



# Public consultation on the Smart Cities and Communities Initiative

Directorate-General  
for Energy



- **Public consultation report**

Consultation period  
from 18/03/2011 to 13/05/2011



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## **PUBLIC CONSULTATION REPORT**

### **Report of the Public Consultation on the Smart Cities and Communities Initiative**

[\[EN\]](#)

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## 1. INTRODUCTION

The European Union has embarked on a long-term strategy to develop a low-carbon economy and to make better use of its scarce energy resources. To achieve decarbonisation, today's energy system has to fundamentally change. The EU has to produce and use energy in a much more sustainable and efficient manner to ensure citizens' quality of life and provide a competitive edge to the EU industry. In this process, cities play a crucial role. About three quarters of the EU's population live in or around cities. Urban areas consume 70% of the energy in the EU and emit about the same share of greenhouse gases.

The Smart Cities & Communities Initiative is a new European initiative whose objective is to make Europe's cities more efficient and more sustainable in the area of energy, transport and information and communication technologies. To this end, the Initiative aims to accelerate the large scale deployment of innovative low carbon technologies as it was identified by the European Commission Communication<sup>1</sup> "Energy 2020 – A strategy for competitive, sustainable and secure energy".

The Initiative is part of the Strategic Energy Technology (SET)-Plan and it will support ambitious demonstration projects in cities which undertake to transform for instance their transport systems, building stock and energy networks. The Initiative builds on the success of existing EU and national policies and programmes, such as CONCERTO<sup>2</sup> and CIVITAS<sup>3</sup>. Through the involvement of local authorities based on existing initiatives such as the Covenant of Mayors<sup>4</sup>, this initiative will spread knowledge of successful technological, economic and organisational solutions and will multiply its impact.

As part of the preparation of the Smart Cities and Communities Initiative, a public consultation was launched to receive feedback and additional ideas regarding a draft outline of the initiative as presented in a consultation document. The public consultation was open between 18 March and 13 May 2011. In total, 300 on-line responses have been received from a wide range of stakeholders, including Member State authorities, regional and local authorities, research institutes, non-governmental organisations, companies and association of companies, academics and individuals. In line with the Commission's general principles and standards governing the consultation of interested parties, this report describes the consultation procedure and analyses the contributions received. The main objective of this report is to provide an overview of the wide range and variety of ideas, opinions and suggestions contained in the on-line responses and contributions. Without claiming to be exhaustive, the present report identifies the main trends, views and concerns arising from the on-line questionnaire. In order to ensure full transparency, the report is complemented by the publication of the complete responses to the on-line questionnaire<sup>5</sup>. This is a report on the public consultation. It does not aim to draw policy conclusions from the consultation process.

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<sup>1</sup> [http://ec.europa.eu/energy/strategies/2010/2020\\_en.htm](http://ec.europa.eu/energy/strategies/2010/2020_en.htm)

<sup>2</sup> 58 cities in 23 countries across Europe and over 70 associated communities are part of the CONCERTO initiative: <http://www.concertoplus.eu/>

<sup>3</sup> 61 cities participate in CIVITAS: <http://www.civitas-initiative.org/>

<sup>4</sup> More than 2000 EU cities have voluntarily signed up the Covenant of Mayors declaration committing themselves to reduce their CO<sub>2</sub> emissions by at least 20%: <http://www.eumayors.eu/>

<sup>5</sup> In Appendix I, separately from the report

## **2. EXECUTIVE SUMMARY OF CONTRIBUTIONS**

The very large majority of the respondents who have replied to the consultation recognise the importance of fostering the development of a low-carbon economy and to improve the use of scarce energy resources in European urban areas and cities.

The vast majority of respondents also strongly supports most of actions, areas, measures, instruments and indicators proposed by the Smart Cities and Communities Initiative.

### **Key areas and actions for the Smart Cities and Communities Initiative**

All thematic areas proposed for the Smart Cities & Communities Initiative are considered relevant by at least half of all respondents. There is nonetheless some variation in the degree of support with the most preferred areas being as follows:

- Buildings (78% of all respondents) with a preference for retrofitting the existing buildings and for focusing on public buildings;
- Public transport and urban mobility actions (74% of all respondents);
- Energy grids (73% of all respondents) with an equal ranking between electricity grids and heating and cooling networks;
- Information and communication technologies (68% of all respondents);
- Local supply technologies (63% of all respondents) with a strong preference for solar energy;
- Clean fuel solutions (62% of all respondents).

Other areas are less preferred, possibly also due to smaller degree of participation of representatives of the respective sectors, such as for example from the waste and water sector.

### **Characteristics of cities and preferred approach to cooperation**

The majority of respondents agrees with the various criteria to facilitate cooperation between cities and to enhance the EU replication potential of projects developed in the Smart Cities and Communities Initiatives. However a preference is shown for the economic and climatic similarities:

- Similarities in the economic morphology (64%);
- Degree of economic development (62,6%);
- Competition and innovation strength (62%);
- Climatic conditions (62%).

### **Indicators and targets for Smart Cities and Communities Initiative**

The vast majority of respondents (87%) agree to the use of quantitative indicators to measure the efforts of the cities towards increased efficiency and sustainability. These indicators should preferably be defined at the EU level but with an option for cities to determine the precise level of ambition according to their possibilities and local particularities.

### **Market uptake measures**

According to the majority of respondents (75%), innovative low carbon products and services should be supported by all mentioned market uptake measures. The highest priority is given to innovative financial schemes and facilities (76%) and to the development of new innovative business models (74%). The standardisation and labelling of products and services (67%) and public procurement (72%) receive only marginally less support. An interesting proposal is the idea of ‘collective procurement’ between different cooperating cities to use their funds more efficiently.

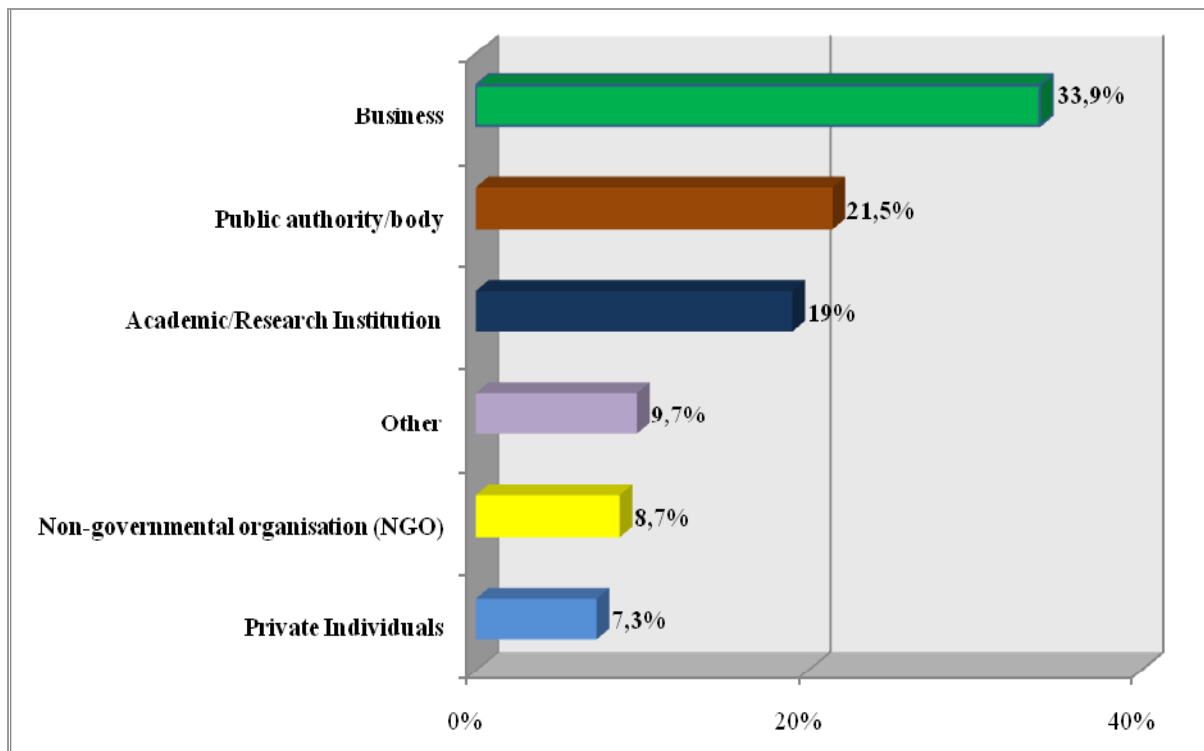
The majority of respondents underlined the necessity to conduct an integrated approach across all actions, instruments and measures combining a bottom-up approach with a top-down approach. Notably, some respondents pointed out that the technological efforts by cities should be accompanied by significant behavioural changes which should involve more concretely the citizens of each specific urban community.

### 3. ON-LINE RESPONSES TO THE QUESTIONNAIRE

During the public consultation between 18 March and 13 May 2011, the European Commission received 300 on-line responses to the questionnaire. Of those, 289 were retained in order to respect one questionnaire by respondent. The individual responses to the questionnaire are presented separately in Appendix I.

The vast majority of the respondents were organisations (93%) and only few (7%) were individual citizens. Approximately one third of all responses came from individual businesses and business associations (33,9%) and around one quarter were from public authorities (21,5%) and academic and research institutions (19%). The other contributions were sent by various associations, platforms from the private or public sector grouped in the category “other” (9,7%), by non-governmental organisations (8.7%) and by private individuals (7,3%).

