

METREX RESEARCH PORTAL REPORT

Results of the initial Survey of METREX member organisations



25 March 2021

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METREX RESEARCH PORTAL REPORT

Results of the initial Survey of METREX member organisations

Executive summary

In addressing the complicated issues that the cities and regions of Europe deal with, in particular on climate change and decarbonisation, it is critical for practitioners to have the best research results at their disposal. Decisions are being taken by cities and regions across Europe on areas from housing to transport and energy without maximising the support and guidance that research can provide.

Often, this research work has already been done by the universities and institutes in our European Metropolitan regions. However, it has become clear to METREX through working with both academic institutions and practitioners for the past 25 years, that there is little connectivity between on one hand the best and most relevant research, and policymakers on the other. METREX members are government employees who are making decisions capable of ‘nudging’ populations into adopting behavioural changes that can tackle climate issues while improving quality of life in cities and regions.

Sometimes, those who need evidence stop looking at their geographical or language boundary. Often, it is simply too time-consuming looking into the abyss of search returns on the internet. A report written by the European Union Group of Scientific Advisors (2019)¹ acknowledges the science and policy gaps and identifies a roadmap to bridging the gap by recommending scientist to engage early and regularly with policymakers and co-create the boundaries of the advice and its scope, as well as the best way to address it. They also encourage the involvement of stakeholders or the public

¹ Group of Chief Scientific Advisors (2019) Scientific advice to European policy in a complex world, European Commission, available at <https://op.europa.eu/en/web/eu-law-and-publications/publication-detail/-/publication/5cb9ca21-0500-11ea-8c1f-01aa75ed71a1>

in the process and improve the quality of scientific advice by rigorous synthesis of existing evidence and transparent debate.

In response to this, METREX, the Network for European Metropolitan Regions and Areas, has taken up the initiative to build a Research Portal. The main objective of the Portal is to capitalise on the potential of the existing METREX network, whose members have links with local universities and research centres. In order to help bridging the science and policy gap, the Portal will formalise these linkages and co-develop with scientists a better and more relevant overview on existing scientific research that can support practitioners in their work. The final ambition of the portal is to provide a platform through which practitioners can search and filter research according to the requirements of the projects they are working on.

The portal should also allow practitioners to easily identify and connect with researchers for new questions that arise and to find new partners for projects and research grant applications, for example for the new round of EU-funded calls. For the academic institutions, we believe it will bring a new level of engagement and potential to disseminate their studies to an audience that can maximise the impact of their work. The framework for the METREX Research Portal will be set up with the help of Dr. Claudia Murray from Reading University in the UK. She will ensure that the methodology used to develop the Portal is replicable and sustainable in the long term, and that it meets the conditions required for an application for EU funding to build the Portal, to then be maintained by its users.

We firmly believe that the METREX Research Portal can become a game changer for the decarbonisation of metropolitan regions, by offering a space for policy and science interaction via the systematic selection and co-curation of reliable evidence that can underpin the transition to equitable and net zero carbon urbanism in Europe.

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About the METREX Research Portal

The METREX Research Portal was first announced at the METREX Stuttgart Conference in September 2019 and was described as a way for practitioners across Europe to access the best and most relevant research. Upon receiving confirmation and initial funding from the METREX Board to develop the idea, the team designed a survey of METREX members to delineate the end-user requirements for the Portal and design a High Level Design (HLD) concept note of the Portal's operational functions (see Appendix 1). The systematic review of scientific literature used for medical studies (The Cochrane method)² was identified as the best process to select academic research for the Portal.

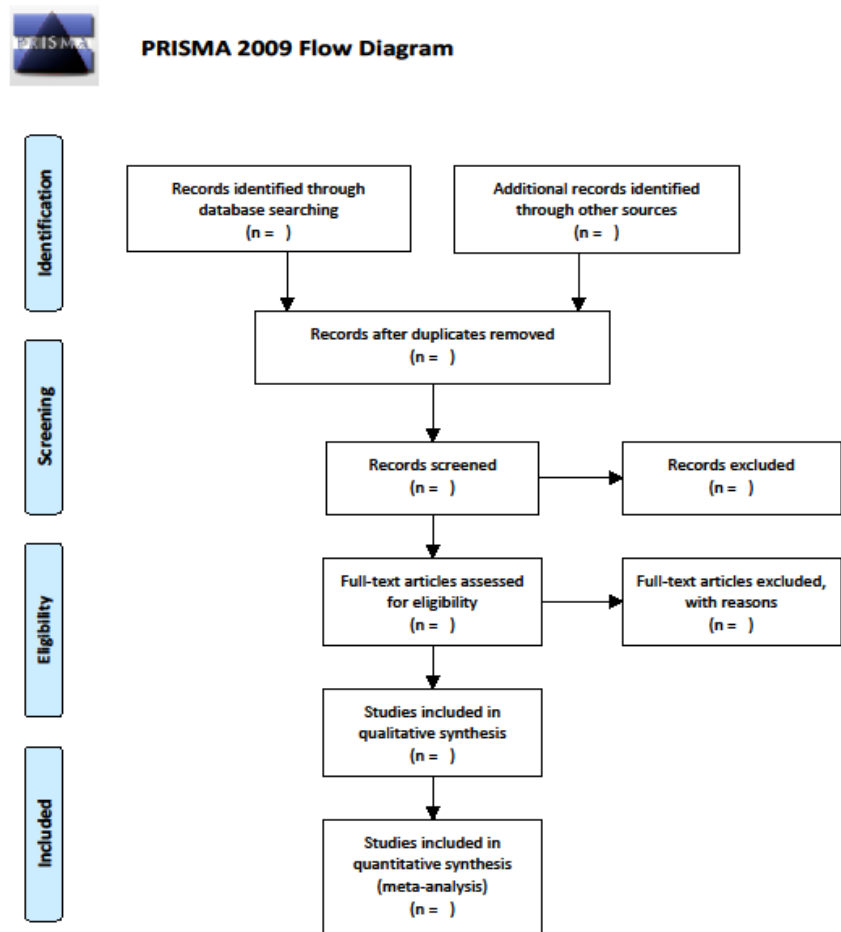
What is a systematic review of the scientific literature?

A systematic review seeks to synthesise all available evidence on a particular question. As a method, it originated in the medical studies and used to collate evidence, for example, on the effectiveness of a drug or a treatment. A systematic review must have a research question that informs the search and data collection protocols – or the parameters that define the eligibility criterion for screening the studies, as well as a data extraction protocol – or the categorisation of the type of data collected from each eligible study (Higgins, et al 2020)³. The analysis of the data and the summary of results are then assembled using a reporting method known as PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses). This ensures transparency in reporting of data collected and consist on 27-item checklist and a four-phase flow diagram (see Figure 1). The checklist includes items deemed essential for the transparent reporting of a systematic review.

