Author:
Lucia Fuselli
UIA Expert

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The Urban Lab of Europe !

The Vilawatt Project Journal N°2

*Project led by the **City of Viladecans***

ENERGY TRANSITION

VILAWATT
LA REVOLUCIÓ ELÈCTRICA DE
W!LADECANS
CIUTAT INTEL·LIgent

European Union
European Regional
Development Fund

Région
Hauts-de-France

The Vilawatt project

The project aims to establish an Innovative Public-Private-Citizen Governance Partnership at local level (PPCP). This entity will have, for the first time, the Municipality of Viladecans together with the local businesses and the citizens of Viladecans as its members. Its mission will be to promote and ensure a secure, clean and efficient use of energy. This new PPCP will be the central hub that will manage the new local tools for the transition: energy supply, energy currency, energy savings services, deep energy renovation investments and renewable energy production.

The new entity will create a Local Energy Operator that will be the local energy supplier and the renewable energy producer, and an Energy Savings Company, offering energy savings services and energy renovation investment to all the members. The Capitalisation of the Energy Savings will allow the new entity to focus on the investment of deep energy renovations, sharing among the local community the economic risks of that energy saving operations that are not economically attractive.

The creation of this PPCP structure is a completely new approach. It will help to inject a broader set of skills and talent, a more diligent and responsive work culture into the municipality machinery, create a solid foundation for innovative thinking and creativity, empower the community, share common risks and face unbalanced situations. The community energy savings capitalisation will provide funds for new deep energy renovation investments.

A new energy currency linked to energy savings will be created, and it will work as an incentive to energy efficiency and as a mechanism to increase economic capacity of vulnerable economic groups. At the same time this alternative currency will strengthen the local economy by assuring a local cycle of the money.

Partnership:
- Ajuntament de Viladecans
- Agència d'ecologia urbana de Barcelona - Public agency
- UBIQUAT TECHNOLOGIES S.L. - Private company
- ICAEN - Institut Català de l'Energia - Research centre
- Associació LIMA - Low Impact Mediterranean Architecture - Non Profit Association
- CERCLE GESPROMAT S.L. - Private Company
- EGM - Private Company
- VIGEM - Viladecans Grup d'Empreses Municipals, S.L. and VIMED - Municipally-owned company
- Viladecans Grup d'Empreses Municipals, S.L. - Municipally-owned company
- CICLICA SCCL - Cooperative

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1. Executive summary

As outlined in the previous Journal, Vilawatt is an innovative urban development project that conjugates four major innovative aspects: a thorough stakeholder engagement and communication strategy, a participatory governance structure (the Public Private Citizens Partnership or PPCP, with its Local Energy Operator or LEO), an energy efficient building retrofit programme and a virtual currency.

Year 2018 is proving the relevance of Vilawatt in the wider international and regional discourse around sustainable urban development, as Viladecans becomes part of an ever increasing international network of peer cities implementing and sharing similar initiatives. In parallel, some of the project key innovative aspects gradually develop as individual research streams worldwide.

In the meantime, the project has begun its implementation phase and remains on track, having managed to sort out its legal structure and to gain the necessary traction for an effective change management.

Lessons learnt reveal the usefulness of gamification in communicating those project aspects that are less tangible in nature, the need to allow extra time to the preparatory phase to reconcile information from multiple sources and the importance of a well-structured Project Management Office.

At present, the Ajuntament is anticipating coordination and engagement challenges appropriately. Going forward, it will also need to build flexibility within the programme and to devise and implement adequate performance metrics.

2. Context evolution

Year 2018 has started as a pivotal one for Sustainable Urban Development, as the theme is becoming increasingly central in the EU political agenda and a trending topic worldwide. In particular, metropolitan areas are now acknowledging that urban regeneration program must necessarily be multi-dimensional in scope and multi-synergic in strategy in order to be successful. At the same time, many of the key innovative aspects characterising Vilawatt (i.e. participatory planning, virtual currency, community energy) are gaining centre stage as independent research streams.

New calls for EU-grants-financed research projects under the Horizon-2020 framework are aimed at "Innovative solutions for inclusive and sustainable urban environments"[1] or at "Demonstrating systemic urban development for circular and regenerative cities"[2]. At the same time, a report from the EU Commission[3]

details a list of winning **Horizon 2020 projects in which cities have distinguished themselves as major movers** in the fields of mobility, climate action, social integration, digital innovation and culture.

