



Call for

INTERNATIONAL CONCEPT AND DESIGN COMPETITION OPEN TO STUDENTS, GRADUATES AND EXPERTS **“ENVISIONING THE CITY OF THE FUTURE: MAKING THE INVISIBLE VISIBLE”**

Promoter

Polytechnic University of Milan (POLIMI) - Department of Architecture and Urban Studies (DASU) - Urban Simulation Laboratory “Fausto Curti” (labsimurb)

In collaboration with

(in alphabetical order by category)

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Patronage: Municipality of Milan, Milano Smart City, Sharing Cities (European project H2020, Grant Agreement n.691885)

Scientific committee and organisation

Scientific responsables: Barbara E. A. Piga e Eugenio Morello (POLIMI -DASU - labsimurb)

Organisational coordinator: Barbara E. A. Piga (POLIMI - DASU - labsimurb)

Presentation of the competition

The competition is an initiative promoted by the [Urban Simulation Laboratory ‘Fausto Curti’ - labsimurb](#) of the [Department of Architecture and Urban Studies](#) - DASU of the [Polytechnic University of Milan](#) - POLIMI; it aims at involving students, graduates and experts to imagine the city of the future. The initiative works in synergy with the values and the objectives of the European project [Sharing Cities](#) (S.C.), of which *labsimurb* is leader in the co-design process, which involves citizens and stakeholders, of novel smart and urban services.

Participants are asked to imagine and design possible scenarios of the city of the future, starting from the values that the “sharing society” is promoting: How will *smart* and *sharing* cities look like in the future? How are these changes going to impact on people’s lives in cities?

The international competition is open to students, graduates and professionals. The participation in the competition requires a fee of € 30 for each group (which has to identify a leader). The group can be composed by a single person (i.e. the group leader). The competition has two different evaluation phases, as described in the paragraphs “Important Dates and References” and “Materials required”.

The call is public and it can be downloaded from the following internet address:

<https://www.eko.polimi.it/index.php/contest-env-2017>

Important Dates and References

27.02.2017 Launch of the call at the Polytechnic University of Milan (Campus Leonardo, Building 3, Room Sud 2.2 – 6:00 pm)

28.02.2017 Opening date for applications

31.03.2017 Deadline for requesting clarifications and publication of FAQs on the competition website

15.05.2017 Closing of applications and deadline for project submission within 12:00 pm - Central European Time Zone for accessing the first evaluation phase

26.05.2017 Notice of the selected proposals (up to 30 proposals) and start of the second evaluation phase of the competition

12.06.2017 Final deadline for the upload of integrative material

20.06.2017 Closing ceremony and proclamation of the three finalists, special mentions and prizegiving at the Polytechnic University of Milan with international jury

Website: <https://www.eko.polimi.it/index.php/contest-env-2017/>

E-mail: envisioning-contest@polimi.it

Note: the deadline for asking clarifications is 31.03.2017: questions and related answers will be anonymously published on the FAQ (*Frequently Asked Questions*) session of the competition website.

Subject and aim of the competition

The aim of the competition is to envision and design scenarios to shape the sharing society and the smart city of the future. We ask you to envision a possible scenario for the public space of the future, with particular attention to the street environment (see paragraph “Project Area”). The goal of the competition is to make the invisible visible: to imagine, represent and communicate smart and sharing topics through scenarios describing the city of the future and its activities, with attention to new forms of social interaction linked to shared spaces and services. The proposed solution has to include the measures of the European project *Sharing Cities* (see paragraph “Topics to be taken into consideration” and “Annex 1 - Sharing Cities Measures”).

The selected scenarios will be presented to the citizens and stakeholders to support the process of involvement and exchange towards a shared renewal of the city, its services and its inhabitants’ practices, with attention to the topics of environmental and social sustainability.

Topics to be taken into consideration

Relevant topics that have to be taken into account for the design of the scenarios are described below. Examples are: sharing and sustainable mobility, energy savings, social inclusion and sharing services. As the aim of the competition is to come up with future scenarios, the proposals can be wiggled out of today’s technological limits, so it is possible to imagine and use tools that do not exist nowadays; social activities can be thought accordingly. Some other topics that have to be taken into considerations are aligned with the measures of the European project *Sharing Cities* (see Annex 1 “Sharing Cities Key Measures”).

