurable are positive, with an average of 71.3% giving an outcome a positive rating, versus 25.3% giving a neutral rating and 3.4% giving a negative rating.

Table 4.26 Distribution of observed and relevant outcomes for the most important innovation using question C16, all respondents

Outcome	N	Negative	Neutral	Positive	
Simpler procedures	579	5.0	19.0	76.0	100%
Time to deliver a service	571	4.6	22.1	73.4	100%
Ability to target a service to those who need it	595	0.0	17.0	83.0	100%
User experience of a service	579	1.0	20.6	78.4	100%
User access to information	617	0.8	19.0	80.2	100%
Employee satisfaction	569	4.2	27.2	68.5	100%
Safety of employees, citizens or residents	399	0.3	52.1	47.6	100%
Reducing costs	474	14.1	42.0	43.9	100%
Service quality	641	0.8	8.3	91.0	100%
Average		3.4	25.3	71.3	100%

[4] A tenth question asks for 'other' outcomes but these are not reported here because after excluding 'too early to tell' responses this option was only used by a small number (91) of respondents.

Table 4.27 gives the percentage of respondents that report a positive effect by country. As with Table 4.26, the results exclude 'too early to estimate' and 'not relevant' responses. Statistical significance is based on the distribution of negative, neutral and positive responses. The differences between countries are significant for five outcomes: simpler procedures, user access to information, employee satisfaction, safety, and reducing costs. The lowest share of positive ratings for all five outcomes with significant differences by country occurs in the Netherlands, which could be a real effect or due to national differences in how outcomes are judged.

The focus area of the unit has no effect on any of the outcomes. The type of organization has a significant effect on user access to information (p = .041) and on employee satisfaction (p = .042). Unit size has an effect on user access to information (p = .026) and on reducing costs (p = .040), but there are no significant trends by size.

Table 4.27 Percent respondents giving a positive effect for the outcomes of the most important innovation using question 16, by country

Outcome	ES	FR	HU	NL	NO	UK	p
Simpler procedures	**82.8**	77.6	76.8	*70.5*	72.0	68.3	.009
Time to deliver a service	75.3	73.5	70.2	68.0	80.0	68.4	.271
Ability to target a service	85.0	81.5	82.5	75.5	88.2	85.0	.230
User experience of a service	78.8	77.6	73.6	70.1	82.7	88.5	.229
User access to information	**86.6**	87.7	76.3	*68.3*	75.5	80.3	.016
Employee satisfaction	64.9	79.8	43.8	*63.1*	**75.7**	**75.5**	.001
Safety of employees, citizens or residents	52.7	36.8	**66.7**	*33.3*	53.2	37.2	.019
Reducing costs	38.0	45.7	45.5	*27.5*	**58.6**	55.4	.002
Service quality	90.5	95.8	96.7	85.2	90.2	88.7	.052

Excludes 'not relevant' and 'too early to estimate' responses.

The intensity of co-creation use has no effect on outcomes in analyses limited to positive, neutral and negative effects. However, when using the full data (including 'too early to tell' and 'not relevant') the intensity of co-creation is significant in four outcomes, three of which are closely related to the users of services. Table 4.26 gives significant results. The category 'negative' is combined with 'neutral' because of the low number of respondents who report a negative outcome.

For all but one outcome, the co-creation intensity is lower in respondents who report 'not relevant' or 'too early to estimate' than in respondents who report a positive or negative/neutral effect. The exception is 'user access to information', where the mean co-creation intensity is identical for 'too early to estimate' and 'neutral/negative effect'. It is possible that an increase in the intensity of use of co-creation provides more information to respondents on outcomes, resulting in a shift in the percentage of respondents finding the outcome 'too early to estimate' or 'not relevant'.

Table 4.28 Mean co-creation intensity for different outcomes of the most important innovation, limited to significant results

Outcome	N	Positive effect	Negative / neutral effect	Too early to estimate	Not relevant	p
Simpler procedures	737	2.44	2.25	2.05	2.06	.047
Ability to target a service	735	2.39	2.43	2.20	1.78	.009
User experience of a service	733	2.45	2.26	2.15	1.73	.006
User access to information	736	2.43	2.17	2.17	1.80	.011

Notes: 32 eligible respondents did not answer any of the sub-questions. Respondents that did not answer specific questions are not recoded because there is no logical alternative for a missing response.