² See The Cochrane Library at <https://www.cochranelibrary.com/about/about-cochrane-library>

³ Higgins JPT, Thomas J, Chandler J, Cumpston M, Li T, Page MJ, Welch VA (editors). Cochrane Handbook for Systematic Reviews of Interventions version 6.1 (updated September 2020). Cochrane, 2020. Available from www.training.cochrane.org/handbook.

Figure 1: PRISMA reporting method



From: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(7): e1000097. doi:10.1371/journal.pmed1000097

For more information, visit www.prisma-statement.org.

Sample repositories of systematic reviews

The data collected via the systematic review and the PRISMA reporting should be stored in a repository that can offer easy access to end users. There are two well known repositories, the Cochrane Library for medical studies and the Campbell Review for the social sciences. To our knowledge, there are no similar repositories of scientific evidence for the urban environment, a complex area including medical and social sciences as well as technological and engineering sciences.

The **Cochrane Library** is a trusted repository of evidence that aims to improve decision-making in health. Scientists from all over the world collaborate by submitting systematic reviews of the available literature on a regular basis and on building further the library's content. The library operates on an open platform where end users can search for evidence by for example theme, title and/or author. So for example, a layperson can look for evidence on 'Mental health' and later refine the search results by say 'Dementia and cognition' thus retrieving only relevant studies. The final list of results presents the titles of the systematic reviews, for example 'Aromatherapy for dementia'.

This is the title of a systematic review that looked at peer-reviewed intervention studies (in this example thirteen studies were included), and after evaluating the methodology used, it provides a summary of the effectiveness of aromatherapy in dementia. METREX Portal can be a similar repository of evidence for urban areas where the 'illness' are urban problems and the 'treatments' are solutions tested by scientist by means of intervention studies.

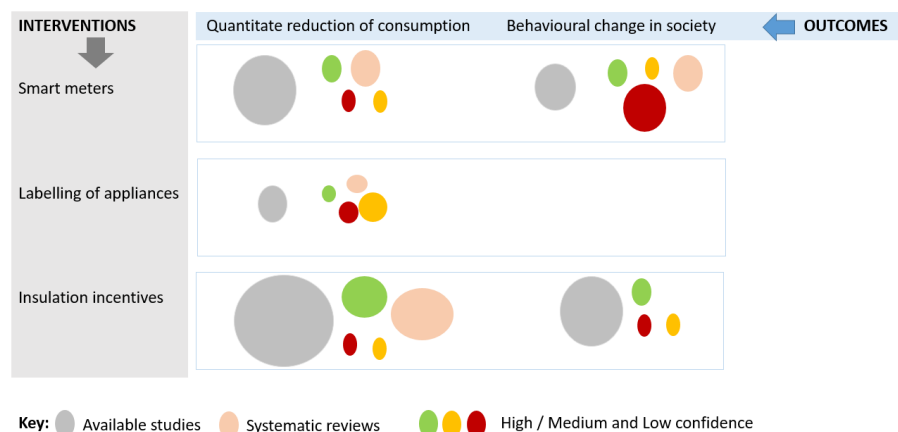
The **Campbell Collaboration** takes a similar approach to Cochrane but related to the social sciences in general and includes **Evidence and Gap Maps** (EGM) a systematic and visual representation of available scientific evidence that can underpin a particular policy area (Snilsveit et al 2013)⁴. EGM is a useful tool to see where research is needed by showing a desired outcome. To give an example that will be relevant to METREX, the Portal could collect an EGM for the theme 'Reduction in energy consumption in homes',

⁴ Snilsveit, B; Vojtkova, M; Bhavsar, A. And Gaarder, M (2013) Evidence Gap Maps – A tool for promoting evidence-informed policy and prioritising future research. World Bank, Policy Research Working Series Papers. Available at <https://elibrary.worldbank.org/doi/abs/10.1596/1813-9450-6725>.

and list all the interventions that have been tested by scientists, for example ‘installation of smart meters in homes’; ‘labelling of domestic appliances’; ‘insulation incentive programmes; etc. By simply collecting and analysing the data, a graphic can be built showing the outcomes of each scheme, allowing for an immediate identification of the available evidence and the results. The following graphic (Figure 2) shows the example:

Figure 2:

Example: Mapping the evidence on energy reduction in homes



In the example represented in Figure 2, the labelling of appliances is the area of studies with least research (show by the small grey bubble). Furthermore, in relation to outcomes related to behavioural change, there are no studies at all for this type of intervention. Insulation incentives is the area where research activity has concentrated the most, producing high quality studies (green bubble) and a large number of systematic reviews (pink bubble). Clearly, in this area the scientific community have offered sufficient evidence with a high level of confidence for policymakers to rely on it.

End-user requirements for the METREX Portal

The team designed and implemented a survey of METREX Members in order to collect information for the METREX Portal. Information sought

ranged from respondents' research resources and capacities, to linkages to regional research centres and universities. In order to extrapolate current research needs, the team focused on climate change and the decarbonisation of cities as a starting point, considering that this is a common interest to all regions given the Climate Emergency declared by the European Parliament in November 2019.⁵

This declaration means that the EU should cut emissions by 55% by 2030 and become climate neutral by 2050. The High-Level Panel of the European decarbonisation pathways initiative acknowledges that the challenge is huge, and highlights that a very ambitious research and innovation (R&I) programme is one of the necessary means to achieve this goal.⁶ The evidence on climate change is already available through the various publications of the Intergovernmental Panel on Climate Change (IPCC), particularly its Special Report on 1.5°C.⁷ What is needed now is research on actions and evidence of impactful interventions that can be shared across European regions. This particular research need is what the survey aimed to gather from the metropolitan regions.

The Survey

In May 2020, a survey of METREX members was implemented to understand the research capacities and needs in relation to the decarbonisation of urban areas in metropolitan regions of Europe.

The aims of the survey were twofold:

1. To identify the research capacity of METREX members, including work carried out in partnership or commissioned to universities and research centres. This was done in order to help METREX create a network of experts that can be relied upon for future research projects and apply for EU-funding.

⁵ News item available at <https://www.europarl.europa.eu/news/en/press-room/20191121IPR67110/the-european-parliament-declares-climate-emergency>

⁶ See High-Level panel final report here <https://op.europa.eu/en/publication-detail/-/publication/226dea40-04d3-11e9-adde-01aa75ed71a1>

⁷ See full report here <https://www.ipcc.ch/sr15/>

2. Uncover the research evidence needs of METREX members in order to achieve urban targets by 2030 and 2050 in the metropolitan regions of Europe. This will help METREX to draft a common research agenda and prioritise the systematic review of the evidence to populate the Portal.

The *anonymised* survey results were shared with METREX members during a follow up workshop that took place in January 2021. The workshop was also attended by academics from the University of Amsterdam (Netherlands) and Reading (UK). Participants discussed the idea of the Portal and agreed to seek further funding in order to collaborate.