**Figure 1.: Respondent profile**

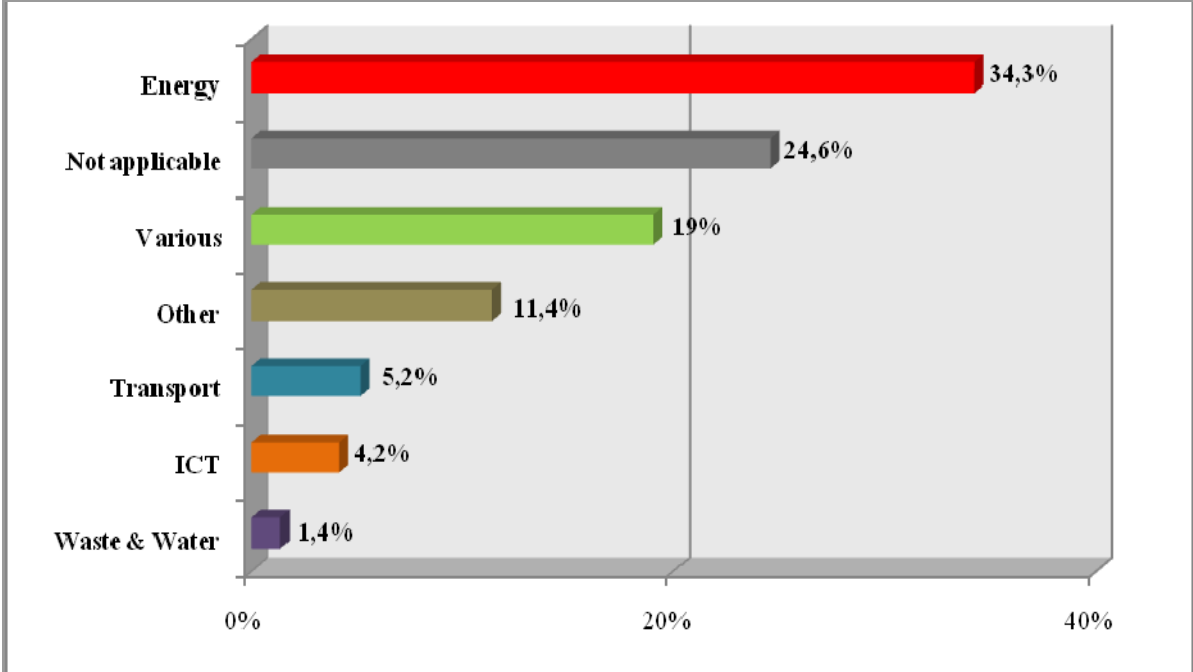


Within the **business** category (*see Figure 1.1 and Figure 1.1.1 in Annex 2*) the majority of responses (69%) are from individual business, and the rest mainly from associations (22%). The individual business respondents were predominantly from the service sector (47%), the rest coming from manufacturing (28%) and consultancy (24%). Few responses were received from the financial sector (1%).

Within **the public authorities** category (*see Figure 1.2. in Annex 2*), most of the respondents were from the local level (53%) as the local authorities are the most concerned by the Smart Cities and Communities Initiative. The regional as well as national authorities were represented at equal shares (23%). Only 3% of the respondents were from international authority level.

As regards the **sectors of activity**, the energy sector is prevalent with more than one third of all responses (34%) while the other sectors: Transport, ICT, Water and Waste Management were less represented (5% to 1%). Other sectors which responded and are grouped in category “other” (11,4%) are mainly construction, scientific and technological association and other kind of organisation mainly from business.

**Figure 2.: Contributions by sector of activity**





## 4. KEY MESSAGES FROM THE CONSULTATION

The analysis of the 289 on-line responses is structured in accordance with the structure of the questionnaire:

- Key technology actions
- Criteria for cooperation and replication
- Definition of indicators and targets
- Key market uptake measures

With the aim to identify the main proposals, ideas and opinion from all respondents, the analysis of the online responses was produced in three stages. In the first stage, an analysis of the preference of all respondents is made. In the second stage, the results are broken down by main stakeholder group (business, public authorities, research institutions). In the third stage a qualitative analysis based on submitted concrete proposals is made.

### 4.1. KEY TECHNOLOGY AREAS

Cities are diverse in terms of size, economic morphology, climatic and geographic conditions and progress towards sustainability. However cities have common challenges to reduce their greenhouse gas emissions and other pollutants, adapting to climate change and ensuring an efficient and reliable energy supply.

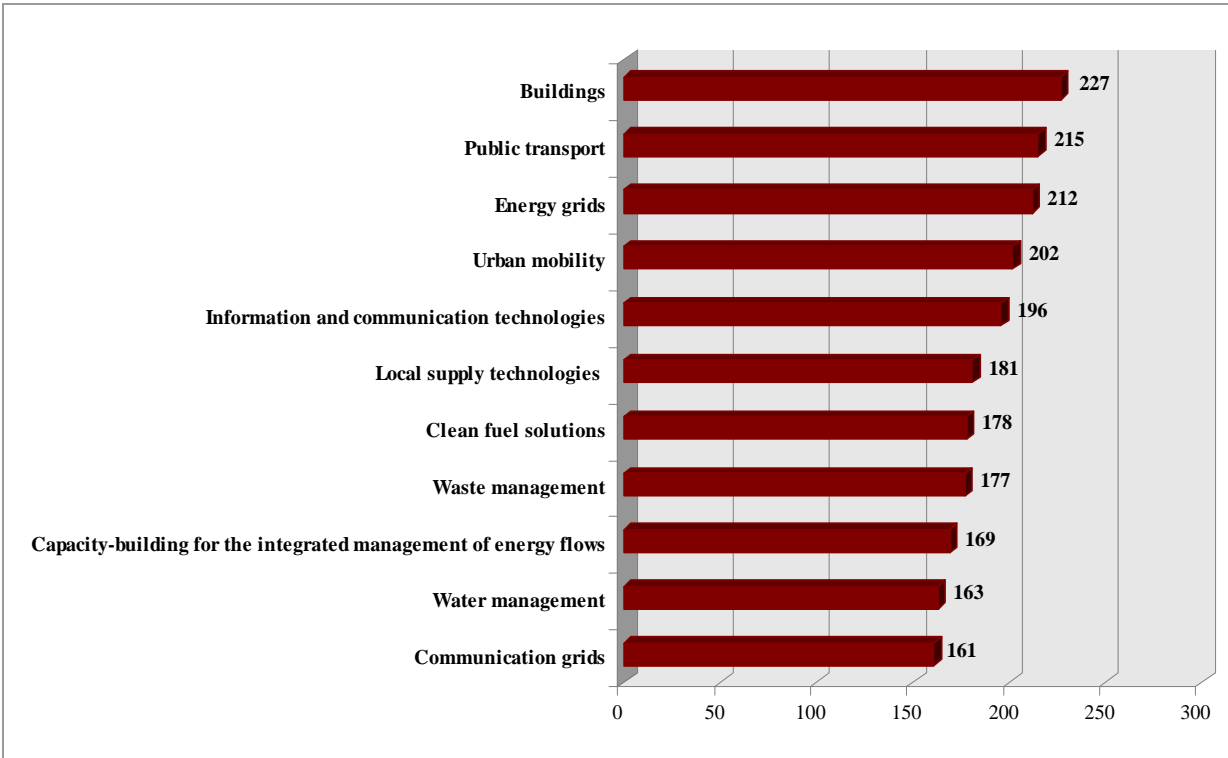
Depending on local economical, geographical conditions, availability of the energy renewable sources etc, each city will prioritise its actions according to the particular needs. Nevertheless it is assumed that a great energy savings potential and use of low carbon technologies lies within the following areas: buildings, energy networks, local supply technologies, communication grids, integrated energy management flows, urban mobility, public transport, clean fuel solutions, water and waste management, information and communication technologies.

The results of the public consultation shows an almost equally distributed interest from respondents for proposed areas of actions at EU level as more than half of the respondents considered all areas as highly important. Nevertheless some actions are preferred in terms of EU impact and creation of critical mass<sup>6</sup>: buildings (227; 78,6%), public transport (215; 74,4%), energy grids (212; 73%), urban mobility (202; 69,9%). Information and communication technologies (196; 67,8%) and local supply technologies in general (181; 62,6%) followed. The areas which scored less were communication grids (161; 55,7%) and water management (163; 56,4%), probably reflecting the low response rate from these sectors.

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<sup>6</sup> "Preferred" in all graphs and tables in this report corresponds to the rate importance 4 and 5 (mostly important) in the on-line questionnaire.

**Figure 3.: Preferred actions and areas for the Smart Cities and Communities Initiative**

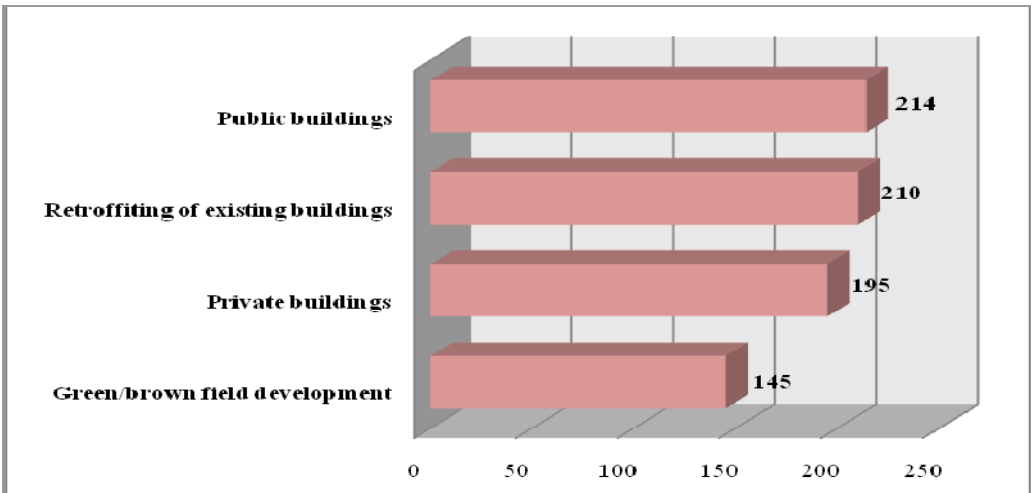


According to the questionnaire, the respondents could indicate their preference in more detail in the case of some areas i.e. buildings, energy grids, local supply technologies and clean fuel solutions.

**Buildings**

According to the respondents, the priority actions of the Smart Cities and Community Initiative in the area of buildings should mainly focus on public buildings (214; 74%), on retrofitting existing buildings (210; 72,6%) and slightly less on private buildings (195; 67,5%). 50% of respondents think that the Smart Cities and Communities initiative should focus on green/brown field developments.

**Figure 3.1.: Preferred actions and areas in buildings**



The importance of buildings is also very frequently reflected in the written responses where a significant part of stakeholders consider the buildings the “core” of the whole initiative. The techniques for retrofitting existing buildings, cross technology interoperability and standards, focus on public buildings are the key elements to ensure high replication potential of this area of the Smart Cities and Communities Initiative.