5 Conclusions

This report provided preliminary survey results of the main survey in WP2 amongst public sector managers in France, Hungary, Spain, the Netherlands, Norway and the UK. At the moment of writing WP2 partners are translating open text fields and categorizing the most important innovation as described in the protocol Annex B. This new information will allow us to conduct additional analyses of the most important innovation.

In addition, translating open text fields should lead to recoding of the 'other' answers in A3a, B1, C3 and C4. This recoding should lead to an increased number of observations that can be used to present results for a particular service orientation (question A3a) or for particular users (question C3).

The descriptive results given in this report provide a guideline for further in-depth analysis using multivariate techniques and provide basic information on frequencies for all survey questions. They evaluate the distribution of responses to all survey questions by four characteristics of the responding unit: 1) country, 2) focus area of the respondent's organization (identified before the survey), 3) the size of the respondent's work unit (four categories for the number of employees), and 4) the type of organization in which the respondent is employed (national government, large municipality, or small municipality).

The percentage of innovative work units varies by country from 56.5% in Hungary to 92.7% in the Netherlands and the United Kingdom. Other factors that affect innovation status include the focus area and the type of organization (percent innovators is highest in large municipalities at 88.2%).

Participation in work groups to that meet regularly to discuss or develop innovation has the strongest effect on innovation status, with 53.5% of non-innovative units reporting zero employees participating in work groups versus 3.2% of innovative units. Organizational practices to support innovation are significantly more prevalent among innovative than non-innovative work units. For example, 50.9% of respondents from innovative units report that 'senior management gives high priority to new ideas or new ways of working', versus only 18.9% of respondents from non-innovative work units.

Non-innovative units are more likely than innovative units to report each of 12 obstacles to innovation as not relevant. When 'not relevant' responses are excluded, a higher percentage of non-

innovative than innovative units report each of the 12 obstacles to innovation as of 'high' importance. The most frequently cited 'high' importance obstacle for non-innovators is a lack of knowledge on how to innovate (cited by 49.2%), followed by senior management concerns over risk (cited by 33.6%). The most frequently cited 'high' importance obstacles for innovative units are a lack of knowledge on how to innovate (cited by 19.6%) and a lack of support from politicians (cited by 17.3%). There are significant differences in all obstacles by country, with respondents from Spain assigning the greatest importance to obstacles and Norway the least.

Most of the questions focus on a single 'most important innovation' (MII) identified by the respondent. A maximum of 787 respondents from innovative work units answered questions in this section of the questionnaire. In total, 15.6% of MIIs were in the pilot or testing stage, 54% were partially implemented with ongoing improvements underway, and 30.1% were completely implemented. In regards to novelty, 43.2% of the MIIs were improvements to previous services or processes, while 32.7% provided a new service or process and 24.1% a new service and process. The implementation stage is correlated with novelty, with completely implemented innovations more likely to be both a new service and a new process (29.2%). The majority of MIIs, 93.3% involve a process while 39.4% involve a service (many innovations include both a process and service component).

Question C12 asks about the use of eight good practice methods for innovation. The most commonly cited method was to assign a dedicated team to the project (76.5%), followed by 'brainstorming or idea generation to identify solutions' (71.5%). Three methods used in design thinking, such as 'conduct research to identify the challenges to be identified by this innovation', 'conduct research to identify different types of users for this innovation', and the 'development of a prototype' were the least commonly used methods, cited by 48.2%, 39.1%, and 42.1% respectively.

Respondents were asked in question C13 about five methods of involving users in the development of the MII. This is the main question of relevance to co-creation use. In total, 85.2% of respondents reported the use of at least one of the five co-creation methods. On average, respondents used 2.33 methods for involving users, ranging from 1.96 in Spain to 2.73 in the UK. Co-creation is used more intensively when the innovation involves a service (2.44 methods used on average) than for a process (2.21 method used on average). The intensity of use of co-creation also increases with the availability of resources. An average of 2.0 co-creation methods are used when extra staff or funding is not provided, compared to an average of 2.7 when extra resources are received.

In total, 46.5% of respondents reported that the MII had been evaluated after implementation. A higher share of services (51.3%) are evaluated than processes (41.0%). Most of the respondents that evaluated their MII (86.2%) had either made changes to improve user experience or expected to make changes in the future.