Methodology for the survey

A short factual enquiry was developed by means of a descriptive questionnaire, while a more analytical part of the survey collected data on metropolitan regions' research capacities and characteristics. Both types of questions descriptive and analytical were mixed in the same survey (see full questionnaire in Appendix 2a).

The survey was sent by email to all METREX members by the Secretary General. Follow-up mailings were sent as necessary in order to maximise response rate. Negative-worded items were avoided in order to control acquiescence response bias and improve response accuracy.

An advance warning notice was sent to all METREX members informing them about the study in advance and inviting their participation (see Appendix 2b). The notice aimed to increase cooperation and a further notice explaining the aims and the importance of the survey was also shared. A confidentiality clause was included. Anonymity with non-METREX members was guaranteed, complying with GDPR regulations. The questionnaire was piloted with five volunteers from METREX contact list which included policymakers as well as academics.

Some questions have a series answers and options. In order to control for ordinal biases, the order of the series was randomised, and a split-ballot technique was used, dividing the sample in two equivalent parts and presenting each part with a different sequence. After the methodology and questionnaire was revised by

an ethics panel at the University of Reading, the survey was implemented in the week commencing 13/04/2020 and results collected by 13/05/2020.

Highlights of survey results

The survey indicates that there is a high level of awareness amongst all metropolitan regions in relation to Climate Change (CC) and urbanisation. Conferences and hands-on participation in research projects is the preferred route to gain and maintain knowledge on CC. Bidding for funding for projects in partnership with universities and research institutes is also the preferred option to pilot ideas and bring forward innovation.

There seems to be a preference to sought information via trusted online platforms/resources, but the digital information rarely crosses the geographical boundaries of their own regions/countries. There is a risk of language bias in this method as well as the danger of generating important research/impact studies that are not fully exploited by other members. Creating an online repository of evidence within the METREX Research Portal can offer useful information from a trusted resource and avoid duplication of efforts. Ideally, a resource that can offer results in several EU languages could help with bridging geographical barriers as well as encourage more reading of scientific outputs that sometimes uses complicated terminology and makes reading in a foreign language even more taxing.

There are positive perceived changes in the way metropolitan regions operate when responding to EU directives on CC. Still, respondents state that greater scientific collaboration is needed in order to advance in this area as well as more coordination of the implementation of strategies at the local level.

METREX members already have an existing relationship with their local university. The best way to advance in the development of this network is to ask members to share contact details of their partners so a database can be built. Notwithstanding and in the meantime, the team has put together a database with contact details from the list of universities/research centres collected via the survey (see Appendix 4).

In terms of most pressing research challenges in relation to CC and metropolitan regions these were ranked by respondents as follows:

1. Heating and energy decarbonisation,
2. Urban planning and decarbonisation,
3. Transport decarbonisation,
4. Energy efficiency in buildings

As declared by survey respondents (see Module 3 of questionnaire in Annex 3), most metropolitan regions have a relatively old building stock with the private car being the most widely used transport method. Considering these characteristics, the above selection of topics is congruent with the reality most METREX members face when trying to achieve 2030/2050 targets. Annex 3 presents a full description of the survey results that has provided end-user requirements for the development of the METREX Portal.

High Level Concept Design for the METREX Portal

Based on the survey results as well as the Cochrane Library and the EGM, the high-level concept design for the Portal envisages a free open web-based service that would act as repository of systematic reviews for metropolitan regions. The scientific community with the help of METREX members will conduct the systematic reviews, prioritising the four topics selected by METREX members in the survey. Assistance from METREX members will be needed to moderate the policy implementation implications of scientific outcomes. In our example of 'Reduction in energy consumption in homes' represented in Figure 2, METREX members will be consulted in the ease of policy implementation behind 'insulation incentives' for example. Thus unable the scoring of cost-effectiveness interventions from the government perspective. This scoring of the science will perhaps alter the amount of evidence included in the green bubble of insulation incentives, creating new research questions and prompting researchers to concentrate new studies in solving implementation or cost-effectiveness problems related to this type of intervention.

The METREX Research Portal will be therefore co-created by scientist and METREX members. The platform will offer searchable functions by different categories so practitioners would be able to

find relevant research to underpin their decision-making (see Appendix 1 for proposed functionalities of the Portal). Additionally, the Evidence Gap Map method, can offer METREX the opportunity to highlight gaps in the knowledge and connect with scientist if there are relevant areas for which research has not yet been conducted.

Conclusions and next steps

The findings of this report indicate to the METREX Research Portal development team that there is a desire amongst Europe’s practitioners for easier access to research produced across Europe by research institutes. Based on this end-user need, the Portal is highly valuable.

The findings also indicate that climate change adaptation is already a big agenda item for cities and regions, but that their research on the subject is confined to what is available locally and what it has been commissioned by themselves and carried out by a third-party.

We therefore believe that the proposed Research Portal can be an important service that will allow practitioners across Europe to access and engage in the selection of the best, most recent and most relevant research in order to achieve more impactful change when transitioning towards 2030 and 2050 targets.

METREX and its partners are encouraged to pursue the development of the Research Portal. We will now move the development of this idea to the next phase, which will involve working towards securing the funding not only to design the methodology and build the platform, but to secure its long-term sustainability.

METREX invites its Members and other partners from across Europe’s cities and regions and academic institutions to join us in the development of this important service.

Appendix 1: METREX Research Portal High Level Design Concept

METREX RESEARCH PORTAL High Level Design Concept Note

Home

- About Metrex Research Portal
- Meet the people
- News feed
- Subscribe
- Social media linkages

Government (Evidence for Policy and Planning)

- Repository of systematic reviews
 - 1- Thematic classification of systematic reviews offering searchable functions
 - 2- Summary of results including PRISMA data
 - 3- Downloadable systematic review from repository
 - 4- Linkages to access metadata
- Evidence Gap Map
 - 1- Thematic classification of evidence gap map offering searchable functions
 - 2- Visual summary of results (see Figure 2)
 - 3- Downloadable systematic reviews included in the EGP
 - 4- Linkages to access metadata

Content Development (Curating evidence for Policy and Planning)

- Systematic review and Evidence Gap Map methods
- Submission proposal and process

Appendix 2a: Questionnaire Survey

QUESTIONNAIRE SURVEY METREX

Data protection:

The contents of this questionnaire are absolutely confidential. Information identifying the respondent will not be disclosed under any circumstances. Metrex follows GDPR regulations and no personal data would be shared with any non-Metrex member.

Instructions to complete the survey:

*The survey is composed of different modules and has been designed using funnelling methodologies and following a specific order. In order to maximise our results, please complete questions in the order that are presented. As this is an email survey using a simple word doc document, you can underline most relevant responses from the options given. When faced with an open question, please input the information by using the relevant boxes provided, more space in boxes can be added by using the **Enter** key on your keyboard. Please remember to save the document at regular intervals to avoid losing your responses.*

The survey would take approximately 30 minutes to complete, but you might want to respond by consulting with other members in your organisation, in which case it can take longer.