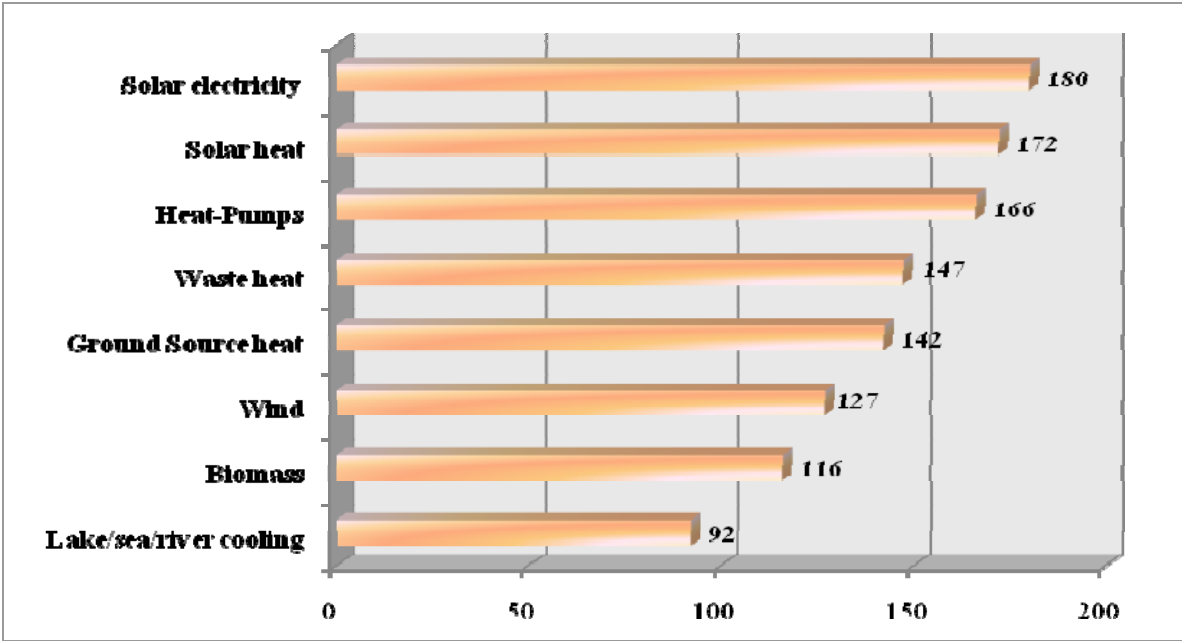
**Energy Grids**

According to the respondents, both heating and cooling grids (72%) and electricity grids (70%) are almost equally important (see Figure 3.2. in Annex 2).

**Local supply technologies**

Among local supply technologies, the preferences of the respondents to the on-line questionnaire are more pronounced. The most preferred area is solar energy - solar electricity (180; 62,3%) as well as solar heat (172; 59,5%). The second ranked technologies with also more than half of all respondents considering it as highly important are the heat-pumps (166; 57,4%), waste heat (147; 50,9%) and ground source heat or shallow geothermal (142; 49,1%). Lake/sea and river cooling are considered less important (92; 31,8%).

**Figure 3.3.: Preferred actions and areas in local supply technologies**



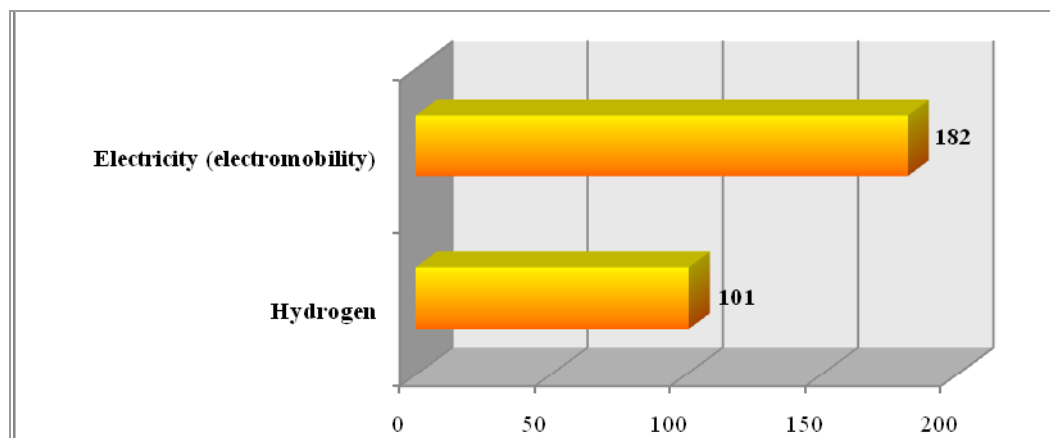
Two main points are raised by the stakeholders to this question: the decentralisation of energy supply and the guarantee of energy security which are considered as primordial for future “Smart cities” as they are imagined by the respondents to the on-line questionnaire.

*"It is important to ensure energy security for Smart Cities, today and for the future. With the increased cost of fossil fuels and increased demands for energy in modern living, finding affordable alternatives will soon reveal an inequality of access to citizens who do not have security in the supply of energy. This has the potential to reduce a city's competitiveness and lead to reduced sustainability."*  
 Public authority (local)

## Clean fuel solutions

There is a preference for electromobility (182; 63%) as compared to hydrogen (101; 35%).

**Figure 3.4.: Preferred actions and areas in clean fuel solutions**



## Information and communication technologies

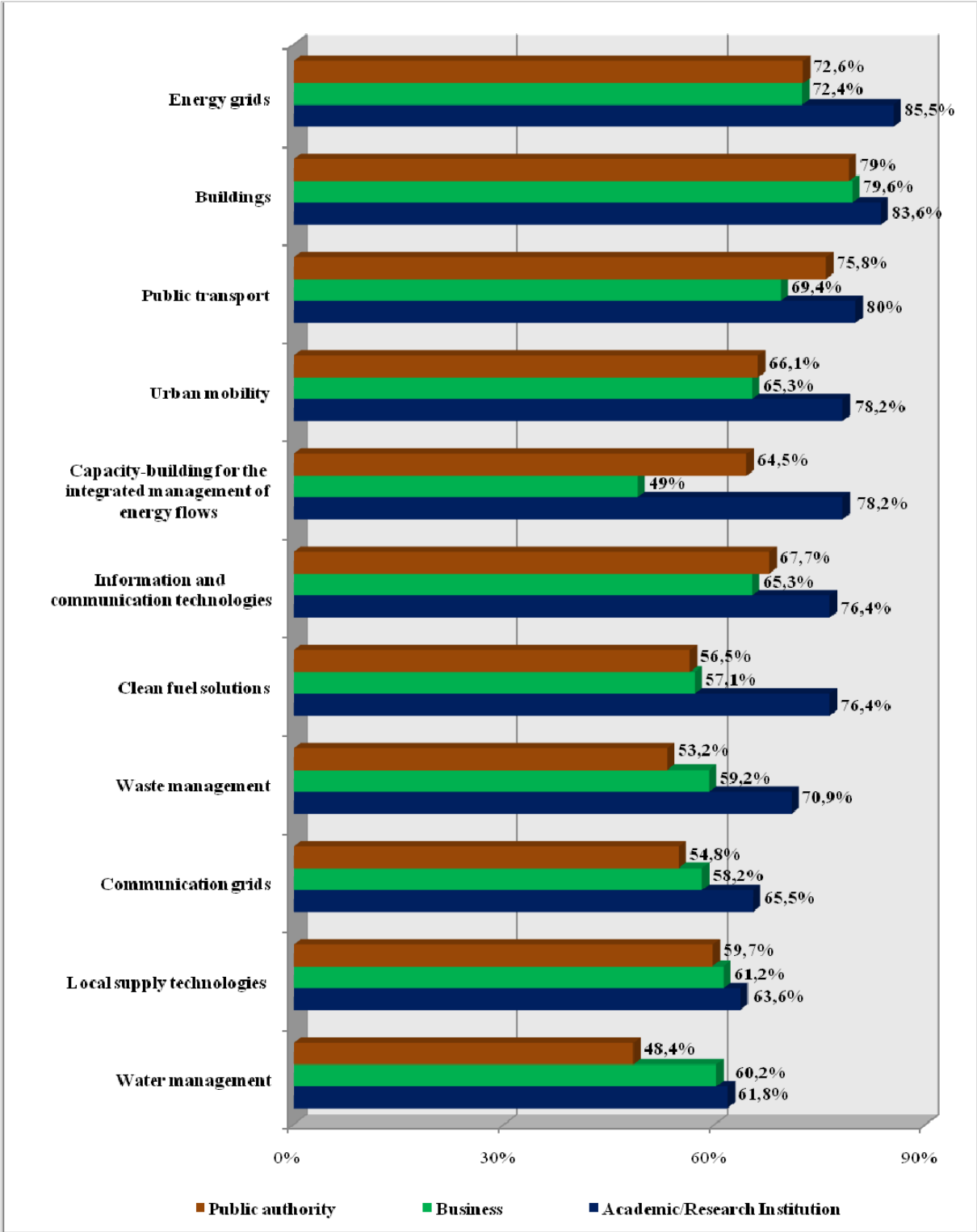
Both the quantitative results and the written comments from various stakeholders underline the necessity to implement intelligent information and communication technologies to facilitate mainly the mobility of citizens (*see Figure 3.5. in Annex 2*).

*"Development of participatory media tools for citizens and local communities in order to bridge digital and social divides and global infrastructures focusing on community ties and cohesion. Including real-world case studies, implementing participatory design methods with community champions in specific neighbourhoods in partner countries. Developing community hubs to combine the benefits of social and networked media at a local level to reinforce local community cohesion."*  
Academic/Research Institution (ICT)

Among the three main stakeholder categories (business sector, public authorities and the research and academic community), there is a general consensus for buildings and energy grids as key priority areas (more than 70%). As regards public transport and urban mobility a small nuance can be noticed with public bodies showing a higher interest in this area than the business sector.

Other examples of some differences between stakeholders are the information and communication technologies which have a higher relevance for business and public authorities (more than 60%) while for the research and academic community, integrated and energy management flows are relatively more relevant (78%).

**Figure 4.: Preferred actions and areas by main stakeholder**



In the written comments, stakeholders stressed the importance of city plans as well as the ability to combine different approaches (top-down, bottom-up and both) to achieve the roll-out and integration of projects in the various areas.

*"A smart city is "smart" when able to issue short, medium and long terms plans – short ones are connected to technology and cannot wait years of studying otherwise when ready it's old stuff."*  
 Business (energy, transport)

In this sense, for a part of respondents, it is crucial to support and to develop not only one concrete action but an integrated approach. This opinion is frequently presented, mainly by the public authorities from local to national level.

*"A Specific Smart innovative project must not include just one of the areas listed above but well a combination of different areas that would include components in buildings, energy production and transfer, clean transport, connected with a layer of ICT. The Smart City concept (and challenge at the same time) is innovating through integration of a number of mature/innovative technologies (...)."*  
Business, individual business

This combined approach is made more complex without the full participation and involvement of citizens. According to some very concrete proposals, the idea of smart cities and communities is closely linked to 'smart citizen' and it is sometimes suggested that this initiative, which is mainly technological, should be accompanied by behavioural changes.

