

# LIVING LABS EUROPE COMPETITION

European Event on Neighbourhood Transformations  
Concept Outline and Competition Disciplines



The transformation of urban neighbourhoods is vital to reach the European goal of a climate-neutral society. Therefore, Europe is creating a new and innovative funding instrument: The Living Labs Europe Competition (LLEC), which is to catalyse the transformation towards a climate-neutral continent.

Project management agency for the



Federal Ministry  
for Economic Affairs  
and Climate Action

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## 1. OUTLINE: WHY WE NEED LLEC

**The building sector has a key role in energy transition, because buildings account for a large proportion of energy consumption in every European country. To reduce it, far-reaching transformations of entire cities are necessary. Transformations will be effective if they involve science, stakeholders and inhabitants and stimulate their innovative spirit. To this end, the Living Labs Europe Competition (LLEC) is to be launched to address this topic.**

The LLEC as an EU-wide neighbourhood competition aims to transform cities in a climate-neutral way, to collectively improve climate action in Europe and to increase the renovation rate of buildings. It is aimed at cities and municipalities in the European Union that want to transform a neighbourhood in a sustainable way.

The participating neighbourhoods act as living labs, in which interdisciplinary teams from science and industry work together with municipal representatives and residents of the neighbourhoods to develop new ideas, test them and put them into practice.

The competition shall take place regularly at a main hosting district and other participating districts. Juries will evaluate and monitor the transformed districts according to living quality, aesthetics, affordability, inclusion, social compatibility and creativity, as well as climate protection goals, sustainability and circular economy.

The LLEC showcases different parts of the transformation process via multiple competition disciplines. Architectural contests take place within the early planning phase. District transformations in process are exhibited and accompanied. Transformations that have been realised will be compared with each other based on defined evaluation criteria. From conceptualisation to construction to evaluation in the first phase of use: during the competition, the various phases of transformation are thus discussed, presented and awarded.

The core of the competition are regularly repeated events at which the transformation processes are communicated to a broad public in a media-effective manner. The award ceremonies make the extraordinary transformation concepts and realisations widely visible.

Project Management Juelich is working on the competition as an innovative funding approach on behalf of the German Federal Ministry for Economic Affairs and Climate Action together with its European partners from the Driving Urban Transition Partnership (DUTP) and the SET Plan.

In this paper, a conceptual overview of the competition is given and possible competition disciplines are presented.

**If you want to be part of this challenge or have suggestions on how to improve the LLEC, do not hesitate to contact the organisation team! You can find the current contact persons on the LLEC-website: [www.ptj.de/en/living-labs](http://www.ptj.de/en/living-labs)**

## 2. AMBITION

**The LLEC accompanies the entire live cycle of European neighbourhoods – design, build and operate – by displaying and evaluating transformative actions. LLEC addresses existing obstacles in a comprehensive manner and thus acts as a catalyst for future neighbourhood transformation projects.**

A glance at the past decades of energy policy shows a programmatic development from technology-oriented to system-oriented objectives. Living Labs are a concept leading towards a climate-neutral energy sector while considering societal aspects as well. With ambitious programmatic visions on the table, record sums of funding available and public expectations higher than ever, the ground has been prepared. However, there is no relevant and appropriate format at European level that can turn the transformation into a tangible social and economic reality.

The key challenge in reducing emissions is to transform the end-use energy sector in the urban context. To attain the European climate targets a significant increase in rate of transformation is necessary – an up to now unmatched intergenerational task.

Although a large number of technologies are already available, the frequent lack of market maturity and the variety of the stakeholders involved – often pursuing divergent interests – are major impediments to transformation. The local/regional particularities of individual neighbourhoods and the breadth of criteria defining a successful transformation add to the complexity of the task that Europe is facing. Transforming the end-use energy sector requires a high level of collaborative action and social as well as cultural awareness.

