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Project led by the city of Viladecans









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 supply.

The new entity will create a Local Energy Operator that will be the local energy supplier, 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 Municipallyowned 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 Journals, Vilawatt is an innovative urban development project that conjugates four major innovative aspects: a thorough stakeholder engagement and communication strategy, a participated governance structure (the Public Private Citizens Partnership or PPCP and Local Energy Operator or LEO), an energy efficient building retrofit programme and a virtual currency.

In year 2018 Vilawatt has been gaining national and international praise as a best practice case in sustainable urban regeneration. In parallel, the very theme of urban development becomes, together with climate change, increasingly central in the global political discourse.

In the meantime, the project is progressing in its implementation, collecting some significant achievement but also some delays. Most importantly, Vilawatt has so far managed to effectively tackle its challenges without renouncing to any project component.

Lessons learnt reveal the importance of analysing legal and administrative aspects in detail already at the project planning phase, the need of a centralised One-Stop Administration and information system to make sense of the project complexity and the benefits of creating strong stakeholder management and communication systems early on in the process.

Going forward, the Ajuntament will have to focus on full delivery, whilst maintaining the consensus level high. To that end, enhanced coordination and citizenship engagement will be required.

2. Context Evolution



Year 2018 continues to see Sustainable Urban Development at the centre of the global political discourse, and increasingly linked with the consensus developing around climate change.

In its new energy package, Clean Energy for all Europeans, presented in November, the EU increases its efforts in Energy Efficiency, focusing on the Energy Performance of Buildings¹. The EIB's technical assistance platform on energy efficiency "ELENA" is thriving, and together with the previously introduced URBIS platform, the bank also launched an Invest4Cities Call and a Call for Interest for the Global Compact of Mayors network for technical support and financing of low-carbon infrastructure investments². In the meantime, UIA has launched its 4th call for proposals³.

Beyond the European dimension, UNHABITAT's World Cities Day (October 31st) this year focused on resilience, intended as "the measurable ability of any urban system, with its inhabitants, to maintain continuity [...] while positively adapting transforming toward sustainability"4, and international foundations such as the 100 Resilient Cities, the C40 Cities, the ICLEI Local Governments for Sustainability and the World Urban Campaign are ramping up capacity and forming a knowledge (and lobbying) ecosystem empowering further initiatives.

The urban development dialogue has moved east and south, reaching Singapore (World Cities Summit), China (World Urban Forum), India (World Sustainable Development Summit 2019) and Africa.

¹ Clean Energy for All Europeans, available in: https://ec.europa.eu/energy/en/topics/energy-strategy-and-energy-union/clean-energy-alleuropeans

² New calls to cities and investors announced to deliver sustainable finance growth in cities worldwide, available on: http://www.eib.org/ en/infocentre/press/releases/all/2018/2018-069-new-calls-to-cities-and-investors-announced-to-deliver-sustainable-finance-growth-in-citiesworldwide.htm

³ Topics of the 4th UIA Call for Proposals announced, available on: https://www.uia-initiative.eu/en/news-events/topics-4th-uia-call-proposals-announced

⁴ WCD concept paper - Building sustainable and resilient Cities, available on: https://unhabitat.org/wcd-2018/



Viladecans and the UIA Energy Transition cities at EUSEW 2018

In the meantime, an entire, and separate, Smart Cities vertical is being developed, whereby decentralised renewable generation, information platforms for participated action and virtual and blockchain-based currencies are becoming recurring topics.

In this context, the Metropolitan Area of Barcelona will host and lead this year's International Forum on Urbanism (IFoU), centered on "Aligning Sustainability and Resilience"⁵. As for Viladecans, its project Vilawatt has taken centre stage at the European Sustainable Energy Week 2018 as an example of good practice in integrated

sustainable urban regeneration. In the past six months, Vilawatt has been also presented at the Brest EU Interreg Workshop on Energy Poverty (August 2018), at the Barcelona Day of Social Currencies (Jornada sobre monedes socials, November 2018) and it has appeared as a best practice case within the publication of the European Association for Information on Local Development (AEIDL) on community-led actions.

As we are entering "the new age of Cities"⁶, Viladecans is gaining national and international praise as a best practice case for all of its core project components.

⁵ 11th IFoU, available on: https://2018reframingurbanresilience.org/

⁶ OECD - The New Age of Cities: Sustainable and inclusive urban growth, available on: https://www.oecd-forum.org/users/42319-jacquesvan-den-broek/posts/33617-the-new-age-of-cities-sustainable-and-inclusive-urban-growthf

3. Implementation Status



Project timeline

Being in the middle of its implementation phase (Jan 2018 - Sep 2019), the project is now in its most delicate moment.