We would appreciate if you could email back your responses by 20th May 2020 to the Secretary General at henk.bouwman@eurometrex.org

We thank you in advance for your participation.

NAME OF METROPOLITAN REGION:

COMPETENCE OF YOUR REGION

In order to contextualise your responses, could you list the current competences of your metropolitan authority please? For example transport, housing, climate change, etc.

Module 1: Awareness

1. Has a representative of your region *attended* a climate change related conference in the past 2 years? Please underline appropriate response:
Yes / No / don't know –if No/don't know, please go to question 3
2. If Yes, please name at least one or as many conferences as you can remember

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3. Has your region ever *being involved in the organisation of* a climate change related conference? Please underline appropriate response:
Yes / No / don't know –if No/don't know, please go to question 5

4. If Yes, please name at least one or as many conferences as you can remember

5. Have you personally ever participated in any climate change related conference? Please underline appropriate response:
Yes / No / don't know –if No/don't know, please go to question 7

6. If Yes, was the conference theme related to any of these topics (please underline as many as you need)

Smart cities and decarbonisation	Buildings, housing and energy efficiency
Cross-sectoral governance	Urban ecology/urban greening and farming
Urban planning and climate adaptation	Urban disaster management and resilience
Citizen engagement	Financing urban decarbonisation
Energy, Transport and decarbonisation	Business and decarbonisation
Waste management and the circular economy	Participatory budgets

If other, please specify the theme:

7. Does your organisation have any of the following resources for accessing research and case studies on climate change and urbanisation (Please underline as many as you need)

Physical library / online library / database subscription / don't know /

If other, please specify:

8. Does your organisation subscribe to regular updates from a climate change related organisation (for example the Intergovernmental Panel on Climate Change)? Please underline appropriate response:

Yes / No / don't know –if No, please go to question 10 and if don't know, please go to question 11.

9. If Yes, please name at least one or as many subscriptions as you can remember

10. If No, how does your organisation usually keeps informed in issues around climate change and urbanisation? Please briefly explain how

11. Are the EU directives on climate change responses affecting the way your organisation works? Please underline appropriate response:

Yes / No / don't know –if No/don't know, please go to question 13

12. If Yes, could you explain how? Please underline as many as you need:

More human resources / less human resources

More capital spending / less capital spending

More integration with other departments / less integration with other departments

More inter-disciplinarity / more expertise

If other, please specify:

13. Thinking on the responses to question 12, what are the needs in your organisation in order to meet EU directives.

- 14.

Module 2: Research

15. Does your organisation has an in-house team of researchers working on issues around climate change and urbanisation? Please underline appropriate response:

Yes / No / don't know –if No/don't know, please go to question 17

16. If Yes, How many people are in the research team? Please underline most relevant response:

Less than 3 / between 4- 5 / more than 6

17. Does your region work closely with any particular research organisation? (working closely means conducting research with a particular organisation at least once every 2 years). Please underline appropriate response:

Yes / No / don't know –if No/don't know, please go to question 19

18. If Yes, Could you name the organisation please? (if more than one please mention as many as you can remember)

19. How are researchers normally selected for conducting commissioned research? Please underline most relevant response:

Job tendering / Geographical proximity / Recommendation / Prestige / Don't know /
If other, please specify how:

20. How much funds per year does your organisation invest in research of any type – for example evidence finding, measurement of progress on a particular area, implementing and monitoring new innovations and projects, etc.? Please provide an approximate figure in €

21. What percentage of the paid research is commissioned to outside organisations? Please underline most relevant. If don't know/prefer not to say, please go to question 22

Between 1-20% / between 21-50% / between 51-80% / between 81-100% / don't know/prefer not to say

22. What percentage of those funds would you say it was dedicated to climate related concerns? Please underline most relevant

Between 1-20% / between 21-50% / between 51-80% / between 81-100% / don't know/prefer not to say

23. How does your organisation disseminate research results/case studies/climate change response actions with others **inside the organisation**? Please underline most relevant

Face to face events / mailing / don't know /
If other, please specify how

24. How does your organisation exchange research results /case studies/climate change response actions with others **outside the organisation**?

Face to face events / mailing / don't know /
If other, please specify how

Module 3: Metropolitan regions

25. Please underline the main economic activity in your region:

Large-scale industrial / service & knowledge intensive / agro-industrial/ tourism / traditional agriculture / forestry /

If none of the above, could you state the main economic activity of your region please?

26. What is the prevalent (i.e more than 50%) mode of transport in your region?
Rail / car / buses / metro /
27. Thinking about the majority of the building stock in your region (i.e. more than 50%), when was it built? Please underline most relevant
Before 1900s/ between 1901 to 1980's / between 1981 – 1999/ this century / I don't know
28. Does your region have clear targets for 2030 and 2050? Please underline appropriate response:
Yes / No / don't know –if No/don't know please go to question 31
29. If Yes, are these targets already being implemented in your policies? Please underline appropriate response:
Yes / No / don't know
30. If Yes, How does your region monitor these targets? Please underline most relevant
Follow UN SDGs / own database / Follow Eurostats / don't know /
If other, please specify how

31. Please underline the most pressing challenges your region is facing in relation to meeting the 2030 and 2050 targets (you can underline as many as you need)

smart city governance & urban networks	business and city decarbonisation	lifestyle and decarbonisation	community gardening/urban farming
heating and energy decarbonisation	urban planning and decarbonisation	Urban health & dealing with communicate & non-communicative deceases	urban ecology/urban greening
urban decarbonisation monitoring/indicators	waste management and decarbonisation	urban climate adaptation	urban flood reduction
building retrofiting	cities and GHG/pollution reduction	citizen zero-carbon innovation	Cities decarbonisation
governance of city decarbonisation	cities and zero-carbon innovation	financing tools for city decarbonisation	circular economy and cities
cost of city decarbonisation	transport decarbonisation	incentives for decarbonisation	energy efficiency buildings

32. Now thinking about the most pressing challenges that you have selected above, could you rank them in order of importance please?

1-	6-
2-	7-
3-	8-
4-	9-
5-	10-

Module 4: Personal data

To help us classify the answers and to make statistical comparisons, would you mind responding to the following questions please? If the survey was answered by a team, please complete the details for all team members.

33. What is your job title within your organisation?

34. What is your educational background? Please underline most relevant:

Social sciences / Environmental sciences / Engineering-mathematics

If other, please specify:

35. Are you still in touch with the institution where you studied? Please underline appropriate response:

Yes / No / don't know

36. If Yes, in what capacity are you in touch? Please underline most relevant:

Alumnus / part-time staff / guest lecturer / occasional speaker

If other, please specify:

End of survey

THANK YOU! Your contribution has been invaluable. In a couple of months we will be in touch to share the results and further discuss the research agenda in a follow-up workshop.