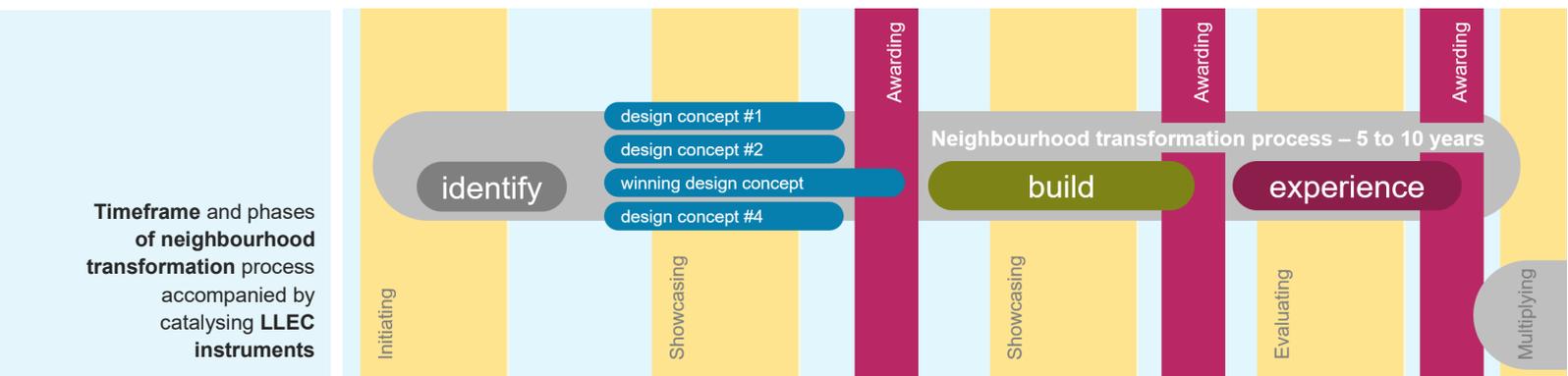
The purpose of the LLEC is to accommodate technology, economy and society in a unified European movement that embarks on the path to a climate-neutral continent. The LLEC's competition format acts as a connecting force that can support the upcoming transformations and create effective incentives for change. It enables the EU Member States to shape the Europe of tomorrow by using a holistic approach towards a continent that believes in fairness, humanity and solidarity and pursues the highest standards of excellence and progress in the service of the global community.



The transformation of neighbourhoods requires a high level of collaborative action, not just among the inhabitants, but also throughout the dimensions technology, economy and society. Therefore, the LLEC focuses on problem owners (i.e. urban planning, real estate) as well as the expertise of applied scientists, our society’s value considerations and the educational sector through students’ participation. All stakeholders involved may co-design the energy transformation and experience the look-and-feel of future neighbourhoods. Not just witnessing, but also actively shaping this transformative urban development.

The competition format makes it possible for them to demonstrate the feasibility of neighbourhood-level transformations. While a fair and transparent set of rules – covering the entire process from planning and construction to evaluation – ensures objective assessment criteria for neighbourhood transformations, the game-like design adds plenty of suspense.

The LLEC addresses and promotes transformative actions that may take several years. It accompanies and advocates the steps needed during all phases of transformation (as you can see in the timeframe below).



### 3. LLEC: COMPETITION AND DISCIPLINES

**Modern psychology has demonstrated that a change of context stimulates the imagination and enhances the ability to solve problems. Human beings engaging in competition tend to show a different level of commitment than in everyday life. Competitive games are an ideal way of tapping the huge societal potential that is needed to bring about a transformation.**



The idea behind LLEC is to display all phases of transformations from design to build to operation. Like the Olympics, it comprises several disciplines. Thereby, different disciplines can highlight outstanding achievements in different transformation phases.

The LLEC exhibition and competition events will be regular focal points of the competition and should be located at the participating neighbourhoods. On site the transformation can be experienced directly through tours and walks through the district. The events last over several days, including possible side events. The venue will be an exhibition and work environment, which allows for this cross cutting experience to thrive:

#### Activities during regular LLEC events

##### Discussion

Conferences and project meetings as side events as well as different workshops for problem owners will transport gained knowledge between the involved players and will help city planners, architects and the real estate sector to get a better grasp on how to advance climate-neutral districts.

##### Communication

Presentations on design concepts of district transformations as part of the *DESIGN* discipline or part of research-affiliated work will show new possibilities to all parties involved. They will display the different technological and planning approaches needed for successful conceptualisations.

