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EXECUTIVE SUMMARY

This Deliverable report (D4.2) shows the results of the online consultation held in 2016 within the European project called Citizens and Multi-Actor Consultation on H2020 (CIMULACT).

The WP4 (online consultation) was held as a part of the *second consultation phase* of the project. It represents a follow-up to the *scenarios* based on citizens' visions in the first consultation phase and it has been performed in parallel with the 30 national face-to-face consultations in CIMULACT participating countries. The content for the online consultation originated from previous steps of the CIMULACT project. In the beginning of the project, more than 1000 citizens produced 6 national visions per country = 179 visions of desirable and sustainable future in Europe. These visions have been the first step for the co-creation of research programme scenarios by citizens, stakeholders, researchers and policy makers. National visions workshops took place in 30 European countries with the attendance of 36 citizens per country and applied the same method.

Based on all these visions, 26 social needs have been identified during the workshop in Paris with 26 researchers from the CIMULACT consortium as well as with external experts who reviewed the visions created by citizens. Finally, these 26 social needs have been presented on an exhibition of European citizens' needs as the starting point for the CIMULACT co-creation workshop in Milan.

The final content for the online consultation has been created on the workshop in Milan. At this co-creation workshop, 48 research programmes / scenarios have been produced, based on the visions and needs. Afterwards, these scenarios have been adjusted for the purposes of the online consultation platform. The online platform has been designed and implemented by *Institutul de Prospectiva*. A comprehensive description of the online platform has been made in the Deliverable 4.1 Online consultation.

The first part of the report describes the methodology of the online consultation including the platform principles, process steps and almost 3 500 respondents sample – in basic characteristics. The participations differ significantly among countries from 300 in Portugal to only less than 20 in the UK and Sweden. Gender distribution is slightly shifted in favour of women (60 %).

The survey attracted younger generation since three quarters constituted respondents between 18 and 49 years. Obviously, the theme of the consultation was more of interest of educated people: more than a half of all the respondents have completed tertiary education.

Referring to the economic activity of participants almost 60% respondents were employees and another almost 15% were students and 12% employers/self-employed. Other groups of respondents showed minimal representation.

The second part of the report shows the results of a) social needs ranking by the nationality of respondents as well as by the popularity of social needs general thematic focus – the 12 **social needs** might be divided in three basic categories: as very popular (Sustainable Economy and Equality), popular (Strengths-Based Education and Experiential Learning, Citizenship Awareness and Participation, Harmony with Nature, Holistic Health, Personal Development, Sustainable Energy, Unity and Cohesion, and Sustainable Food) and specific ones (Life-long Processes and Green Habitats); b) research programmes ranking and assessment. This assessment includes arguments and questions that respondents voted for in every individual research programme – some of these arguments and questions were pre-identified by the consortium, stakeholders and experts in previous stages of the CIMULACT process and some of these were newly added by respondents themselves. These new arguments and questions were than clustered for the purpose of further discussions on identification of concrete research topics, namely for debates planned during the CIMULACT Pan-European Conference in Brussels in December 2016.

The judgement on programme provides reflection on the importance of the need. In order to provide more insight in the relationship between themes/needs and programmes we generated an overall need score: each programme in the upper third gets 5, programmes of the middle third get 3 and the rest get 1 point. Summing the points over programmes yields a value which we call “need score”. The highest need scores get Holistic Health and Sustainable Energy followed by Sustainable Food and Harmony with Nature. On the other end there are Personal Development, Green Habitats and Unity and Cohesion. These need scores undoubtedly comprise the quality of the specification of programmes and the level of understanding them by respondents (including the influence of the respondents background).

Combining these qualities with the relative “popularity” of needs (representing social demand for research in the need area - theme) we yield adjusted need scores. The theme/need Sustainable economy stays the most demanded by citizens for research. In spite of some reshufflings, specific themes remain at the bottom of the interest.

Together with the face-to-face consultations in 30 countries involved in CIMULACT, these results serve as a basis for the final outcome of the project: research topics of H2020 options for the next Work Programme period (2018-2020). The report provide insights to the public preferred needs and views as a method for further fulfilling of the RRI political concept.

INTRODUCTION

This report presents results of the Online Consultation held in 30 participating CIMULACT countries between August 23 and October 20, 2016.

The CIMULACT project has as a main objective to add to the relevance and accountability of European research and innovation by engaging citizens and stakeholders in co-creation of research agendas based on real and validated societal visions, needs and demands. The project expands the outlook and debate on Science, Technology and innovation (STI) issues, increases scientific literacy in a broad sense including the understanding of the societal role of STI. It creates a shared understanding among academia, stakeholders, policy-makers and citizens. This multi-actor approach includes EU28 plus Norway and Switzerland.

The CIMULACT builds on the principle that the collective intelligence of society gives Europe a competitive advantage, which may be activated to strengthen the relevance of the European science and technology system. By establishing genuine dialogue between citizens, stakeholders, scientists, and policymakers visions and scenarios for the desirable futures will be developed and debated, and transformed into recommendations and suggestions for research and innovation policies and topics. The CIMULACT creates visions and scenarios that connect societal needs with future expected advances in science and their impact on technology, society, environment etc. - in connection to the Grand Challenges. The CIMULACT project aims to provide a concrete input to Horizon 2020 through recommendations and policy options for R&I and simulated calls for the Horizon 2020 Work Programmes. By engaging citizens and stakeholders in a highly participatory consultation process on scenarios for desirable sustainable futures and research will build capacities in citizen and multi-actor engagement in R&I through development, experimentation, training and assessment of methods for engagement. It will facilitate dialogue and shared understanding between policymakers, citizens, and stakeholders and collects valuable and diverse feedback from citizens and various groups of stakeholders on the research programme scenarios.

The WP4 (online consultation) was held as a part of the second consultation phase of the project. It represents a follow-up to the scenarios based on citizens' visions in the first consultation phase and it has been performed in parallel with the 30 national face-to-face consultations in CIMULACT participating countries. The content for the online consultation originated from previous steps of the CIMULACT project. In the beginning of the project, more than 1000 citizens produced 6 national visions per country = 179 visions of desirable and sustainable future in Europe. These visions have been the first step for the co-creation of research programme scenarios by citizens, stakeholders, researchers and policy makers. National visions workshops took place in 30 European countries with the attendance of 36 citizens per country and applied the same method.

Based on all these visions, 26 social needs have been identified during the workshop in Paris with 26 researchers from the CIMULACT consortium as well as with external experts who reviewed the visions created by citizens. Finally, these 26 social needs have been presented on an exhibition of European citizens' needs as the starting point for the CIMULACT co-creation workshop in Milan.

The final content for the online consultation has been created on the workshop in Milan. At this co-creation workshop, 48 research programme scenarios have been produced, based on 26 social needs. It succeeded thanks to 30 citizens from 30 European countries who attended national visions workshops, 30 experts and 40 researchers from the CIMULACT consortium. Afterwards, these scenarios have been adjusted for the purposes of the online consultation platform. The online platform has been designed and implemented by Institutul de Prospectiva. A comprehensive description of the online platform has been made in D4.1 Online consultation.

In the Annex IV, it is possible to see the *project flow* and deliverables / partial results from previous steps of the project are available on the CIMULACT website[1].

The online consultation outputs give a feedback on scenarios in terms of criticisms, validation and prioritisation. It is a combination of qualitative and quantitative outputs based on highly participatory activities and methods.

The results of the Online Consultation will help to refine, revise and improve the research programme scenarios in task 2.2.

The aim of the online consultation was to give feedback on scenarios which have created in the previous steps of the CIMULACT project, in terms of validation and prioritization. From this point of the view, it was important to have as many participants as possible. The engagement of citizens and experts / stakeholders in the online consultation was a great challenge, especially given the timing of August - October. For that reason, a lot of effort has been put from each consortium partners to engage participants. In order to increase the motivation and mobilisation of respondents, the *Technology Centre CAS* has organised an *online training* and provided *Mobilization guidelines* (Annex III) to all consortium partners to describe and discuss collectively various ways how to attract participants and disseminate information about the online consultation.

Finally, the total number of participants was 3458. This number of participants has been reached thanks to proactive approach of all the consortium partners.

It seems that the best way how to address participants still lies in personal or professional mailing / contact lists or in various social media channels. Participants from mailing lists

[1] http://www.cimulact.eu/publications-2/

usually got a standard or personalized e-mail with a short introduction and link to the online consultation. At the same time, people were asked to disseminate this information further. This snowball sampling showed to be a very effective way how to disseminate the information about this online consultation. Social media (mainly Facebook, Twitter or LinkedIn) were very useful because as they make it easier and quick to spread the information in the relevant communities. There were also other ways how to address participants, such as: newsletters or press releases distributed on live events, in the majority of cases translated to national languages; or some partners even used gifts to motivate people to complete the online consultation etc.

1. METHODOLOGY

The main aim of the online consultation was to enrich and prioritize research scenarios. It answered the following two questions:

1) What are the societal needs that you find most pressing nowadays?
2) How relevant for society are the proposed research programmes associated with these needs?

1.1 The platform

The structure of the consultations follows a Dynamic Argumentative Delphi (DAD) logic and format. The main idea behind DAD was to enable online Delphi consultations with a large number of participants (potentially hundreds or even thousands), while retaining the interactive argumentative or justification-based nature of the traditional Delphi. DAD introduces a few simple rules for the argumentative part of the online questionnaire:

- In the initial phase, each Delphi statement in the online questionnaire is associated with 2-5 'default' arguments which, together with all arguments, added subsequently by respondents, are always visible to participants. The expanding set of arguments – the 'qualitative' data – serve, as in most typical Delphi formats, as justifications for the quantitative estimates (e.g., likelihood, impact, and so forth). The default arguments consist of a balanced number of pros and cons, as extracted during the scoping phase.
- When accessing the questionnaire, each respondent is invited to enter his or her quantitative estimation (of probability, impact etc.) and to justify it by selecting at least one pre-existing argument, or providing at least one new argument, or both. The maximum number of arguments that may be added / selected by any individual respondent is usually limited (to three or four).
- The list of arguments, updated with the newly selected / introduced ones, is always visible to subsequent respondents. The arguments in the list are also ranked by the number of votes gathered during the exercise (these numbers are usually observable in brackets). The respondents' quantitative estimates (e.g., the probability of an event's occurrence by 2050), are visible only to the participant introducing them (that is, they remain invisible to all other individual respondents).
- In the reporting phase, the arguments associated to specific quantitative values can be easily highlighted.

1.2 The process

Firstly, addressed respondents had to register (it means they entered the email) and sequentially they got a link with the access to the online consultation. After they entered the online consultation, the screen with the 12 social needs appeared. Everyone had to choose 2 social needs. All social needs contained its short description.

The list of social needs:

- Citizenship Awareness and Participation
- Equality
- Green Habitats
- Harmony with Nature
- Holistic Health
- Life-Long Processes
- Personal Development
- Strengths – Based Education and Experiential Learning
- Sustainable Economy
- Sustainable Energy
- Sustainable Food
- Unity and Cohesion

Besides that every social need contains 4 proposed research programmes with research questions and arguments (every participant assessed 8 research programmes). Some of research questions and arguments were defaulted as the result of previous steps of the project. The number of the initial research questions and arguments was always between 2 and 3. Participants could also add their own research questions or an argument.

After the selection of needs, respondents chose from the initial research questions or provide new one and ticked off. One by one they did it for all research programmes. The same approach was also used for arguments. The overall numbers of votes were monitored at each research questions and arguments.

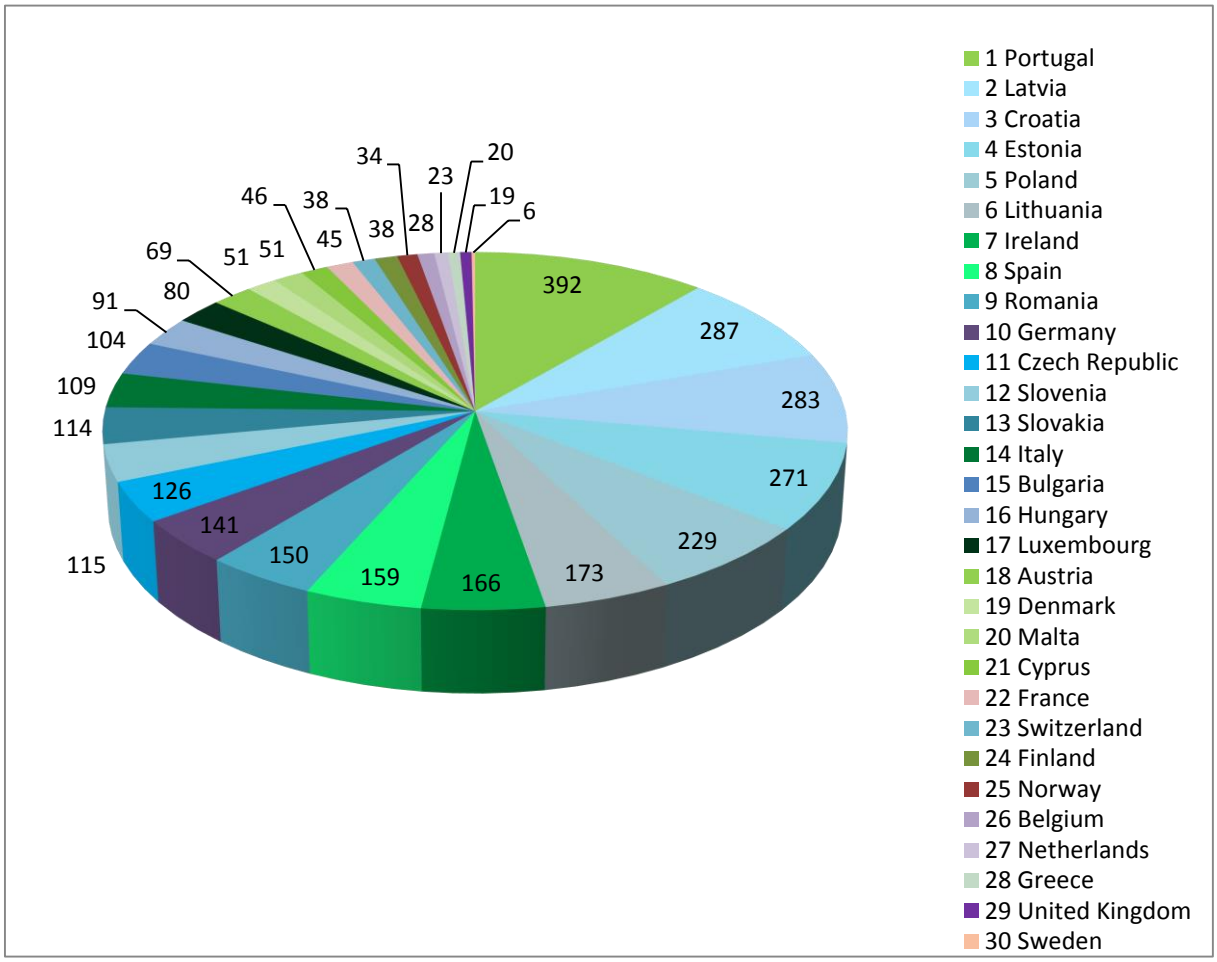
In the end of the online consultation respondents completed their profile with data for the following overview of the structure of respondents.

1.3 Respondents sample description

In this part of the report we introduce the overall results from the online consultation including the structure of respondents.

The total number of respondents of the online consultation in 30 European countries was 3 458. From Figure 1 it is obvious that numbers of participants differ significantly among countries. The highest number of participants is from Portugal, Latvia, Croatia, Estonia and Poland.

Figure 1 Number of respondents by country distribution



Gender distribution is quite balanced (women 60.09 % and men 39.65 %). In a few countries, the share of women reached two thirds (Latvia, Romania, Finland and France).

Concerning the **age,** almost one half of respondents is between 30 and 49 year of age, followed by young people between 18 and 29. The smallest representation had respondents older than 65.

The representation according to the highest **education level** showed that more than a half of all the respondents had completed tertiary education. Respondents with lower education rarely participate. The reason behind this is most probably the difficulty of understanding the content of proposed research programmes.

Referring to the **economic activity** of participants almost 60% respondents were employees and another almost 15% were students and 12% employers/self-employed. Other groups of respondents showed minimal representation.