Respondents were asked about the contribution of users to six outcomes from their MII, three of which concerned internal innovation processes and three post implementation effects. Effects on internal innovation processes were rare, with only 6.5% and 9.4% of respondents reporting 'high' benefits from a reduction in development costs or time. Post implementation effects were more common, with 50.2% reporting 'high' benefits for improving fit with user needs and 47% reporting 'high' benefits from an improved quality. For all effects, the level of benefit is positively correlated with co-creation intensity.

Nine outcomes from the most important innovation were investigated. After excluding 'not relevant' and 'too early to tell' assessments, 71.3% of the outcomes were 'positive' according the respondents' perceptions, 25.3% were neutral, and 3.4% were negative. The co-creation intensity has no effect these outcomes, but intensity is correlated with all assessments, including 'not relevant' and 'too early to estimate'. Respondents with a 'not relevant' and 'too early to estimate' assessment used fewer co-creation methods than respondents that reported positive effects.

The prevalence results for the section C questions on the most important innovation, excluding questions C7 on sources and C17 on obstacles, suggest that the respondent's country has a larger effect on the results than the work unit size, organizational type, or focus area. A summary of the results is given in Table 5.1. Differences by the respondent's country produce the largest number (or equal number) of statistically significant results than for the three other characteristics of the respondent's unit. For example, Question C8 on drivers contains five sub-questions, resulting in five statistical analyses of significance. There are significant differences by country for all five questions. In comparison there are zero significant differences by unit size and only 1 significant difference each for the type of organization and the focus area. The respondent's country has the largest (or equal largest) number of statistically significant results for 11 of the 15 questions, compared to 5 questions for size, 3 questions for the organizational type, and zero questions for the focus area. These results suggest that the respondent's country could be a major factor in the drivers, inputs, uses and outcomes of co-creation. However, before conclusions can be drawn, further investigation is required using multivariate models that control for the effects of multiple factors.

Table 5.1 Comparison of number of times there is a statistically significant relationship in analyses of questions on the most important innovation, by country, size, organizational type and focus area

Question	Number of statistical analyses	Country	Size	Org. type	Focus area
C2 implementation	1	ns	ns	ns	ns
C3 users	5	2	**3**	2	1
C4 purpose	6	**4**	3	2	1
C5 novelty	1	ns	ns	ns	ns
C6 effect on costs	1	**SS**	**SS**	ns	ns
C8 drivers	5	**5**	0	1	1
C9 extra funding or staff	1	**SS**	**SS**	ns	ns
C10 person months	1	**SS**	**SS**	**SS**	ns
C11 assistance sources	6	**4**	3	**4**	2
C12 development methods	8	**7**	2	2	0
C13 use of users	5	**4**	2	2	0
C14 evaluation	1	**SS**	**SS**	**SS**	ns
C14b evaluation of users	1	ns	ns	ns	ns
C15 contribution of users	6	**6**	2	1	2
C16 Outcomes	9	**5**	2	2	0
Number of most frequent or equal to most frequent SS results		**11**	**5**	**3**	**0**

Notes: ns = not significant (p >.05), SS = statistically significant (p ≤ .05); used when there is only one statistical analysis.

6 References

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7 Annex A Questionnaire

Survey on new or improved services or processes in the public sector

<ID>

A: General information

*This questionnaire defines your **work unit** as your area of responsibility, consisting of all employees under your direct management that report to you.*

*Your **organization** is defined as the government entity that employs you. This could be an agency, ministry or department within a municipality, regional government, national government, or organization that works for several levels of government.*

***With a few identified exceptions, answer all questions in respect to your work unit**. Do not report activities for other work units, divisions or departments of your organization for which you are not responsible.*

A.1 How many employees (head count) are in your work unit? Count all employees that report to you or form part of your team.

(Tick **one** box only)

a) Less than 10 ☐
b) 10 to 49 ☐
c) 50 to 249 ☐
d) 250 or more ☐
e) Don't know ☐

A.2 How long have you been in your current position?

(Tick **one** box only)

a) Less than six months ☐
b) Six months to less than two years ☐
c) Two years to less than five years ☐
d) Five years or more ☐

A.3a In the last two years, did your **work unit** provide any of the following types of services?