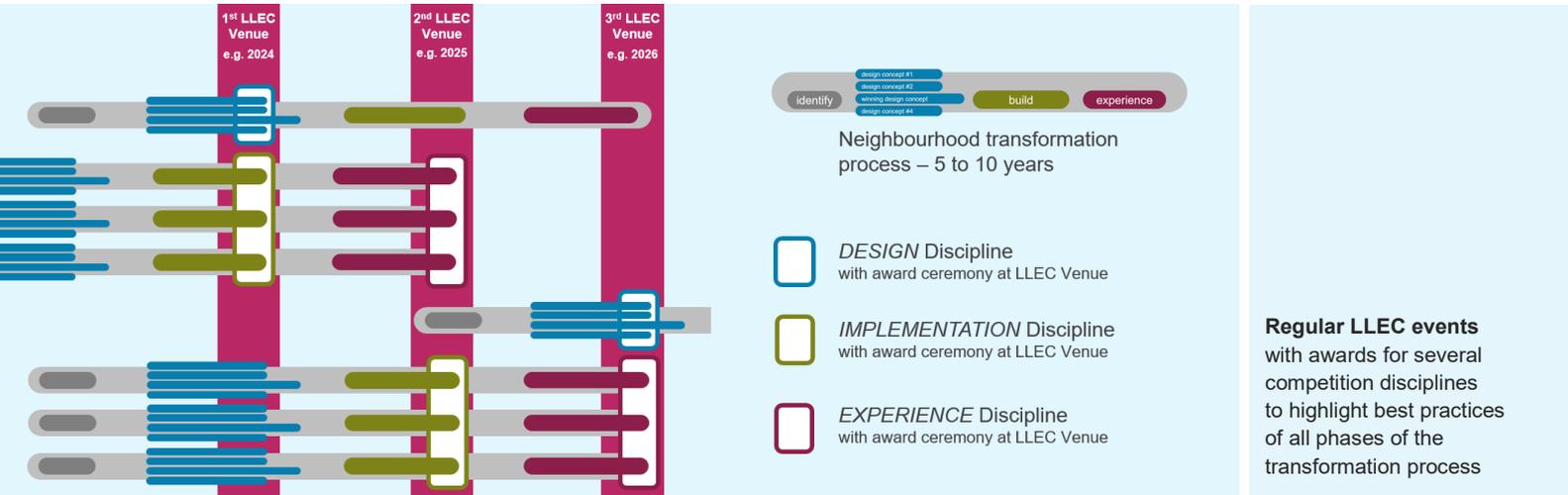
##### Open day

To help stakeholders and problem owners better understand the necessary steps of transformative action, there will be an open day. Here, during the competition, they will be able to see realized transformative measures in participating neighbourhoods during fair-like exhibitions as well as take part in on-site technical visits.

##### Award Ceremony

The awarding of competition discipline winners in a large event will broadcast best practise to the public. This award show and other measures as story-telling of transformative actions will create a broad public interest for the topic of climate-neutral transformations of our European cities.

As the transformation of a neighbourhood will happen over several years and consists of different transformative phases, the LLEC will accompany this by addressing each transformative phase with specifically designed competition disciplines. This means that during an LLEC exhibition different stages of transformative action will be awarded and highlighted.



As the LLEC progresses, disciplines can evolve and become more competitive over time. It is important that for the first LLEC event a discipline is carried out that evaluates neighbourhoods by measuring efficiency. The measurements must be of high quality and transferable to other quarters. A mere showcasing of transformations is not sufficient here. The disciplines described in the following are meant as first step stones for a development of final disciplines within a scientific committee.

## DESIGN DISCIPLINE

Concepts that are functional and feasible are a start, but they are to set in motion the process of transformation as well. The *DESIGN* discipline will address the identification and planning phase of the transformation process. Tenders for architectural contests are nothing new; LLEC dives into this area with the *DESIGN* discipline with a broader approach. The competition format will assume interaction between researchers, architects and urban planners. This can lead to new valorisation of expertise of all participants – the expertise of researchers on energy conversion, the skills of architects on design and living and the knowledge of urban planners on neighbourhood specific incidences will be utilised in the design teams.



The arrangement of design teams and team line-ups can be established via bid invitations, which are developed by LLEC in coordination with the problem owners of the specific neighbourhoods to be transformed. The tangible interest of real estate owners for transformative action and therefore investment intentions are key factors in choosing a district as the playing field for the contest. A call for cities shall provide a suitable neighbourhood for which the specific set of LLEC rules will be established. The *DESIGN* discipline shall suite for incorporation into architectural contests.

For the *DESIGN* discipline, a comprehensive sketch of a competition (including design team arrangements) serves as a fundamental set of ideas: The TRUELAB competition contrived by the Technical University of Darmstadt, Germany is a competition idea for one specific district in Frankfurt am Main, Germany. TRUELAB was a contribution to the “Ideenwettbewerb EnEff.Gebäude. 2050” established by the German Federal Ministry for Economic Affairs and Energy in 2017.