Size of the residence is the other reported criteria. The most of respondents were from larger cities (56.33% were from cities with more than 100 000 inhabitants). Another 23.34% were from smaller cities and 20.33% from towns or villages.

From the point of **sector of activity** the representation of respondents were relatively equal. Respondents from Academia, Business and Public sector had between 25% and 30%. The representation of NGO/CSOs was 9% and another 11.86% answered none sector of activity.

The complete results overview is indicated in the Annex 1.

2. RESULTS

2.1 Ranking of social needs

In the first step, respondents selected two categories of needs. We can regard this as giving preference to the areas they liked and felt most competent. The distribution of preferences is given in Figure 2. We can divide the themes/needs in three basic groups:

i) Very popular themes (marked blue) being selected by more than 800 respondents i.e. more than a quarter of participating respondents. These are: Sustainable Economy (rank 1) and Equality (2);
ii) Popular themes (marked brown) receiving attention of 12% to 20 % of respondents: Strengths-Based Education and Experiential Learning, Citizenship Awareness and Participation, Harmony with Nature, Holistic Health, Personal Development, Sustainable Energy, Unity and Cohesion, Sustainable Food;
iii) Special themes (marked yellow) being chosen by less than 10% of respondents: Green Habitats, Life-Long Processes.

The national results showed some remarkable differences in the social needs selection. The prioritization might be influenced by following factors. The people tended to choose topics more understandable for them. It should be topics more frequent in media thus more attractive from this point of view.

The most selected need is the **Sustainable Economy** selected by 1074 respondents. This topic was ranked first place in Germany, Netherlands, Finland, Italy, Switzerland, Belgium, United Kingdom, Spain, Cyprus and also in Slovenia, Czech Republic, Latvia. On the second place it was ranked in Austria, France, Luxembourg, Norway, Portugal, Hungary and Romania and on the third place in Denmark, Catalonia and Slovakia. Generally, we could note that one third of the respondents gave a high priority to the Sustainable Economy.

Equality is the second most selected need in the participating countries. The highest priority obtained the need from the respondents in the South European countries (Malta, Portugal, Catalonia), in Ireland, Austria and Lithuania. The Equality was ranked on the second place by respondents in Italy, Spain, Belgium, Sweden, United Kingdom and Slovenia. This need was placed in the third position in Norway, Finland and Latvia. Not surprisingly the theme/need was not ranked high in most post-communist countries (new MS); reservations of post-communist societies toward equity are commonly known.

Strengths-Based Education and Experiential Learning was prioritized significantly by the respondents of the new EU countries such as Bulgaria, Poland, and Romania. In the second position was it ranked in Slovakia and as third in Slovenia. The issue was highly prioritized in Malta (the second place) as well as in Catalonia and in Spain and Greece (the third position).

This social need obtained a high significance and importance in most of the new EU Member States in general.

On the other hand the **Citizenship Awareness and Participation** the fourth most selected need on European level was prioritized significantly in Austria, Germany, Belgium, Switzerland, Italy, Portugal, Greece and Cyprus. Hungary and Romania are the new EU countries where respondents gave significance to this need (the third position).

Harmony with Nature was on the fifth place on the European level and prioritized in the North European countries such as Sweden (the first position), Denmark and Finland (the second position) and also in Switzerland, Luxembourg and Malta. In the new EU Member States was given preference to it in Hungary and Slovakia (the first position), Czech Republic and Lithuania (the second position) and Bulgaria (the third position).

Holistic Health prioritized significantly in the new EU countries such as Estonia (the first place), Latvia (the second place) and Poland (the third position) and also in Greece (the second position) and the United Kingdom (the third position).

The seventh most selected need was **Personal Development.** This need was ranked on the higher position in Poland and Bulgaria (the second position) and in Estonia and Lithuania (the third position) and in Cyprus (the second position) and Luxembourg (the third position).

Sustainable Energy seems to be the most important issue in the North European countries (Denmark and Norway - the first positon, Ireland – the third place) and in the Czech Republic (the third position). The need **Unity and Cohesion** was significantly prioritized in the old EU countries such as France, Luxembourg (the first position) Netherlands (the second place) and Switzerland (the first position). The need **Sustainable Food** was ranked in the third place in France, Sweden and Netherlands. **Green Habitats and Life-Long Processes** were the two less selected needs on the European level.

As we can see from the chart in Figure 2, there can be even finer division as the “popular” group can be divided in 3 sub-groups of themes/needs. It together results in 5 groups of themes/needs (see also Figure 3). The most popular (preferable) are themes/needs related to shared principles or common European values: Sustainable Economy and Equality. The second popular group relates to methods/approaches to societal problems: Strengths-Based Education and Experiential Learning and Citizenship Awareness and Participation. Then we can recognise a group of needs related to individual/personal dealing with common issues: Harmony with Nature, Holistic Health, and Personal Development. Slightly below average from the perspective of popularity among respondents are three globalisation issues: Sustainable Energy, Unity and Cohesion and Sustainable Food. The last group consists of forward looking themes which enjoyed least attention of participants in the online consultation.

Figure 2 Distribution of needs according to their popularity (frequency)

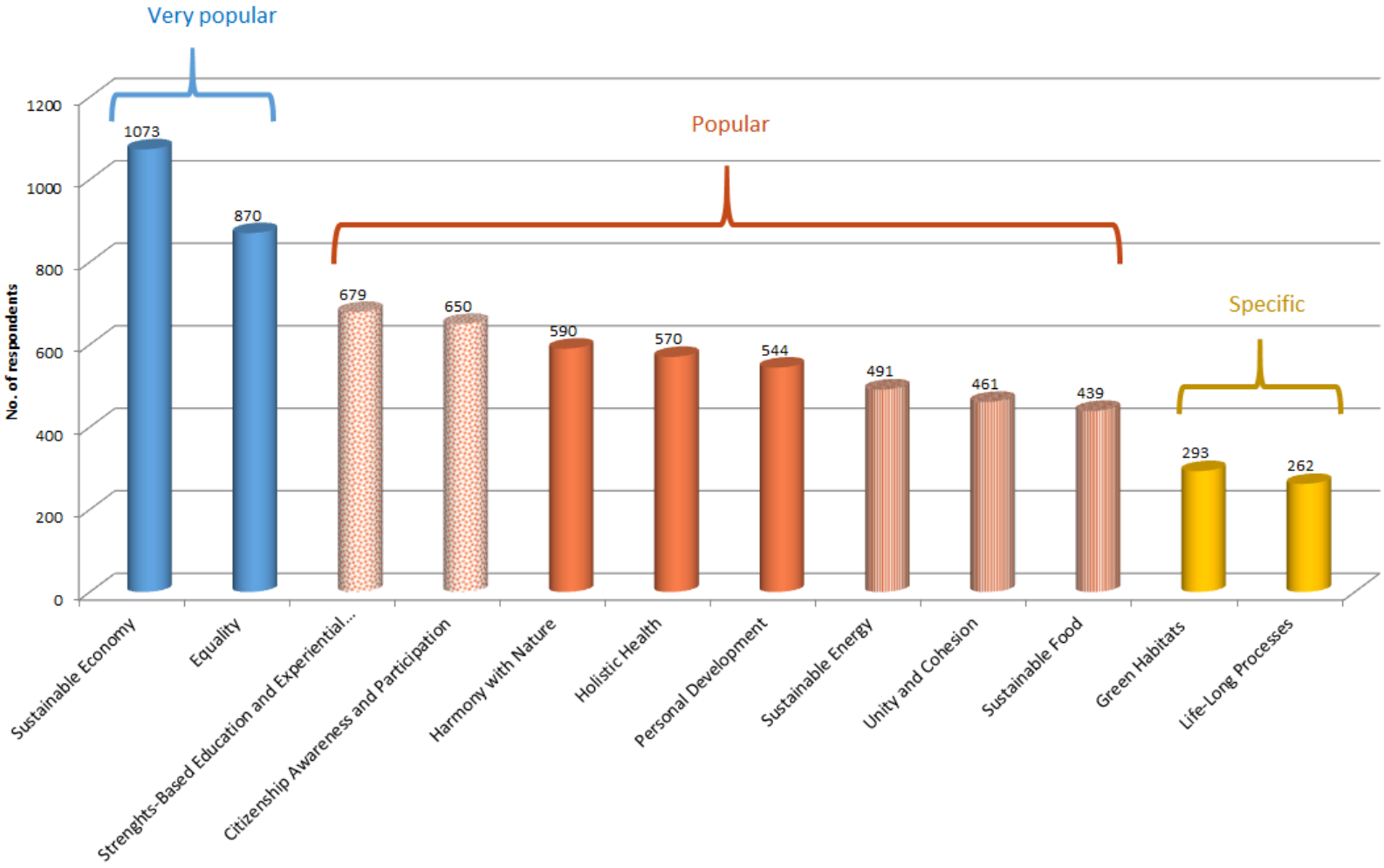
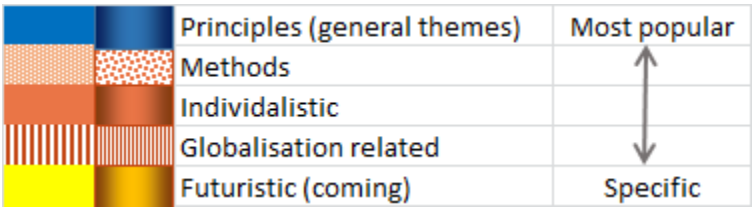


Figure 3 Classification of needs based on the frequency of choices.



2.2 Ranking and assessment of research programmes

In the second step, the participants of the online consultation were asked to value the importance of the suggested four programmes on the scale 1 to 5 in each of the two selected themes/needs. Note that each programme, even within one group, was evaluated independently on the others, i.e. two or more can get the same value. In Table 1, we present the results of this exercise; the table is split in four parts by the ranks of the appraisal in each theme/need: the first table includes programmes ranked highest (1), the second table the rank 2 programmes, the third table the rank 3 programmes and the fourth table the programmes of lowest rank. The average scores range between 3.6 and 4.1. In general this means that respondents considered the proposed programmes relevant.

Nevertheless we can assert that the average score below 3.8 indicates that more than one third of respondents were not fully satisfied with the respective programme (and vice-versa). Thus those with the average score below 3.8 we marked red. The top-ranked programmes received average scores slightly above 4, the rank 2 programmes exhibit average ranks slightly below 4, except two with the scores 3.8. The rank 3 programmes exhibit basically the same scores as the rank-2 programmes. But most of the rank 4 programmes show red figures i.e. a substantial group of respondents was not entirely happy with them.

Table 1 Respondents evaluation of programmes by group of needs

Most preferred programmes in each group of needs

	Programme	Avg.score	Diff between citizens and experts
Sustainable Economy	Consume less, enjoy more	4.1	**11%**
Equality	Balanced work-life model	4.0	5%
Strengths-Based Education and Experiential Learning	Rethinking (the new) "job market needs"	4.1	1%
Citizenship Awareness and Participation	Empowered citizens	4.0	5%
Harmony with Nature	Top trending: at one with nature	4.3	0%
Holistic Health	Access to equal and holistic health services and resources for all citizens	4.1	0%
Personal Development	(Business) Models for balancing time	4.0	0%
Sustainable Energy	Beyond energy efficiency: reduce consumption through structural design and behaviour	4.2	0%
Unity and Cohesion	Alternative economic model	4.0	3%
Sustainable Food	Good food research	4.2	8%
Green Habitats	Moving together (more collective transports)	4.0	-1%
Life-Long Processes	Deconstruction of age	4.1	**20%**

Second preferred programmes in each group of needs

	Programme	Avg.score	Diff between citizens and experts
Sustainable Economy	Production awareness	4.0	6%
Equality	Social Economy	3.9	5%
Strengths-Based Education and Experiential Learning	Educational ecosystem as a driver of social innovation and local development	4.1	6%
Citizenship Awareness and Participation	The transparency toolbox	3.9	**13%**
Harmony with Nature	Ecological future education	4.2	3%
Holistic Health	Quantitative person-centred health	4.1	6%
Personal Development	Personal and organisational choice management	3.9	0%
Sustainable Energy	Enabling a market for energy prosumers	4.1	1%
Unity and Cohesion	Community building infrastructures	3.8	0%
Sustainable Food	Responsible use of land	4.1	**11%**
Green Habitats	Freedom to choose where we live	3.8	**11%**
Life-Long Processes	Health empowerment through "Everyone's science"	4.0	4%

Third preferred programmes in each group of needs

	Programme	Avg.score	Diff between citizens and experts
Sustainable Economy	From Wall Street to Main Street	4.0	6%
Equality	Empowering diversity in communities	3.9	4%
Strengths-Based Education and Experiential Learning	Design literacy and life skills for all	4.0	**12%**
Citizenship Awareness and Participation	Data for all – Share the power of data.	3.9	**14%**
Harmony with Nature	Transforming technologies for planet and people	3.9	0%
Holistic Health	Finding a balance in a fast-paced life	4.1	-1%
Personal Development	Technology as a means of well-being	3.9	**10%**
Sustainable Energy	Smart energy governance	4.1	-1%
Unity and Cohesion	Evidence-based community building	3.7	3%
Sustainable Food	Good quality food for all	4.0	6%
Green Habitats	Distributed living	3.7	4%
Life-Long Processes	I'm empowered to lead my changes	3.9	6%

Least preferred programmes in each group of needs

	Programme	Avg.score	Diff between citizens and experts
Sustainable Economy	Learning for society	3.8	6%
Equality	Digital Inclusion	3.7	1%
Strengths-Based Education and Experiential Learning	SWOT (Strengths, Weaknesses, Opportunities, Threats) Technological empowerment	3.9	6%
Citizenship Awareness and Participation	"Snakes and Ladders". Connecting scales of issues and actors.	3.7	5%
Harmony with Nature	Urban-rural symbiosis	3.8	3%
Holistic Health	Promoting well-being through relating environments	3.9	0%
Personal Development	Meaningful research for society	3.7	9%
Sustainable Energy	Interconnected open systems	3.9	1%
Unity and Cohesion	Universal basic income – so no-one is left behind	3.6	**28%**
Sustainable Food	Evolving food culture in growing cities	3.8	7%
Green Habitats	The bigger (the cities) the better	3.6	0%
Life-Long Processes	Here, there and everywhere	3.7	**10%**

Notes: red figures - values below the threshold score 3.8, green figures – the difference between the judgement of experts and citizens is more than 10% of the average score.

Unfortunately, the survey does not provide explanation for the low scores. We can only guess that in some cases the participating citizens might be discouraged by the programme title like “The bigger (the cities) the better”, in some other cases it was not easy to understand the programme. The latter might be a particular case of the programme “Universal basic income – so no-one is left behind” from the theme/need Unity and Cohesion which was ranked by expert as top (the score 4.6) while citizens appraised it with the lowest average score 3.59.

The difference between the judgements of citizens and experts is generally low, only in less than one fifth of cases the difference exceeds 10%.