*"Smart Cities and Communities will not function without "Smart people". Technology solutions should be a core activity of Smart Cities and Communities but to be considered truly smart such technology solutions must be integrated with behavioural change solutions and training programmes for all sectors."*

Public Authority (national)

*"Demand reduction via behavioural change is more crucial than technological innovation. Smart cities won't work without efforts to shape Smart consumers-studies efficiency improvements may not translate into energy savings unless accompanied by changing consumption patterns and lifestyle. "*

Non-governmental organization

## 4.2. PREFERRED CRITERIA FOR COOPERATION AND REPLICATION

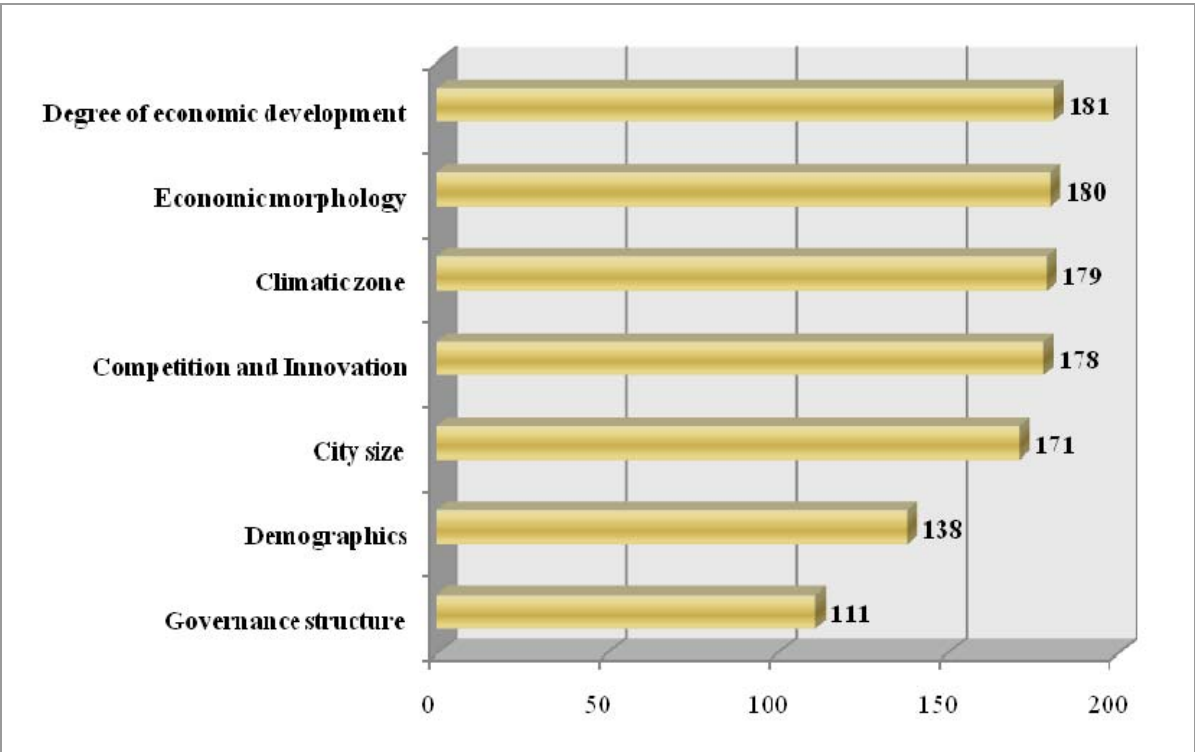
With the aim to respect the diversity of European cities and urban areas, one of the main objectives of the Smart Cities and Communities Initiative is to leave a substantial flexibility to the participating cities to identify the necessary and the most desirable actions and to conduct collaborative approaches. At the same time similarities in geographical, climatic, organisational, economic morphology, governance conditions may become criteria for cities to team up in projects which will enable them to attain specific objectives faster while enhancing EU replication potential of proposed measures and accelerate the deployment of low carbon technologies in the built in environment.

In this respect, the subsequent part of the on-line questionnaire was aiming at checking which of the proposed city characteristics and approaches were considered conducive to cooperation. Generally, the respondents ranked the different criteria relatively equally. Furthermore, in contrast to the other questions, the responses to this question were generally less affirmative.

Yet, there is a slight preference of the respondents for the **economic** characteristics of urban areas, i.e. the degree of economic development (181; 62,6%), similarities in the economic morphology such as harbour, industrial or service oriented-city (180; 64,1%) and the strength in competition and innovation strength (178; 61,6%). Climatic and urban characteristics of the cities: the climatic zone (179; 61,9%) and the city size (171; 59,2%) received somewhat lower ranking, while the demographics of the cities and the governance

structure (centralised versus the decentralised administration) seem less preferred by the respondents with less half of answers: 47,8% and respectively 38,4%.

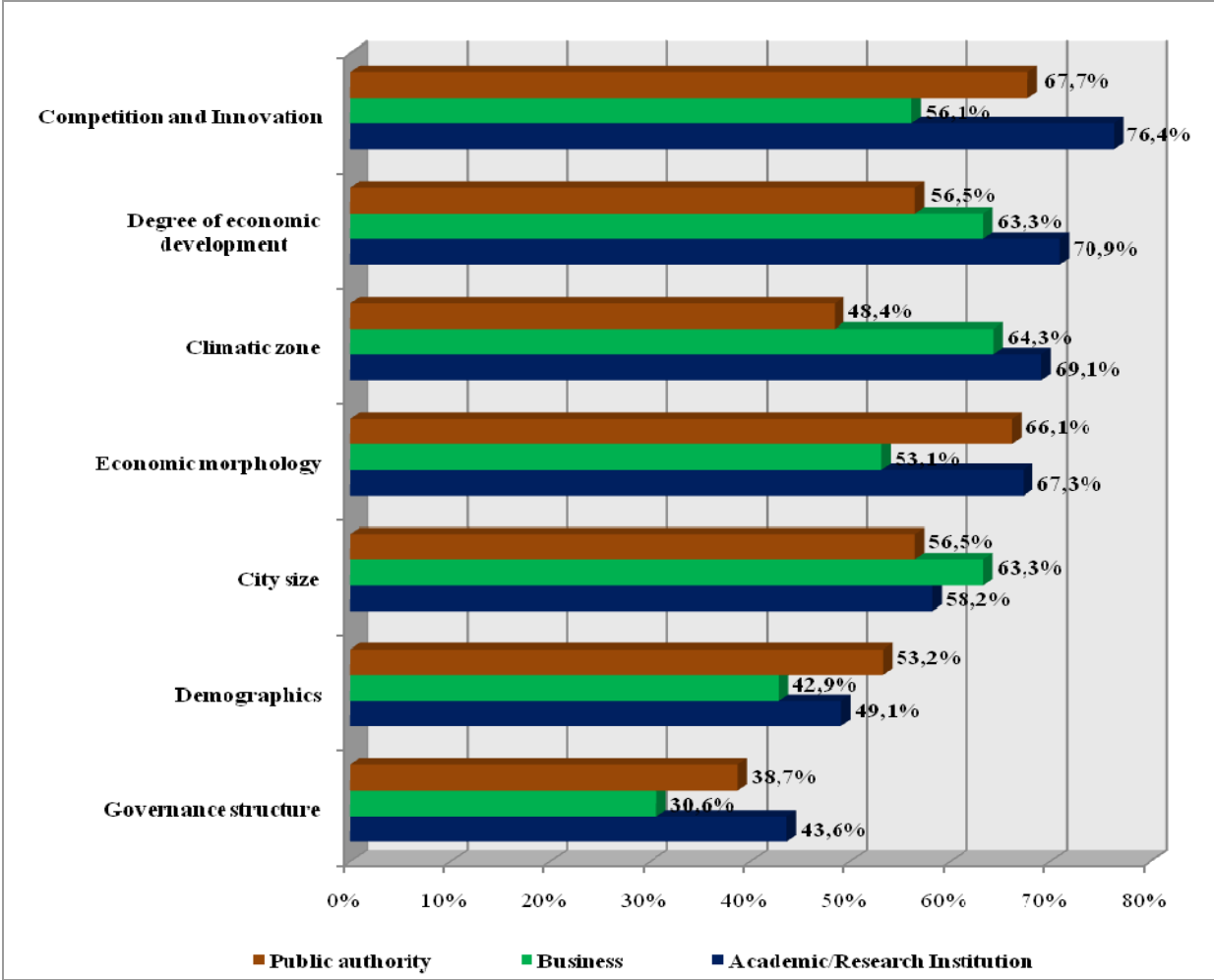
**Figure 5.: Preferred characteristics of cities to enhance the EU replication potential of projects**



Broken down by main stakeholder category, the same preference for the economic and climatic conditions can be noticed.

However, there are some peculiarities. The city size is considerably more important for the business sector (63,3%) which could be explained by the will for mass market uptake solutions. This will promote common characteristics and standards between the different cities which could vary considerably according to the city size, scale and population. On the other hand, contrary to what could have been expected, public authorities do not consider the governance structure a key characteristic of cooperation between cities.

**Figure 6: Preferred characteristics of cities to enhance the EU replication potential of projects by main stakeholder**



In the written replies, three main points were highlighted with respect to the characteristics facilitating cooperation among cities:

- The necessity to share and exchange information;
- The introduction of common objectives and standards;
- The participation and involvement of other actors in the collaborative information exchange.

**The necessity to share and exchange information**

According to the different stakeholders’ responses, the most appropriate way to share information between collaborating cities should be through a web-based information platform or portal, through meetings and workshops which would be held regularly both accompanied by the creation of appropriate documentation and standardized information which should be transmitted between all relevant participating actors.

The majority of respondents are in favour of exchange information through online portal, which should be regularly updated with new data. The preferences about how to coordinate the exchange of information are mostly at the EU level, but some respondents mentioned also the local level. This solution is widely chosen due to simplicity, accessibility and transparency.



*"Information should be exchanged through an open online platform, with the goal of accessibility and transparency and serving as a mean of knowledge transfer for the global public as well. The platform should preferably be multilingual to ensure citizens' involvement. All technical/background data should be provided online for download."*

*Private individual*

A relevant part of respondents suggest to share their concrete experience through regular meetings which could be organised for example annually, via a new stakeholder platform or via existing events such as EU Sustainable Energy Week. Some of the respondents suggest to organise meetings more frequently with the exchange of specific groups working on very concrete and particular issues. To share experience of successful technology transfer, some respondents mentioned the creation of documentation and standardised information which could be accessible through an online portal and through regularly meetings between the relevant participants.