Appendix 2b: Survey Notice and Participant consent form

SURVEY OF METREX MEMBERS

Context

In November last year, the European Parliament declared a climate emergency.¹ This means the EU should cut emissions by 55% by 2030 and become climate neutral by 2050. The High-Level Panel of the European decarbonisation pathways initiative, acknowledges that the challenge is huge, and highlights that a very ambitious research and innovation (R&I) programme is one of the necessary means to achieve this goal.² The evidence on climate change is already available through the various publications of the Intergovernmental Panel on Climate Change (IPCC), particularly its Special Report on 1.5°C.³ What is needed now is research on actions and evidence of impactful interventions that can be shared across European regions.

Aims of the survey

The aims of the survey are twofold:

- 1) Find out what is the research capacity of Metrex members including work carried out in partnership or commissioned to universities and research centres. This will help Metrex create a network of experts that can be relied upon for future research projects.
- 2) Uncover research evidence needs of Metrex members in order to achieve urban targets by 2030 and 2050 in the metropolitan regions of Europe. The collected information would be stored in Metrex's portal as an online library, while the uncovering of research needs will help to draft a common research agenda in order to fill those gaps.

The anonymised survey results will be shared with all members during a follow up workshop. The workshop will help Metrex' regions to agree on a common research agenda by sharing and agreeing on the most pressing challenges affecting EU regions in order to achieve the 2030 and 2050 targets.

The survey would be implemented in the **week commencing 13/04/2020**. Your metropolitan region's contribution and response is invaluable and we therefore kindly request that, upon receiving the survey, a representative of your region is able to answer the questions by the **due date on 15/05/2020**.

I thank you in advance for your cooperation.

Henk

¹ News item available at <https://www.europarl.europa.eu/news/en/press-room/20191121IPR67110/the-european-parliament-declares-climate-emergency>

² See High-Level panel final report here <https://op.europa.eu/en/publication-detail/-/publication/226dea40-04d3-11e9-adde-01aa75ed71a1>

³ See full report here <https://www.ipcc.ch/sr15/>

23 March 2120

Consent Form

Project: Metrex Research Network Portal

This project has been subject to ethical review, according to the procedures specified by the University Research Ethics Committee, and has been given a favourable ethical opinion for conduct.

Please use tick box after each statement to confirm it has been read and agreed to.

1. I have read and had explained to me by the Secretary General of Metrex, Mr Henk Bouwman the accompanying Information Sheet relating to the project on: Metrex Research Network Portal
2. I have had explained to me the purposes of the project and what will be required of me, and any questions I have had have been answered to my satisfaction. I agree to the arrangements described in the Information Sheet in so far as they relate to my participation.
3. I have had explained to me what information will be collected about me, what it will be used for, who it may be shared with, how it will be kept safe, and my rights in relation to my data.
4. I understand that participation is entirely voluntary and that I have the right to withdraw from the project any time, and that this will be without detriment.
5. I understand that the data collected from me in this study will be preserved, and subject to safeguards will be made available to other authenticated researchers. *
(*Guidance note only safeguards will include pseudonymisation, data minimisation, secure transfers, and any necessary data sharing and confidentiality agreements between parties)
6. This project has been reviewed by the University Research Ethics Committee and National Research Ethics committee where relevant, and has been given a favourable ethical opinion for conduct.
7. I have received a copy of this Consent Form and of the accompanying Information Sheet.

Name:
Signed:
Date:

Appendix 3: Complete Survey Results

Response rate

33 responses for the survey comprised of:

- 31 returned forms
- 2 negative responses
- Response rate 67.35% (total METREX members 49)
- Positive responses 63.27%

Respondents' profiles

The responses were collected mainly from the following positions within metropolitan regions departments:

- 45% Directorial positions
- 39% were experts in either planning, architecture, economics or other relevant fields.
- 16% were officers, assistants or coordinators

The responses came therefore mainly from high-level management within the region or from a local expert.

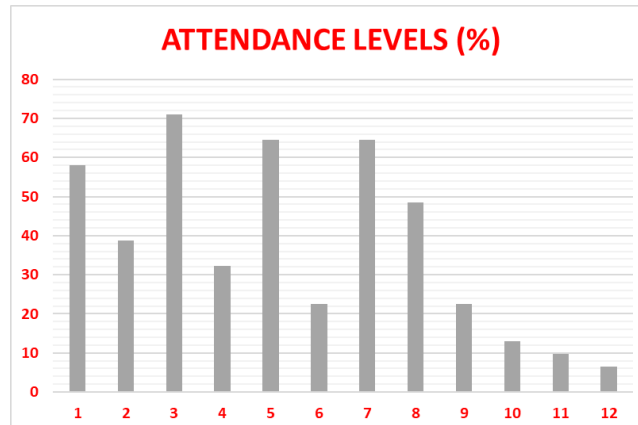
All respondents have combined degrees in the different sciences (social, environmental and mathematics), but the majority (87%) have a social science background.

Module 1: Awareness

Amongst METREX members, the level of awareness on Climate Change (CC) related issues is high, considering the attendance to topical conferences. 87% of respondents stated that at least one representative of their metropolitan region participated in a climate change related conference in the past 2 years. 84% have been involved in organising a climate change conference and at personal level – i.e. the respondents themselves, the participation in such events was even higher at 94%.

The topics of the conferences attended varied, with the most popular being *Urban Planning and Climate Adaptation* (attended by 71% of respondents), while the least attended was *Participatory Budgets* (attended by only 6% of respondents). The following chart (Graphic 1) shows topics and percentage of attendance. Please note that attendance does not indicate level of interest in certain topics, it could be that low percentage of attendance was due to lack of events covering those themes; therefore, making the topics interesting for METREX to explore in the future. The level of interest on topics was measured in Q31 and 32 of the survey, which provide a list of most pressing research needs in metropolitan regions (see Appendix 2 for questionnaire survey and Appendix 3 for results in Excel format).