Topics of interest for the call are the following:

- **The street:** keeping the vehicular interconnection (for both public and private means) as a function, the street has to be understood as a privileged place for public life and as a space serving citizens and communities.
- **Shared and sustainable mobility:** participants can envision new public and private transportation modalities, regarding new practices of shared mobility, smart mobility, smart parking, smart mobility islands and smart logistic services. It is also possible to go further and imagine long term scenarios.
- **Smart facilities for the public space:** the urban furniture can be re-designed. For instance, smart lampposts can be seen as a service that, in addition to guaranteeing artificial lighting, can exchange information with the smart city and its inhabitants. They can become collectors and suppliers of information about local environmental conditions; they can host transmitters (Wi-Fi signals or others), sensors to control the light and the crowd in order to auto-regulate lights, for ensuring the best environmental and social conditions. Participants can envision an infrastructured public space with diffused sensors able to give back real-time information on the space conditions.
- **Social inclusion in the *sharing city*:** all the technologies, spaces and activities embedded in the presented scenarios should privilege a wide range of social inclusion solutions. For example, they may encourage integration and multicultural exchange, allow the fruition of spaces and services to a broad user base and propose innovative solutions of integration among citizens, services and the city.
- **Sharing services:** physical and digital innovative and sustainable services can be provided. Services and applications can be personalised, individual and/or collective; thus, they can be thought for the individual and/or the community and/or groups (e.g. people living in the same building, or are part of the same association, district, etc.). Solutions promoting collaborative and sharing practices are preferred.
- **Ambient Informatics and Ubiquitous Computing:** the traditional divide between physical and digital environment is becoming less and less evident. The digital interaction between users, urban elements and information can be imagined going beyond the current devices, such as tablets, smartphones and Head Mounted Displays. Participants can envision *augmented* or *mixed reality* solutions that permeate activities occurring in the public realm.

Project area

The area of interest (Fig. 01) is the open space and the street facing the Smart City Lab which is going to be built in via Ripamonti 88 in Milan in 2018 by the Municipality of Milan¹. This new urban service will become a business incubator in support of start-ups working on smart city projects and an urban hub open to the public.

The proposed scenario has to consider the Smart City Lab as already operational. The area of interest where to develop the scenario does not have defined boundaries and its border can vary to the participants' discretion; however, it has to include the space facing the incubator (that was left free in the 2D and 3D models provided with the subscription to the competition) and the corresponding part of the street, as shown in Fig. 01. This site is part of the pilot district (in which some smart facilities are going to be installed) of the European project *Sharing Cities*.

¹ The Smart City Lab building is already present in the cartographic basis which can be downloaded once the registration to the contest is completed.



Fig. 01 Site map of the area of interest.

Provided documents, files and software

Documents, files and software provided are reported below. These are available after the registration procedure and after the payment of the participation fee.

- Text of the Competition Call in Italian and English in *.pdf format (file: *CALL_ITA* and *CALL_ENG*)
- Release declaration in *.pdf format (file: *RELEASE_ENG_ITA_ID*): to fill in and deliver. The file is both in English and Italian
- Your Personal Information sheet in *.xlsx format (file: *INFO_ID*): to fill in and deliver
- 2D model in *.dwg format (file: *MODEL_2D*)
- 3D model with facades in *.skp format (file: *MODEL_3D_Facade_ID*)
Note: The model cannot be spread without the authorization of the organizers of the competition
- Lumion® 3D model (Fig. 2) generated in Lumion® 7: the model has two pre-set cameras and pre-defined effects in order to make the required panoramas (file: *MODEL_3D_LUMION_ID*) (see paragraph “Required Materials” for further details)
Note: The model cannot be spread without the authorization of the organizers of the competition
- File in *.xlsx format where you are expected to copy and paste the hyperlinks of your proposed panoramas to MyLumion platform (file: *MyLumion_LINK_ID*): to fill in and deliver
- Document containing the 2D isovist from the pre-set cameras in the given Lumion® model in *.pdf file format (file: *ISOVIST*)

- Abstract template in *.docx format to fill in with the requested text (file: *ABSTRACT_ID*) (see paragraph “Requested Materials”)
- You will also receive via e-mail a link to a tutorial that describes: (1) how to import the proposed scenario model (file format *.skp) into Lumion® (2) how to align the imported scenario model with the context (already provided in Lumion®) (3) How to gradually update any changes done in the scenario into the Lumion® model (4) How to change the textures in Lumion® (5) How to export spherical panoramas from Lumion®, as required.