2.3 General view on proposed programmes

Ranking programmes across needs by average scores is limited since respondents of the citizen citizen consultation worked with programmes within two needs only. Keeping this in mind we we nevertheless ordered the programmes by the average scores of importance and divided them them in three equal groups by ranks (Table 3). The most preferred programmes (rank 1-16) are marked red, the second group by importance is marked green and the last one is left white (colours in the first column, the colours in the second column refer to the classes of needs/themes). We can see that while programmes of the individualistic and globalisation related related needs are largely ranked high, there is only one programme of the specific needs (deconstruction of age) in the group of the most preferred programmes. More in this respect is is presented in

Table 2 (built upon Table 3). Any of the proposed programmes of four themes/needs (Citizenship Awareness and Participation, Personal Development, Unity and Cohesion and Green Habitats) did not qualify for the top group (red), while three themes/

Table 2 The presence of programmes in the importance groups by needs

Need	# in the upper 1/3	# in the middle 1/3	# in the lower 1/3	Need scores	Adjusted need scores
Sustainable Economy	1	2	1	12	3.72
Equality	1	1	2	10	2.51
Strengths-Based Education and Experiential Learning	2	2	**0**	16	3.14
Citizenship Awareness and Participation	**0**	2	2	8	1.50
Harmony with Nature	2	1	1	14	2.39
Holistic Health	3	1	**0**	18	2.96
Personal Development	**0**	2	2	8	1.26
Sustainable Energy	3	1	**0**	18	2.55
Unity and Cohesion	**0**	1	3	6	0.80
Sustainable Food	3	0	1	16	2.03
Green Habitats	**0**	1	3	6	0.51
Life-Long Processes	1	2	1	12	0.91

Source: Table 3

Table 3 The order of programmes by the average importance scores only

Rank	Need	Programme Title	Nr. of resp.	Avg. imp.	Disper-sion
1	Harmony with Nature	Top trending: at one with nature	590	**4.28**	0.76
2	Harmony with Nature	Ecological future education	590	**4.20**	0.83
3	Sustainable Food	Good food research	439	**4.18**	0.79
4	Sustainable Energy	Beyond energy efficiency: reduce consumption through structural	491	**4.16**	0.84
5	Holistic Health	Access to equal and holistic health services and resources for all	570	**4.11**	0.95
6	Sustainable Energy	Enabling a market for energy prosumers	491	**4.11**	0.88
7	Holistic Health	Quantitative person-centred health	570	**4.10**	0.92
8	Holistic Health	Finding a balance in a fast-paced life	570	**4.09**	0.91
9	Sustainable Food	Responsible use of land	439	**4.09**	0.82
10	Strengths-Based	Rethinking (the new) "job market needs"	679	**4.09**	0.91
11	Strengths-Based	Educational ecosystem as a driver of social innovation and local	679	**4.08**	0.79
12	Life-Long Processes	Deconstruction of age	262	**4.05**	0.82
13	Sustainable Economy	Consume less, enjoy more	1073	**4.05**	0.97
14	Sustainable Energy	Smart energy governance	491	**4.05**	0.93
15	Equality	Balanced work-life model	870	**4.04**	0.90
16	Sustainable Food	Good quality food for all	439	**4.03**	0.96
17	Sustainable Economy	Production awareness	1073	**4.03**	0.92
18	Citizenship	Empowered citizens	650	**4.00**	0.90
19	Unity and Cohesion	Alternative economic model	461	**3.99**	1.12
20	Strengths-Based	Design literacy and life skills for all	679	**3.99**	0.90
21	Personal Development	(Business) Models for balancing time	544	**3.99**	0.87
22	Sustainable Economy	From Wall Street to Main Street	1073	**3.99**	1.03
23	Life-Long Processes	Health empowerment through "Everyone's science"	262	**3.98**	1.09
24	Green Habitats	Moving together (more collective transports)	293	**3.96**	0.95
25	Citizenship	The transparency toolbox	650	**3.94**	0.94
26	Harmony with Nature	Transforming technologies for planet and people	590	**3.93**	1.11
27	Life-Long Processes	I'm empowered to lead my changes	262	**3.91**	0.94
28	Personal Development	Personal and organisational choice management	544	**3.91**	0.93
29	Equality	Social Economy	870	**3.90**	0.92
30	Holistic Health	Promoting well-being through relating environments	570	**3.89**	0.99
31	Sustainable Energy	Interconnected open systems	491	**3.89**	0.90
32	Strengths-Based Education and	SWOT (Strengths, Weaknesses, Opportunities, Threats) Technological empowerment	679	**3.88**	1.04
33	Personal Development	Technology as a means of well-being	544	**3.86**	0.97
34	Equality	Empowering diversity in communities	870	**3.85**	1.00
35	Citizenship	Data for all – Share the power of data.	650	**3.85**	0.92
36	Unity and Cohesion	Community building infrastructures	461	**3.82**	1.06
37	Harmony with Nature	Urban-rural symbiosis	590	**3.82**	1.08
38	Sustainable Economy	Learning for society	1073	**3.79**	1.04
39	Sustainable Food	Evolving food culture in growing cities	439	**3.76**	1.10
40	Green Habitats	Freedom to choose where we live	293	**3.76**	1.04
41	Personal Development	Meaningful research for society	544	**3.74**	1.08
42	Citizenship	"Snakes and Ladders". Connecting scales of issues and actors.	650	**3.73**	1.02
43	Unity and Cohesion	Evidence-based community building	461	**3.70**	1.15
44	Green Habitats	Distributed living	293	**3.68**	1.33
45	Equality	Digital Inclusion	870	**3.67**	1.07
46	Life-Long Processes	Here, there and everywhere	262	**3.65**	1.20
47	Unity and Cohesion	Universal basic income – so no-one is left behind	461	**3.61**	1.36
48	Green Habitats	The bigger (the cities) the better	293	**3.60**	1.39

Note: The table is divided in three parts: the most preferred programmes (red), the medium preferred programmes (green) and the least preferred ones (white)

needs (Holistic Health, Sustainable Energy and Sustainable Food) came in the top group with three programmes. We also see that programmes of very popular themes do not have the highest average scores.

The judgement on programme provides reflection on the importance of the need. In order to provide more insight in the relationship between themes/needs and programmes we generated an overall need score: each programme in the upper third gets 5, programmes of the middle third get 3 and the rest get 1 point. Summing the points over programmes yields a value which we call "need score". The highest need scores get Holistic Health and Sustainable Energy followed by Sustainable Food and Harmony with Nature. On the other end there are Personal Development, Green Habitats and Unity and Cohesion. These need scores undoubtedly comprise the quality of the specification of programmes and the level of understanding them by respondents (including the influence of the respondents background).

Combining these qualities with the relative "popularity" of needs (representing social demand for research in the need area - theme) we yield adjusted need scores. Needs ordered by adjusted scores are presented in Table 4. The theme/need Sustainable economy stays the most demanded by citizens for research. In spite of some reshufflings, specific themes remain at the bottom of the interest.

Table 4 Needs ordered by the Adjusted Need Score

need	# respondents	Need scores	Adjusted need score
Sustainable Economy	1073	12	3.72
Strengths-Based Education and Experiential Learning	679	16	3.14
Holistic Health	570	18	2.96
Sustainable Energy	491	18	2.55
Equality	870	10	2.51
Harmony with Nature	590	14	2.39
Sustainable Food	439	16	2.03
Citizenship Awareness and Participation	650	8	1.50
Personal Development	544	8	1.26
Life-Long Processes	262	12	0.91
Unity and Cohesion	461	6	0.80
Green Habitats	293	6	0.51

Source: Table 3

Turning our attention to the average scores, the graph in Figure 4 suggests that lower average scores are caused by larger dispersion of judgements (programme importance

scores). Therefore, the distribution of scores is skewed and towards higher values. The distribution is of course individual in each case, some generalisation/abstraction of those distributions is presented in Figure 5).

Figure 4 The relationship between the average scores and their dispersions

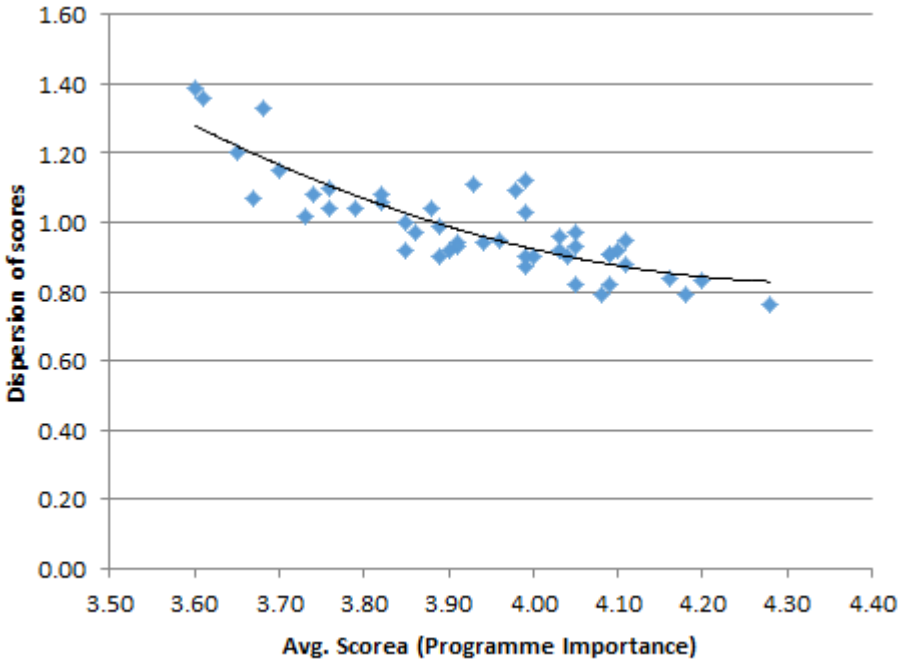
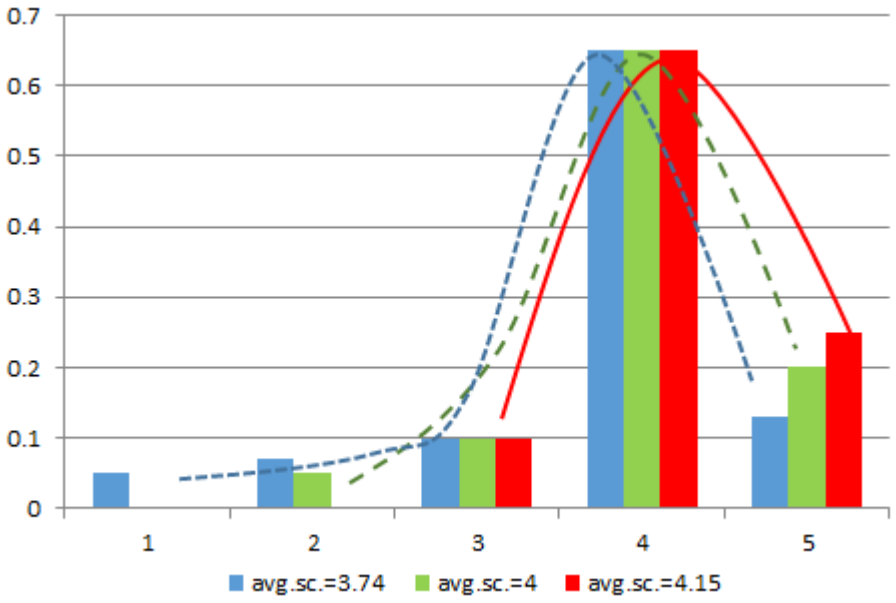


Figure 5 The distribution of scores - generalisation



In this charts we plotted distributions for average scores 3.74, 4 and 4.15 more or less related to the three groups of programmes introduce at the beginning of this paragraph. We

can see that the judgements are concentrated to the programme importance score 4, i.e. the modus of the distributions is the same and the probability (relative frequency) of this score is also the same 0.65. The difference rests in the distribution of the other answers. The relative frequency of the score 5 is between 12 to 25% and thus the share of judgements considering the programme important or very important is between 77 to 90%. It means in turn that averages of the scores do not reflect the distribution wel[2]l and the judgements on the social importance of the programmes based on the averages must be taken with reserve (interpreted carefully in the light of what has been explained above).

2.4 Votes for research questions and arguments

In the third step of the online consultation, participants chose minimum of two pre-defined research questions and two pre-defined arguments per programme or eventually added their own new ones (four programmes per each of the two selected themes/needs = 8 programmes). In the following tables (Table 5, Table 6) we present results of this selection. In this case we report the sums of given votes to a question or to an argument. The values (in contrast to previously used average scores) are not comparable at all across themes[3], and even within programmes we use them first of all for ranking the respective questions or arguments.

The tables are divided in 12 sub-tables by themes/needs ranked by their popularity starting with the most popular theme/need. The sub-table is coloured according to the five groups defined in Figure 3 In the top part, we present the most important programme and it´s most valued question or argument – all are in bold letters and the cells are filled in the (light) colour of the group (according to Figure 3). The other programmes of the theme and the other questions or arguments are simply left black and white. The questions and arguments with the sum of votes exceeding the average votes of all questions or arguments of the corresponding programme by more than 15% are highlighted in green and bold.

It is worth mentioning that among arguments, the “warning”/ negative ones received substantially less votes than the other (positive) arguments - e.g.:

- Higher prices due to new productions models (of Sustainable Economy, Production Awareness) – 16%
- Digital = control of others? (of Citizenship Awareness and Participation, Empowered Citizens) – 20%
- The innovation process will slow down if more citizens and stakeholders are involved (of Harmony with Nature, Transforming technologies for planet and people) – 14%

[2] modus will be more appropriate or sum of frequencies for 4 and 5.

[3] The comparability across the themes is generally very limited, because different people chose two different themes/needs.

The percentages are in respect to the number of respondents in the respective theme/need. The low appraisal of warnings might mean that citizens - respondents undervalue the risks or do not fully understand the offered arguments.

Table 5 Evaluation of research programme question (12 sub-tables by needs/themes)

Need	*Pref. Rank*	*Programme*	*Rank (score)*	*Question*	*Votes*
Sustainable Economy	**1**	**Consume less, enjoy more**	**1 (4.05)**	**What kind of incentives/enablers do we need to implement for consumers to make more responsible/sustainable purchasing decisions?**	**747**
				How do we ensure the quality of the information that companies provide regarding how a good is produced?	521
		Production awareness	2 (4.03)	**How can we ascribe value beyond money to some aspects of sustainable production awareness that are not easily quantifiable in monetary terms?**	**579**
				How can we assess and account for the full cost of the value chain?	363
				What role can "good" companies play in spreading sustainable best practices to the rest of the value chain?	352
		From Wall Street to Main Street	3 (3.99)	Which are the main changes that regulations and the system need to go through in order to foster sustainable and responsible investments?	704
				How can we incentivise the business and financial community to shift their thinking towards long-term investment and gain?	601
		Learning for society	4 (3.79)	**How can we make people think about the individual as well as the collective impact of their actions?**	**637**
				How could environmental and inter-generational ethics be made central to lifelong learning?	396
				How do individuals value personal gains/losses as opposed to collective gains/losses in their decisions?	355

Blue filling – the most preferred track

Green bold text – the votes exceed the average by more than 15% (the top question is highly preferred within the programme)

Need	Pref. Rank	Programme	Rank (score)	Question	Votes
Equality	**2**	**Balanced work-life model**	**1 (4.04)**	**How to increase flexibility at work without increasing financial instability and uncertainty?**	**574**
				How should such non-traditional modes of work be valued and compensated?	341
		Social Economy	2 (3.9)	What types of support infrastructures are needed to ensure the success of such new models of economic collaboration?	453
				How to establish a good equilibrium between more traditional public services and social economy activities?	398
				How would a platform look like where new actors of a social economy can	337
		Empowering diversity in communities	3 (3.85)	What are success factors for establishing diversity in communities?	491
				How should a platform look like in order to attract very different actors in collaboration?	380
		Digital Inclusion	4 (3.67)	**How can we enable equal access to educational resources for all citizens independently of geographic, language and other restrictions?**	**663**
				How can we create a more favourable environment for a really distributed information-communication system?	251

Blue filling –the most preferred track

Green bold text – the votes exceed the average by more than 15% (the top question is highly preferred within the programme)

Need	*Pref. Rank*	*Programme*	*Rank (score)*	*Question*	*Votes*
Strengths-Based Education and Experiential Learning	3	**Rethinking (the new) "job market needs"**	**1 (4.09)**	**How can the educational ecosystem be reconciled with the ever-changing demands of the job market to produce up-to-date knowledge, ethical**	**410**
				How to favour the acquisition of updated practical knowledge through custom-made educational training complementing theoretical knowledge, with the aim of responding to a continuously evolving job market?	381
				Develop a qualification framework [recognized criteria of excellence, measures of success, rewards] for practical knowledge, and informal education.	216
		Educational ecosystem as a driver of social innovation and local development	2 (4.08)	**How could cooperation boost collective intelligence, counteract the deterioration of the social value of learning and foster critical thinking?**	**435**
				What are models for improved learning initiatives, ecosystems and processes designed to recover the centrality of the schools and capitalize on their diffusion throughout the area?	295
				How could local hubs be integrated into more cooperative networks to favour a harmonious and equal growth all over Europe, with access to all kinds of resources?	217
		Design literacy and life skills for all	3 (3.99)	How do we design learning activities, settings and processes to foster the acquisition of design literacy and life skills?	426
				How to integrate these settings and processes in the curricula and, simultaneously, rethink limitations of existing curricula?	404
		SWOT (Strengths, Weaknesses, Opportunities, Threats) Technological empowerment	4 (3.88)	**How to develop critical thinking and foster adoption of effective technologies in education for learners' benefits?**	**545**
				How to foster understanding of differences between technological and human "smartness" (intelligences)?	226