Graphic 1: List of CC related conferences and the attendance level (%) declared by survey respondents (Q6 in survey)



KEY: TOPIC AREAS	
1	Smart cities and decarbonisation (58%)
2	Cross-sectoral governance (39%)
3	Urban planning and climate adaptation (71%)
4	Citizen engagement (32%)
5	Energy, Transport and decarbonisation (65%)
6	Waste management and the circular economy (23%)
7	Buildings, housing and energy efficiency (65%)
8	Urban ecology/urban greening and farming (48%)
9	Urban disaster management and resilience (23%)
10	Financing urban decarbonisation (13%)
11	Business and decarbonisation (10%)
12	Participatory budgets (6%)

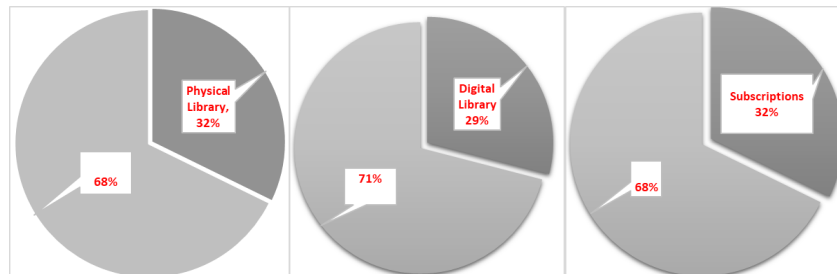
There were other topics suggested by respondents including:

- Place making and raising awareness on CC amongst populations (respondent # 92);
- Coastal risk management and intense storm surges (respondent # 115);
- Metropolitan governance (respondent # 125);
- Mitigation and adaptation measures to climate change (respondent # 89).

In general, conferences are the main mechanism that metropolitan regions use to keep up to date with issues related to urbanisation and CC. Other resources like physical and digital libraries or

database subscriptions are less popular. This preference is encouraging for METREX that offers members opportunities to meet and discuss ideas in conferences. However, the potential threat of Covid-19 and any other similar pandemics demanding lockdowns and restrictions on large gatherings should be taking into consideration in order to plan for other potential disruptions and increase resilience.

Graphic 2: Resources to keep up with CC issues (Q7 in survey)



As seen in Graphic 2, the majority of metropolitan regions (around 70%) do not have a physical or digital library nor do they rely on subscriptions to receive information on CC issues. Some respondents search the Web as and when is needed in order to gather information on particular topics. However, they concentrate searches in their own trusted sites or platforms, that had been created via a particular research project/experiment that the respondents have either been part of, or that other regions in their country have been involved in (respondents # 92; 97; 112; 113; 119; 125; 257; 259)

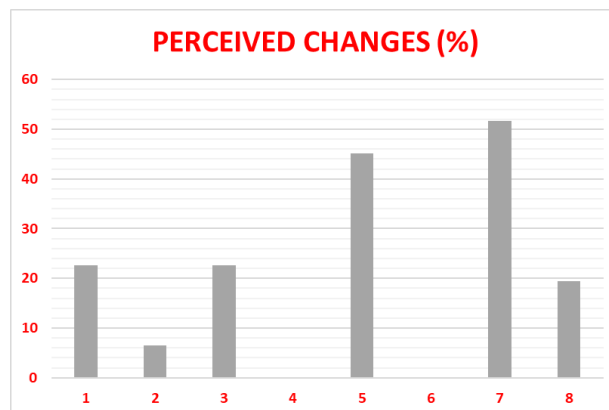
With the exception of sites like ECLEI and EURO CITIES mentioned by respondent 97, most resources used were confined to their own countries and regions.

The dangers here is that metropolitan regions could be unaware of other research projects and empirical work that can be of use to them. The most concerning part is that there could be duplication of efforts already happening. Having a digital library/resource centre arranged by topic could be an additional valuable resource for metropolitan regions.

Metropolitan regions' organisations and CC:

Most metropolitan regions feel that EU directives on CC are changing the way their organisations operate (87% of respondents). Notwithstanding, changes are quite positive as is making organisations increase their inter-disciplinarity (52%) and to integrate more with other departments (45%).

Graphic 3: Perceived changes in the way metropolitan regions work as per survey responses (Q12 in survey)



KEY:

- | |
|--|
| 1 More human resources (23%) |
| 2 Less human resources (6%) |
| 3 More capital spending (23%) |
| 4 Less capital spending (0%) |
| 5 More integration with other departments (45%) |
| 6 Less integration with other departments (0) |
| 7 More inter-disciplinarity (52%) |
| 8 More expertise (19%) |

There also seems to be more human resources available to metropolitan regions with 23% of respondents stating that they now have more resources, with more expertise (19%) and increased capital spending to tackle the changes (23%). However, two respondents felt that their metropolitan regions are having less human resources than before the EU directives were implemented (respondent # 226 and #257). Furthermore, when respondents were prompted to provide the needs their organisations have in order to fulfil EU directives in relation to CC, some pointed at the lack of

human resources (38%) as well as the need for more financial investment (13%).

Notwithstanding, the majority highlighted the need for more knowledge, research and collaboration (63%). As stated by respondent #115, metropolitan regions need: *'Greater scientific support and exchange of good practices'*

A large group advocated for better governance (44%). With some of them specifying further the need to transfer more responsibility at the local level:

'[Metropolitan regions need] The responsibility of climate change because it is [at present] located in other ministries' -respondent #88

'Climate Protection and Adaptation has to be part of an integrated development strategy – on all administrative tiers but coordinated on regional level!' -respondent #113

Respondent #256 summarised the section by stating that even though metropolitan regions are undergoing a positive change, these are not happening at the required speed:

'In [the] fight against climate change, EU directives have been a key driver in city-scale climate targets. Actions described in question 12 [of the survey] are happening, but it is still unclear if they are happening fast and effectively enough in order to push emissions down in a really limited time frame.' Respondent #256

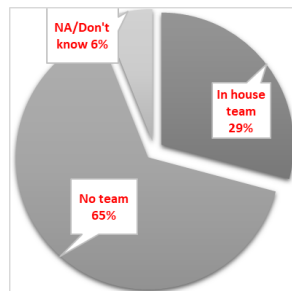
Summary of findings Module 1

- There is a high level of awareness amongst all metropolitan regions in relation to CC and urbanisation.
- Conferences and hands-on participation in research projects is the preferred option to gain and maintain knowledge on CC.
- Additional information on CC is usually sought via trusted online platforms/resources, but the digital information rarely crosses the geographical boundaries of their own regions/countries. There is a risk of language bias in this method as well as the potential of generating important research/impact studies that are not fully exploited by other members.
- There are positive perceived changes in the way metropolitan regions operate in order to respond to EU directives on CC. Still, greater scientific collaboration is needed in order to advance in this area as well as more coordination in the implementation of strategies at the local level.

Module 2: Research

The percentage of metropolitan regions in METREX that have an in-house team of researchers is 29%. Most of them (**65%**) rely on external research. The size of their in-house teams varies, most of them have teams of 3-4 people (13%), while others (10%) have teams of more than 6, and a small minority (3%) have less than 3 people in their teams.

Graphic 4: Metropolitan regions and in house team of researchers (Q15 in the survey)



The high percentage of Metropolitan regions that rely on external funding is indicative of the importance that funding programmes like Horizon 2020 have to metropolitan authorities in order to develop and implement their own ideas and empirical work. METREX portal will therefore facilitate the bidding for funding, but having an agreed research agenda driven by METREX members can multiply the benefits (different teams can target different funding calls) and channel the efforts in areas of most need.