Fig. 02 Bird's eye view of the Lumion® 3D model. Interactive spherical panoramas of the current context are available at the following link: <http://view.mylumion.com/?p=bge28ibo5jyn5v2b>

The provided 3D and Lumion® models realised by *labsimurb* are covered by copyright. However, whether you intend to use the models for other non-commercial proposes, you have to cite the source as follows:

“Laboratorio di Simulazione Urbana ‘Fausto Curti’ (POLIMI - DASTU) - 2017”

Note: to make the Lumion® 3D model more manageable, switching off some layers (trees, cars, furniture and extended area) is strongly recommended. The file was created using Lumion® 7, so it is not possible to open it with previous versions of the software (the licence of Lumion® 7 is going to be provided for free during the entire period of the competition).

Once the registration has been completed (including the fee payment), the software listed below are provided for free (one licence of each software per group) with a licence valid until the deadline of the final delivery (see paragraph “Important Dates and References”):

- Lumion® 7 by Act-3D
- ArchiCAD® 20 by GRAPHISOFT®

Note: before subscribing the competition it is very important to verify that your computer supports the installation and use of Lumion® software, as written at the following link:

<https://lumion3d.com/faq.html>.

Lumion® is easy to use! If you need it, you can access tutorials at the following webpage:
<https://lumion3d.com/tutorials.html>.

Required materials

Participants have to deliver the required materials (listed as follows), uploading digital documents only and following the instruction reported on the competition website:

<https://www.eko.polimi.it/index.php/contest-env-2017>. The instructions for uploading the produced materials will be published on the competition website, under “Registration”, by the due dates for the submission of entries.

The required materials have to be delivered in digital version only, within the deadlines defined by this call (see paragraph “Important Dates and References”) and following the requirements listed below. There are two phases of evaluation and two relative deliveries described below.

The uploaded material must not contain any information about the identity of the participants; the only exception is made for the “Identity Code” of the group leader (to be indicated on each produced document), failure to comply will result in exclusion from the competition. The only file that must contain information about the identity of the participant is the Personal Information sheet (Info_ID.xlsx) that will not be given to the jury until the end of the final evaluation phase.

1. MATERIALS REQUIRED FOR THE ADMISSION TO THE FIRST EVALUATION PHASE (mandatory)

In order to be admitted to the first evaluation phase, participants have to upload all the materials listed below:

PERSONAL INFORMATION SHEET identifying the participant, to fill in and deliver as follows:

- ☐ File in *.xlsx format (provided - File: *INFO_ID*) containing the details requested.

Note: this document will not be given to the jury until the end of the evaluation process.

RELEASE DECLARATION to fill in, sign and deliver as follows. The original, filled in and signed paper copy of the Release declaration must be kept by the participants and it must be provided to the organisers of the competition in case of request. However, a digital copy of the Release declaration must be uploaded in digital format.

- ☐ Scan in *.pdf format of the original paper copy of the given Release declaration, filled in and signed in all its parts (provided - file: *RELEASE_ENG_ITA_ID*). Each group member must provide his/her own copy of the Release declaration, filled in and signed in all its parts, failure to comply will result in exclusion from the competition. Note that all the documents have to be named according to the instructions given in the paragraph “How to name the required materials”.

PICTURES and SPHERICAL PANORAMAS must be created using Lumion® without any post-processing phase, under penalty of exclusion from the competition, as written below:

→ Pictures from the pre-set points of view in Lumion® model (Fig. 03) with pre-defined effects in the provided model (“Effects” function of Lumion®), as follows:

- ☐ Two spherical panoramas² (“Panorama” function of Lumion®) in *.jpg format with the following output features:

² Panoramas have to be uploaded also on MyLumion platform, as described below.

Quality	<i>Draft</i>
Stereoscopic	<i>Off</i>
Target Device	<i>Generic VR Device</i>
Equirectangular Resolution	<i>4096x4096</i>

The file has to be named as follows: “PANO_N_ID” (e.g.: PANO_1_12345678, PANO_2_12345678, etc.)