Brown dotted filling – most preferred track

Green bold text – the votes exceed the average by more than 15% (the top question is highly preferred within the programme)

Need	*Pref. Rank*	*Programme*	*Rank (score)*	*Question*	*Votes*
Citizenship Awareness and Participation	**4**	**Empowered citizens**	**1 (4)**	**How can citizens play an active part in designing, producing or running public services as well as democratic processes?**	**496**
				Who benefits or loses from digitization of public services and processes of decision-making and what are the factors that affect this?	241
		The transparency toolbox	2 (3.94)	What are the barriers, enablers, benefits and problems of transparency in diverse society contexts?	402
				What drives people to participate and to continue this participation?	361
		Data for all – Share the power of data.	3 (3.85)	**How can data become assets and tools to allow non-specialists to take more active part in decision making as well as in the design and production of**	**435**
				What are the risks and limitations of data-driven collective decision making?	306
				What are barriers of open data on the side of supply as well as demand?	152
		"Snakes and Ladders". Connecting scales of issues and actors.	4 (3.73)	**What are the effective models and mechanisms for exchange of knowledge and evidence across scales and across issues between citizens and powerful global players?**	**406**
				How do we connect distributed actions in response to shared challenges?	307
				How do we evaluate the impact of such activities?	191

Brown dotted filling – the most preferred track

Green bold text – the votes exceed the average by more than 15% (the top question is highly preferred within the programme)

Need	Pref. Rank	Programme	Rank (score)	Question	Votes
Harmony with Nature	5	Top trending: at one with nature	1 (4.28)	**How to switch perception from consumption being trendy to ecological living being trendy?**	**404**
				How would including the rights of nature in constitutions and other legislation impact the adoption of ecological lifestyles?	269
		Ecological future education	2 (4.2)	**How do we ensure that sustainability and future-thinking education has a long-term and lasting impact on key stakeholders?**	**392**
				What are the best ways to translate and transfer academic knowledge to	284
		Transforming technologies for planet and people	3 (3.93)	**What are the best ways of preserving knowledge and skills of more sustainable technologies (e.g. closed-loop farming, repair, reuse) and**	**414**
				What different models to use for involving citizens in technology assessment?	205
		Urban-rural symbiosis	4 (3.82)	How do we update the smart city concept to link the urban and the rural?	**330**
				How do we integrate urban and rural planning at different levels?	285

Brown filling – the most preferred track

Green bold text – the votes exceed the average by more than 15% (the top question is highly preferred within the programme)

Need	*Pref. Rank*	*Programme*	*Rank (score)*	*Question*	*Votes*
Holistic Health	**6**	**Access to equal and holistic health services and resources for all citizens**	**1 (4.11)**	**What kind of strategy/regulation could be implemented to adopt and develop a common standard of high quality care across Europe that**	**389**
				How to integrate administrative and clinical data, standards of care and scientific and clinical knowledge across Europe?	319
		Quantitative person-centred health	2 (4.1)	Which models can be used to manage, process and interpret large data sets for personalization of healthcare and promotion of healthy lifestyles?	326
				How to overcome fragmentation of health data by involving citizens, experts, professionals and policy makers?	254
		Finding a balance in a fast-paced life	3 (4.09)	How can we identify practices within cultural traditions that would empower citizens to take on board healthy lifestyles?	338
				How does the rise of virtual relationships affect physical and mental health?	283
		Promoting well-being through relating environments	4 (3.89)	**What are the "relatable environments" that best promote physical and mental health and how they can be built in workplaces and beyond?**	**452**
				What technologies could underpin a responsive environment that identifies	209

Brown filling – the most preferred track

Green bold text – the votes exceed the average by more than 15% (the top question is highly preferred within the programme)

Need	*Pref. Rank*	*Programme*	*Rank (score)*	*Question*	*Votes*
Personal Development	**7**	**(Business) Models for balancing time**	**1 (3.99)**	**What are the personal, social and economic implications of increasing the time autonomy of individual workers?**	**374**
				How do individuals use additional free time?	248
		Personal and organisational choice management	2 (3.91)	**How can life-long learning better address the underlying causes of increased uncertainty in people's lives?**	**352**
				What are the specific responsibilities of the state, the community and the individual in various domains of life?	250
		Technology as a means of well-being	3 (3.86)	How does using personal technology affect our social and emotional relationships?	345
				How can we use personal technology devices responsibly in everyday life?	307
		Meaningful research for society	4 (3.74)	**How to involve citizens more actively in research in order to prove its relevance to everyday life?**	**387**
				Which social criteria or standards should be used in the selection of research projects?	253

Brown filling – the most preferred track

Green bold text – the votes exceed the average by more than 15% (the top question is highly preferred within the programme)

Need	*Pref. Rank*	*Programme*	*Rank (score)*	*Question*	*Votes*
Sustainable Energy	**8**	**Beyond energy efficiency: reduce consumption through structural design and behaviour**	**1 (4.16)**	**Which technologies are capable of replacing other energy consuming technologies by providing comparable services (e.g. telepresence replacing**	**253**
				Identify and assess behaviours that have a structural impact on reducing energy consumption	223
				How to design tools (awareness tools, information tools, stimulation tools)	193
				What planning methods are efficient in reducing energy consumption?	146
		Enabling a market for energy prosumers	2 (4.11)	**How to improve small-scale technologies and make them convenient and affordable?**	**323**
				Which incentives for energy prosumption have proved effective?	235
				Which is the impact of existing regulations (on regional, national, EU level)?	126
		Smart energy governance	3 (4.05)	**Which are the barriers to and success factors for such governance models?**	**250**
				Which are the experiences of bottom-up, multi-layered energy governance systems in EU and other countries?	222
				What is the structure of data needed for supporting efficient multi-layered	165
		Interconnected open systems	4 (3.89)	**How to integrate energy system design into rural/urban planning (including social dimension)?**	**303**
				How to integrate urban/regional systems optimally (optimisation models based on multi-disciplinarity)?	232
				What are suitable prediction tools, infrastructure for access and protocols of	181

Brown filling – the most preferred track

Green bold text – the votes exceed the average by more than 15% (the top question is highly preferred within the programme)

Need	*Pref. Rank*	*Programme*	*Rank (score)*	*Question*	*Votes*
Unity and Cohesion	**9**	**Alternative economic model**	**1 (3.99)**	**What are the existing alternative economic models?**	**337**
				What would be needed to scale these models up to the European level?	188
				How can these models be evaluated?	154
		Community building infrastructures	2 (3.82)	**What are the social mechanisms that enable the rapid development of diverse and inclusive communities?**	**326**
				What kind of digital tools and physical spaces can underpin the long-term development of such communities?	203
		Evidence-based community building	3 (3.7)	How can communities be transformed by knowledge?	224
				What are successful practices of evidence-based community building?	224
				What were the tools and enabling practices used in these processes and how	216
		Universal basic income – so no-one is left behind	4 (3.61)	What are the implications of introducing a universal income model in different European regions?	**287**
				What are the best available models of a universal basic income?	247

Brown filling – the most preferred track

Green bold text – the votes exceed the average by more than 15% (the top question is highly preferred within the programme)

Need	*Pref. Rank*	*Programme*	*Rank (score)*	*Question*	*Votes*
Sustainable Food	**10**	**Good food research**	**1 (4.18)**	**How can we close the information gap between researchers, on the one hand, and consumers, governments and producers, on the other?**	**219**
				What is the impact of food control standards on economic and local level development, quality standards and sustainability?	199
				What is nutritious food for the individual, the community, and society?	195
		Responsible use of land	2 (4.09)	What is the role of territorial governance for responsible use of land and resources?	272
				How to adapt production processes to climate change?	259
		Good quality food for all	3 (4.03)	**What are the social, behavioural and economic mechanisms generating food access inequalities?**	**271**
				How can access to high-quality food facilitate social and economic cohesion?	187
		Evolving food culture in growing cities	4 (3.76)	What are the impacts of evolving urban food cultures on sustainable food provision?	**264**
				Which are the best economic configurations for working local food systems?	259

Brown filling – the most preferred track

Green bold text – the votes exceed the average by more than 15% (the top question is highly preferred within the programme)

Need	*Pref. Rank*	*Programme*	*Rank (score)*	*Question*	*Votes*
Green Habitats	**11**	**Moving together (more collective transports)**	**1 (3.96)**	**How can we intensify the use of existing infrastructure: more trains on railways and collective sustainable transport motorways?**	**150**
				How can we go beyond the current common understanding of "collective transport", i.e., reduce the need for infrastructure, rely more on flexible	148
				Design small/individual units that are able to temporary aggregate and	101
		Freedom to choose where we live	2 (3.76)	**How to achieve fluid integration of diverse transportation means in local hubs that serve local diffusion and long distance transport alike in a quick**	**172**
				What are the new solutions for the organisation/distribution/scheduling of transport means between homes and workplaces?	172
				How do we design good, reliable, instantaneous inter-modal transport	93
		Distributed living	3 (3.68)	**How to design/produce "distributed living" in technological, organisational, environmental, behavioural terms?**	**207**
				How to design/produce "distributed connectivity" for occasional transport infrastructures adapted to "distributed living"?	131
		The bigger (the cities) the better	4 (3.6)	**How to collect good practice examples of cities' governance and maintenance and how to adapt them to different cultural and territorial contexts?**	**174**
				How to preserve the "city desirable mix" during and at the end of transformations?	123

Yellow filling – the most preferred track

Green bold text – the votes exceed the average by more than 15% (the top question is highly preferred within the programme)

Need	*Pref. Rank*	*Programme*	*Rank (score)*	*Question*	*Votes*
Life-Long Processes	**12**	**Deconstruction of age**	**1 (4.05)**	**What are the neurobiological underpinnings of learning throughout life-time? How can we preserve neuroplasticity (ability to learn) for a long time?**	**148**
				How does society deal with cultural and societal conflicts emerging when people live and remain active for a longer time?	121
				What are the societal and economical impacts of the melting of socio-cultural	116
		Health empowerment through "Everyone's science"	2 (3.98)	**How to communicate the results of validated scientific research to the general public in an effective way?**	**175**
				Does more knowledge mean more happiness and capacity to act in the "right" way?	113
		I'm empowered to lead my changes	3 (3.91)	How can individuals build their capacity to embark on alternative pathways and acquire new skills?	176
				How can the effectiveness of the alternative paths to education/skills be assessed?	147
		Here, there and everywhere	4 (3.65)	What are the long-term effects of virtual mobility (the use of virtual reality) on brain and body, on social interactions and identity?	**186**
				How will physical and virtual mobility interact?	138

Yellow filling – the most preferred track

Green bold text – the votes exceed the average by more than 15% (the top question is highly preferred within the programme)

Table 6 Appraisal of programmes' arguments (12 sub-tables by needs/themes)

Need	*Pref. Rank*	*Programme*	*Rank (score)*	*Argument*	*Votes*
Sustainable Economy	**1**	**Consume less, enjoy more**	**1 (4.05)**	**This will enable consumers to make more informed decisions**	**700**
				This will have a positive effect on work-life balance and personal well-being	502
				This will lead to difficult transitions for businesses.	158
		Production awareness	2 (4.03)	**This will boost environmental choices.**	**604**
				This will minimize waste.	456
				Higher prices due to new productions models.	111
		From Wall Street to Main Street	3 (3.99)	**This will foster sustainability.**	**670**
				This will encourage more ethical investments.	657
				This will lead to lower capital gains for financial companies and investors.	170
		Learning for society	4 (3.79)	**This will contribute to more collective thinking and enable common goals.**	**686**
				This will enable a more balanced awareness of the individual and the	635
				This can lead to practices that rely too much on outside control.	140

Blue filling – the most preferred track

Green bold text – the votes exceed the average by more than 15% (the top question is highly preferred within the programme)

Need	*Pref. Rank*	*Programme*	*Rank (score)*	*Argument*	*Votes*
Equality	**2**	**Balanced work-life model**	**1 (4.04)**	**This will improve the overall quality of life and help balance the demographic gap.**	**502**
				This will enable people to take care of their loved ones when needed and to pursue personal fulfilment.	501
				Enterprises may demand extreme flexibility for their own profit, which may	240
		Social Economy	2 (3.9)	**Mainstream economy cannot cope with current challenges (ageing, poverty,**	**676**
				If the state is "disempowered", social services may be affected and equality	224
				Many activities are already under way – we only need to catalyse this energy	180
		Empowering diversity in communities	3 (3.85)	**This would strengthen equal rights for all societal groups.**	**535**
				This would lead to more tolerant and vibrant communities.	531
				If communication on such platforms fails, it may create additional tensions	191
		Digital Inclusion	4 (3.67)	**The ongoing digitalization of every-day-life provides great opportunities to enable equal conditions for all – this will allow us to seize these opportunities.**	**507**
				This will empower people to take education in their own hands and become	326
				Controlling the content of the internet in order to protect some groups will restrict civil freedoms.	146

Blue filling – the most preferred track

Green bold text – the votes exceed the average by more than 15% (the top question is highly preferred within the programme)

Need	*Pref. Rank*	*Programme*	*Rank (score)*	*Argument*	*Votes*
Strengths-Based Education and Experiential Learning	**3**	**Rethinking (the new) "job market needs"**	**1 (4.09)**	**Tailor made vocational training will enable people to find jobs appropriate for their skills and interests.**	**440**
				This is more a question of educational reform than research	254
				Mostly, the benefits from partnerships between academia and industry don't accrue to the students or faculty, but to the corporation.	168
		Educational ecosystem as a driver of social innovation and local development	2 (4.08)	**Greater focus on local communities—and their needs—can bring about continuous social innovation and lead to local development (economy and**	**426**
				This will foster cohesion and inclusion, support capacity building and the	398
				There are geographical barriers/difficulties to reach different regions/localities where there are relevant institutions	164
		Design literacy and life skills for all	3 (3.99)	**Meta-design skills will enable people to re-define processes on the fly in response to changing framework conditions and foster self-development to**	**417**
				In organisations this will help build the expertise needed to ensure a more human-centred, sustainable technology-enabled future.	371
				There is a danger of developing a fragmented education and of ignoring basic knowledge.	188
		SWOT (Strengths, Weaknesses, Opportunities, Threats) Technological empowerment	4 (3.88)	**This will improve the educational ecosystem into a viable, attractive, sustainable, human-centred setting which enables individual and collective well-being and development.**	**428**
				This is important because there is still insufficient understanding of the	314
				There is a danger technology is being used to replace experts and even education.	195

Brown filling – the most preferred track

Green bold text – the votes exceed the average by more than 15% (the top question is highly preferred within the programme)

Need	*Pref. Rank*	*Programme*	*Rank (score)*	*Argument*	*Votes*
Citizenship Awareness and Participation	**4**	**Empowered citizens**	**1 (4)**	**This will underpin each citizen's personal responsibility in decision making.**	**444**
				This will support a democratic society with REAL equal opportunities.	299
				Digital=control by others?	118
		The transparency toolbox	2 (3.94)	**This will increase the transparency of decision making**	**424**
				This will make governance processes accessible for all	261
				The transparency tool box could be misused by governments for showing off participation without actually implementing it (fake participation).	199
		Data for all – Share the power of data.	3 (3.85)	**This will allow citizens to participate more in the production of knowledge and have more meaningful discussions on common issues.**	**434**
				In this way, more data-based knowledge and decisions do not broaden the gap between specialists and non-specialists, or between people and	262
				We are already turning everything into numbers; we need qualitative data.	189
		"Snakes and Ladders". Connecting scales of issues and actors.	4 (3.73)	**This will enable citizens to have influence on a global level, and global players to have experience on a local level.**	**382**
				Long-term commitment can produce more results (if you do it just for a year	285
				This will build the agency of local actors and the empathy of global players.	246

Brown filling – the most preferred track

Green bold text – the votes exceed the average by more than 15% (the top question is highly preferred within the programme)