In February 2018, at the World Urban Forum (WUF) in Malaysia, **Europe reported on its "Urban Agenda for the EU"**[4], launched back in 2016 and which is now in full development: a comprehensive definition of "city" has been studied and a global database of urban data is to be presented next year; of the 12 action plans of the Agenda, 3 have already been drawn up, providing policy recommendations, good practices and case studies; city-to-city cooperation, under the International Urban Cooperation (IUC) launched with the Agenda, has produced 70 pairings of urban areas working on themes of common interest.

As highlighted by the CITIES Forum in November 2017[5], "necessary" involvement of municipal authorities in energy markets has been increasing. Examples such as the "positive energy region" in Occitanie, the revival of municipalised service companies in Germany, and the Bristol Energy Network, testimony how cities can become game-setters for a development of affordable and sustainable local energy systems[6].

Cities have received renewed attention also from multilateral lenders. The European Investment Bank, for example, has launched a technical advisory platform, URBIS, aimed specifically at supporting urban authorities in facilitating, accelerating and unlocking urban investment projects[7].

Finally initiative-based programmes such as Urban Innovative Actions (UIA) and URBACT are thriving. UIA has just concluded its 3rd call for proposals, having so far financed 33 sustainable urban development projects across different dimensions of the Urban Agenda. The URBACT initiative recently presented results of its 200 cities 2-years-worth of common work and Integrated Action Plans[8]. At the same time, the URBACT Transfer Network has approved and is financing the creation of further 25 groups of cities sharing exchange and learning tools to implement best practices of sustainable urban development[9].

In this context, both regional and local context are emerging as successful protagonists: the Metropolitan Area of Barcelona is part of the C-40 Cities network taking bold climate action and it has also hosted the final meeting with "Reinventing the Fringe" an international project on the requalification of modern urban spaces[10]; as for Viladecans, its project Vilawatt

has taken centre stage at the Urban Future Global Conference in Vienna, as an example of good practice in energy efficient building retrofit[11].

Through these initiatives, an international network of urban areas is gradually forming. Through Vilawatt, Viladecans is developing as an integral part of this network, gradually becoming a success story to take inspiration from.