(Tick **all** that apply)

a) Educational services to individual citizens or residents ☐
b) Health services to individual citizens or residents ☐
c) Social welfare services to individual citizens or residents ☐
d) Services to businesses or business associations ☐
e) Housing or urban planning services ☐
f) Infrastructure services (waste disposal, transportation, traffic management, etc.) ☐
g) Services to your organization or other government organizations (information technology, accounting, procurement, legal, regulatory, policy, public relations, human resources etc.) ☐
h) Other services (please specify) ☐

A.3b If you selected more than one type of service, which was the main type of service provided by your work unit?

_____ insert letter from Question A.3a above

B: Innovation Activities

*For this questionnaire, an innovation is defined as a new or improved **service or process** (way of doing things) that **differs significantly** from your **work unit's** previous services or processes. Please note:*

1. *An innovation **must only be new or substantially changed for your work unit**. It may have already been used by other work units within your organization, other governments, or by businesses.*
2. *An innovation must be partly or fully **implemented**. For example, a service innovation must be offered to users (governments, citizens, residents etc.), while a process innovation needs to be used by government employees.*

3. ***Innovations can have multiple characteristics.*** *For example, a new service can be combined with improved processes for delivering the service.*

B.1 In the last two years, did your **work unit** implement any innovations with the following characteristics? *(Exclude innovations that were only implemented by other work units in your organization)*

(Tick **all** that apply)

a) Services for use by other government organizations (national, regional, municipal, etc.) ☐
b) Services for use by individuals (citizens, residents, etc.) ☐
c) Services for use by community groups or non-profit organizations ☐
d) Services for use by businesses or business associations ☐
e) Supporting activities for your work unit or organization (IT, maintenance, purchasing, accounting, human resources, etc.) ☐
f) Processes for producing or delivering services ☐
g) Organization of work responsibilities or decision-making ☐
h) Methods for communicating your services to individuals or businesses. ☐
i) Other (please describe) ☐

j) None of the above: no innovations in the last two years ☐

B.2 In the last two years, what percentage of your **work unit's** employees were involved in work groups that met regularly to discuss or develop innovations? *Include all of your work unit's ongoing and temporary employees.*

(Tick **one** box only)

a) None ☐
b) Less than 25% ☐
c) 25% to less than 50% ☐
d) 50% to less than 75% ☐
e) 75% or more ☐
f) Don't know ☐

B.3 In the last two years how well did the following apply to your **organization**?

(Tick **one** box per row)

	Fully	**Partly**	**Not at all**
a) Senior management gives high priority to new ideas or new ways of working	☐	☐	☐
b) Senior management supports taking risks in order to innovate	☐	☐	☐
c) Senior management supports a positive innovation culture that includes all employees in innovation activities	☐	☐	☐

d) Employees are highly motivated to think of new ideas and take part in their development ☐ ☐ ☐

e) Employees have a feeling of empowerment and ownership of their work ☐ ☐ ☐

<if your work unit had no innovations in the last two years, (you 'answered' none of the above in B.1) go to C.17, otherwise go to C.1>

C: Your Work Unit's Most Important Innovation

C.1 In a few sentences, please describe the most important **service** innovation that was **partly or entirely developed by your work unit** in the last two years. If your work unit had no service innovations, describe your most important process innovation. ("*Importance" is defined in terms of the expected or realized benefits of this innovation.)*

Please answer all remaining questions for this most important innovation only: do not include other innovations in your answers

C.2 To what degree has this most important innovation been implemented?

(Tick **one** box only)

a) Currently being piloted or tested ..... ☐

b) Partially implemented, with continuing improvements underway ..... ☐

c) Completely implemented..... ☐

C.3 Who are the **users** of your **work unit**'s most important innovation? (*The users of a process innovation are usually government employees that operate the process, such as a new accounting system. The user for a service innovation often consists of individuals, but can include government employees, businesses or community groups*).