- ❑ Two rectangular pictures (“Photo” function of Lumion®) in *.jpg format with “Desktop” output setting. “Desktop” pictures will use the pre-set point of view but it is possible to choose the most significant target point.

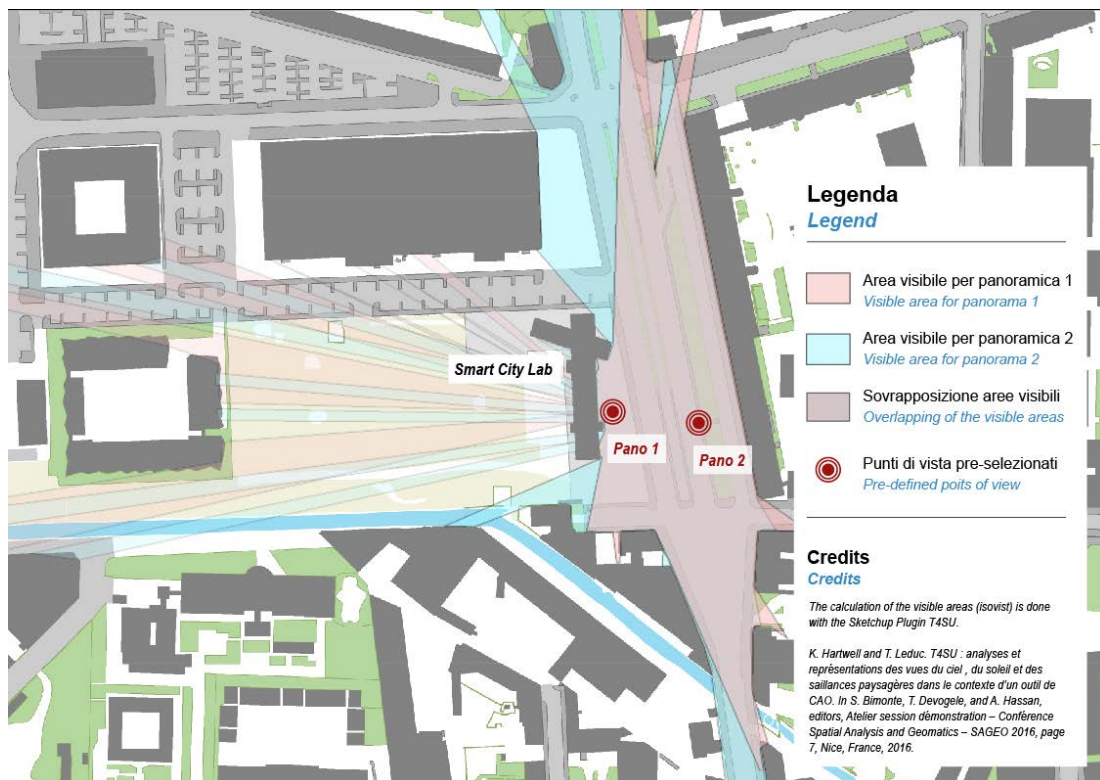


Fig. 03 The picture shows the two pre-set points of view in the given Lumion® model and their relative visible areas.

The “Effects” are pre-defined as follows:

SUN STUDY		CLOUD		SUN	FOCAL LENGTH ³	
Hour	14	Position	0.7	Sun height	0.8	11,5 mm
Minute	00	Cloud speed	1.4	Sun heading	0.8	
Day	15	Master cloud amount	0.9	Sun brightness	0.1	
Month	October	Low clouds	0.3	Sun disk size	0	
Year	2016	High clouds	1.0			
Timezone	1:00	Cloud direction	0.1			
Daylight saving	1:00	Cloud brightness	1.0			
Latitude	45°	Cloud softness	0.6			
Longitude	09°	Low cloud softness removal	0.8			
North offset	-2	Sky brightness	0.5			
		Cloud preset	0.1			
		Cloud high preset	0.1			

→ Pictures from significant points of view/target points using the effects (“Effects” function of Lumion®), at the participants’ discretion, as follows:

- ❑ Two spherical panoramas (“Panorama” function of Lumion®) in *.jpg format with the following output features:

Quality	Draft
Stereoscopic	Off
Target Device	Generic VR Device
Equirectangular Resolution	4096x4096