A brief analysis of the status suggests that the project is almost on track on two of its main dimensions, namely the stakeholder engagement and the building retrofits, whereas its most innovative components (i.e. the Consortium, the Citizenship Forum, the Local Energy Operator and the energy currency) are delayed.

The stakeholder engagement plans, communication campaigns and capacity building initiatives have been fully launched.

The communication campaigns has been particularly eventful and successful, with events in streets, schools ("Casal Ambient Energia", in July 2018), and two different seasonal campaigns ("Vilawatt gelat" from June to Sept 2018 and "El calor de tu hogar está en tus manos" from October to December 2018 to introduce the Local Energy Operator); in parallel, 2 issues of the e-newsletter, monthly publications in the Viladecans bulletin and social networks have contributed to create a substaintial impact quantified in more than 37,500 subjects reached.

According to the Participatory Strategic Plan (PSP), after having surveyed the communities to identify barriers and triggers to renovation consensus, the Ajuntament had focused on the development of 4 learning and engagement spaces (the "ESPAI Vilawatt"), one for each main stakeholder (professionals, schools, citizens and trades). From September onwards, each ESPAI has

been offering either structured learning programs in monthly sessions for citizens and professionals, a 50/50 communities competitive game for schools and energy audits for shops. The spaces have been fairly successful, involving 17 local companies, 10 schools, 70 negihbourhoods, 8 residential blocks and 60 local trades. In parallel, the capacity building plan is also being deployed, with 12 participants attending the training modules required for the professional certificate (running from September 2018 to July 2019) and 13 people following the 100 hour introduction and training on energy savings "9 sessions plenes de bona energia" for the citizenship.



Adverts for the "ESPAI Vilawatt" for citizens and professionals

The building retrofits design phase, which included the RENOLABS (labs where citizens could interact with engineering experts and participate in the retrofit design phase), took 2 months longer than expected, partly because of the high level of techno-economic optimization sought (pre-1975 buildings to be retrofitted into class A dwellings with a budget of ~320 EUR/ sqm and targets of 70% energy savings and 50% renewable energy sourcing) and partly because of the uncertainty related to the energy

governance element of the project (i.e. the PPCP and LEO). Design was finalised by July 2018 for the 3 demo buildings and the related tender, divided in 3 lots, was published until Sept 21st in the platform of the Regional Government of Catalonia. By the time it ended, in November, 2 different project companies had applied and the relevant work costruction permits had been granted by the Ajuntament. Works are to start by January 2019 and are expected to last 5 months, until May 2019. The process has been positively received by the citizenship, exception made for the occasional disservice in the public lighting in the areas subject to the works. The retrofit include external insulation of buildings' facade and rooftop, installation of LED lights and efficient refrigerators, new PVC windows and solar protection systems, mechanical ventilation systems with heat recovery and high efficiency electric hot water heaters.



The buildings selected for retrofit

For the Consortium, roadmap, relationships and procedures have been fully established, through participated discussions among all local agents, including but not limited to the Consotium participants (i.e. the Ajuntament, the Metropolitan Area of Barcelona and the Citizens Association). The legal and administrative setup has proved more challenging (as further discussed in chapter 3), and whilst the Ajuntament expect to finalise within November 2018 the approval process for the Consortium to operate as a public economic activity, this will only become operational by February 2019 (instead as planned in April 2018).

The PPCP has also been further developed, in a participated fashion and as per Participatory Plan, but on ryhtms that are slower than those of the Consortium setup; nevertheless, its final organizational structure has been established and reorganized in three areas (energy supply, energy culture and assistance) to better reflect the project lines of action and investment.

Despite the above mentioned delays, successful reach of other project milestones (i.e. start of construction works, setup of LEO office space and marketing plan) required working in parallel on the Local Energy Operator (LEO) concept and functioning. Therefore, the project partnership has been working on the model for the capitalization of savings and the contracting of works (due to be finalised in January 2019), on studies of the aspects (legal, financial and administrative) related to the LEO implementation within the PPCP structure (which have been completed), on studies of the tendering and contracting model (which is to be completed by Q1 2019) and on the drafting of a Service Charter (expected by February 2019). This definition process has been much more complex than expected and required a series of adaptations from the initial plans (further discussed in Chapters 3-4); as a consequence, the LEO is expected to start operations by March 2019 intstead in November 2018 as originally planned.