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[1] H-2020 participant portal - Innovative solutions for inclusive and sustainable urban environments, available on: http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/transformations-03-2018-2019.html
[2] H-2020 participant portal - Demonstrating systemic urban development for circular and regenerative cities, available on: http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/ce-sc5-03-2018.html
[3] EU Research and Innovation for and with Cities, available on: https://ec.europa.eu/info/publications/eu-research-and-innovation-and-cities_en
[4] Press release - Commission reports on progress under global commitments for sustainable urban development, available on: http://europa.eu/rapid/press-release_IP-18-662_en.htm
[5] This was the CITIES Forum 2017!, available on: https://ec.europa.eu/futurium/en/urban-agenda-eu/was-cities-forum-2017
[6] Local energy ownership in Europe, available on: https://sustainabledevelopment.un.org/content/documents/ec_energy_02may.pdf
[7] URBIS: Boosting urban development projects, available on: http://www.eib.org/attachments/mooc-regions-cities-urbis-factsheet-en.pdf
[8] URBACT - 200 European Cities publicly present the results of 2 years of common work, available on: http://urbact.eu/200-european-cities-publicly-present-results-2-years-common-work
[9] URBACT – 25 Transfer Networks approved!, available on: http://urbact.eu/25-transfer-networks-approved
[10] SUB>URBAN – Reinventing the Fringe, available on: https://suburban529144051.wordpress.com/
[11] URBACT at URBAN FUTURE Global Conference (UFGC), in Vienna (AT), available on: http://urbact.eu/urban-future-global-conference-Vienna
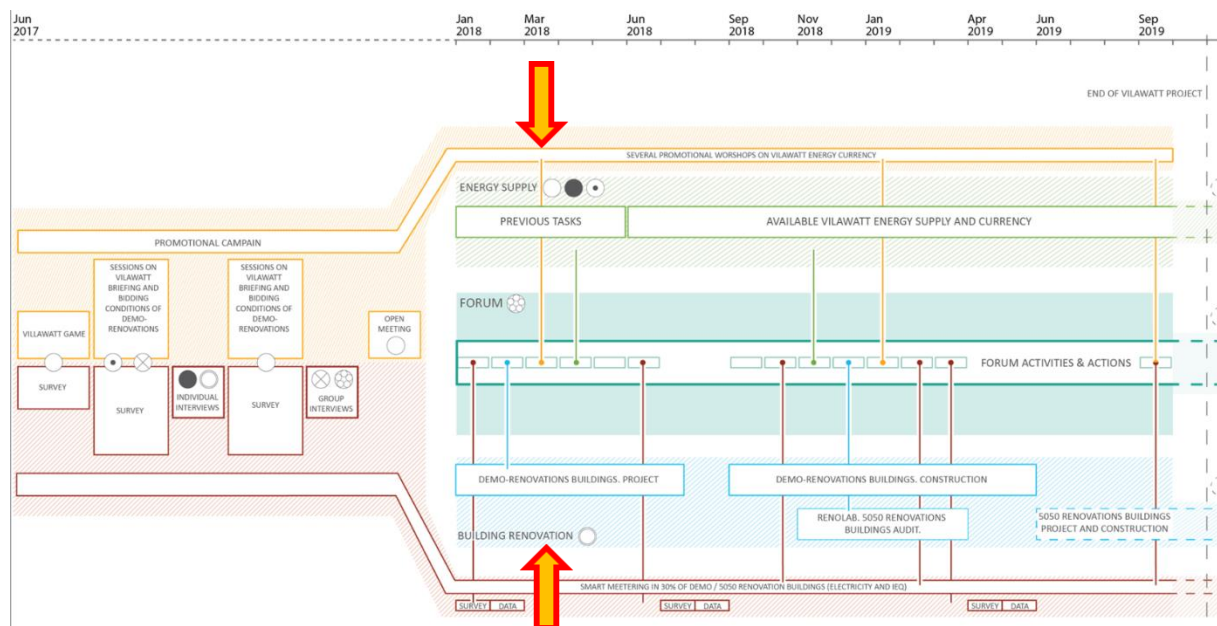
3. Implementation status

Figure 1: Project timeline

As outlined in the previous journal, project timeline is divided in two macro moments:

- observation phase (Jun 2017 - Jan 2018)
- implementation phase (Jan 2018 - Sep 2019).

Currently, therefore, **Vilawatt has completed its observation phase and initiated the application** of roadmaps, plans and benchmarks as defined in the preparatory studies. It is a delicate moment, but also the ideal time to win some easy targets (i.e. low hanging fruits) and to adapt plans based on context initial response.

A brief analysis of the status suggests **the project is on track** in all its four main dimensions (i.e. stakeholder engagement, building retrofits, governance structures, energy currency).

Building retrofits have initiated and are in their project design phase. The selection process of the neighborhoods undergoing retrofit (for a total investment cost of EUR 1.4m) was completed in January, shortlisting 3 neighborhoods for a total of 49 entities (i.e. dwellings and shops). As the retrofits are

undertaken in a collaborative and consensual manner with the communities involved, project technicians have been visiting the neighbourhoods in March to explain process and next steps. Currently, individual surveys are being held in each dwelling to collect the "as-is" data underpinning building energy simulations. Signing of the final agreements with the City Council is expected by early June. And the goal is to start works by October 2018.

As for the governance structures, the Ajuntament is in the initial approval phase of the public initiative to establish the Consortium (i.e. the legal form chosen for the PPCP), which will be formed by the City Council, another public authority representing the wider area, the Association of citizens and the Association of Commerce. Finalization is expected by October 2018, after which the Consortium executive arm, the Local Energy Operator, will initiate its activity.

As for the virtual currency, preparatory studies are underway and won't be concluded before

June 2018; in the meantime, promotional workshops have been undertaken.

Finally, as for the stakeholder engagement, preparatory studies have concluded with the drafting of a Vilawatt Participatory Strategic Plan (further called "VW_PSP"), devising engagement activities for each of the 10 main social actors in the city (communities, political groups, companies, shops, professionals, entities, energy poor subjects, schools, citizens). Linked to the plan is also the institution of "espai VILAWATT" (Vilawatt spaces): physical areas destined to the exchange of knowledge and good practices on the matter of energy among citizens, professionals, businesses and schools.