(Tick **all** that apply)

a) Government employees (in your own work unit or elsewhere)..... ☐

b) Individuals (citizens, residents, etc.)..... ☐
c) Businesses or business associations..... ☐
d) Community groups or non-profit organizations ..... ☐
e) Other (please describe) ..... ☐

C.4 Was the **original purpose** of this most important innovation to:

(Tick **all** that apply)

a) Provide significant quality improvements for users ☐
b) Improve user experience ☐
c) Improve the adoption or use by potential users ☐
d) Improve internal efficiencies in the use of staff or other resources ☐
e) Address social challenges ☐
f) Other (please describe) ☐

C.5 In your opinion, does this most important **innovation:**

(Tick **one** box per row)

	Yes	No	Don't know
a) Provide an entirely new process	☐	☐	☐
b) Improve existing processes	☐	☐	☐
c) Provide an entirely new service	☐	☐	☐
d) Improve existing services	☐	☐	☐

C.6 What is the expected effect of this most important innovation on the costs of your processes or services?

(Tick **one** box only)

a) Increase costs ☐
b) Have no effect on costs ☐
c) Decrease costs ☐
d) Costs not relevant ☐
e) Don't know ☐

C.7a Where did the idea for this most important innovation come from?

(Tick **all** that apply)

a) Elected politicians ☐
b) Senior managers in your organization ☐
c) Yourself or colleagues at a similar management level in your organization ☐
d) Staff at job levels below your own ☐
e) Other government organizations (include good practice examples) ☐
f) Individuals (citizens, residents, etc.) ☐
g) Businesses (include consultants) ☐
h) Community groups or non-profit organizations ☐
i) Other ☐

C.7b Which of the above was the most important source of the idea for this innovation?

_____(insert letter from Question C.7a above)

C.8 How important were the following factors in driving the development of this most important innovation?

		Degree of importance (Tick **one** box per row)				
		High	**Medium**	**Low**	**None**	**Don't know**
a)	An increase in your work unit's budget	☐	☐	☐	☐	☐
b)	A decrease in your work unit's budget	☐	☐	☐	☐	☐
c)	Government regulations, policies or priorities	☐	☐	☐	☐	☐
d)	A problem or crisis requiring an urgent response	☐	☐	☐	☐	☐
e)	Demand from individuals	☐	☐	☐	☐	☐
f)	Demand from businesses, community groups or other organizations	☐	☐	☐	☐	☐

Inputs into this innovation

C.9 Did your work unit receive any extra funding or staff specifically to develop this most important innovation?

(Tick **all** that apply)

a) Extra funding ☐

b) Extra staff ☐

If yes: How many additional employees worked on this innovation? _____

c) No extra staff or funding received ☐

C.10 Approximately how many person months of **government employees** were required to develop and implement this most important innovation? *Include government employees outside your work unit if relevant.*

A person-month equals one person working full-time for one month. *Count all time spent by government employees on developing this innovation from the initial idea until implementation. Include time spent before the last two years if relevant. Exclude time by external consultants.*

(Tick **one** box only)

a) None ☐

b) Less than 3 person-months ☐

c) 3 person-months to less than 12 person-months ☐

d) 12 person-months to less than 24 person-months ☐

e) 24 person-months or more ☐

f) Don't know ☐

C.11 Did your work unit obtain assistance, advice, technology or other inputs to the development of this most important innovation from the following sources?

(Tick **one** box per row)

		Yes	No	Don't know
a)	Other work units **within** your organization	☐	☐	☐
b)	Other government organizations	☐	☐	☐
c)	Universities or public research institutes	☐	☐	☐
d)	Businesses including consultants	☐	☐	☐
e)	Design firms, innovation labs or living labs	☐	☐	☐
f)	Providers of specialized software or ICT equipment	☐	☐	☐

C.12 Were the following methods used to develop your work unit's most important innovation?

(Tick **one** box per row)

		Yes	No	Don't know
a)	Assign one individual to take responsibility for this innovation	☐	☐	☐
b)	Assign a dedicated team to this innovation	☐	☐	☐
c)	Review relevant good practices of other government or business organizations	☐	☐	☐
d)	Conduct research to identify the challenges to be addressed by this innovation	☐	☐	☐
e)	Conduct research to identify different types of users for this innovation	☐	☐	☐
f)	Brainstorming or idea generation to identify solutions	☐	☐	☐
g)	Development of a prototype of this innovation	☐	☐	☐
h)	Pilot testing of this innovation	☐	☐	☐

Involvement of <u>users</u> in this most important innovation

C.13 Were the following methods used to obtain input from **users** for the development of this most important innovation?