- ❑ Two rectangular pictures (“Photo” function of Lumion®) in *.jpg format with “Desktop” output setting, having the same point of view of the panoramas (target point at the participants’ discretion).
- ❑ One bird’s-eye view picture describing the whole proposed scenario, in *.jpg format with “Desktop” output setting.
- ❑ One *.xlsx file (provided and to fill in. File: *MyLumion_LINK_ID*) with interactive hyperlinks of the panoramas uploaded on MyLumion in “Draft” output setting. Fill in only the “First Delivery” section. The file must not contain any reference to participants’ identity, failure to comply will result in exclusion from the competition.

ABSTRACT as written below. A brief, clear, concise and punctual text describing the proposed scenario has to be provided.

- ❑ Abstract of the proposal (max 2.000 characters including spaces) in *.docx format (the template is provided). The abstract has to include the title of the proposed scenario (defined by the participant) and a brief text describing the proposal. The file must not contain any information about the identity of the participants, failure to comply will result in exclusion from the competition.

³ This column is used only in the rectangular pictures

2. ADDITIONAL MATERIALS REQUIRED FOR THE SECOND EVALUATION PHASE

Participants selected for the second phase of evaluation (max 30 selected works) will receive notice by email and, in order to access to the final phase of evaluation, they must integrate previous material with the ones listed below, within the deadlines reported in the paragraph “Important Dates and References”.

Selected proposals are going to be displayed during the closing ceremony of the competition (see the paragraph “Prizes and closing ceremony”) and possibly in further venues.

PICTURES AND SPHERICAL PANORAMAS must be created using Lumion® without any post-processing phase, under penalty of exclusion from the competition, as written below:

- ☐ The four spherical panoramas delivered during the first evaluation phase in *.bmp⁴ format, using the following output setting (“*Panorama*” function of Lumion®):

Quality	<i>Production</i>
Stereoscopic	<i>ON</i>
Target Device	<i>GearVR/Oculus</i>

- ☐ Maximum three new Lumion® spherical panoramas (optional) (“*Panorama*” function of Lumion®) in *.bmp format. Points of view, target points and effects are at participants’ discretion.
- ☐ If new spherical panoramas are added (see previous point), it is mandatory to deliver also the relative rectangular pictures created with Lumion® “*Desktop*” output in *.bmp format. The pictures must have the same point of view and effects as the new panoramas.
- ☐ One representative picture of the scenario in *.bmp format. Point of view, target point and effects are at participants’ discretion, it is mandatory to use the Lumion® “*Print*” output setting. The picture will be displayed during the Closing Ceremony and further following events.
- ☐ The update of the *.xlsx file (provided and delivered during the first phase) with interactive hyperlinks of the panoramas uploaded on MyLumion® in “*Production*” output setting (maximum 7 hyperlinks). Fill in only the “Second Delivery” section. The file must not contain any reference to participants’ identity, failure to comply will result in exclusion from the competition.

VIDEO

- ☐ One video produced using Lumion® having the maximum length of one minute in *.mp4 format with the following output setting:

Final output	<i>Production (five stars)</i>
Frames per second	<i>30</i>
Choose resolution	<i>730p</i>

⁴ Panoramas have to be uploaded also on MyLumion platform, as described below.

LUMION® MODEL

- ❑ The final Lumion® model in *.Is7 format with only the panoramas created and used for the competition in the “*Panorama*” and “*Photo*” sections of the software. The cameras must be named with the same progressive number that identify the images created from the same point of view (see paragraph “How to name the required materials”).

ABSTRACT

- ❑ The potential update of the abstract already delivered during the first phase in *.docx format (max 2.000 characters including spaces). The abstract has to include the title of the proposed scenario (defined by the participant) and a brief text describing the proposal (as required in the given template). The file must not contain any information about the identity of the participants, failure to comply will result in exclusion from the competition.

HOW TO NAME THE REQUIRED MATERIALS

Provided files to be filled in and delivered (see paragraph “Provided documents, files and software”) must be named as the original ones, changing the “ID” wording with the “Identity Code” assigned during the registration (for instance, the file *RELEASE_ENG_ITA_ID* must be re-named as *RELEASE_ENG_ITA_12345678*). Each delivered file must always contain the “Identity Code” preceded by the symbol “_” (underscore) at the end of the file name (e.g. *FILENAME_12345678*).