Local Energy Operator advert

Finally, also the virtual currency launch and deployment is delayed. Again, setting up the related legal and technical architecture, expected by November 2018, has taken longer than expected, mainly due to the long timeframes required to establish an agreement with the Electronic Money Entity and to legal issues in establishing conversion conditions. Formal launch of the currency is therefore due in March 2019, as opposed to the originally planned October 2018, which will reduce the time between the Vilawatt introduction and its upgrade into a blockchain-based currency (due in Q3 2019). The currency will be also launched in a simplified format, that is without the conversion conditions initially foreseen (e.g. no retention periods or progressive currency devaluations) to ease the legal complexity.

Summarising, Vilawatt has been fairly successful in reaching its communication, engagement and participatory design targets, and is on track to reach its retrofit objectives. The energy governance and currency components have been developed as much as possible in parallel but, due to resource constraints, often prioritizing according to interdependence (i.e. the Consortium and the PPCP over the LEO concept and the virtual currency). This choice, together with difficulties in defining the detailed legal and administrative aspects of the structures led to all of them being delayed by four to ten months. As complexities are now heading towards a solution, the next 6 months will be decisive in establishing the overall success of the operation.

Current status:

- Communication, training and stakeholder engagement structures on track
- Participated retrofit design completed, implementation almost on track
- Consortium and PPCP finalization much slower than expected (~6-10 months)
- LEO and virtual currency delayed (~6 months).

Next steps:

- Consortium, PPCP and LEO finalisation (Q1 2019)
- virtual currency launch (July 2018)

4. Lessons Learnt

As we enter a make-or-break phase of the project, Viladecans has already succeeded in setting up a series of deep renovations on a budget, involving in the process the owners, through a participated design mechanism, and the wider citizenship, through stakeholder engagement initiatives.

Most importantly, Viladecans has also succeeded in setting up an ecosystem of consensus and awareness generation with which is, in turn, building the professional capacity and user behavioural attitude needed for the project to be performant and replicable.

The first lesson learnt is, therefore, that investing early on, with a clear and comprehensive planning structure, in engagement and communication enables a truly participated urban regeneration process and, whilst reducing resistance to change, transforms the project in an opportunity of empowerment for the community.

The journals also repeatedly highlighted the complexity of Vilawatt as a project. In this respect, the main lesson learnt has been that the practical administrative and legal aspects of capitalizing energy savings, setting up a municipal utility and monetizing through a virtual currency need to be factored in already during the project planning phase. Innovative urban initiatives such as Vilawatt should conduct legal and administrative feasibility studies before launching the project, to establish which procedures and contractual forms would serve each project component.

This should be done in parallel with and as thoroughly as the engagement and communication planning; ideally, it also should include a simulation of such procedures to understand timeframes, risks and implications for the stakeholders. Such an endeavor might entail either a specific preliminary investment in legal/administrative consulting capacity or the involvement of apposite specialists within the project partnership.

Finally, by looking at the implementation status of each project component, some further specific learning points emerge.

Firstly, budgeting for the retrofits should also include a contingency for the correction of preexisting issues within the buildings (such as humidity, mould or minor structural issues) and the project management plan should account for and mitigate disruption in the public services due to the retrofit works (in Viladecans, occasional malfunctioning of public lighting in the project areas has triggered an article of complaint).

Secondly, capacity building initiatives for professionals should reduce the in-presence sessions to the practical modules and utilize online solutions (e.g. MOOCs) to match the time availability of the attendees in order to maximize the number of participants (in Viladecans, some interested professionals couldn't participate due to the time commitment required).

The most important project-specific lessons, however, concerns the administrative and contractual aspects.

Firstly, as setting up a Consortium as a local economic initiative (iniciativa economica local) requires at least two public entities. Project promoters will need to factor in the time required for these to achieve the approval of their constituencies: this means that –once finalized– all studies and constitution documents will have to undergo two plenaries, one for each public entity involved. This is a complex bureaucratic process which requires months (even in the best case scenario) and a stable political consensus within the public entities themselves.

Secondly, whilst the Consortium is not yet established as a legal entity, a solution to enable the green energy supply by the Local Energy Operator is needed. However, the initial proposal of incorporating such supply within the periodic tender for the supply of the public energy services (i.e. public lighting and gas) has proven impossible, as it would create a conflict of interest (i.e. a public service managing the energy supply of private households) and lie outside the statute of any partnership subject. The temporary solution found has been to form a purchase group, led by a private subject within the project partnership and facilitated by the municipality, sign a supply agreement between such group and the selected energy provider and, once established the PPCP as a legal entity, to open a specific energy supply tender and migrate the users from the agreement to the resulting contract. Even if viable, this solution would benefit from further studies, for example around the interface between the purchase group agreement and the PPCP tendered energy supply contract.