(Tick **one** box per row)

		Yes	No	Don't know
a)	Analysis of data on the experiences of users with previous or similar services or processes	☐	☐	☐
b)	One-to-one in-depth conversations with users to identify challenges or unmet needs	☐	☐	☐
c)	Focus groups with users to identify challenges or unmet needs	☐	☐	☐
d)	Inclusion of users in brainstorming or idea generation workshops	☐	☐	☐
e)	Real-time studies of how users experience or use a prototype of this innovation	☐	☐	☐

C.14 Was this most important innovation evaluated after implementation?

(Tick **one** box only)

a) Yes ☐
b) No, and no plans for an evaluation ☐
c) No, but the innovation will be evaluated in the future ☐

(If yes to **C.14**): Were **user experiences** of this innovation included in the evaluation?

(Tick **one** box only)

a) Yes, and no changes to the innovation required to improve the user experience ☐

b) Yes, and changes to the innovation were required (or planned for in the future) to improve the user experience..... ☐

c) No evaluation of user experience ..... ☐

<if no or don't know to all options in C.13 go to C.16, otherwise go to C.15>

Effects of involving users on outcomes

C.15 How important was the **contribution of users** to the development of your most important innovation for the following outcomes?

	Level of benefit from user involvement (Tick **one** box per row)				
	High	**Medium**	**Low**	**None**	**Don't know**
a) Reduced development costs	☐	☐	☐	☐	☐
b) Reduced development time	☐	☐	☐	☐	☐
c) Reduced need to revise the innovation after implementation	☐	☐	☐	☐	☐
d) Improved fit with user needs (uptake, understanding, acceptance, etc.)	☐	☐	☐	☐	☐
e) Improved quality	☐	☐	☐	☐	☐
f) Reduced risk of innovation failure	☐	☐	☐	☐	☐

Outcomes of the most important innovation

C.16 What effects did this most important innovation have on the following outcomes? (*Service outcomes may not be relevant for process innovations.*)

(Tick **one** box per row)

	Positive effect	Neutral effect	Negative effect	Too early to estimate	Not relevant
a) Simpler procedures	☐	☐	☐	☐	☐
b) Time to deliver a service	☐	☐	☐	☐	☐
c) Ability to target a service to those who need it	☐	☐	☐	☐	☐
d) User experience of a service	☐	☐	☐	☐	☐
e) User access to information	☐	☐	☐	☐	☐
f) Employee satisfaction	☐	☐	☐	☐	☐
g) Safety of employees or individuals (citizens, residents, etc.)	☐	☐	☐	☐	☐
h) Reducing costs	☐	☐	☐	☐	☐
i) Service quality	☐	☐	☐	☐	☐
j) Other	☐	☐	☐	☐	☐

Obstacles to developing or implementing this most important innovation

C.17 How important were the following factors in hindering the development of this most important innovation?
If you reported no innovations in question B.1, please answer this question by reporting the importance of the following factors in hindering innovating in your work unit.

		Degree of importance (Tick **one** box per row)				
		High	**Medium**	**Low**	**None**	**Not relevant**
a)	Political or senior management pressure for rapid development and implementation	☐	☐	☐	☐	☐
b)	Lack of a supportive culture for innovation in your organization	☐	☐	☐	☐	☐
c)	Lack of support by senior management	☐	☐	☐	☐	☐
d)	Lack of support by politicians	☐	☐	☐	☐	☐
e)	Senior management concerns over risk (failure, poor publicity, technical difficulty, etc.)	☐	☐	☐	☐	☐
f)	Lack of knowledge on how to innovate within your organization	☐	☐	☐	☐	☐
g)	Difficulties in finding potential users to participate in developing this innovation	☐	☐	☐	☐	☐
h)	Management resistance to including **user input** in the development of this innovation	☐	☐	☐	☐	☐
i)	Legal or regulatory obstacles to including **user input** in the development of this innovation	☐	☐	☐	☐	☐
j)	Other legal requirements or regulations	☐	☐	☐	☐	☐
k)	Insufficient financial resources or staff	☐	☐	☐	☐	☐
l)	Insufficient demand from users	☐	☐	☐	☐	☐

Please use the following text box to provide any comments on the topic of this survey

Annex B Guidelines for coding text describing the most important innovation (C1)

The written information provided by respondents on their most important innovation (MII) should be coded into 11 variables. Each variable should equal '1' for ' yes' and be left blank otherwise. The variables are as follows:

Variable name	Description
External service	Service provided to citizens, residents or businesses outside of government. External services can be divided into four types listed below. In the rare case that someone reports a product, include it under external services and 's-other'.
S-health	Services for health, including mental health
S-education	Services for education and training at all levels (primary, secondary, tertiary etc.
S-social	Social services covering social welfare (income), housing, transportation, etc.
S-other	All other types of services, such as infrastructure, environmental, etc. Also include products here. *Do not use this as a default category if there is insufficient information on the external service, only tick 1 for external service for those cases.*
Online	Include all references to online or web-based services including apps.
Internal service	Services provided to government departments or to government employees.
Process	All type of process innovations for improving service delivery, government functions, data gathering and monitoring to improve decision making, etc. These can be further divided into two types:
Oth-ICT	The innovation involves ICT other than online/web based systems which are covered in another variable. Under 'Oth-ICT' include the use of digitalized processes plus references to ICT management software (CRM – customer relations management; RPA (Robotic process automation), etc. There are multiple example in English of acronyms such as these and this is probably true in other languages. I found it helpful to look them up on google to verify that it was an ICT based. Always assign a value of '1' to Process if Oth-ICT = 1.

Org	Organizational innovations. These include restructuring, changing work responsibilities, creating new units to handle certain tasks or combining pre-existing units, etc. Always assign a value of '1' to Process if org = 1.
Unknown	Insufficient information provided in the text to classify the innovation. DO NOT code respondents as 'unknown' if they provide no written description. Leave those blank.

External service, Internal service, Process and Unknown are stand-alone categories, try to code the MII into at least one of these categories. The online category can also be a stand-alone category if not enough information is provided on whether it's a service or process.

One innovation can be assigned to multiple variables. In fact, you should be able to assign most descriptions to multiple variables. For instance, all ext-service innovations should also be assigned to one of the four sub-types of service innovations (s-health, s-educ, s-social, and s-other), plus a service innovation might also involve changes to back-office processes (Process = 1), be provided online or through the web (online = 1) and involve forms of software innovation (Oth-ICT=1).

Many innovations might involve Oth-ICT, but the respondent fails to give sufficient information to make this clear. Don't assign a value of '1' to the Oth-ICT variable unless you have reasonable evidence that this is the case. For example, an innovation that involves 'systems', 'dynamic scheduling', or 'new technology' probably involves Oth-ICT and consequently this variable can be given a value of 1. But other terms do not necessarily involve ICT, for instance references to 'integration' or simply 'new processes'. We expect that our variable for Oth-ICT will under-report the actual involvement of ICT.

Of note, at this stage we are only coding the MII based on the written answers of respondents on question C1 and we are not using any other information of the respondents or answers to other survey question to code. The reason for this is to be unbiased in our coding.

Coding examples:

1. "Integration of services of children involving health, education and social care"

Ext-service = 1, plus s-health, s-education, and s-social. Even though the word 'integration' is used, there is not enough information to assume that process or organizational innovation was involved.

2. "Review of existing practices and restructuring to reflect new priorities".

Assign a value of 1 to both Process and Org.

3. “Implement new processes to collect and information from businesses”

Assign a value of 1 to Process only. There is not enough information to assume that this process involved Oth-ICT or was provided online. Also, this is not a service to the business since it does not improve the operations of the business and in fact could be a costly increase in data reporting. Similarly, other innovations to improve monitoring or data reporting are not service innovations unless it is clear that the purpose is to help citizens or businesses in some way.

4. “New grants program for community groups”

This is a service innovation, but no other variable can be assigned a value of 1. In addition, streamlining grant-funding or other systems where citizens apply for funding or other forms of support are likely to be both a service and a process innovation. Research innovations are rarely a service innovation because they are too far away from resulting in a change.

5. “Co-provision of service delivery across four government levels leading to efficiencies and improved quality of service”.

Code as a service, but leave the type of service blank since insufficient information is provided. Also code ‘Process’ = 1, based on the reference to efficiencies. The ‘co-provision of service delivery across four government levels’ indicates organizational innovation as well.

6. “Introduction of advisory service to help internal departments work more efficiently”. Or “Development of intervention matrix to use as a tool to decide which intervention fits best with a particular case.”

Code as an Internal service, and Process. Do not tick ‘Org’ as insufficient information is provided.