In case of multiple files having the same name (e.g. pictures), please add a progressive number to the file name by substituting the wording “*N*” (see paragraph “Spherical Panoramas”). In general, the number reported in the filename that locate the specific point of view of a camera, should identify all the views from that perspective (including spherical panoramas, relative rectangular pictures the hyperlinks listed in the *.xlsx file). In case more images from the same point of view are produced, for example showing the area in different seasons, please add a letter after the progressive number.

Jury

The international jury will be composed by scientific experts and specialists, such as architects and designers, *Smart City* and *Sharing Society* stakeholders, representatives of the business sector. The components of the jury will be officially formalised at the end of the evaluation procedure.

Evaluation criteria

The jury will adopt the following evaluation criteria, considering the aim and objective of the competition and the representation of the proposed scenarios:

- ➔ The ability of imagining, representing and communicating the scenarios of the sharing city of the future
- ➔ Aesthetic quality of the representation: clarity and experience given by the immersive panoramas and by the video
- ➔ Making the “invisible” measures of the sharing city and sharing society “visible” even by representing the social aspects of the place
- ➔ Level of innovation of the proposed solutions

Prizes and closing ceremony

The competition will end with a ranking of merit for the first three projects selected and further special mentions of the projects admitted to the second phase of evaluation. The authors of the first three projects in the ranking and of those with special mentions will receive a statement of recognition during the closing ceremony of the competition. The projects will be published on the competition website.

The first classified project in the ranking will be awarded with one ARCHICAD® 20 Full licence and one Lumion® Standard licence with a corresponding economic value of € 6.289,00.

The three winning projects will win three annual subscriptions to charging stations for electric vehicles (provided by NHP); these stations will be implemented within the European project *Sharing Cities*.

All the projects admitted to the second phase of evaluation will be displayed at the exhibition opening during the ceremony, and will remain in exhibition in the hall of the School of Architecture, Urban Planning and Construction Engineering of the Polytechnic University of Milan from the 19th to the 23rd June of 2017. The results of the competition may be presented in other contexts and locations, such as exhibitions and events.

The winners, the projects selected for the second phase and those with a special mention will be officially notified by email to the email address provided during the registration procedure (the one of the group leader). The results will be published on the competition website as well.

The closing ceremony will be held in the “Aula Magna” of the Polytechnic University of Milan (Rettorato, Building 1, piazza Leonardo da Vinci 32, Milano)⁵ on the afternoon of the 20th of June 2017 (the exact time will be published on the competition website). During the closing ceremony some panoramas of selected proposal will be shown in immersive reality (*Head Mounted Display*). An interactive evaluation procedure involving the audience is also planned, aiming to collect ideas and comments starting from the proposed scenarios.

Registration to the competition

The call will be published on:

<https://www.eko.polimi.it/index.php/contest-env-2017/>

The opening date for applications is the 28th of February 2017, following the launch of the call that will take place during the international seminar *Mobiance 3: Sharing Cities, Ambient Commons and Urban Future* which will be held at the Polytechnic University of Milan, piazza Leonardo da Vinci 32, on the 27th of February 2017 at 6:00 pm, in Building 3, Room Sud 2.2.

Groups intended to take part to the competition have to identify a leader among the components of the group itself. The group can be composed by a single person (who will be considered the leader). The leader of the group can proceed with the on-line registration on the website previously mentioned. During the registration procedure a fee of 30 € per project has to be paid (payment by credit card). There is no limit to the number of members of each group. Once the registration is

⁵ Except for different solutions that will be noticed on the competition website and by email.

completed, a unique “Identity Code” (ID) will be generated (assigned to the group leader). This code has to be indicated on all the produced documents to permit the identification of the person/group (see paragraph “Required materials”). At this stage, materials and software needed for the competition will be provided (see paragraph “Provided documents, files and software”)

Note: Participants who register to this competition agree to the terms and conditions listed in the call.

Condition of participation

ELIGIBILITY REQUIREMENTS

The competition is open to everyone who is of legal age. The participation to the competition is open to individuals and groups after completing the payment of the registration fee and having identified a group leader (see paragraph “Registration to the competition”).