Thirdly, unlike initially foreseen, the energy saving capitalization model (i.e. the business model) will not utilize the ESCO, as this is not compatible with the intended re-injection of the energy savings within the local economy and requires a parametrization of the energy consumption behavior of the building that is more difficult to obtain in residential dwellings. Instead, energy savings (coming primarily from energy contracts

optimization and also -partially- from reduction in user demand) will go for one third to the consumers (in the form of virtual currency) and for two thirds to the Consortium. In turn, the Consortium will convert half of the received sums into Vilawatt to be re-injected in the local economy, and will re-invest the other half across the PPCP lines of action (building rehabilitation, creation of an energy culture, professional training and countering of energy poverty). Projects considering such a solution will still need to carefully devise a model predicting the energy savings (and their level of volatility): such model will have to incorporate the climate conditions as well as the savings contabilisation methodology used by the energy supply company.

One last important point, which has been already stressed in previous reports, is the importance for project like Vilawatt of having a robust evaluation and risk management system. In this respect, the municipality has just finalized an indicators-based system to monitor and measure project performance, is treating its existing risk management tool as a living document (i.e. periodically updating it) and defining a participative Change Management Plan to support the to-be-introduced Local Energy Operator.

Indicators are appropriately balanced across the three dimensions of the project (social&governance, economics and energy) and are partly qualitative (e.g. transparency, governance and gender) and partly quantitative (e.g. number of households in energy poverty engaged in retrofits, % of local shops accepting currency, energy consumption). Furthermore, energy indicators are divided into energy transition (measuring the performance of the PPCP), energy management (measuring the effectiveness of the retrofits and of the LEO) and energy management indicators (measuring users behavior and indoor comfort) which allows to assess all energy actors and direct any corrective action to the appropriate root-cause. Wherever possible, indicators should be consolidated and benchmarked against best practice standards.

For municipalities embarking in an innovative urban project, having monitoring and risk tools in place by the time the project reaches the stage in which Vilawatt is now is abosultely crucial. In Vilawatt, this has strenghtened the partnership ability to anticipate and counter some of the challenges that materialized, such as the risk of a low engagement, and to mitigate some others, such as the issues in the development of the governance and currency components.

On the other side, sometimes mitigating risks by involving technical experts is not enough to save a project from delays or from the lack of regulatory frameworks (e.g. in the case of households expenses incurred because of the retrofits, such as patrimonial taxes, which cannot be offset but with incentive schemes). This further highlights the importance of running a scenario analysis on the legal and administrative aspects at project planning phase.

Finally, the municipality has decided to constitute a One-Stop Administration platform, intended as a project control-room physically located in the same office set up for the Local Energy Operator and equipped with a purpose-built information system aggregating data, studies and documentation from all project components. This move is very significant of the natural evolution of urban innovative projects: as their complexity unfolds, the need for integrated and data-driven management systems to coordinate, monitor and inform decision-making emerge.

5. Challenges and Focus Aspects

During this reporting period, Vilawatt faced its first true challenges, many of which related, as foreseen in previous journals, with the coordination of operational, administrative and legal/contractual aspects.

In tackling them with only some delays, Vilawatt showed great flexibility, resilience and project management capability.

The Ajuntament was able to adapt or create from scratch some project aspects (e.g the Stakeholder Engagement Plan, the e-Newsletter split into two-local and international- communication streams, the ESPAI Vilawatt and the currency launch) and to even re-design ex novo some core components (e.g. the energy savings capitalisaiton model, and the aggregated green energy supply solution). In the meantime, Vilawatt also succeeded in managing the longer timeframes characterising the participative process by coordinating-whenever possibleseveral workstreams in parallel (e.g. as it did with the retrofit tendering and works authorisation), hence maximizing the value added by the inclusive planning.

However, this didn't save Vilawatt from delays, which remain the main challenge at this stage. In particular, as delays have sensibly restricted the time margin between the end of one project phase (e.g. retrofits implmentation) and the beginning of the other (e.g. energy savings capitalization and currency launch), the Ajuntament might want to increase its coordination resources and speed up the implementation of its One-Stop Administration to counter the risk of further issues bringing the project beyond its critical timeline. At the same time, and in anticipation of any such eventuality, the Ajuntament should intensify the engagement activities on those core components that have a more direct economic impact on the citizenship and that are currently less well understood, such as the Local Energy Operator and the virtual currency. This will help smoothen the project downstream, and it is going to be even more beneficial as open surveys are reporting lack of confidence in the capacity of the project to generate energy savings/to benefit the local economy as one of the main barriers to change.