Need	*Pref. Rank*	*Programme*	*Rank (score)*	*Argument*	*Votes*
Harmony with Nature	**5**	**Top trending: at one with nature**	**1 (4.28)**	**This is imperative to ensure the rights of future generations.**	**381**
				Including the rights of nature in legislation is important for the transition of ecological lifestyles.	349
				This will threaten economic progress, for example by increasing	61
		Ecological future education	2 (4.2)	**This will increase respect and understanding for people, the environment**	**397**
				This will enable more thinking ahead by governments and citizens on	362
				Politicians might not support this as it threatens their power.	125
		Transforming technologies for planet and people	3 (3.93)	**This will foster technology designed for durability, biodegradability, repair**	**450**
				This will enable ecological and social impacts and long-term effects to be	362
				The innovation process will slow down if more citizens and stakeholders are	79
		Urban-rural symbiosis	4 (3.82)	**This will ensure access to culture for rural dwellers and access to country for city dwellers (e.g. green spaces, community gardening).**	**344**
				This will encourage cultural exchange and mutual respect of rural and urban	307
				This will not work as decision making in urban and rural planning is separate.	97

Brown filling – the most preferred track

Green bold text – the votes exceed the average by more than 15% (the top question is highly preferred within the programme)

Need	*Pref. Rank*	*Programme*	*Rank (score)*	*Argument*	*Votes*
Holistic Health	**6**	**Access to equal and holistic health services and resources for all citizens**	**1 (4.11)**	**This will allow available, effective and innovative healthcare.**	**366**
				It will respond to widespread citizen concern that not all EU-citizens receive the same quality of healthcare.	282
				This is a policy issue more than a research question	164
		Quantitative person-centred health	2 (4.1)	**This will enable effective use of data for personal health**	**342**
				This will help individuals to take care of themselves	296
				There are ethical, legal, business, privacy, data protection and security concerns	221
		Finding a balance in a fast-paced life	3 (4.09)	**This will improve peoples' health**	**392**
				The quality of life of European citizens will rise	347
				This is more a matter of work regulation than of research	113
		Promoting well-being through relating environments	4 (3.89)	**This will promote the physical and mental health of employees and citizens in general.**	**393**
				Responsive environments will greatly improve quality of life.	317
				Some relatable environments exist only to serve business interests, i.e., keep employees working long hours.	144

Brown filling – the most preferred track

Green bold text – the votes exceed the average by more than 15% (the top question is highly preferred within the programme)

Need	Pref. Rank	Programme	Rank (score)	Argument	Votes
Personal Development	**7**	**(Business) Models for balancing time**	**1 (3.99)**	**This will create more options to balance work, family and community life.**	**418**
				Shifting focus from work hours to work results will lead to more time autonomy.	285
				Shifting focus from work hours to work results can lead to less time autonomy and exploitation of workers.	105
				More work-time flexibility will promote free-riding.	61
		Personal and organisational choice management	2 (3.91)	**This enables individuals to be adaptable by continuously evolving their skills.**	**423**
				All types of organizations would benefit from more adaptable members.	242
				This shifts risks and responsibilities from the state and employer to (vulnerable) individuals.	127
		Technology as a means of well-being	3 (3.86)	**This will allow us to reap the benefits of digital devices without suffering negative consequences.**	**363**
				This will prevent our mood, health and time to suffer from always being connected.	261
				This is futile due to increasing levels of dependence on technology in all aspects of life.	113
		Meaningful research for society	4 (3.74)	**This will create a deeper sense of engagement in research among citizens.**	**343**
				This would return value to tax payers in terms of beneficial impacts.	233
				Important research might struggle to prove its relevance in early stages of maturity and be rejected.	172

Brown filling – the most preferred track

Green bold text – the votes exceed the average by more than 15% (the top question is highly preferred within the programme)

Need	*Pref. Rank*	*Programme*	*Rank (score)*	*Argument*	*Votes*
Sustainable Energy	**8**	**Beyond energy efficiency: reduce consumption through structural design and behaviour**	**1 (4.16)**	**Saving energy and resources will cause a reduction of environmental pollution and thereby improve citizens' health**	**370**
				This will allow us to reduce CO2 emissions and thus combat global warming	297
				Rebound effect may occur (e.g. reduce flight emissions, but people fly more)	93
		Enabling a market for energy prosumers	2 (4.11)	**This will increase energy efficiency and the share of low carbon energy in Europe.**	**383**
				This will make energy more democratic	232
				New kinds of monopolies may emerge	81
		Smart energy governance	3 (4.05)	**There are good examples but a cross-cutting analysis, based on a multidisciplinary approach, is needed urgently.**	**295**
				In a decentralised system it may be hard to define who is responsible for the overall energy security	232
				This may lead to responsibility being split too much.	84
		Interconnected open systems	4 (3.89)	**This will improve the balance between production and consumption of energy.**	**318**
				This will reduce the environmental and social footprint of energy systems	316
				Cost of infrastructure could be too high (no return on investment) if the current producers continue to sell cheap energy, which does not integrate	122

Brown filling – the most preferred track

Green bold text – the votes exceed the average by more than 15% (the top question is highly preferred within the programme)

Need	*Pref. Rank*	*Programme*	*Rank (score)*	*Argument*	*Votes*
Unity and Cohesion	**9**	**Alternative economic model**	**1 (3.99)**	**There is a lot of relevant knowledge embedded in many local arrangements all over the world, but it is being ignored or wasted.**	**293**
				This will support new forms of communities that will provide room and respect for all.	247
				History of communism in the eastern part of the E.U. shows that such optimistic solutions cannot work	67
		Community building infrastructures	2 (3.82)	**By building activities, actions, platforms of engagement it is possible to create a sense of place and belonging.**	**347**
				People will be in control of their life instead of the state	174
				Too expensive to maintain public spaces to be used for collectives	34
		Evidence-based community building	3 (3.7)	**This will increase social cohesion**	**276**
				This will help to make our society welcoming and inclusive	266
				Policy makers and professional politicians are too focused on short term results	169
		Universal basic income – so no-one is left behind	4 (3.61)	**Establishment of a universal income will reduce poverty and increase equality.**	**258**
				More people will be happy with their work because they could be more	206
				Countries don't have the budget to supply every person with a fixed income	146

Brown filling – the most preferred track

Green bold text – the votes exceed the average by more than 15% (the top question is highly preferred within the programme)

Need	*Pref. Rank*	*Programme*	*Rank (score)*	*Argument*	*Votes*
Sustainable Food	**10**	**Good food research**	**1 (4.18)**	**Information will be more accessible so consumers can make more informed food choices.**	**325**
				This will promote food control standards that ensure sustainable and nutritious food.	266
				This is just a fashionable topic among the upper-middle and higher classes.	41
		Responsible use of land	2 (4.09)	Climate change makes current land use patterns and processes unsustainable.	**217**
				Governments need to address and solve problems of loss of agricultural	213
				We already know what effective land governance systems look like; the problem is simply one of practical implementation.	172
		Good quality food for all	3 (4.03)	**This will help bridge the socio-economic gap between developed and underdeveloped regions.**	**245**
				Unequal access to food will be worsened in the future because of a changing climate.	242
				Food is already high-quality and well-regulated in Europe, while other group or individual behaviours (pollution, physical exercise, stress, polluting) have	100
		Evolving food culture in growing cities	4 (3.76)	**Locally grow-able food cultures will ensure sustainable food production in the future.**	**312**
				This is important to effectively provide more sustainable food options.	277
				This kind of interventionism will upset the intimate relationship between food and culture.	39

Brown filling – the most preferred track

Green bold text – the votes exceed the average by more than 15% (the top question is highly preferred within the programme)

Need	*Pref. Rank*	*Programme*	*Rank (score)*	*Argument*	*Votes*
Green Habitats	**11**	**Moving together (more collective transports)**	**1 (3.96)**	**The real challenge is to change individual behaviours, not come up with new technology.**	**177**
				Connectivity on the final segment ("last-mile") is important to provide links to small cities and rural areas.	144
				Use of current infrastructure is already maxed out, so any improvement will be minimal.	45
		Freedom to choose where we live	2 (3.76)	**This will increase the number of working places in non-urban areas**	**178**
				This will decrease isolation of people in distant rural areas	162
				Cities, especially city centres, may become empty in the afternoon if they are treated only as a working place.	72
		Distributed living	3 (3.68)	**This is important for sustainability**	**179**
				This will increase social cohesion and quality of life within the local hubs	167
				This may lead to rural sprawl (people living everywhere)	85
		The bigger (the cities) the better	4 (3.6)	**This will increase sustainability, e.g., by reducing the need for cars.**	**192**
				This will foster vibrant cities both in terms of economic and cultural activities	155
				It is difficult to keep better cities affordable	74

Yellow filling – the most preferred track

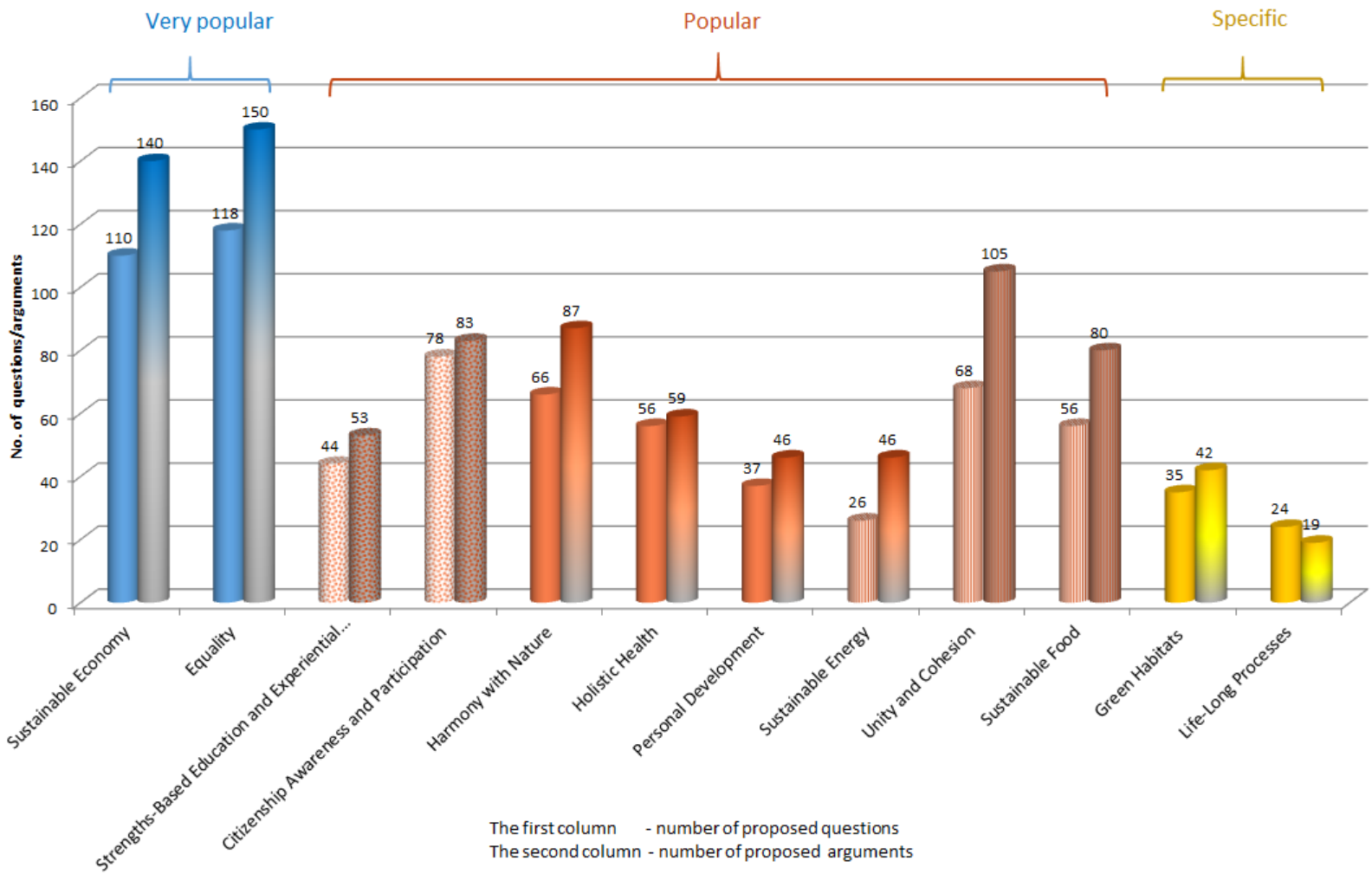
Green bold text – the votes exceed the average by more than 15% (the top question is highly preferred within the programme)

Need	*Pref. Rank*	*Programme*	*Rank (score)*	*Argument*	*Votes*
Life-Long Processes	**12**	**Deconstruction of age**	**1 (4.05)**	**A better understanding of the ageing process, both physically and cognitively will allow overcoming the limitations induced by ageing process in learning and health, while keeping the advantages earned through experience.**	**191**
				This will prepare our societies better for the huge challenge of demographic change ahead of us	154
				One cannot really control how an entire society views age.	51
		Health empowerment through "Everyone's science"	2 (3.98)	**The health of people should be the priority (not economic or political interests).**	**166**
				Successful uptake of innovations by citizens requires an open and early dialogue between scientists/innovators and the public on the innovation and its consequences.	156
				This has a great potential to improve health and wellbeing	94
		I'm empowered to lead my changes	3 (3.91)	**Skill requirements are changing fast – people need to be empowered to deal with this in a proactive way**	**191**
				This will finally allow society to unfold the full potential of all people	127
				This is not so much a matter of research but more an issue for reform of education programs	84
		Here, there and everywhere	4 (3.65)	**With VR we are opening a very powerful reality and we do not know how it will affect self-identity, so research is needed.**	**146**
				There are limits to our capacity for virtual life (addiction, emotional, affectional)	120
				This experiential learning will promote information exchange and connectedness and ultimately smooth out the borders between nationalities, gender, cultures etc., giving more choices to the individual and raising acceptance of diversity.	113

Yellow filling – the most preferred track

Green bold text – the votes exceed the average by more than 15% (the top question is highly preferred within the programme)

Figure 6 The number of proposed questions and arguments by needs/themes



2.4 Proposed additional questions

Participants in the online survey used the opportunity and proposed their own questions and arguments in large extent. Altogether they proposed 718 questions and 853 arguments. Looking at the graph in Figure 6 the most popular themes/needs also exhibit the highest numbers of proposed questions and arguments. However, the most active in proposing questions and arguments were respondents to the theme/need Unity and Cohesion with the ratios between the number proposed questions and the number of respondents (Quest/Resp) 0.15 and between the number proposed arguments and the number of respondents (Arg/Resp) 0.23. More we present in Table 7. We can regard the intensity in proposing questions and arguments as a certain measure of the involvement of the respondents in the debate on the research programmes. From these perspective four themes/needs (Sustainable Energy, Strengths-Based Education and Experiential Learning , Personal Development and Life-Long Processes) exhibit substantial lower involvement than the other themes/needs.

Table 7 Intensity of proposing questions and arguments by themes/needs

	Quest/Resp	Arg/Resp
Sustainable Economy	0.10	0.13
Equality	**0.14**	**0.17**
Strengths-Based Education and Experiential Learning	0.06	0.08
Citizenship Awareness and Participation	0.12	0.13
Harmony with Nature	0.11	0.15
Holistic Health	0.10	0.10
Personal Development	0.07	0.08
Sustainable Energy	0.05	0.09
Unity and Cohesion	**0.15**	**0.23**
Sustainable Food	**0.13**	**0.18**
Green Habitats	0.12	0.14
Life-Long Processes	0.09	0.07

Green highlighted – the highest intensity (activity) in proposing questions and arguments.

In ANNEX III, we present details on the activity in proposing questions and arguments structured by programmes.

The number of proposed questions and arguments was large and it was clear that a number of them will be similar each to other or even only modifications of the initial questions and arguments. Five experts of the Technology Centre were asked to go through the proposed questions and arguments and either to add them to the initial ones or to cluster them in a rather limited number of new/additional questions and arguments. The experts regarded

409 (57%) proposed questions and 573 proposed arguments as only modifications of the initial questions and arguments. The rest i.e. 309 questions and 330 arguments were clustered in 68 and 76 additional questions and arguments respectively. More details on clustering are provided in APPENDIX I and II.

The resulting new questions and arguments are listed in Table 8. This table consists of 12 sub-tables where each refers to one need (theme). Colours of sub-tables correspond to Figure 3.