*"One option is annual Smart cities conferences with a thematic focus (i.e. Smart Cities, Intelligent Ports, Smart District Heating and Cooling) (...)."*

*Public authority (local)*

The most frequently mentioned urban initiatives which could serve as model to exchange information among cities are the Covenant of Mayors and Eurocities. Some respondents prefer to create a new platform based on these models of existing urban initiatives. Other examples of urban initiatives mentioned are the European Green Capitals, Polis, Civitas, The Climate Alliance (CA), JPI Urban Europe and the C40 Cities from The Clinton Climate Initiative (CCI). Some respondents proposed examples of national and interregional based urban initiatives such as: *"Quatre Moteurs pour l'Europe"* (Rhône-Alpes, Catalonia, Lombardy and Baden-Württemberg), Uppsala Climate Protocol Cooperation (Swedish delegation of sustainable cities) etc.

## **Introduction of common objectives and standards**

A significant part of respondents agreed that common objectives, standards, data and metrics are required to allow for comparison. Two possible approaches are present in the questionnaire: a preference for top-down approach or a preference for bottom-up approach.

In general the data collection should be coordinated at the European level. Some respondents have given examples of existing models of data collection and open source data which should be pertinent to adopt: Live Singapore Initiatives by MIT (MIT SENSEable City Lab), Sustainable practice and research database by RICS (Royal Institution of Chartered Surveyors), UN Habitat or classification of cities used by ERDF (European Regional Development Fund).

*"Each city should first deeply analyze its characteristics and communicate and collaborate with cities with similar aspects. They should create common strategies with other smart cities" (...).*

*Business, individual business, other, building*

*"A major topic concerning replication is to consider the cities in different categories. Every politically willing city is able to launch actions towards sustainability and energy-efficiency, but it will focus on solutions designed for its own type (size, economy, morphology..)" (...)* *"The sharing of methodologies consolidated by cities, utilities supported by research is a key for replication."*

*Business, individual business, service sector, energy*

**Participation and involvement of other actors in collaborative information exchange**

Another aspect present in many contributions is the proposal to involve in this information exchange platform for Smart Cities and Communities other actors close to the cities: participating companies and SMEs, research institutes and researchers in general and citizens.

*"Involve academics to run studies prior and post project to asses how social and ecological issues impact on the community."*  
Academic/Research Institution, ICT

*"Not only cities should participate and exchange information but the inhabitants and users of the cities: it is about them, not about the abstract concept of city and not about the city government (...)"*  
Public Authority (national)

Finally to this question, three other very particular comments were suggested in the written responses: the creation of an Energy Award Price or Award of Smart Cities and Communities for the most European energy efficient city, the creation of specific brand or logo for Smart Cities and Communities and the implication of rural areas and municipalities.

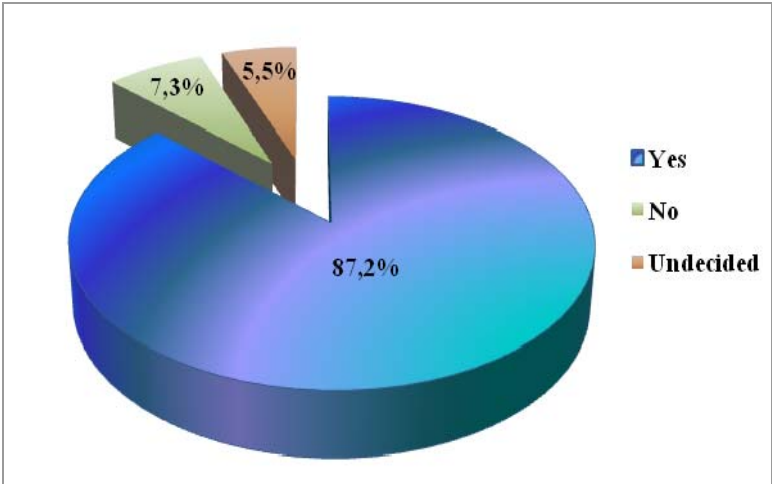
**4.3. DEFINITION OF INDICATORS AND TARGETS**

The Smart Cities and Communities Initiative is a competitive process to obtain EU project funding based on detailed sustainability plans. To measure progress towards increased efficiency and sustainability and to focus the actions taken by cities quantitative the Smart Cities and Communities Initiative may require indicators and targets.

For this purpose, the questionnaire was intended to provide an indication of the willingness of the respondents to have common indicators, at which level these indicators should be defined and where the precise level of ambition should be decided.

The introduction of quantitative indicators to measure cities' efforts to increase efficiency and sustainability is widely supported by more than three quarters of respondents (87,2%). Less than one tenth disagree (7,3%) and a small part of them is undecided (5,5%).

**Figure 7.: Introduction of quantitative indicators to measure cities' efforts to increase efficiency and sustainability**



This statement is also present in the written comments on this part of the on-line questionnaire.

*"Indicators are key to monitor city objectives but also to compare different initiatives. The targets must be evolution and tendency monitoring but not fixed goals, for further reasons: complexity of impacting factors on a final consumption/emission, impacts of behaviour, necessary adaptation to evolution,... Looking for example at indicators and considering the objectives for Europe, both final energy consumption and CO2 emissions shall be in the set of indicators, in addition to socio economic ones'."*

Business, individual business, service sector, energy

The quantitative approach is considered the most appropriate to obtain comparable standardized measures. Some respondents also indicate a series of indicators which should be used: energy consumption, production of heating from renewable sources, production of electricity from renewable sources and CO2 reduction. Finally a few respondents have presented a series of models which should be exemplary: ERTAC SRA, The World Bank's indicators, etc...

*"A robust Smart City and Community initiative must be underpinned by quantitative indicators. Baseline: The quantitative approach is only viable once there is an established baseline for the City and Community. Therefore it should be mandatory for cities and communities participating in the Smart City and Community initiative to establish such a baseline. (...)"*

Public Authority (national)

*"A minimum set of quantitative indicators should be defined at EU level, including at least 4 indicators: energy consumption, production of heating from renewable sources; production of electricity from renewable sources and CO<sub>2</sub> reduction. The EU should set minimum targets expressed as percentage change to the reference value of the indicator in 2010. Smart Cities should be more ambitious of the EU "20-20-20" targets contained in the European Renewable Energy Directive (Directive 2009/28)."*

Other (European Technology Platform)

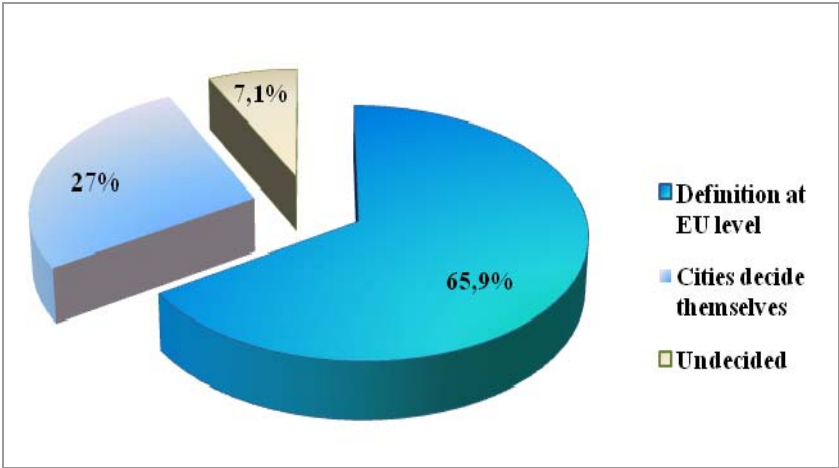
While there is a strong support for quantitative measures, part of respondents suggests to use some **qualitative** indicators or to use a combination of both methods, an opinion expressed mainly by public authorities and by some research institutions. According to them, there are some objectives which cannot be measured and defined quantitatively.

*"Qualitative indicators are needed to define and measure the results objectively; it would become reductive if it is traced to a single parameter."*

Business, individual business, manufacturing

As regards the level of definition of the quantitative indicators (EU or locally) almost two thirds of respondents who agreed previously on the introduction of quantitative indicators (65,9%) are favourable to the definition of these measures at the EU level in order to ensure comparability between cities and projects. This attitude is predominant also in the written comments that we received.

**Figure 7.1.: Definition of the quantitative indicators to measure cities' efforts to increase efficiency and sustainability**



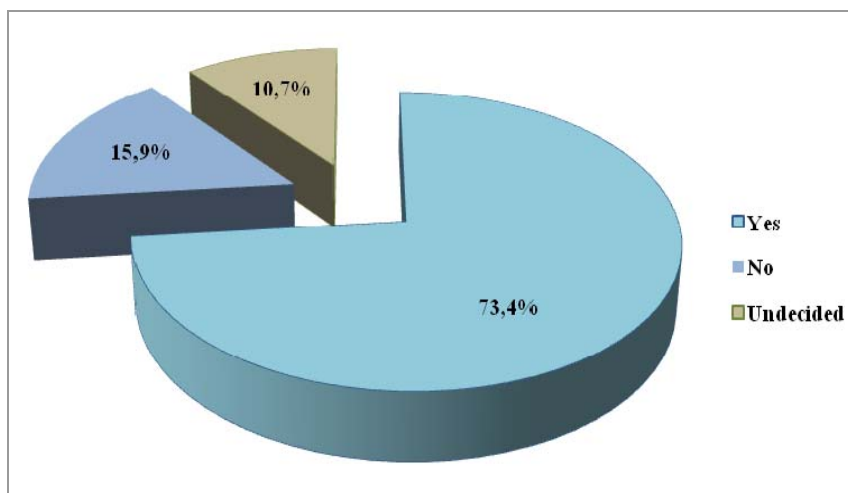
Only 27% of the respondents prefer that the definition of quantitative indicators should be made by cities themselves and taken at the local level. This is seen as an option for cities to define their particular challenges and objectives, which might be different in function of their size, their morphology and economical situation for example. A part of respondents to the on-line questionnaire also mentioned the definition of indicators of measurement at both levels. For example: a series of indicators proposed by EU, which could be chosen optionally by the cities, as it is suggested in the quotes below.

*"Cities should decide themselves and define their indicators according to their region, layer and structure"*  
 Business, individual business, service sector, various sectors (energy and water)

*"A mix of levels in targets and measurements is necessary; while a definition of level of ambition at European level is a driver for innovation and change and a political push; the cities should be able to decide on "precise" levels according to their specificities and strengths (the reality check)."*  
 Business, association, Cefic (the European Chemical Industry Council)

As regards the precise level of ambition in respect to these indicators, the majority of respondents across all stakeholders groups agreed on the definition by the cities themselves (73,4%) because this approach could allow the cities to define their level of ambition taking into account their particularities. Only 15,4% of respondents disagree with this statement and 10,7% are undecided. From the written responses, a combined approach between cities and the EU level was also mentioned.