After having established solid planning bases, Vilawatt is on track to achieve its first important milestones. In this respect, **October 2018 will be a pivotal month, as all the key aspects of the project will be launched**: the Consortium (i.e. the PPCP), the Local Energy Operator (i.e. the LEO) and the virtual currency.

Current status:
- Implementation phase
- On track
- Building retrofits project design
- Approval phase of the PPCP
- Virtual currency preparatory studies, promotional workshops
- Vilawatt Participatory Strategic Plan (VW_PSP) and "espai VILAWATT"

Next steps:
- Signing of the final retrofit agreements (June 2018)
- Launch of the virtual currency (October 2018)
- Start of the retrofit works (October 2018)
- Finalization of PPCP and LEO (October 2018)

"Vilawatt has completed its observation phase and initiated the application […] the project is on track in all its four main dimensions […] October 2018 will be a pivotal month"

4. Lessons learnt

One of the targets during the preparation period was to map the "as-is" situation. The activities of survey, interview and audit have not only allowed gaining a deeper understanding of the context but also, most importantly, to tailor the project to its effective needs.

Individual and group interviews with neighbours, whilst confirming the effectiveness of the information campaigns, have also outlined the difficulty in explaining the participative governance (i.e. the Consortium or PPCP), its operative tool (i.e. the LEO) and the virtual currency. The first lesson learnt is, therefore, that **some of the most intangible aspects of a project might be difficult to communicate**, no matter how thorough or detailed the stakeholder plan is. Gamification

can then become an extremely effective communication tool as it allows stakeholders to experience post-implementation dynamics.

In this respect, the fact that Vilawatt had already embraced gamification, using a "Vilawatt Game" to familiarize citizens with energy efficient behaviors, is indeed farsighted: the same methodology can in fact be utilized to prepare Vilawatt Game sessions focused on the participative governance and on the virtual currency.

The second lesson learnt during this period instead relates to the more tangible endeavor of building retrofitting. In collecting documentation on the buildings selected, discrepancies between historical registry records and technical inspection results required an additional

drawing effort to produce updated plans. Urban regeneration projects should account for the **extra time required to reconcile mismatching information**, fill knowledge gaps from incomplete records and win stakeholders resistance to share data.

Figure 2: Vilawatt Game in action

The third lesson learnt is the **importance of a well-resourced and well-structured Project Management Office (PMO) for an effective and timely coordination**, as PMO is where the complexity of the entire project concentrates. In Vilawatt, the PMO is adequately staffed, with competences balanced to cover the main project dimensions (international relations, sustainability, economic and finance, operational management, communication). To structure an effective PMO, practitioners might consider running a scenario analysis of project milestones to pre-emptively establish roles and responsibilities; most importantly, a scenario planning needs to also account for the administrative, procurement and legal procedures connected with those milestones, as these represent an additional layer of complexity that needs to be managed.

Looking forward to the next steps, Vilawatt could benefit from procurement and a legal compliance specialist supporting the PMO.

Summarising, Vilawatt has shown the flexibility and resilience needed to overcome its first challenges. In particular one of its innovative aspects, gamification, has been instrumental in generating interest in citizens and promote attendance to project meetings and activities.