Table 8 The list of new Questions and Arguments (12 sub tables according to themes/needs)

Need	Programme	New Question	New Argument
Sustainable Economy	Consume less, enjoy more	How to improve the wellfare?	Positive effects for nature
		How to motivate companies for sustainable and consumer-friendly production	Global consequences
		How we accomodate the purchasing and consumer behaviour on the state level?	
	Production awareness	How to implement fair and sustainable economic models?	New production models will emerge
			This should go hand in hand with a more personalised education
			Consumer behaviour will change
	From Wall Street to Main Street	How to foster social function of the market?	Transformation of global /international/ aspects of the market is difficult.
		How to promote local markets?	Financial market should be regulated
	Learning for society	How to adopt education system with regard to the lifelong learning models?	To foster wellbeing and other social needs
		How can economy foster lifelong learning processes?	Complex educatrion and common knowledge system
			A lot of aspects still need to be considered.

	Need	*Programme*	*New Question*	*New Argument*
	Equality	Balanced work-life model	How to secure equality and good working conditions at workplace?	Labor market has to change to be more flexible and reflect needs of people and society.
			What are value and ethical aspects of work?	
		Social Economy	What cause and what impact social economy can have?	It is necessary to change financial balance in society
				It is important to consider the role and the position of individuals in social economy
		Empowering diversity in communities	What are potentional risks of diversity in the community and how to prevent them?	Searching possibilities how to create diversity in communities
			How can diversity be beneficial?	
		Digital Inclusion	How can new digital technologies improve the educational system towards inclusion?	Not everyone has resources to access and be part of the process of digitalisation.
			How can digital inclusion contribute to the bigger equality in society?	Digitalisation can have an effect on human environment and health.
			How can digital inclusion have an affect on the productivitity?	

	Need	*Programme*	*New Question*	*New Argument*
	Strengths-Based Education and Experiential Learning	Rethinking (the new) "job market needs"	0	There is a need to consider the job market and its future prospects from a larger complexity
				Life-long learning seems to be an important tool in this sense, too.
		Educational ecosystem as a driver of social innovation and local development	How to explore ways of motivation to be educated?	In order to implement a suitable mode of educational ecosystem, transfer or best practice models should be explored
			What are the ways of developing new measurement and standard models for education?	0
		Design literacy and life skills for all	What are the ways to educate teachers or professionals to educate in the updated manner?	
		SWOT (Strengths, Weaknesses, Opportunities, Threats) Technological empowerment	How do we promote the acceptance of technologies by civil society?	We need to go beyond and reinvent new ways of producing knowledge, reintroduce creativity in the process and make it an intelligent collective
			What are the ways of increasing the complexity of intelligence in order to bring in to higher levels?	There is a danger of exclusion of certain groups in the society, as well as inability to exist without technologies for certain groups in the society

	Need	*Programme*	*New Question*	*New Argument*
	Citizenship Awareness and Participation	Empowered citizens	What is the impact of participation in decision making and how to promote its results?	Digitalisation can lead to social exclusion.
		The transparency toolbox	What output/data should have citizens from participation processes?	
			What are influences on decision making processes?	
		Data for all – Share the power of data.	How should participative processes look like?	This helps against misuse and misrepresenting of data.
				It enables fully exploit the power of data in education and business.
		"Snakes and Ladders". Connecting scales of issues and actors.	How to empower marginalized individuals?	

	Need	*Programme*	*New Question*	*New Argument*
	Harmony with Nature	Top trending: at one with nature	How can people be supported to switch to more environmentally friendly practices?	Feasibily of transforming technologies in this way is complicated.
			How does consideration of nature in economy contribute to sustainable growth?	Education, training and ethics framing the technology development is important.
			What kind of environmental education is needed for the switch to sustainability?	
			What kind of governance of society, organization of society for harmony with nature and sustainable development?	
			Which topics, questions should science explore to support switch to nature-respecting living?	
		Ecological future education	How to educate for the change of attitudes and behaviours, sustainability and future-thinking? How do we create a society where citizens care about the future of the planet?	Education and lifelong learning activities towards sustainability General knowledge dissemination needs to be improved. It has serious implementation limits.
		Transforming technologies for planet and people	How to make economy and production both more sustainable and economically viable?	Transforming technology feasibility problems
			How do we demonstrate the value of sustainable technology development to society?	Education, trainning and ethics framing the technology development
			How can we develop, assess and implement technologies to prevent negative side effects?	
		Urban-rural symbiosis	How to promote (sustainable) development of rural areas and make the rural life more attractive taking into account the challenges of the 21th century? What are further wider society challenges to be considered for urban-rural symbiosis?	This could improve the quality of life in both urban and rural areas (e.g. green areas, quality food, health, jobs, education). The symbiosis can significantly improve quality of living spaces and foster adoption of sustainable development. How to break the influence of the capital of agro-food companies, supermarkets and supply chains while promoting retail and direct sales?

	Need	Programme	New Question	New Argument
	Holistic Health	Access to equal and holistic health services and resources for all citizens	How to design an education for healthcare professionals to offer a holistic approach to patients?	Standardization and harmonisation will help to assure equal access to health care.
			How to develop a positive culture encouraging healthy lifestyles?	Health as a significant economic factor should be involved in decision-making in other sectors.
		Quantitative person-centred health	How to introduce and support the model of "integrative medicine" in the healthcare practice?	This will enable further improvements in healthcare system and policy.
			How to increase citizen awareness of health prevention?	Healthcare costs can be reduced.
			What models of "personalized healthcare" can minimize/prevent its negative effects?	The programme fails to reflect the key social determinants - personal and collective mentality and lifestyles.
		Finding a balance in a fast-paced life	What are the individual options/choices to be adressed to encourage citizens towards the adoption of balanced and healthy lifestyles?	This will make us more resilient society in the future.
			What are the system wide changes needed to achieve a balanced (work-life) lifestyle?	Individual decision and choice are more important than research and regulation.
			How to involve employers more in work-life balance issues/persuade them that it is worth it?	
		Promoting well-being through relating environments	How important are well-being and human relationships in the hierarchy of human values?	Care for a friendly environment could be an advantage of Europe over other global regions.
				0

	Need	*Programme*	*New Question*	*New Argument*
	Personal Development	(Business) Models for balancing time	How can new business models improve the well-being of the individual and society?	Testing and experience needed
		Personal and organisational choice management	How to foster engagement and motivation?	Ethical aspect for individual and society
		Technology as a means of well-being	How can technology support social inclusion?	The technology must respect the society development
		Meaningful research for society	What are the most relevant research topics for society?	Meaningful (relevant) research criteria

	Need	Programme	New Question	New Argument
	Sustainable Energy	Beyond energy efficiency: reduce consumption through structural design and behaviour	0	The involvement of citizens in plans that target the reduction of consumption will promote a greater sense of belonging, equality, responsibility and
				The potential for reduction seems much higher than for energy efficiency.
		Enabling a market for energy prosumers		A creation of the energy self-sufficient communities will be enabled. It creates an incentive for the application of technologies.
		Smart energy governance	How to end the use of fossil fuels: oil, shale gas, oil sands extraction, etc.?	It is urgent to find locally managed, decentralised, non-polluting, fair and democratic energy solutions.
				Enabling new distributed energy and storge to participate in existing energy markets will bring benefits to all.
		Interconnected open systems	How to store advantageously spare energy?	

Need	Programme	New Question	New Argument
Unity and Cohesion	Alternative economic model	What are alternative economic models fostering sustainability and wellfare?	New alternative economic models can better answer big societal challenges.
			The current system is not working well.
	Community building infrastructures	How to promote the role of education and family towards the inclusion?	It will support community infrastructure development
		What are the conditions of inclusion/ exclusion in Europe?	It is important for succesful social policy and family integration
	Evidence-based community building		Data collection is not trivial.
	Universal basic income – so no-one is left behind	What are the conditions for implentation of the universal basic income?	Decreasing motivation to work
		How to cultivate society in respect of the financial literacy and consumption?	It can bring a lot of benefits to the society and economy
		How to avoid risks of the implematation of the universal basic income?	It can cause variety of social problems.

	Need	*Programme*	*New Question*	*New Argument*
	Sustainable Food	Good food research	How can food be produced sustainably?	Responsible and healthy nutrition for all reduces the social costs in public health and increases the quality of life in a collective sense
				Create ways to protect the seeds of any kind of "trademark". Recover the original seeds of the species of vegetables, fruits and cereals.
		Responsible use of land	How to manage the sustainable utilization of ecoefficiency and resilience?	A sustainable agriculture will allow to stop the soil impoverishment and deterioration process happening today
		Good quality food for all	What food production system is needed for quality food?	Financially and locally accessible quality food for all is a basis of a healthy lifestyle and prevention.
		Evolving food culture in growing cities	How can we define what is the sustainable food?	Culture is not important, when the entire existence of humanity is in question because of excessive influence of the meat-dairy-egg diet on

Need	Programme	New Question	New Argument
Green Habitats	Moving together (more collective transports)	How can we integrate collective transports with use of renewable energy?	There is a need to develop a transformed network and system of transportation
		How can we integrate bicycle transport?	Complex approach encompassing also social, economic or environmental aspects should be taken into account as well.
	Freedom to choose where we live	How do we relate development in transportation to the protection of natural environment and land use?	An important role will be attributed to transport of people, goods and services
			The rise of quality of life is expected
	Distributed living	How to manage also social aspects of distributed living?	Distributed living brings about significant threats
		How to adapt institutional and legislative framework?	
	The bigger (the cities) the better	How to ensure an efficient implementation of good practices?	This issue has a lot of drawbacks and is actually undesirable to be reached
		What are the ways to design these new features into a city?	
		How to manage social cohesion within sustainability?	

	Need	Programme	New Question	New Argument
	Life-Long Processes	Deconstruction of age	0	It is important to have good and reliable information about all kind of products supporting life.
		Health empowerment through "Everyone's science"	How can be research and innovation beneficial in public health?	
			What is needed for succesful public engagement?	
		I'm empowered to lead my changes		
		Here, there and everywhere		

CONCLUSION

This Deliverable report (D4.2) shows the results of the online consultation held in 2016 within the European project called Citizens and Multi-Actor Consultation on H2020 (CIMULACT).

The first part of the report describes the methodology of the online consultation including the platform principles, process steps and almost 3 500 respondents sample – in basic characteristics.

The second part of the report shows the results of a) social needs ranking by the nationality of respondents as well as by the popularity of social needs general thematic focus – the 12 **social needs** might be divided in three basic categories: as very popular (Sustainable Economy and Equality), popular (Strengths-Based Education and Experiential Learning, Citizenship Awareness and Participation, Harmony with Nature, Holistic Health, Personal Development, Sustainable Energy, Unity and Cohesion, and Sustainable Food) and specific ones (Life-long Processes and Green Habitats); b) research programmes ranking and assessment. This assessment includes arguments and questions that respondents voted for in every individual research programme – some of these arguments and questions were pre-identified by the consortium, stakeholders and experts in previous stages of the CIMULACT process and some of these were newly added by respondents themselves. These new arguments and questions were than clustered for the purpose of further discussions on identification of concrete research topics, namely for debates planned during the CIMULACT Pan-European Conference in Brussels in December 2016.

The consultation has helped to identify priority programmes within the needs (themes) and to support them by essential arguments.

The citizens' judgement of programmes provides reflection on the importance of the needs. In order to provide more insight in the relationship between themes/needs and programmes we generated an overall need score: each programme in the upper third gets 5, programmes of the middle third get 3 and the rest get 1 point. Summing the points over programmes yields a value which we call "need score". The highest need scores get Holistic Health and Sustainable Energy followed by Sustainable Food and Harmony with Nature. On the other end there are Personal Development, Green Habitats and Unity and Cohesion. These need scores undoubtedly comprise the quality of the specification of programmes and the level of understanding them by respondents (including the influence of the respondents background).

Combining these qualities with the relative "popularity" of needs (representing social demand for research in the need area - theme) we yield adjusted need scores. Needs ordered by adjusted scores are presented in Table 4. The theme/need Sustainable economy

stays the most demanded by citizens for research. In spite of some reshufflings, specific themes remain at the bottom of the interest.

Together with the face-to-face consultations in 30 countries involved in CIMULACT, these results serve as a basis for the final outcome of the project: research topics of H2020 options for the next Work Programme period (2018-2020). The report provides insights to the public preferred needs and views as a method for further fulfilling of the RRI political concept.

Participants seem to under-estimate the negative arguments – how negatives can be avoided by research - they are more likely to support the positive arguments for research activity. Despite the fact that the questionnaire was not easy to finish, around 100 participants from each European country have been motivated to complete it and have their say.

The results of the consultation show an interest of the European wider public to understand, discuss and enrich the proposed research programmes in Europe.

The lesson learned from the consultation process should be formulated in the programme in a way which is understood not only by researchers, but by the wider (interested) public as well.

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LIST OF ANNEXES

1. Annex I MOBILISATION GUIDELINES
2. Annex II RESPONDENTS STRUCTURE
3. Annex III STATISTICS ON QUESTIONS AND ARGUMENTS
4. Annex IV PROJECT FLOW
5. Annex V AUTOMATIC REPORTS FROM THE PLATFORMS

ANNEX I MOBILISATION GUIDELINES

Mobilisation guidelines for the online consultation

General information

The primary aim of the online consultation is to enrich and prioritize research scenarios. The prioritizing will be based on wide participation of different target groups (citizens and various experts). The dissemination of the online consultation platform should spread widely between participants in terms of absolute numbers as well as the diversity of target groups.

The result of this online consultation will be 30 national reports based on data generated automatically from the admin dashboard of the platform. The results will be further aggregated into an overall European comparative report analysing the data of the online consultation (T4.2).

In this document, you will be informed about some aspects of the platform for the online consultation which are important for dissemination, as well as the time plan, options on how to disseminate information about the online consultation and examples of templates (invitation, reminder, feedback).

Objective

The main goal is to provoke action i.e**. to mobilize participants** attending the online consultation. This goal can be achieved by providing the target groups with clear and understandable information. This information can reduce fear or doubts of participants. One of the most important information for participants is that the results are anonymized, so they do not have to worry their answers could be abused or found. Also important is that the participation would not be very time consuming (most likely 20-30 minutes).

There are more channels for approaching participants:

Through partners' database, via email. In this case, potential respondents receive an email with a link that will take them to the homepage in the language associated with that country. In case they want to respond on behalf of a different country, they can do so by clicking on the map embedded on the platform, Then, they create an account (by filling their email and name), validate the account via email and return to the platform, where they will now be able to access the questionnaire.

Through social media, partner's websites, other platforms: in this case, potential participants access a country link (just like above) that takes them to the home page in their national language. Then, steps are same as above.

Through CIMULACT website. In this case, potential participants first choose on a map/list of countries the country on whose behalf they want to respond, and from there on they interact with the platform in the language associated with that country, where they make an account, validate it and then get access to the questionnaire.

Participants also fill in a profile page at the very end of the questionnaire. They fill in the following information:

Country

Age group

Gender

Educational level

Area of residence

Economic activity

Sector of activity

The capacity in which they filled in the questionnaire, regarding each of the 8 proposed research programs associated to the 2 needs they selected – either as interested citizens or as experts, with various types of expertize to select from a list

After the profile page, there will be a space for comments where respondents can express their opinion on the online consultation, if they wish to do so.

Target groups

The dissemination of online platform should be widespread among various target groups. The number of respondents should be as high as possible and various groups shall fulfil the condition of diversity. There are two broad target groups:

“Citizens”: participants who have no special expertise in the selected topics on which they are responding

“Experts”: participants who self-identify as having expertise in the selected topics

”Experts” may include researchers, NGO members, policy-makers, business companies, journalists, and so on. However, for the purposes of this questionnaire, members of any other social or professional group may self-categorize as experts. Conversely, a self-categorized “citizen” may be a researcher, a policy-maker etc. who does not feel s/he has expertise on the questionnaire topics s/he selected.

This being said, in order to make sure a sufficient number of experts (see targets below) is included in the sample, CIMULACT partners should strive to mobilize categories of professionals such as researchers, academics, policy-makers, NGO members and others. Moreover, they should also strive to attain some diversity within these categories (e.g., researchers in the life-sciences, chemistry, social sciences etc.).

We aim at achieving a minimum of **300 full responses** from citizens and **30 responses from experts** - in each country (except country under 1 million inhabitants). It is a minimum - the more, the better.