**Figure 8.: Definition of the precise level of ambition by the cities themselves**



*The nature of the quantitative indicators should be defined at EU level to allow for comparison and replication. The level of ambition of those indicators should be defined at the local level in order to take into account local specificities."*

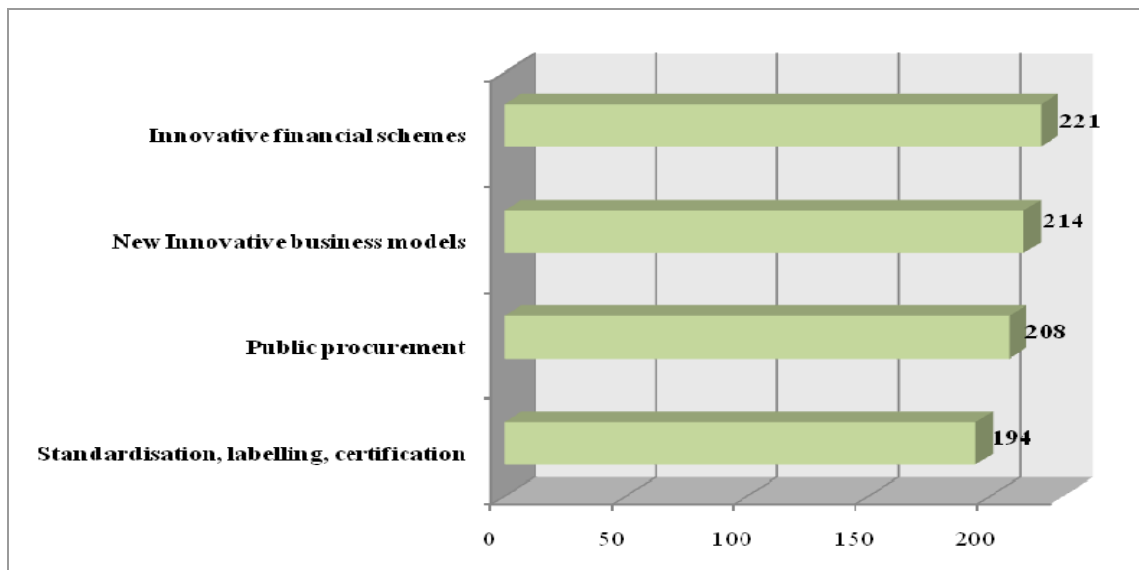
Business association, energy

#### **4.4. PREFERRED MARKET UPTAKE MEASURES**

The Smart Cities and Communities Initiative may include certain market uptake measures to promote the development and use of innovative low carbon products and services. Market uptake of innovative low carbon solutions may be stimulated by measures in the areas such as innovative financial schemes, business models, public procurement and standardisation, labelling certification.

According to the responses to the on-line questionnaire, there is no clear preference for any particular market uptake measure. All measures received the support of more than two thirds of all respondents, i.e. innovative financial schemes which would combine different financial sources (221;76,5%), new innovative business models for energy service companies (214;74%), public procurement (208;72%) and through standardisation, labelling and certification of products, services as well as professions (194;67,1%).

**Figure 9.: Preferred market uptake measures**



In the written comments, some specific suggestions were made with respect to the four different types of market uptake measures considered:

- Innovative financial schemes
- New innovative business models
- Public procurement
- Standardisation, labelling, certification

#### **Promotion of innovative financial schemes**

Very concrete proposals were made by a some respondents concerning innovative financial schemes. In general, it is one of the most essential elements which was frequently mentioned by companies and by the private sector.

*"Numerous studies and surveys confirm that financial support remain key to promote low carbon technologies at city level. Combination of fiscal and financial incentives from different sources should be number one priority."*  
Non-governmental organisation

A significant part of respondents are in favour of a series of measures which could facilitate access to financing and in general of all financial incentives which could support wide renewable energy deployment from tax incentives, feed-in-tariffs, etc. A small part of contributions underlined the necessity to introduce a post evaluation financial scheme. In various responses, the facilities to access to financing or some tax incentives are sometimes proposed for some specific sectors (geothermal, buildings, electric vehicles, transports,...), in general in function of the relevant field of the respondent.

Some suggestions are related to an easier access to credit, in particular for SMEs who are using low-carbon technologies etc.

Other suggestions propose the creation of a specific European fund to finance renewable networks at large scale. A part of respondents underlined the necessity to have specific tax incentives for SMEs. Some concrete proposals also suggested to adopt some financial

incentives for consumers (tax exemptions or reductions). Tax incentives at the European level are also mentioned by some respondents.

*"We intend to propose EU wide tax incentive or subsidy: The problem at the moment is that the incentives are country specific and this makes difficult for multinational companies to embrace the market. An EU wide incentive scheme would open up a bigger potential customer base. (...)"*  
Business, individual business, manufacturing, energy

### **Promotion of new innovative business models**

There are few relevant contributions to this part of the questionnaire. If some new innovative business models should be introduced, it should be through the adoption of a cooperative model and the creation of "energy prosumers". The promotion of this model could be explained by the possibility of each individual to take part in energy efficiency projects but also by a shared reluctance to the actual form of world energy distribution.

*"The European energy production and distribution market is currently dominated by few big players. Their presence impedes the creation of a real internal energy market and prevents consumers from being really free to choose their energy supplier. We need to create a "virtually" energy distributed network of "smart energy prosumer." (...)"*  
Business, association, energy

### **Promotion of low carbon technologies through public procurement from local to national and European institutions and by group procurement**

In the written comments, two general approaches were proposed to public procurement i.e. a bottom-up approach by bundling local demand from various cities and one through national and European regulations, which is a more top-down approach. The bottom-up approach is supported because it is perceived one of the most appropriate instruments to collaborate between different cities and to coordinate their actions leading to the optimal use of their funds. A few respondents suggested also that for important projects the public procurement should be regulated at the national and European level.

*"In cities, public institutions activities have a great impact both on the general economic activity and might have a big leadership in promoting new ideas. An effective way to promote low carbon technologies is through public procurement from local institutions that will have an educational and exemplary effect."*

Business, individual, service sector, energy

*"Rules for group procurement should be envisaged in the final version of the Initiative. Large-scale deployment projects, in which multiple cities join forces and coordinate their actions, allow to pool resources and optimize the use of funds. (...)"*

Other, Industry representative, energy

## Promotion of low carbon technologies through standardisation, labelling, certification

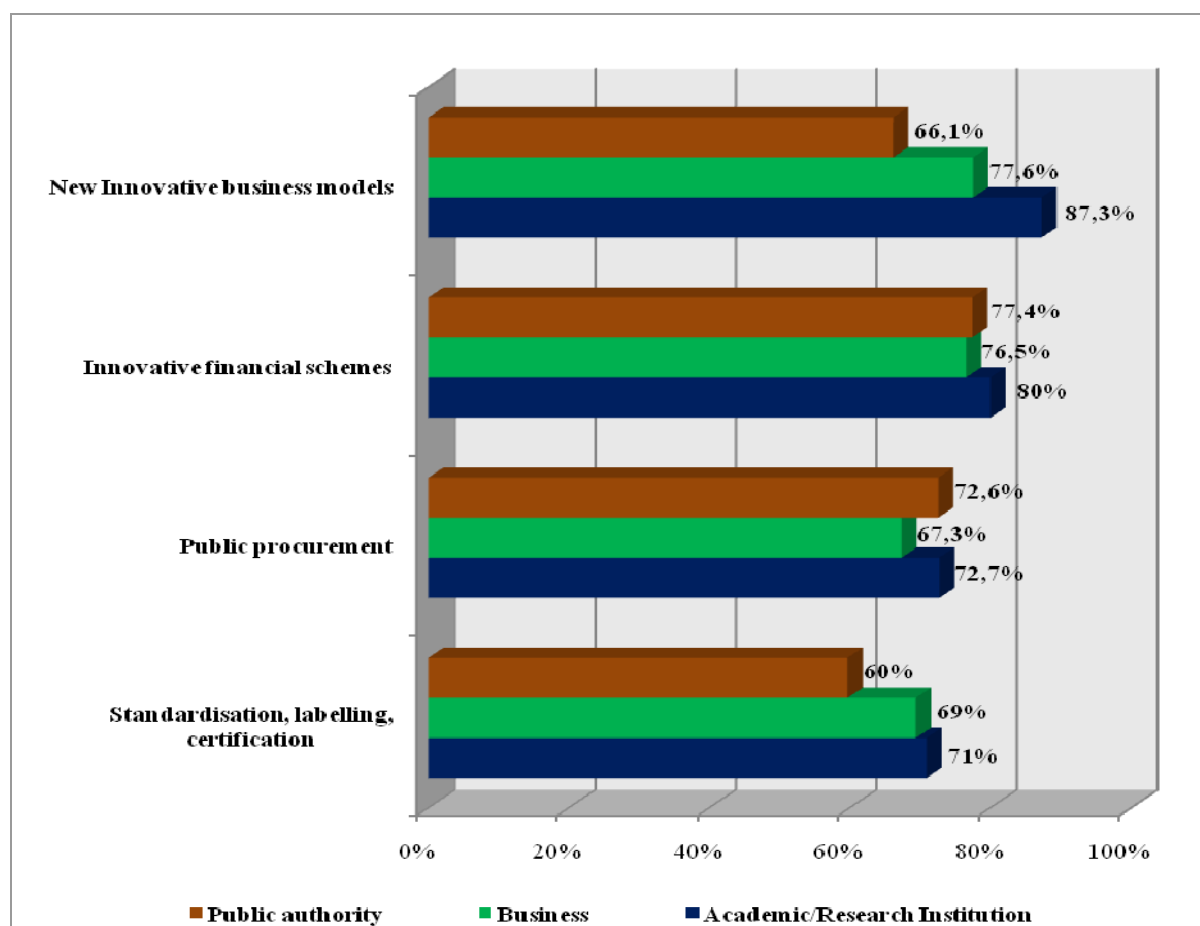
Standardisation, labelling and certification are proposed particularly for buildings and smart grids. Some respondents suggested also to introduce through Smart cities and Communities a list of authorized products and services.