METREX existing network

Question 17 of the survey asked if members worked closely with a university or research centre. Our definition of working closely was if they have done any research with a particular organisation at least once every 2 years. The aim of this question was to capitalise on existing contacts and working relations amongst METREX external contacts.

67.74% of survey respondents declared that they indeed have this close relation already, providing names of organisations. The

relationship between a city/region and their local universities and centres of knowledge is quite common. Respondent #223 explains this trend:

“Depending on the goal of the research, we could use an institute with prestige. Usually we choose researchers based on their quality. The City of X stimulates research together with local universities and research institutes.”

Furthermore, Q35 and 36 of the survey aimed to collect personal contacts with universities and research centres from each respondent. 52% of them stated that they are still in touch with the universities where they studied, and 35% of them are regularly invited as guest lecturers. This constitute another pool of contacts that can be explored to expand METREX’s Research Portal and network.

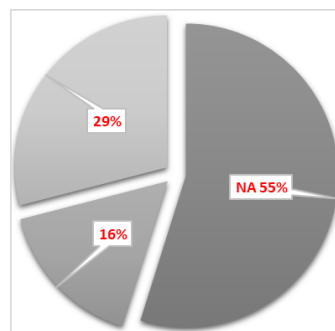
There is therefore an already established relationship with local centres of knowledge, and even if local talent is scarce, existing contacts have been developed either by working together in externally funded projects or by commissioning research to a wider pool of candidates. When asked how metropolitan regions select teams for external research (Question 19 of the survey), responded stated the following preferences:

- Job tendering process (42%),
- Geographical proximity (16%),
- Recommendations (10%) and
- Prestige (16%)

Capitalising on this work of careful selection of talented researchers is a recommended option to develop the METREX Portal. This can be done by asking members to share contact details so these already ‘tested’ organisations and contacts can be incorporated to the Portal. The team has already produced a list of contacts (Appendix 1) based on survey results. This was done by doing an internet search of the list of organisations mentioned by respondents and identifying relevant research directors. However, the list could be refined by asking metropolitan regions to provide a reliable contact.

In terms of allocated funding to conduct research, some metropolitan regions have a budget of more than €50,000 (29%) while others have a budget that is equal or less than that sum (16%).

Graphic 5: Metropolitan regions budget allocation for research (Q20 in the survey)



19% of this budget allocation is mostly dedicated to external research but only a small proportion of it is dedicated to CC research (13%). This could be because most metropolitan regions rely on the partnership with universities and research centres to collaborate and bid for external funding in order to pilot new ideas/projects related to CC and urbanisation. As respondent #97 stated:

‘[The] Municipality takes part in research projects such as Horizon2020, LIFE. Research institutions are partners in the projects.’

This highlights the importance of exploiting the network of contacts to assemble trusted and ready consortiums to bid for research projects and maximise income potential from EU funding.

Research dissemination

The preferred method of metropolitan regions to disseminate their studies within their organisation as well as to outsiders is via face-to-face events. Table 1 shows the results to Q21 and 22 of the survey, which asked respondents to state the preferred methods for

dissemination, classifying them as internal or external communications.

Table 1: Research outputs dissemination methods used by metropolitan regions

	DISSEMINATION	
	INTERNAL	EXTERNAL
	%	%
F2F	71	68
Mail	55	48
N/A	6	6

Although respondents stated that they generally use a blend of methods, (for example intranet as well as website and press releases), in person events such as conferences, prevail. This is consistent with the preferred method to keep up with news on CC related research as suggested by the responses to the Awareness section of the survey. As mentioned before, the impact of Covid-19 and other pandemics that can trigger lockdowns and restrictions to face-to-face gatherings should be considered in order to guarantee appropriate research dissemination. A digital library held in METREX Portal can also be of help here.

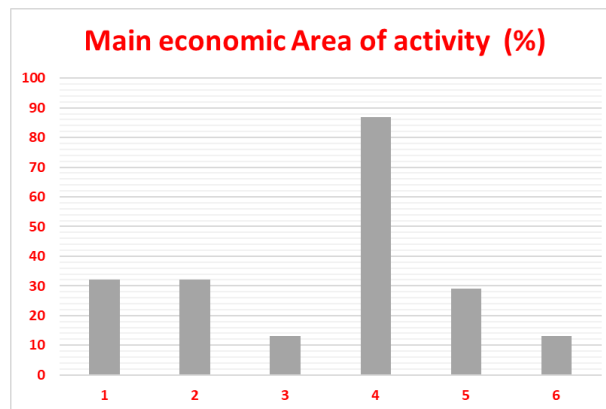
Summary of findings Module 2

- Most metropolitan regions do not have an in-house research team.
- Few have a healthy budget dedicated to CC research.
- The preference is on partnerships with local universities and research centres to bid for external funding for projects.
- Dissemination of research results and their work happens mainly via face-to-face events combining the use of intranet and websites as well as the media, using them as platforms to expand communications.

Module 3: Metropolitan regions

In terms of economic activities, most metropolitan regions declared that their main economic activity is in services and knowledge intensive activities (87%). Large scale industrial and agro industrial activities shared the same percentage (32%), followed by tourism (29%) while traditional agriculture and forestry had the lowest percentages (both at 13%).

Graphic 6: Main economic activities of metropolitan regions (Q25 in the survey)



CODE	Area
1	Large-scale industrial (32%)
2	Agro-industrial (32%)
3	Traditional agriculture (13%)
4	Service & knowledge intensive (87%)
5	Tourism (29%)
6	Forestry (13%)

One additional area mentioned by Respondent #92 was transport (i.e. airport, rail, etc.), for example when the region acts as a large connecting node.

The prevalent mode of transport in metropolitan regions is the car (81%), followed by rail and buses (both at 19%) and metro (10%). In terms of buildings, the stock has mostly been built between the 1900s and the 1980s, with small percentages being built before the 1900s (13%) and even fewer (6%) in the 1990's. In essence, the car predominates as a mode of transport in most trips at metropolitan level, while the building stock is relatively old (built in the last two centuries and before the current energy building standards were implemented).

CC has brought new regulations and most regions (77%) have clear targets for 2030 and 2050. 71% have the targets imbedded in their regional policies and are been implemented. The way regions monitor the targets is mainly via their own databases (61%), while some follow the UN stats (16%) and even less use Eurostats (13%). Respondent 119 explained why Eurostat is not their preferred option:

“Eurostat simply has often irrelevant indicators/parameters – therefore not often very useful ...”

Another region prefers to track progress on one important indicator:

“[We] Follow yearly development of GHG emissions and try to keep on track in order to get into carbon neutrality” respondent #256. Notwithstanding, most metropolitan regions use several sources to create their own database.

Summary of findings Module 3

- Although regions pursue a variety of economic activities, the majority declared that services and knowledge intensive activities predominate.
- The car is the main mode of regional transport
- Building stock is predominantly from the 1900’s-1980s. Therefore built prior to energy-saving regulations and technologies.
- CC targets for 2030 and 2050 are followed and have been implemented in local policies.
- Own databases are the main method to monitor performance of CC targets.