"…the fact that Vilawatt had already embraced gamification, using a "Vilawatt Game" to familiarize citizens with energy efficient behaviours, is indeed farsighted"
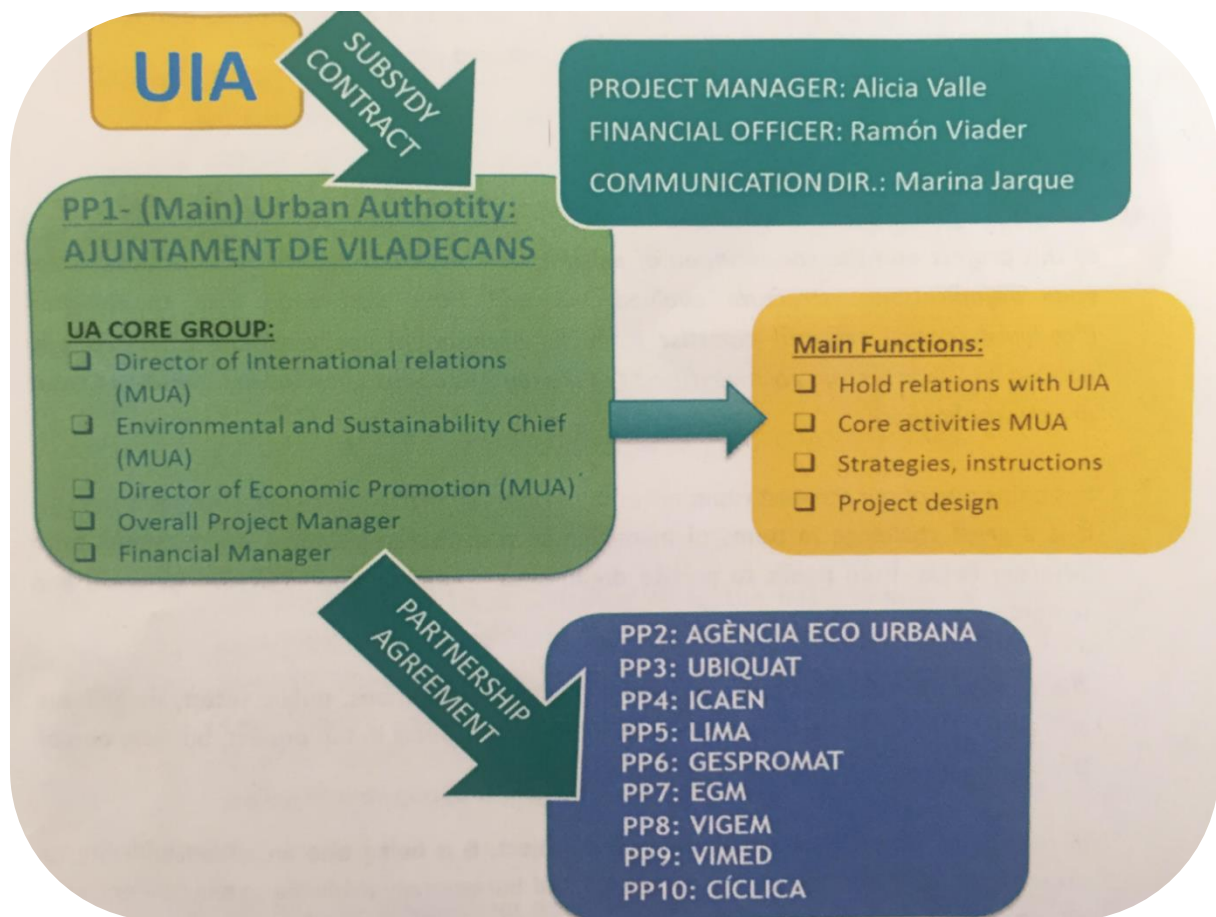
Figure 3: Vilawatt Project Management Office (PMO) structure

5. Challenges and focus aspects

The beginning of a great journey is always hard: the road seems too long, the end too far away and the outcome uncertain. As Vilawatt goes through a defining moment of its implementation phase, the beginning, the Ajuntament must focus on winning residual stakeholder resistance and effectively tackling the first **challenges, one of which is undoubtedly coordination** between operations, administrative tasks and contractual aspects related to the initiative.

The most delicate moment will occur between June and October 2018: in June, retrofit projects will start being implemented, however the participative governance structure (i.e. the PPCP, with the LEO as its operative tool) won't be operating before October. Should any delay occur in the set-up of these entities, this might either restrain the launch of other key project aspects or create a limbo situation whereby retrofits become operational and the virtual currency is launched without an efficient energy supply being negotiated (because the negotiator, the Local Energy Operator, isn't yet in place).

To counter this risk, the Ajuntament is already exploring alternatives allowing an aggregate energy purchase through other legal entities; to this end, the recently launched municipal tender to purchase energy for public facilities contains a "Vilawatt" clause in order to obtain a pricing offer to supply energy to the Vilawatt neighbourhood. Vilawatt has been proactive in mitigating this risk, however **practitioners**

implementing similar initiatives might want to **finalize participated governance structures before implementation starts**, so as to allow stakeholders' participation to the negotiation and retrofit design moments. To this end, it might be beneficial to start relative preparatory studies, especially those defining legal and contractual features of the new entities, well in advance at the very beginning of the project.