*"List of authorized construction type of materials in "Smart Cities", list of authorized technologies in key spending pools (lightening, transportation, building automation.."*

Private Individual

A more detailed analysis by stakeholder categories (research institution, public bodies and business) shows a consensus between academic institutions and business sector to privilege new innovative business models and innovative financial schemes with respectively more than three quarters of them supportive. These two concrete market uptake measures are also supported by local and national public authorities, however to a lesser degree.

**Figure 10.: Preferred market uptake measures by main stakeholder**



The fact that there is little variation among the main stakeholder categories with respect to the importance of any particular market uptake measure may be interpreted only an integrated approach uniting diverse actions can be successful and would be the best way to promote the development and use of innovative low carbon products and services. According to the view of some respondents, such an integrative approach could also include some dissuasive measures.



## ANNEX 1: MODEL OF THE QUESTIONNAIRE

Question 1: To which of the following categories do you belong?

<input type="radio"/> <i>Public authority (please specify)</i>
<input type="radio"/> <i>National</i>
<input type="radio"/> <i>Regional</i>
<input type="radio"/> <i>Local / city level</i>
<input type="radio"/> <i>Academic / Research Institution</i>
<input type="radio"/> <i>Business (please specify)</i>
<input type="radio"/> <i>Association</i>
<input type="radio"/> <i>Individual business (please specify main activity)</i>
<input type="radio"/> <i>Manufacturing</i>
<input type="radio"/> <i>Financial</i>
<input type="radio"/> <i>Consultancy</i>
<input type="radio"/> <i>Service sector (other than financial or consultancy)</i>
<input type="radio"/> <i>Non-governmental organisation (NGO)</i>
<input type="radio"/> <i>Private individuals</i>
<input type="radio"/> <i>Other (please specify):</i>

Question 2: If you represent a business organisation, which is your main sector of activity?

<input type="radio"/> <i>Energy</i>
<input type="radio"/> <i>Transport</i>
<input type="radio"/> <i>ICT</i>
<input type="radio"/> <i>Waste</i>
<input type="radio"/> <i>Water</i>
<input type="radio"/> <i>Other (please specify):</i>
<input type="radio"/> <i>Not applicable</i>

**Question 3:** What is your opinion on the importance of the following areas for a Smart Cities and Communities Initiative? Please rate importance from 1 (not important) to 5 (very important)

<i>Importance (please rate also the general headings) →</i>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<i>Buildings (in general)</i>					
<i>Public buildings</i>					
<i>Private buildings</i>					
<i>Retrofitting of existing buildings</i>					
<i>Green / brown field development</i>					
<i>Energy grids (in general)</i>					
<i>Electricity grids</i>					
<i>Heating &amp; cooling grids</i>					
<i>Communication grids</i>					
<i>Local supply technologies (in general)</i>					
<i>Solar electricity</i>					
<i>Solar heat</i>					
<i>Wind</i>					
<i>Heat-pumps</i>					
<i>Biomass</i>					
<i>Ground source heat (or shallow geothermal)</i>					
<i>Lake/sea/river cooling</i>					
<i>Waste heat</i>					
<i>Capacity-building for the integrated management of energy flows</i>					
<i>Urban mobility (in general)</i>					
<i>Public transport</i>					
<i>Clean fuel solutions (in general)</i>					
<i>Biofuels</i>					
<i>Electricity (electromobility)</i>					
<i>Hydrogen</i>					
<i>Water management</i>					
<i>Waste management</i>					
<i>Information and communication technologies</i>					
<i>Energy</i>					
<i>Transport</i>					

**Question 4:** Please mention one concrete proposal for an innovative project in one of the areas listed above which should definitely be part of a Smart Cities and Communities initiative.

Your individual comments regarding this question (max. 100 words):

Question 5: *Cities from at least three Member States (or associated countries according to FP7 rules) have to team up to propose a collaboration project. This means in practice the same type of project should be implemented in all those cities. Do you think that such cities should display a different or similar degree of sustainability? (for example with respect to the energy efficiency of the building stock)*

- Different** degree                       **Similar** degree                       **Undecided**

*Your individual comments regarding this question (max. 100 words):*

Question 6: *How should the participating cities in a collaborative project exchange information and best practices and ensure a successful technology transfer among themselves and with other Smart Cities? Which existing urban initiatives could be helpful in this process?*

*Your individual comments regarding this question (max. 100 words):*

Question 7a *Do you consider that the cities' efforts to increase efficiency and sustainability should be measured on the basis of quantitative indicators? (such as for example primary energy consumption per inhabitant or per m<sup>2</sup>; increase of share of renewable energy sources; reduction of CO<sub>2</sub> per inhabitant or per m<sup>2</sup>)*

- Yes**     **No**     **Undecided**

Question 7b: *If yes, should the quantitative indicators be defined at EU level to ensure comparability between cities and projects or should the individual cities themselves decide on indicators according to their situation?*

- definition at EU level*                       *Cities decide themselves*                       **Undecided**

Question 7c: *Should cities themselves define the precise level of ambition with respect to these indicators (i.e. a certain target such as for example 60 kWh/m<sup>2</sup>/year)?*

- Yes**     **No**     **Undecided**

*Your individual comments regarding question 7a-7c (max. 100 words):*

**Question 8:** *In the longer term, the Smart Cities and Communities Initiative may include certain market uptake measures to promote the development and use of innovative low carbon products and services. Please rate the importance of the following market uptake measures from 1 (not important) to 5 (very important). Please note that it is left open at which level the measures would be taken (i.e. at EU, national or subnational level).*

	<i>Importance →</i>				
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<i>Public procurement</i>					
<i>New innovative business models (e.g. for energy service companies)</i>					
<i>Standardisation, labelling, certification (e.g. of products, services, professions)</i>					
<i>Innovative financial schemes (e.g. combining different financial sources, addressing the entire continuum of risks)</i>					

**Question 9:** *Please mention one concrete market uptake measure which in your opinion would enhance best the mass deployment of low carbon technologies at city level.*

*Your individual comments regarding this question (max. 100 words):*

## ANNEX 2: RESPONSE CHARTS FOR THE ON-LINE QUESTIONNAIRE

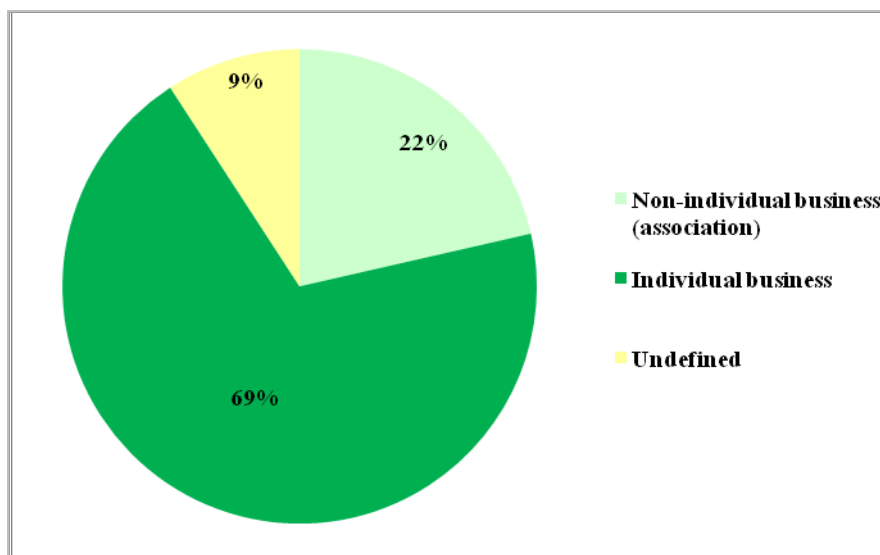
**Table 1: Contributions by organisational type**

Main category	
Academic/Research Institution	55
Business	98
Public authority	62
Non-governmental organisation (NGO)	25
Private individuals	21
Other	28
<b>Total</b>	<b>289</b>

**Table 1.1.: Business respondent category**

Business respondent category	
Individual business	68
Non-individual business (association)	21
Undefined	9
<b>Total</b>	<b>98</b>

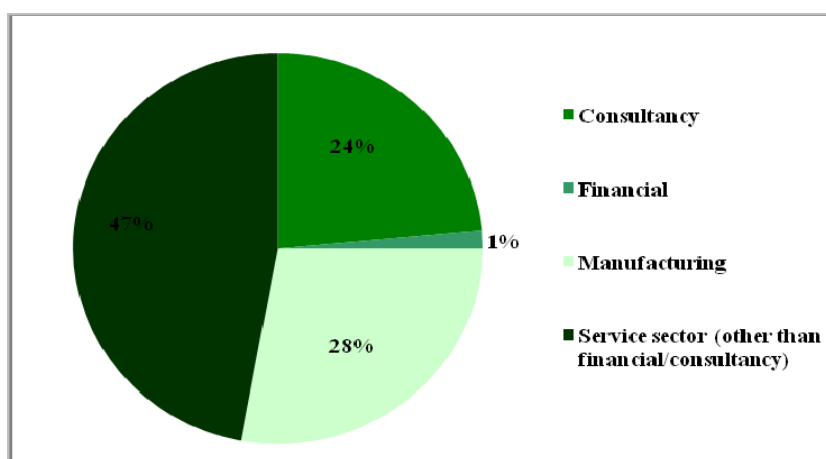
**Figure 1.1.: Business respondent category**



**Table 1.1.1.: Individual business respondent category**

Individual business category	
Consultancy	16
Financial	1
Manufacturing	19
Service sector	32
<b>Total</b>	<b>68</b>

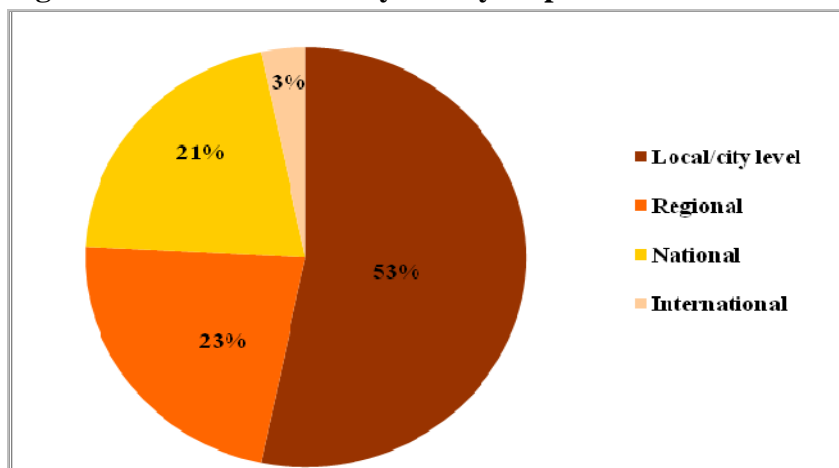
**Figure 1.1.1.: Individual business respondent category**