Timeline

June

Telco -WP4 overview (24.6.2016)

July

Translation of input text (1.7. – 13.7.2016)

Webex – mobilization campaign (12.7.2016)

Translation of mobilization campaign templates (12.7. – 20.7.2016)

Translation of platform messages (20.7. – 25.7.2016)

Platform testing in national languages (25.7. – 29.7.2016)

Webex – admin dashboard (29.7.2016)

August

Launch online consultation – invitations sent (3.8. – 5.8.2016)

1st reminder sent (10.8. – 17.8.2016)

September

2nd reminder sent (1.9. – 8.9.2016)

3nd reminder sent (19.9. – 25.9.2016)

October

Thanks for participation – after the end of online consultation, send thanks for participation to respondents (voluntary, automatic thank you message will be sent by the platform as well after the fill it in)

Second half of October

30 short national reports – data generated automatically

November

Comparative report

Reports / Results dissemination

Dissemination Methods

Appropriate channels to meet the needs of the respective target group:

Mailing lists from previous Cimulact activities and other related projects

Social Media , websites and other existing portals

Policy Brief/Newsletters (CIMULACT and/or national newsletters)

Conferences and workshops

One to One

Media

It can be difficult to reach so many respondents. In that case, for the dissemination of the online platform you can use the method *Snowball sampling* – it means using your contact network and ask respondents to forward the information (= the invitation) about the platform among their contacts. Every respondent has his/her own contact network which can be used. In this spirit f snowballing, it could help if among the first wave of respondents there are public figures/journalists/VIPs of any sort – who are willing to write a few words about this on Facebook/Twitter and invite others to participate.

In inviting people to participate in the online consultation, there could be different templates for the experts and for citizens who participated at the NCV. In the first case, experts are invited to participate in enriching and prioritizing the research and innovation agenda. There is emphasis on their professional background and our interest in it. Experts from Milan should be involved, as well as experts from the second consultation in September/October.

The motivation for citizens from the NCV could be focused on their repeated involvement in the project and our continuous interest in their opinion. Provide them with a quick update about the project. In the template they receive information about the aim of the online consultation and that we want to know their opinion because they have been already involved earlier.

If you have a chance to contact new citizens who have not been involved in the project, firstly, they will have to be informed about the project (you can use leaflets/posters or other PR material which you have from earlier). Then there is a need to explain the aim of the online consultation and their role in it.

Dissemination at the beginning of the online consultation

Before the launch of the online consultation, please prepare the mailing lists with people you want to address. It includes people who were involved in the project earlier (citizens form NCV, experts from workshops) as well as your other national contacts. Use your organisational/personal networking.

There will be also opportunity to involve participants from second face to face consultation.

After the launch of the online consultation, send the invitation by email (ask addressed respondents to forward this information to their contacts and other people).

Put the information with link about the online consultation on your institution website and on Facebook, LinkedIn, Twitter and other communication channel you use. The information should be written in an attractive way to draw the attention of potential respondents. The information should be visible for the whole period of the online consultation and ask respondents to share it further.

You might disseminate the information about the consultation through media. If you have some contacts in your network of interested journalists (use your channels if you have already cooperated with some journalists), contact them, give them information about the project and about the online consultation. Invite them as respondents and ask them to disseminate this consultation among their readers / wider public.

Dissemination during the online consultation

Perhaps, you will have the opportunity to mention the online consultation on workshops or conferences (e.g. ESOF conference). Use any other opportunity to promote the online consultation (one to one, access to the media), if you have any.

Be aware there is the summer holiday – people can forget. For this case, use reminders and send them to participants refresh the information. It is always a new opportunity to get new respondents and get some feedback.

The information about the online consultation will be also included in the next Policy Brief which you should disseminate through your usual communication channels as the previous Policy Brief.

Dissemination after the online consultation

After the consultation there will be data available from every European country incl. open answers from participants to be translated back to English. Partners will get a short template for a national report. Partners shall disseminate their national reports on the national level – send via e-mail to participants who you addressed and/or put it on their institutional website. It can show to people how important are some topics in each country.

Synthesis of these national data and reports will be used by WP4 team to produce the comparative report.

Dissemination of comparative report – after the report will be completed, use your communication channels and forward it (send it to participants who you addressed, put it on national website etc.). It will show comparison and prioritizing of results among European countries.

The report with results should be sent by email to all participants who were addressed and also shared on partner's websites and CIMULACT website.

The same dissemination tool could also be transmitted to media outlets that were involved in the promotion or were at least informed public about the consultation. They can publish the report and also present the context of the consultation

Also, the report of the online consultation will be part of the next CIMULACT newsletter.

Templates (see annexes)

There are templates for the invitation, reminders, and feedback form which you can use. They should be sent to participants at the beginning of the online consultation (invitation), during the consultation (reminder) and after they complete the platform (thank you e-mail).

Of course, these templates are examples so you can use them as they are or you can adjust them according to your needs.

All these templates should be translated or written in your national language for easier dissemination.

The most important part of these templates is motivation because through the written text it should entice participants to participate. For the motivation to your invitation, you can use some arguments from WP3 Toolkit (Recruitment Guidelines section).

Feedback

After the online consultation there will be a questionnaire and webinar according to WP5 timeline. The Questionnaire feedback on the online consultation is planned on 21.11.2016 and webinar on 28.11.2016 (webinar will be connected with WP3).

Annexes

Letter of invitation

Dear friends and colleagues,

/Dear (name),/

/Dears,/

On behalf of the (name of the institution) we would like to cordially invite you to participate in an online consultation (link) within the CIMULACT project – Citizen and Multi-Actor Consultation on Horizon 2020. You will get a unique opportunity to be involved in a highly participatory process aiming to make the research and innovation agenda more relevant and accountable to society.

Please follow the link and answer the questions. It will take approximately 20 minutes of your time.

The access will be open from August 3rd to October 3rd, 2016 and the answers will be anonymous.

The CIMULACT project has involved more than 1 000 citizens from 30 EU countries, as well as many experts and stakeholders in different fields to uncover the social needs of the European citizens. These have served as the basis for developing the recommendations for EU research agenda and policy-making in the field of science, technology and innovation.

The online consultation as a part of the second consultation phase will follow in 30 countries, where the co-created research programme scenarios will be enriched and prioritized. For further information please visit our website (link).

We look forward to you joining us in the consultation and will be very grateful to you for forwarding this information to your contacts.

Best regards,

Logo of HORIZON 2020, CIMULACT and your institute

Letter of invitation – citizens from NCV

/Dear (name),/

As a citizen who participated at NCV, we would like to cordially invite you to participate in an online consultation (link) within the CIMULACT project – Citizen and Multi-Actor Consultation on Horizon 2020. You will get again a unique opportunity to be involved in a highly participatory process aiming to make the research and innovation agenda more relevant and accountable to society.

Based on citizens´ visions, research scenarios have been created and are now part of the online consultation currently held in 30 European countries, where these co-created research programme scenarios will be enriched and prioritized. For further information please visit our website.

Please follow http://consultation.cimulact.eu/SelectCountry.aspx and answer the questions.

It will take approximately 20 minutes of your time.

The access will be open from August 3rd to October 3rd, 2016 and the answers will be anonymous.

The CIMULACT project has involved more than 1 000 citizens from 30 EU countries, as well as many experts and stakeholders in different fields to uncover the social needs based on future visions of the European citizens. These have served for developing the recommendations for EU research agenda and policy-making in the field of science, technology and innovation.

We look forward to you joining us on the consultation and will be very grateful for forwarding this information to your friends and other people who could be interested.

Best regards,

Logo of HORIZON 2020, CIMULACT and your institute

Reminder

Dear friends and colleagues,

/Dear (name)/

/Dears,/

On behalf of the (name of the institution) we would like to gently remind you and invite you once again to participate in an online consultation (link) within the CIMULACT project. You will get an unique opportunity to be involved in a highly participatory process aiming to make the research and innovation agenda more relevant and accountable to society.

Please follow the link and answer the questions. It will take approximately 20 minutes of your time and your answers will be anonymous!

The access will be open till October 3, 2016 only!

The CIMULACT project has involved more than 1 000 citizens from 30 EU countries, as well as many experts and stakeholders in different fields to uncover the social needs of the European citizens. These have served as the basis for developing the recommendations for EU research agenda and policy-making in the field of science, technology and innovation.

The online consultation as a part of the second consultation phase will follow in 30 countries, where co-created research programme scenarios will be enriched and prioritized. For further information please visit our web site.

We look forward to you joining us on the consultation and will be very grateful for forwarding this information to your contacts.

Best regards,

Logo of HORIZON 2020, CIMULACT and your institute

Thank you e-mail (voluntary)

Dear friends and colleagues,

/Dear (name),/

/Dears,/

On behalf of the CIMULACT project consortium we would like thank you for your participation in the online consultation.

As soon as we have results from this consultation we shall keep you informed about results and the further development of the process of the transformation of the results of the second consultation phase into policy options, research agenda and recommendations.