Another challenge will be winning residual resistance and maintaining consensus during implementation (i.e. when contingencies will materialize), especially before the launch of an aggregation platform like the Consortium (i.e. the PPCP).

To mitigate this risk, the Ajuntament has developed of the **Vilawatt Participatory Strategic Plan (VW_PSP)**. Anticipation has been, again, a smart move as the SPP addresses the same stakeholders and social dynamics as the not-yet-finalized governance structures, enabling "soft steering" before official governance is created. At the same time, the institution of "**espai VILAWATT**" as an aggregation space gives these dynamics a physical place to exist, enabling the development of those social relationships that will animate both Consortium and Citizens Association.

"As Vilawatt goes through a defining moment of its implementation phase […] the Ajuntament must focus on winning residual stakeholder resistance and effectively tackling the first challenges, one of which is undoubtedly coordination"

Going forward, the Ajuntament will have to translate implementation details into construction and service contracts. In this respect, **attention will need to be paid in creating, through apposite clauses, adequate buffers of flexibility** to manage technical/priority changes and unexpected delays.

Another focus aspect will be measurement of results, those collected via smart metering and those as of the other project indicators. As for the smart meters, monitoring has been structured in two phases involving, respectively, 15 and 45 dwellings. Aside from measurements of the energy consumption, three different inner temperature points, CO_2 and relative humidity data will be sent through a gateway to a central platform managing the information, translating it to the final users and comparing performance with specific past timeframes to track improvements in indoor comfort and air quality.

Additionally, since survey results showed situations of extremely low welfare were sometimes forcing users to renounce to basic life comforts, the Ajuntament is now **rethinking the initial project indicators** for them to better capture improvements in the overall quality of life beyond energy savings and energy cost reductions. This is extremely interesting, as it confirms the importance of monitoring the real added value of urban regeneration initiatives by distilling their "**social ROI**", as already pointed out in the first journal.

The challenge for Vilawatt will be finding a balance between perception-based and literature-based weighting factors (i.e. conceiving indicators that are meaningful for both end users and practitioners); in this framework, an added layer of complexity is the fact that each project partner currently utilizes its own performance metrics. A well-conceived social ROI will probably either derive the most relevant points from such metrics or directly integrate some of them in the factors concurring to determine its synthetic final value.

Challenges:

- Coordination between operations, administrative tasks and contractual aspects
- Maintenance of consensus during implementation

Solutions:

- Entities substituting participated governance structures
- Finalization of participated governance structure before implementation

- Vilawatt Participatory Strategic Plan (VW_PSP) + creation of physical spaces of aggregation (espai VILAWATT)

Focus Aspects:

- Creating flexibility within the contractual structure
- Measuring results, capturing the project "social ROI"

"…rethinking the initial project indicators […] confirms the importance of monitoring the real added value of urban regeneration initiatives by distilling their social ROI"

6. Conclusions

This journal has presented a recollection of Vilawatt progress and lessons learnt since the end of 2017, as well as upcoming challenges and focus aspects. In its early implementation phase, and thanks to its solid preparatory base, Vilawatt is on track to reach its first milestones. Intermediate reporting, albeit not as detailed as previous benchmark studies, transmits the overall picture of a project with an appropriate level of flexibility, to incorporate changes and lessons learnt, and a good capacity of anticipating and mitigating the first challenges.

As Vilawatt delves further into implementation, its performance measurement system will need to be finalised, together with all practical aspects related to the virtual currency (for which timing is also extremely important). The next Journal will therefore present these aspects in greater detail and will discuss the first concrete results. In the meantime, an interactive document will be published in the summer, zooming-in on the key aspects of stakeholder engagement and communication.

Urban Innovative Actions (UIA) is an Initiative of the European Union that provides urban areas throughout Europe with resources to test new and unproven solutions to address urban challenges. Based on article 8 of ERDF, the Initiative has a total ERDF budget of EUR 372 million for 2014-2020.

UIA projects will produce a wealth of knowledge stemming from the implementation of the innovative solutions for sustainable urban development that are of interest for city practitioners and stakeholders across the EU. This journal is a paper written by a UIA Expert that captures and disseminates the lessons learnt from the project implementation and the good practices identified. The journals will be structured around the main challenges of implementation identified and faced at local level by UIA projects. They will be published on a regular basis on the UIA website.