## IMPLEMENTATION DISCIPLINE

We can learn from buildings like Bauhaus in Dessau, still charismatic in our days, that it is reasonable to follow the path of excellent prototype demonstration. LLEC not only intends to validate concepts and display finished prototypes for climate neutrality but also exhibit ongoing transformative processes and thus trigger participation in a broad manner. This is to be facilitated with the *IMPLEMENTATION* discipline.



Ongoing transformations during the build phase can be as diverse as European neighbourhoods themselves. The *IMPLEMENTATION* discipline can be shaped as a showcasing event. During the build phase, highlighting particular aspects as grey energy, life cycle assessments, applicability, multiplication ability and impact of build process on residents can be addressed.

## EXPERIENCE DISCIPLINE

The core of LLEC is the *EXPERIENCE* discipline, wherein multiple neighbourhoods, which have been transformed to suit the climate action goals, are showcased. It seems to be feasible to design, adapt and renovate quarters to become climate-neutral even though it takes strong initiative and cooperation. Afterwards, it is also essential to discuss the quality of reached transformations and to validate that operation meets projection. The *EXPERIENCE* discipline will conquer these issues by being a playing field for identifying excellent results of transformations and set the guiding principles.

The architectural achievements, transformed energy systems and greenhouse gas emissions of partaking neighbourhoods will be evaluated during a monitoring phase. Therefore, actual measurements of energy flows and balances will deliver precise knowledge on performance values and deliver basic information for discussions on achievement ratings in relation to the climate zone.

The partaking neighbourhoods can be identified e.g. by participation of these neighbourhoods in previous LLEC disciplines, ongoing research projects in neighbourhoods, etc. Living Labs Europe Competition addresses cities in climates from Scandinavia to the Mediterranean Sea with diverse regional boundary conditions. Therefore, this chapter includes big challenges, but also the most interesting forum for discussion and innovation. In this regard, the integration (inter- and transdisciplinary) of science and universities is relevant. It will be a procedural task of a LLEC Scientific Committee to develop evaluation criteria as LLEC progresses.



## PUBLICITY

The public needs to understand the opportunities and advantages of the energy transformation and experience the look-and-feel of future neighbourhoods. Therefore, besides involving problem owners and stakeholders, another important role of LLEC is to create public interest and understanding for the necessary transformation of our European cities.

**Award show** as one major experience of LLEC events. Winners will be presented. Establishing this event as a broadcasted entertaining show creates public interest.



A European event on presenting the best practice examples shall be established. An award show as a public event, broadcasted over Europe, can be an appropriate measure. Just like “Eurovision Song Contest”, a so-called “European Neighbourhood Contest” could involve the public via digital participation measures, inspire the public and show the need and the vast possibilities of transformations by experiencing showcased actions in an entertaining and engaging presentation.

## 4. LLEC RESULTS (AND HOW TO GET THERE)

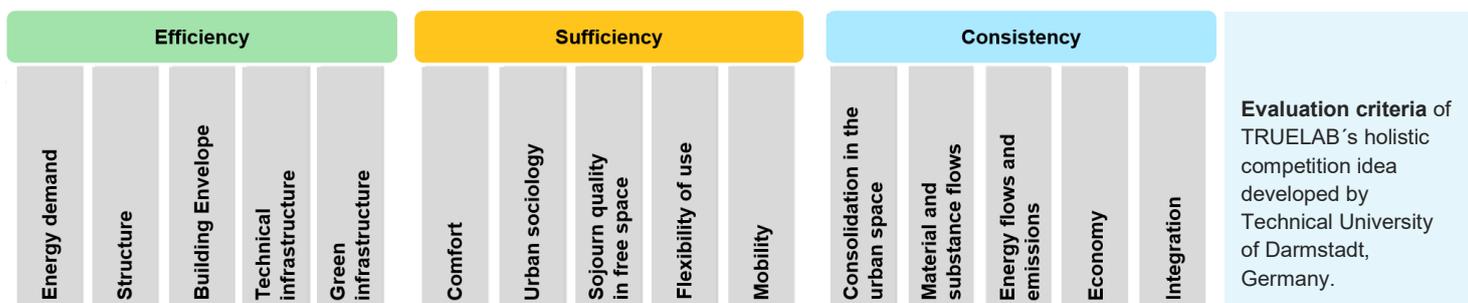
**Transformative action in dense urban neighbourhoods needs to happen *now* all over Europe to reach climate neutrality as declared. LLEC will activate and accompany the transformation process, show how to evaluate good practices and inspire problem owners to partake in the process of this complex transformation.**

### EVALUATION CRITERIA

The expert jurors base their award decisions on architectural and urban planning quality, engineering (including digitalisation), inclusion, sustainability and many more criteria. Which ones exactly these can be and how they can represent the complex transformation process, will be open to debate for a LLEC Scientific Committee – although first ideas exist already.