**Table 1.2.: Public authority/body respondent level**

Public authority/body respondent level	
Local/city level	33
Regional	14
National	13
International	2
<b>Total</b>	<b>62</b>

**Figure 1.2.: Public authority – body respondent level**



**Table 2.: Contributions by sector of activity**

Sector of activity	
Energy	99
ICT	12
Transport	15
Water & Waste	4
Other	33
Not applicable	71
Various	55
<b>Total</b>	<b>289</b>

**Table 3.: Preferred actions and areas for the Smart Cities and Communities Initiative**

Organisational type	Academic Institution	Business	Public authority	Non-governmental organisation	Private Individuals	Other	Total
Communication grids	36	57	34	14	7	13	<b>161</b>
Water management	34	59	30	13	13	14	<b>163</b>
Capacity-building for the integrated management of energy flows	43	48	40	12	9	17	<b>169</b>
Waste management	39	58	33	17	14	16	<b>177</b>
Clean fuel solutions	42	56	35	16	14	15	<b>178</b>
Local supply technologies	35	60	37	18	10	21	<b>181</b>
Information and communication technologies	42	64	42	17	11	20	<b>196</b>
Urban mobility	43	64	41	20	13	21	<b>202</b>
Energy grids	47	71	45	18	12	19	<b>212</b>
Public transport	44	68	47	20	16	20	<b>215</b>
Buildings	46	78	49	17	13	24	<b>227</b>

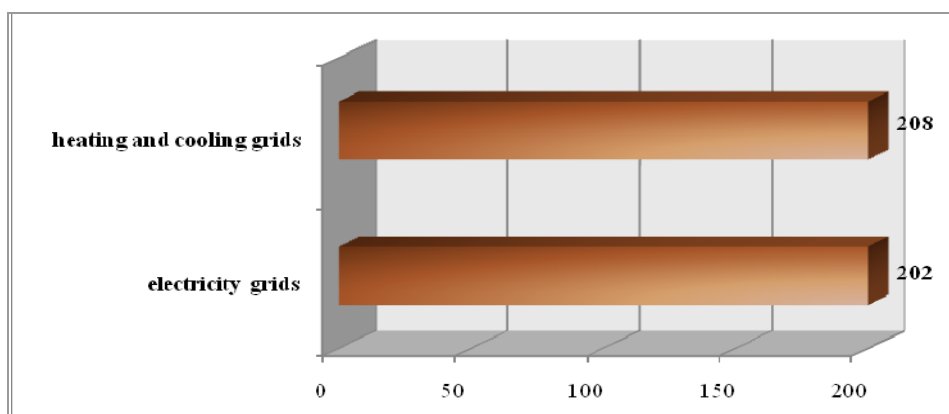
**Table 3.1.: Preferred actions and areas in buildings**

Organisational type	Academic Institution	Business	Public Authority	Non-governmental organization	Private Individuals	Other	Total
Green/brown field development	29	48	31	10	13	14	<b>145</b>
Private buildings	40	69	39	13	13	21	<b>195</b>
Retrofitting of existing buildings	43	71	47	15	13	21	<b>210</b>
Public buildings	44	73	42	19	13	23	<b>214</b>

**Table 3.2.: Preferred actions and areas in energy grids**

Organisational type	Academic Institution	Business	Public Authority	Non-governmental organization	Private Individuals	Other	Total
Electricity grids	38	70	43	21	14	16	<b>202</b>
Heating and cooling grids	45	66	44	19	14	20	<b>208</b>

**Figure 3.2.: Preferred actions and areas in energy grids**



**Table 3.3.: Preferred actions and areas in local supply technologies**

Organisational type	Academic Institution	Business	Public Authority	Non-governmental organization	Private Individuals	Other	Total
Lake/sea/river cooling	25	22	21	5	8	11	<b>92</b>
Biomass	28	26	31	12	8	11	<b>116</b>
Wind	28	37	28	10	9	15	<b>127</b>
Ground Source heat	35	36	35	10	8	18	<b>142</b>
Waste heat	36	39	32	15	13	12	<b>147</b>
Heat-Pumps	36	59	32	13	8	18	<b>166</b>
Solar heat	41	47	35	18	11	20	<b>172</b>
Solar electricity	37	60	35	16	13	19	<b>180</b>

**Table 3.4.: Preferred actions and areas in clean fuel solutions**

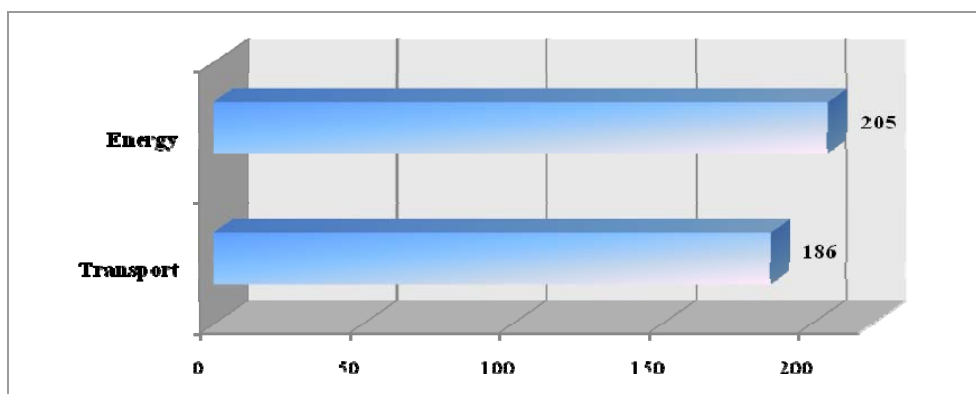
Organisational type	Academic Institution	Business	Public Authority	Non-governmental organization	Private Individuals	Other	Total
Hydrogen	22	26	24	11	8	10	<b>101</b>
Electricity (electromobility)	42	60	39	17	13	11	<b>182</b>



**Table 3.5.: Preferred areas and actions in information and communication technologies**

Organisational type	Academic Institution	Business	Public Authority	Non-governmental organization	Private Individuals	Other	Total
Transport	40	59	45	14	12	16	<b>186</b>
Energy	45	70	41	16	12	21	<b>205</b>

**Figure 3.5.: Preferred areas and actions in information and communication technologies**



**Table 4.: Preferred actions and areas by stakeholder**

Organisational type	Academic Institution	Business	Public authority	Non-governmental organisation	Private Individuals	Other
Water management	61,8%	60,2%	48,4%	52%	61,9%	50%
Local supply technologies	63,6%	61,2%	59,7%	72%	47,6%	75%
Communication grids	65,5%	58,2%	54,8%	56%	33,3%	46,4%
Waste management	70,9%	59,2%	53,2%	68%	66,7%	57,1%
Clean fuel solutions	76,4%	57,1%	56,5%	64%	66,7%	53,6%
Information and communication technologies	76,4%	65,3%	67,7%	68%	52,4%	71,4%
Capacity-building for the integrated management of energy flows	78,2%	49%	64,5%	48%	42,9%	60,7%
Urban mobility	78,2%	65,3%	66,1%	80%	61,9%	75,0%
Public transport	80%	69,4%	75,8%	80%	76,2%	71,4%
Buildings	83,6%	79,6%	79,0%	68%	61,9%	85,7%
Energy grids	85,5%	72,4%	72,6%	72%	57,1%	67,9%

**Table 5.: Preferred characteristics of cities to enhance the EU replication potential of projects**

<b>Organisational type</b>	Academic Institution	Business	Public authority	Non-governmental organisation	Private Individuals	Other	<b>Total</b>
Governance structure	24	30	24	11	9	13	<b>111</b>
Demographics	27	42	33	15	11	10	<b>138</b>
City size	32	62	35	12	13	17	<b>171</b>
Competition and Innovation	42	55	42	13	11	15	<b>178</b>
Climatic zone	38	63	30	16	14	18	<b>179</b>
Economic morphology	37	52	41	17	11	22	<b>180</b>
Degree of economic development	39	62	35	14	14	17	<b>181</b>

**Table 6.: Preferred characteristic of cities to enhance the EU replication potential of projects by stakeholder**

<b>Organisational type</b>	Academic Institution	Business	Public authority	Non-governmental organisation	Private Individuals	Other
Governance structure	43,6%	30,6%	38,7%	44,0%	42,9%	46,4%
Demographics	49,1%	42,9%	53,2%	60,0%	52,4%	35,7%
City size	58,2%	63,3%	56,5%	48,0%	61,9%	60,7%
Economic morphology	67,3%	53,1%	66,1%	68,0%	52,4%	78,6%
Climatic zone	69,1%	64,3%	48,4%	64,0%	66,7%	64,3%
Degree of economic development	70,9%	63,3%	56,5%	56,0%	66,7%	60,7%
Competition and Innovation	76,4%	56,1%	67,7%	52,0%	52,4%	53,6%

**Table 7.: Introduction of quantitative indicators to measure cities' efforts to increase efficiency and sustainability**

<b>Responses</b>	N	%
Yes	252	87,2%
No	21	7,3%
Undecided	16	5,5%
Blanks	0	0%
<b>Total</b>	<b>289</b>	<b>100%</b>

**Table 7.1.: Definition of the quantitative indicators to measure cities' efforts to increase efficiency and sustainability**

Responses	N	%
Definition at EU level	166	65,9%
Cities decide themselves	68	27%
Undecided	18	7,1%
Total	252	100%

**Table 8.: Definition of the precise level of ambition by the cities themselves**

Responses	N	%
Yes	212	73,4%
No	46	15,9%
Undecided	31	10,7%
Total	289	100%

**Table 9.: Preferred market uptake measures**

Organisational type	Academic Institution	Business	Public authority	Non-governmental organisation	Private Individuals	Other	Total
Standardisation, labelling, certification	39	68	37	14	17	19	<b>194</b>
Public procurement	40	66	45	19	15	23	<b>208</b>
New Innovative business models	48	76	41	15	13	21	<b>214</b>
Innovative financial schemes	44	75	48	18	14	22	<b>221</b>

**Table 10.: Preferred market uptake measures by stakeholder**

Organisational type	Academic Institution	Business	Public authority	Non-governmental organisation	Private Individuals	Other
Standardisation, labelling, certification	71%	69%	60%	56%	81%	68%
Public procurement	72,7%	67,3%	72,6%	76,0%	71,4%	82,1%
Innovative financial schemes	80,0%	76,5%	77,4%	72,0%	66,7%	78,6%
New Innovative business models	87,3%	77,6%	66,1%	60,0%	61,9%	75,0%