COPYRIGHT AND PRIVACY

Participants who submit to this competition agree to the terms and conditions listed below:

a) Participants retain copyright over their work, while allowing the organizers and sponsors to place this work under a [Creative Commons](#) Attribution License, which allows others to freely access, use, and share the work, with an acknowledgement of the work’s authorship and of this competition as follows: “Envisioning Competition 2017 (POLIMI - labsimurb)”.

b) Participants can waive the terms of the Creative Commons license and enter into separate, additional contractual arrangements for the non-exclusive distribution and subsequent publication of this work (e.g., publish a revised version in a journal, post it to a repository or publish it elsewhere), with an acknowledgement of this competition as follows: “Envisioning Competition 2017 (POLIMI - labsimurb)”.

c) In addition, participants are encouraged to post and share their work online (e.g., in repositories or on their websites) at any point after the closing of the competition, with an acknowledgement of this competition as follows: “Envisioning Competition 2017 (POLIMI - labsimurb)”.

Subscribing to the competition, participants accept without reserve the conditions of this call, agree to the handling of personal details and to the use of the produced materials according to the conditions previously mentioned and according to the terms in the provided Release declaration document. Note that all participants must fill in and sign the Release document, failure to comply will result in exclusion from the competition.

The original, filled in and signed paper copy of the Release declaration must be kept by the participants (see paragraph “Required materials”) and it must be provided to the organisers of the competition in case of request.

CONDITIONS OF EXCLUSION

Conditions of exclusion from the competition are listed below. Participants who do not meet the conditions described in this announcement will be excluded from the competition and the group leader will be informed by PEC or by Registered Mail.







1. The subscription is not completed, including also the payment of the registration fee.

2. The uploaded materials contain explicit reference to the identity of one or more components of the group. In order not to compromise the transparency of the competition, the indication of the “Identity Code” is the only identification permitted. The only exception is made for the Personal Information Sheet (see paragraph “Required materials”).
3. Required material is not provided
4. Panoramas do not respect the mandatory format/effects
5. Missed deadlines
6. Physical and/or social environments are not represented in the proposed scenarios
7. Dissemination of any form of the materials, even if modified or post-produced, before the end of the competition

Note: in case of exclusion or withdrawal from the competition no refund of the subscription fee will be provided.

Annex 1 - Sharing Cities Measures

Below the list with the main *Sharing Cities* measures that will create the smart hard infrastructure for the future sharing city.

SHARING CITIES KEY MEASURES	
	Urban sharing platform Manages data from a wide range of sources, including sensors, as well as traditional statistics. It is built on common principles, open technologies and standards.
	Citizen engagement Develop new approaches and tools to improve the public's understanding of how smart cities should operate. Promote the citizens' active participation.
	Energy management Implement Integrated Energy Management System to integrate and optimise energy from all sources in districts (and interface with city-wide system); including demand response measures.
	Building retrofit Conduct deep energy retrofits of public/private residential properties affecting 15,000 people. This includes integration of low-carbon energy sources, physical modernisation, digital controls, and promote policy innovations and citizen/private incentives to save energy.
	e-mobility A portfolio of inter-connected initiatives (see below) supporting the shift to low carbon shared mobility solutions.
	Smart lamp posts Demonstrate smart lighting integrated with other smart service infrastructure (eV charging stations; smart parking; traffic monitoring via sensors; data management, wifi, etc.). A swift and secure way to 'bootstrap' smart cities.

E-MOBILITY MEASURES



e-bike sharing

Build on existing e-bike sharing schemes and install a sufficient number of charging stations.



e-car sharing

Adjust ambitions to actual reduction in car ownership and facilitate practice exchange amongst the cities and enable learning from different city contexts and ownership models to support EU-wide take-up.



Smart parking

Implement smart parking technologies, including evaluation of sensor type, implementation (potentially different sensor types and business models), testing and capture of operational experience.



e-vehicle charging points

Install a network of eV charging stations, and integrate them with overall place-based measures (building refurbishment; PV; lampposts; energy management system) to support shift from conventional cars to electric vehicles.



e-logistics

Implement electric vehicles in city logistics to reduce the number of gasoline-powered delivery trucks (e.g. with growth in on-line and local deliveries). This includes implementation of electric logistics to test and prove the business cases and promote potential re-use.