A set boundary condition is certain anyway, as climate neutrality is a superordinate necessity: The European Commission recently outlined the 2030 climate protection goals in the Fit for 55 package under the European Green Deal. The German Federal Parliament also just passed a new climate protection act, which shows the magnitude of importance. Therefore, one main criterion is the reduction of CO<sub>2</sub> emissions achieved by the transformation process of participating neighbourhoods.

Further evaluation criteria need to be addressed. The three major categories developed by Technical University of Darmstadt for TRUELAB with each containing five criteria give an idea on the vast possibilities to assess and rate transformative processes of cities.



### THE EFFORT BEHIND TRANSFORMATIVE ACTION

The LLEC as a new European neighbourhood-level competition can highlight the importance of innovative planning, construction and overall implementation of sustainable, climate-neutral neighbourhoods. One first goal is to initiate transformative actions by activating problem owners. Therefore, the first step is to get these players involved. Primary LLEC information deliveries can spark interest of problem owners and will be followed up by submitting tender information material to get problem owners to take action. **Calls for cities** will lead to participating neighbourhoods whose actions will be accompanied in the LLEC competition formats.

A handful of highly engaged people among problem owners will have overtaken many obstacles for the transformation of their neighbourhood. Telling the story of these “heroes” and their journeys

shall document their struggles and finally their great achievement of the quarters’ transformations. The stories stimulate people from other cities to follow up on the pioneering work they have seen.

Other tools like workshops and technical tours will function to reach out to problem owners of further neighbourhoods to create the sparks necessary to root additional transformations. Thus, the competition evokes a sense of community among cities, municipalities, investors and other stakeholders, inspiring them to put the concepts into practice.

Furthermore, the showcases should function as an invitation to a larger audience to share their creative ideas taking into account aspects such as inclusion, aesthetics, socioeconomics and quality of life. Target groups include the entire spectrum of stakeholders – investors, decision makers, city representatives, architects, construction and system suppliers as well as local communities, tenants and the public.

### TIMELINES

For each discipline, the first step is to identify possible participants followed up by tenders, participatory action and finally the award ceremony at the central LLEC event. The timelines are therefore bound to the LLEC events, but since the events occur regularly, the start of a discipline varies individually.

| Design Phase of District Transformation       |                   |                         |              |                  |
|---|-------------------|-------------------------|--------------|------------------|
| Concept phase                                 |                   | Tender                  |              | Investors choice |
| DESIGN DISCIPLINE                             |                   |                         |              |                  |
| Call for cities                               | Preparation phase | Application phase       | Design phase | Jury choice      |
| 6 MONTHS                                      | 6 MONTHS          | 3 MONTHS                | 8 MONTHS     | 1 MONTHS         |
| <b>Build Phase of District Transformation</b> |                   |                         |              |                  |
| Planning                                      |                   | Building                |              |                  |
| IMPLEMENTATION DISCIPLINE                     |                   |                         |              |                  |
| Call for cities                               |                   | Application phase       | Jury choice  |                  |
| 6 MONTHS                                      |                   | 6 MONTHS                | 1 MONTHS     |                  |
| Operation Phase - Finalized Transformation    |                   |                         |              |                  |
| Building                                      |                   | Living                  |              |                  |
| EXPERIENCE DISCIPLINE                         |                   |                         |              |                  |
| Call for cities                               | Application phase | Evaluation / monitoring | Jury choice  |                  |
| 6 MONTHS                                      | 6 MONTHS          | 6 MONTHS                | 1 MONTHS     |                  |

Award ceremony at regular competition venue, starting e.g. 2024

**Timeframes of competition disciplines including call for cities**

During the *DESIGN* discipline the competitors – teams of researchers, architects and planners – will conceptualise their ideas in a span of eight months. The design teams will be assisted and encouraged to partake in an application phase beforehand. To establish the tender offer for the application phase, first the neighbourhood where the competition is supposed to be held at needs to be identified. This takes place in a call for cities following up a decision and a preparation phase which will set the specific rules for the *DESIGN* discipline in this neighbourhood. During this preparation phase the tender will be established by the scientific board in cooperation with the problem owners and investors for this neighbourhood.