Most pressing research challenges

Questions 31 and 32 of the survey aimed at collecting the most pressing challenges metropolitan regions are facing in relation to meeting the 2030 and 2050 targets to address CC. A list of challenges were presented in the survey which were drawn from the

High-Level Panel report of the European decarbonisation pathways Initiative (Chapter 6: The Role of cities in Decarbonisation) as well as a brainstorming session with METREX’s Secretary General). The following table presents the resulting list.

Table 2: List of challenges facing metropolitan regions in relation to CC:

smart city governance & urban networks	business and city decarbonisation	lifestyle and decarbonisation	community gardening/urban farming
heating and energy decarbonisation	urban planning and decarbonisation	Urban health & dealing with communicate & non-communicative deceases	urban ecology/urban greening
urban decarbonisation monitoring/indicators	waste management and decarbonisation	urban climate adaptation	urban flood reduction
building retrofiting	cities and GHG/pollution reduction	citizen zero-carbon innovation	Cities decarbonisation
governance of city decarbonisation	cities and zero-carbon innovation	financing tools for city decarbonisation	circular economy and cities
cost of city decarbonisation	transport decarbonisation	incentives for decarbonisation	energy efficiency buildings

Respondents were asked to select more pressing challenges, (Q31) and then rank them in order of importance (Q32).

The results indicate that all challenges presented received at least one vote, with the least selected being community gardening and citizen zero-carbon innovation (receiving 6% and 10% of the votes respectively). This could be because metropolitan regions are less involved with citizen-level activities (possibly this is a more pressing issue for municipal level authorities). The fact that the interest is mainly in more encompassing subjects confirms this hypothesis. For example, transport decarbonisation received 74% of

the votes; while heating and energy decarbonisation as well as energy efficiency in buildings both received 65% of the votes. Table 3 presents the results showing the percentage of votes received per area in decreasing order of importance.

Table 3: % of votes per area topic shown in order of perceived importance. Highlighted in green are the ones with over 50% of votes, while in yellow are those with less than 10%.

AREA	%
transport decarbonisation (4.1 / 4.2 / 4.4)	74
heating and energy decarbonisation (3.1 / 3.5 / 3.6 / 4.3 / 4.4 / 4.5 /)	65
energy efficiency buildings (6.1 / 4.3)	65
smart city governance & urban networks (1.1 / 7.3 / 7.2)	61
urban climate adaptation (1.5)	58
circular economy and cities (7.5)	58
urban planning and decarbonisation (2.1 / 2.6)	52
urban ecology/urban greening (5.3 /	42
cities and GHG/pollution reduction (2.4 / 2.5 / 5.4)	39
waste management and decarbonisation (7.1)	32
financing tools for city decarbonisation (8.1 / 8.5)	32
building retrofitting (6.2)	29
business and city decarbonisation (8.3)	23
lifestyle and decarbonisation (3.2)	23
Urban health & dealing with communicate & non-communicative diseases (3.7)	23
urban decarbonisation monitoring/indicators (1.3)	19
Cities decarbonisation (2.2 / 2.3)	19
incentives for decarbonisation (8.2)	19
urban flood reduction (5.5)	16
governance of city decarbonisation (1.2 / 1.4 / 1.6)	16
cities and zero-carbon innovation (7.4)	16
cost of city decarbonisation (8.4)	13
citizen zero-carbon innovation (3.4)	10
community gardening/urban farming (5.1 / 5.2)	6

Table 4 summarises the results of the ranking of topics according to importance (Q32). The topics of most concern are:

- Heating and energy decarbonisation,
- Urban planning and decarbonisation,
- Transport decarbonisation,
- Energy efficiency in buildings

Most metropolitan regions ranked all of these topics at the highest level. There are areas like community gardening and urban farming that received no votes. Other areas received only two votes, like citizens/cities and zero carbon innovation, as well as costs and incentives for decarbonisation and urban flood reduction. Table 4 summarises the results.

Table 4: Ranking of topics, cells highlighted in green show the ones voted as most pressing, in grey all the ones that received at least

one vote. The highlighted areas in yellow are those with the least or 0 votes.

	smart city governance & urban networks (1.1 / 7.3 / 7.2)	business and city decarbonisation (8.3)	lifestyle and decarbonisation (3.2)	community gardening/urban farming (5.1 / 5.2)	heating and energy decarbonisation (3.1 / 3.5 / 3.6 / 4.3 / 4.4 / 4.5 /)	urban planning and decarbonisation (2.1 / 2.6)	Urban health & dealing with communicate & non-communicative diseases (3.7)	urban ecology/urban greening (5.3 / urban decarbonisation monitoring/indicators (1.3)	waste management and decarbonisation (7.1)	urban climate adaptation (1.5)	urban flood reduction (5.5)	building retrofitting (6.2)	cities and GHG/pollution reduction (2.4 / 2.5 / 5.4)	citizen zero-carbon innovation (3.4)	Cities decarbonisation (2.2 / 2.3)	governance of city decarbonisation (1.2 / 1.4 / 1.6)	cities and zero-carbon innovation (7.4)	financing tools for city decarbonisation (8.1 / 8.5)	circular economy and cities (7.5)	cost of city decarbonisation (8.4)	transport decarbonisation (4.1 / 4.2 / 4.4)	incentives for decarbonisation (8.2)	energy efficiency buildings (6.1 / 4.3)	
Ranked #1	2	1	0	0	4	4	0	0	0	1	3	0	1	2	0	0	0	1	0	0	0	0	2	
Ranked #2	1	1	1	0	0	2	0	1	1	2	2	0	2	1	0	1	0	0	3	1	0	5	0	1
Ranked #3	0	1	2	0	3	1	0	3	0	1	2	1	1	0	1	1	0	0	0	0	1	3	0	4
Ranked #4	1	1	1	0	3	1	0	0	0	0	2	0	0	0	0	0	1	2	1	2	0	3	1	3
Ranked #5	1	0	0	0	1	4	1	3	0	1	0	2	1	1	0	0	1	0	3	3	0	1	0	0
Ranked #6	5	0	0	0	2	1	1	0	1	1	1	0	0	0	0	0	0	0	0	1	2	1	0	1
Ranked #7	1	1	0	0	1	0	2	1	0	1	1	0	0	0	0	0	0	2	1	0	1	1	1	4
Ranked #8	1	0	1	0	1	0	0	0	0	1	0	0	1	1	0	0	0	0	0	2	0	1	0	0
Ranked #9	0	0	0	0	2	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
Ranked #10	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Ranked #11	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Summary of Most pressing challenges

Most pressing research challenges as ranked by respondents are:

- heating and energy decarbonisation,
- urban planning and decarbonisation,
- transport decarbonisation,
- energy efficiency in buildings