Best regards,

Logo of HORIZON 2020, CIMULACT and your institute

ANNEX II RESPONDENTS STRUCTURE

Number of countries:	30
A total number of respondents:	3458

Figure 7 Distribution by age

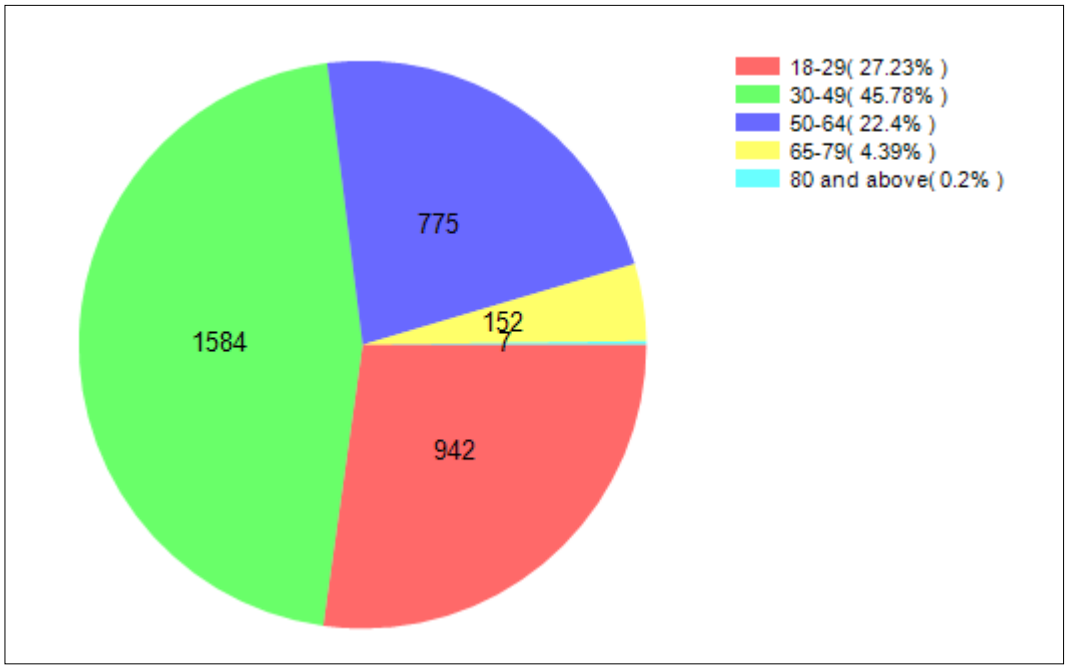


Figure 7 Distribution by gender

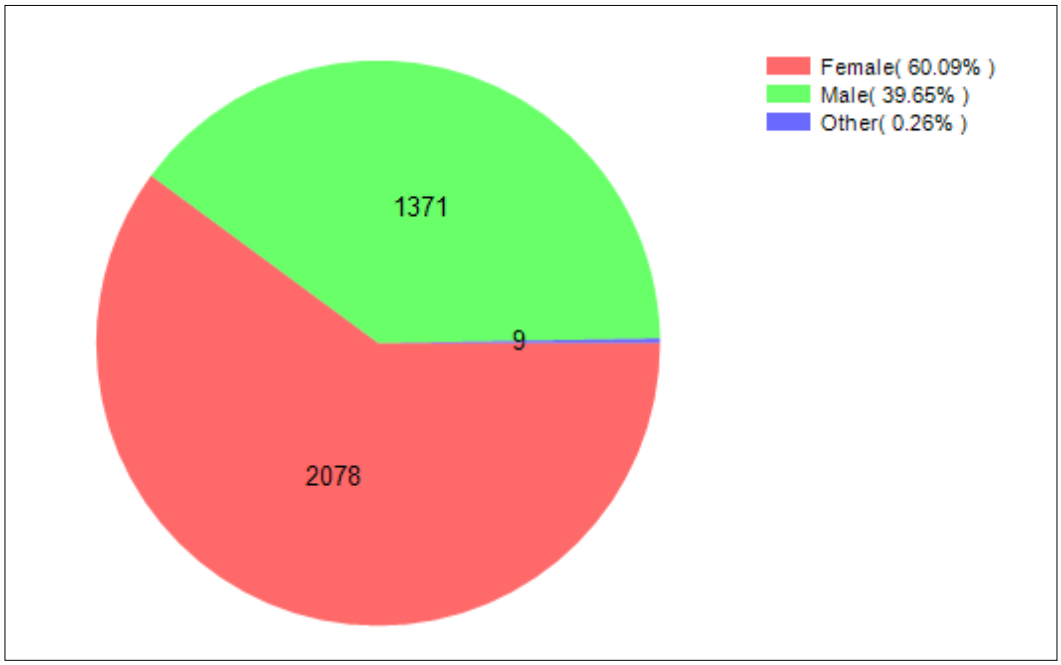


Figure 8 Distribution by highest education level completed

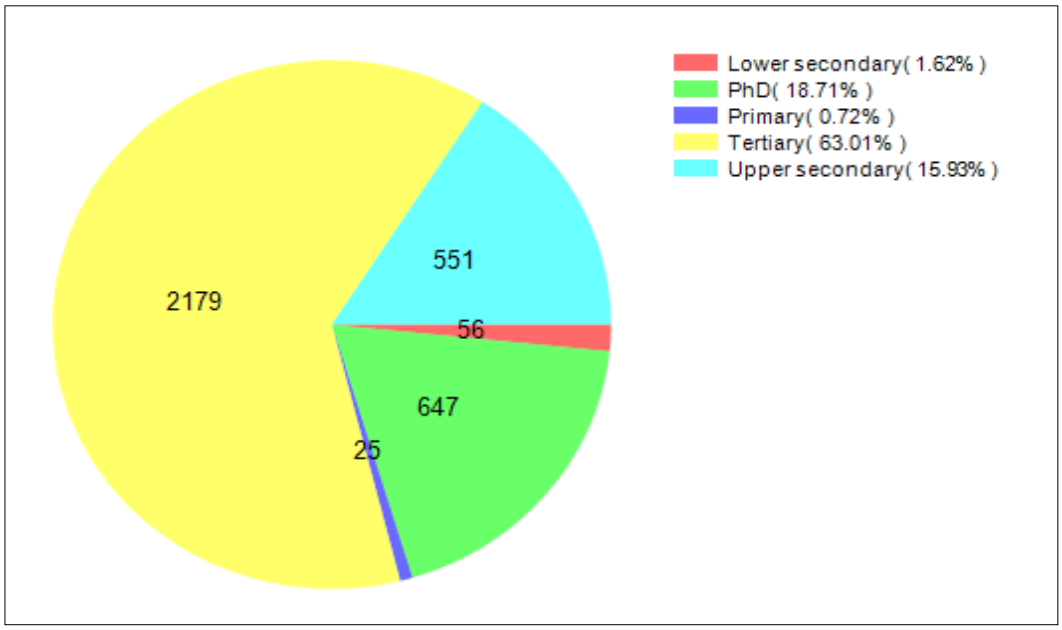


Figure 9 Distribution by size of residence

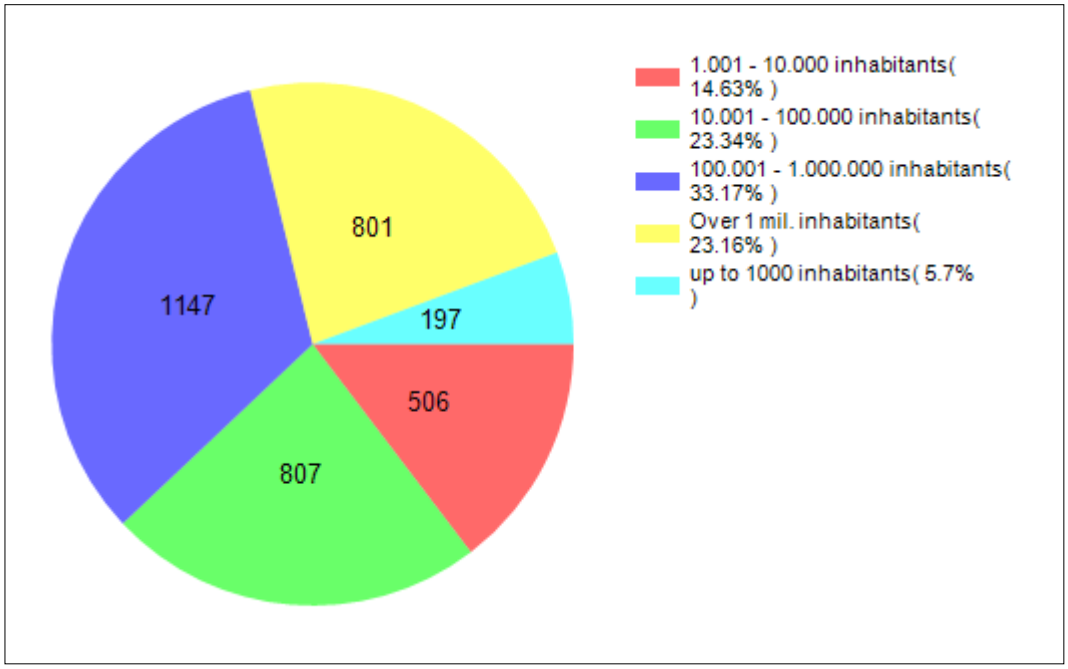


Figure 10 Distribution by occupation status

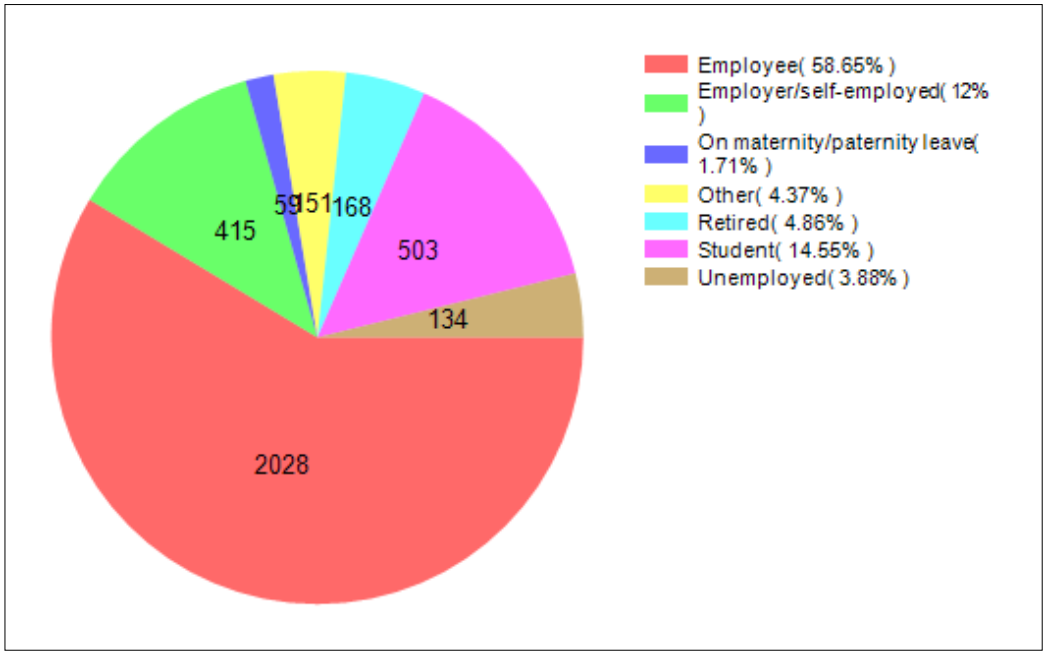
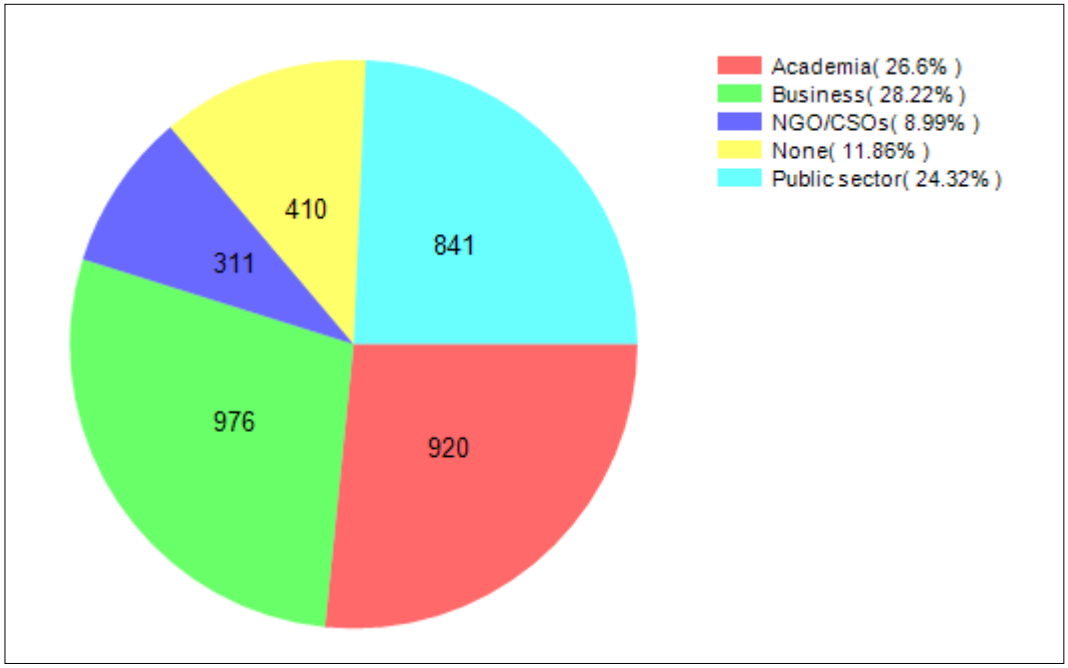


Figure 11 Distribution by sector of economic activity



ANNEX III STATISTICS ON QUESTIONS AND ARGUMENTS

Questions

Need	Programme	Total no. of additional questions	No. of modifications of initial questions	No. of really new questions	No. of added clustered questions
Sustainable economy	Consume less, enjoy more	32	12	20	3
	Production Awareness	31	24	7	1
	From Wall street to Main street	18	4	14	2
	Learning for society	29	15	14	2
Equality	Balanced life-work model	33	24	9	2
	Social economy	22	16	6	1
	Empowering diversity in communities	32	18	14	2
	Digital Inclusion	31	13	18	3
Strengths-based education and experiential learning	Rethinking (the new) "job market needs"	6	6	0	0
	Educational ecosystem as a driver of social innovation	13	7	6	2
	Design literacy and life skills for all	13	8	5	1
	SWOTS (strengths, weaknesses, opportunities, threats	12	9	3	2
Citizenship awareness and participation	Empowered citizens	20	16	4	1
	The transparency toolbox	20	13	7	2
	Data for all - share the power of data	23	19	4	1
	"Snakes and Ladders". Connecting scales of issues and	15	10	5	1
Harmony with nature	Top trending: at one with nature	40	10	30	5
	Ecological future education	26	6	20	2
	Transforming technologies for planet and people	29	9	20	4
	Quantitive person-centred health	14	10	4	3
Holistic health	Access to equal and holistic health services and resour	10	7	3	2
	Quantitive person-centred health	14	10	4	3
	Finding a balance in a fast-paced life	23	3	20	3
	Promoting well-being through relating environments	9	5	4	1
Personal development	(Business) models for balancing time	12	7	5	1
	Personal and organisational choice management	10	6	4	1
	Technology as a means of well-being	10	6	4	1
	Meaningful research for society	5	2	3	1
Sustainable energy	Beyond energy efficiency: reduce consumption throug	4	4	0	0
	Enabling a market for energy prosumers	5	5	0	0
	Smart energy governance	13	12	1	1
	Interconnected open systems	4	3	1	1
Unity and cohesion	Alternative economic model	14	10	4	1
	Community building infrastructures	18	9	9	2
	Evidence-based community building	14	14	0	0
	Universal basic income - so no-one is left behind	22	9	13	3
Sustainable food	Good food research	18	13	5	1
	Responsible use of land	11	5	6	1
	Good quality food for all	15	11	4	1
	Evolving food culture in growing cities	12	11	1	1
Green habitats	Moving together (more collective transports)	8	5	3	2
	Freedom to choose where we live	7	5	2	1
	Distributed living	7	2	5	2
	The bigger (the cities) the better	13	2	11	3
Life-long processes	Deconstruction of age	3	1	2	0
	Health empowerment through "Everyone's science"	11	3	8	2
	I'm empowered to lead my changes	6	6	0	0
	Here, there and everywhere	4	3	1	0
Total		761	428	333	75

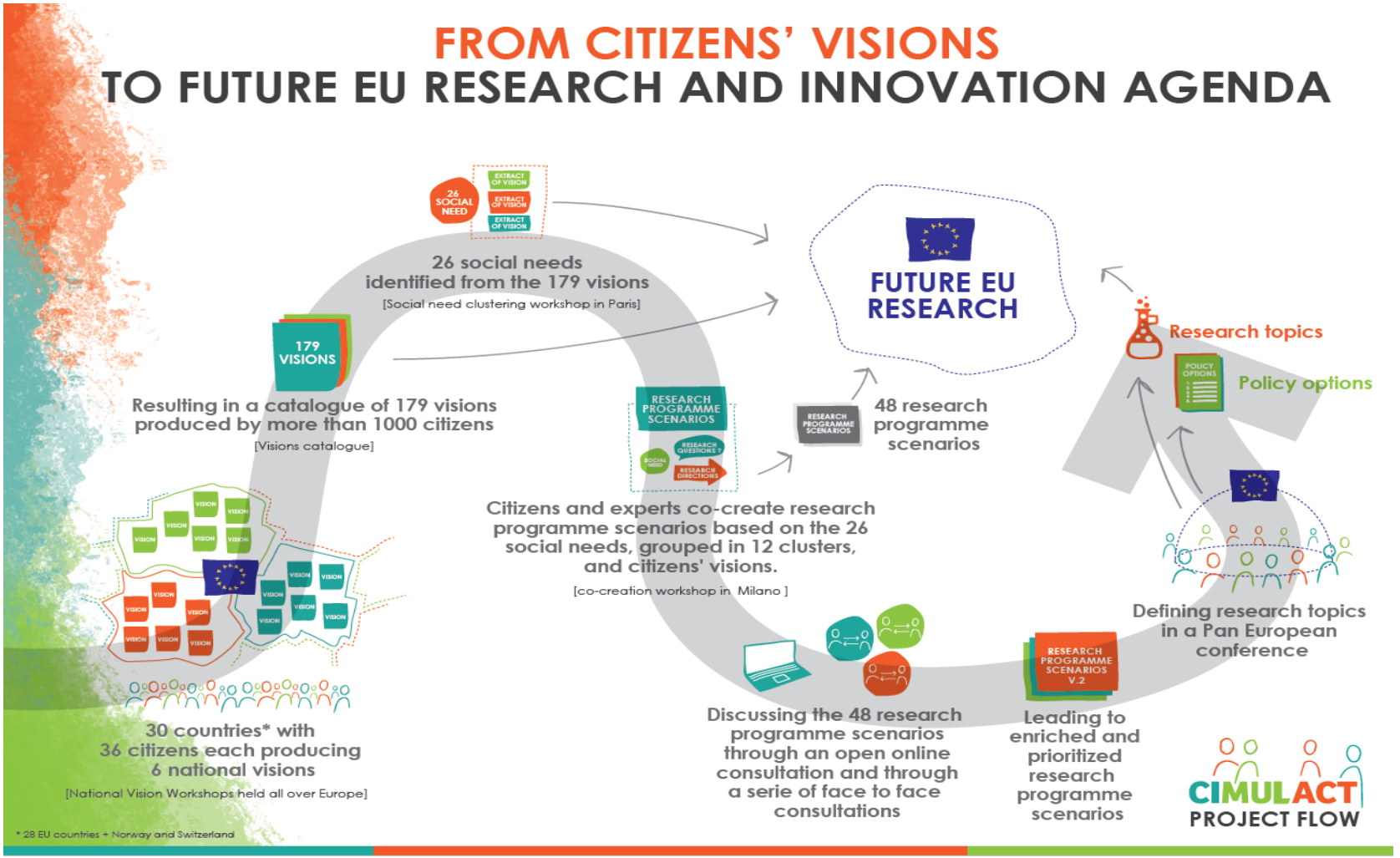
Note: individual questions and their clusters are in a separate xls file – APPENDIX I.

Arguments

Need	Programme	Total no. of additional arguments	No. of modifications of initial arguments	No. of really new arguments	No. of added clustered arguments
Sustainable economy	Consume less, enjoy more	33	19	14	2
	Production Awareness	46	13	33	4
	From Wall street to Main street	24	17	7	2
	Learning for society	37	20	17	3
Equality	Balanced life-work model	34	25	9	1
	Social economy	33	24	0	2
	Empowering diversity in communities	31	26	5	1
	Digital Inclusion	52	34	18	2
Strengths-based education and experiential learning	Rethinking (the new) "job market needs"	22	15	7	2
	Educational ecosystem as a driver of social innovation	13	5	8	2
	Design literacy and life skills for all	9	9	0	0
	SWOTS (strengths, weaknesses, opportunities, threats	9	6	3	2
Citizenship awareness and participation	Empowered citizens	20	17	3	1
	The transparency toolbox	20	20	1	0
	Data for all - share the power of data	29	21	8	2
	“Snakes and Ladders”. Connecting scales of issues and	14	14	1	0
Harmony with nature	Top trending: at one with nature	17	8	9	2
	Ecological future education	24	9	15	3
	Transforming technologies for planet and people	17	8	9	2
	Urban-rural symbiosis	29	17	12	3
Holistic health	Access to equal and holistic health services and resour	13	8	5	2
	Quantitive person-centred health	19	8	11	3
	Finding a balance in a fast-paced life	14	9	5	2
	Promoting well-being through relating environments	13	9	4	2
Personal development	(Business) models for balancing time	11	9	2	1
	Personal and organisational choice management	10	9	1	1
	Technology as a means of well-being	13	9	4	1
	Meaningful research for society	12	9	3	1
Sustainable energy	Beyond energy efficiency: reduce consumption throug	8	4	4	2
	Enabling a market for energy prosumers	21	16	5	2
	Smart energy governance	13	4	9	2
	Interconnected open systems	4	4	0	0
Unity and cohesion	Alternative economic model	20	11	9	2
	Community building infrastructures	26	12	14	2
	Evidence-based community building	17	13	4	1
	Universal basic income - so no-one is left behind	42	22	20	3
Sustainable food	Good food research	25	13	12	3
	Responsible use of land	23	17	6	1
	Good quality food for all	22	16	6	1
	Evolving food culture in growing cities	10	7	3	1
Green habitats	Moving together (more collective transports)	14	5	9	2
	Freedom to choose where we live	15	7	8	2
	Distributed living	6	5	1	1
	The bigger (the cities) the better	7	4	3	1
Life-long processes	Deconstruction of age	3	1	2	1
	Health empowerment through "Everyone's science"	5	4	1	0
	I’m empowered to lead my changes	3	3	0	0
	Here, there and everywhere	8	8	0	0
Total		910	573	330	76

Note: individual arguments and their clusters are in a separate xls file – APPENDIX II.

ANNEX IV PROJECT FLOW



ANNEX V AUTOMATIC REPORTS FROM THE PLATFORM

This annex contains 30 national automatic reports generated by the platform consultation.cimulact.eu. These CIMULACT online consultation reports have been generated for the following European countries:

Austria
Belgium
Bulgaria
Croatia
Cyprus
Czech Republic
Denmark
Estonia
Finland
France
Germany
Greece
Hungary
Ireland
Italy
Latvia
Lithuania
Luxembourg
Malta
Netherlands
Norway
Poland
Portugal
Romania
Slovakia
Slovenia
Spain
Sweden
Switzerland
United Kingdom

Individual national automatic reports are attached in a separate pdf file – APPENDIX III.