For the *IMPLEMENTATION* and *EXPERIENCE* disciplines, several neighbourhoods will be showcasing their transformative actions and compete against each other. Therefore, during the call for cities for each discipline several districts need to be identified. Interested neighbourhoods will be coached during the application phase. Afterwards evaluation and, for the *EXPERIENCE* discipline monitoring will take place, before a jury establishes the outstanding neighbourhoods to be awarded at the regular LLEC events.

## LLEC FRAMEWORK

Overall LLEC's organisational structure will not differ from any other conventional scientific based initiative as e.g. in OECD or IEA. A Founding Committee will be established, to discuss and define organisational structures and duties and set a timeline for the first LLEC event. Subsequent to this, terms of references for an organisational structure will be drafted.

The partaking member states and the European Commission establish the LLEC Organisational Committee. This committee represents the participating member states and the EC as central executive body. It monitors and decides on rules, regulations, and development of the LLEC.

The LLEC Scientific Committee will be the think tank and development arena for the LLEC competition formats and evaluation criteria. The committee will involve problem owners for well-fitted rules for transformatory actions. National LLEC Committees develop the rules for the *DESIGN* discipline in case the neighbourhood is located in this specific country. Additionally, an advisory council will be necessary to ensure compliance with scientific standards, economical and societal concerns.

Under the auspices of the LLEC Organisational Committee, the specification for the work programme and call for tender of a LLEC Agency will be provided. The LLEC Agency shall ensure the organisational implementation of the competition and the public relation activities. National LLEC Committees coordinate the preparation, participation of national teams and holding of the LLEC in case the venue takes place in their country.

The financial contribution needed to incentivise participation in the competition is to come from the public budgets of the member states and the European Commission respecting their aid specifications. This contribution will encourage municipalities and local utilities – as well as property owners and users – to tackle the challenge of climate-neutral, sustainable neighbourhood development and to make financial investments themselves.

As the Living Lab Europe Competition addresses real estate, the local owners are financially the most relevant part, as their assets will profit substantially. The important role of technologic innovation results in a strong engagement of industry and utility services as well.

## 5. STATUS QUO AS OF FEBRUARY 2022

**The LLEC as a European competition is a well-timed contribution to the EU's 'New European Bauhaus' initiative, which is now being brought to life by creative ideas and stimulating perspectives from committed organisations and citizens.**

The Declaration of Madrid of 2010 gave rise to this ambition, with participants of the 2010 Solar Decathlon Europe proclaiming the need for a contest that addresses the specific European context with its dense urban neighbourhoods. In 2013, a concept developed in the course of the ongoing debate was published by Project Management Jülich under the title of 'European Energy Avant-garde'. In 2017, Germany launched a competition of ideas for the design and conception of an international energy competition entitled 'Living Labs'.

In accordance with the results of the competition, 'Living Labs' became the focus of the SET Plan Working Group 5 on 'Energy Efficiency in Buildings' (IWG 5) with close links to IWG 3 ('Positive Energy Districts'). As discussed at the 2020 SET Plan Conference and within IWG 5, now is the time to explore methods, issues and disciplines with a view to developing competitive formats for the end-use sector.

Project Management Jülich has developed an initial concept for a European competitive format – the LLEC. Interested countries and partners of the Driving Urban Transitions (DUT) Partnership are invited to work on further elaboration of the concept. National delegates are encouraged to express their interest in the subject and make available their expertise, best practices and successful implementation formats. Building on this work, the concept will be developed and employed.

In the context of Horizon Europe, the DUT Partnership called for action to speed up urban transitions, make available relevant research findings and support the development of capacities at all levels. The focus of the DUT Partnership is on providing evidence and best practices, promoting cooperation between research institutions and government, and initiating local experiments. However, greater efforts and additional instruments are needed to transform these results and experiences into practice. This is where, the LLEC, which serves as an instrument for the implementation of the DUT Partnership, comes into play. To this end, the LLEC is to be developed and implemented as part of the work package "Task 7.2 Valorisation Strategy" of DUT.