Finally, given that delays in the currency launch are restricting the timeframe of the virtual currency introduction phase, it might be worth considering the deferral of its transposition into blockchain until a full currency launch, circulation and absorption within the local economic fabric have been achieved.

Given the above considerations, the challenges framework that was introduced in the beginning of the journals could be adapted as follows:

Leadership for implementation	The vertical leadership (i.e. specliasied project partners) has proved efficient in delivering content and flexible in coping with bottlenecks. The Ajuntament (i.e. VIGEM) has exercised horizontal leadership effectively in absence of a defined participated governance structure (PPCP) and still managed to ensure participative planning and decision making processes. Further coordination resources might be needed going forward.
Smart Public Procurement	Procurement and underpinning specialised studies are on track.
Organisational arrangements within urban authorities to deliver integrated innovative projects (cross-department working)	The Ajuntament Project Management Office (PMO), headed by VIGEM, has proved crucial in managing the complexity of this project. Its synergy creation potential has shown in the capacity to bring in metropolitan area partners (i.e. Metropolitan Authority of Barcelona) and in the effectiveness of its citizenship engagement initiatives (e.g. RENOLABS, ESPAI VILAWATT). Going forward, it might be beneficial to strengthen the legal and financial innovation capacity of the PMO by introducing specialized experts able to follow-up/advise upon implemenetation of some project components.
Participative approach for co- implementation (incl. private partners)	The stakeholder engagement initiatives have been, so far, a success in terms of both coordination and impact (i.e. citizens attending RENOLABS, the ESPAI Vilawatt, the training courses and showing interest of the retrofits). Poject private partners (e.g. CICLICA) have been structural in delivering this. Nevertheless, stakeholder understanding of and confidence in the Local Energy Operator and the virtual currency coud improve. Going forward, engagement/training initiatives on not-fully-understood project aspects should be strengthened. The creation of a One-Stop-Administration will facilitate citizens relationship with and uptake of these project aspects, as well as overall coordination.
Monitoring & evaluation (measurement)	Vilawatt has succeeded in delivering a robust (qualitative and quantitative) indicators-based monitoring and evaluation methodology as well as a risk management plan. In particular, some of the risks envisioned effectively materialized and were successfully managed (albeit with delays) by utilizing the planned mitigation measures. Wherever possible, indicators should be consolidated and benchmarked against best practice standards. An upgrade of the risk management approach could envision a scenario analysis of the legal and administrative aspects arelady at project planning stage.
Communicating with target beneficiaries	The communication campaign has been well coordinated and it has proved successful, creating a substantial impact quantified in more than 37,500 subjects. The Ajuntament managed to generate an overall positive consensus around the project. Going forward, communication on not-fully-understood project aspects should be strengthened.
Upscaling (incl. resizing/re-planning interventions)	The Ajuntament has been effective in adapting and creating ex novo some project aspects. Given the delays and the restricted margin of maneuver between subsequent project phases, upscaling (especially the virtual currency) should be carefully reconsidered in terms of timeline and targets. Current focus should be on full delivery of the project.

Challenges:

- coordination despite delays
- maintenance of consensus during implementation

Solutions:

- increase in coordination resources and speed-up of One-Stop Administration
- intensify engagement activities on delayed and not-fully-understood components
- simplify plans for currency introduction and upscale

Focus Aspects:

• maintain project within its critical timeline

6. Conclusions

This journal has presented a recollection of Vilawatt progress and lessons learnt since March 2018, as well as upcoming challenges and focus aspects. Now in the middle of its implementation phase, Vilawatt has almost reached some core milestones, has finalised an indicatorsbased performance management system and is managing to implement its most innovative components, albeit with some delays. In coping with challenges, the Ajuntament has showed great flexibility and managed to maintain an overall positive consensus, also thanks to the quality of its project planning. In the meantime, the need for an information system to better coordinate across project components emerged, a sign of the natural evolution of projects of this complexity.

As Vilawatt complete its implementation, it might need to add project management capacity, increase its stakeholder engagement efforts and slightly defer some components' upscale to ensure a full and smooth achievement of the remaining milestones. Summarising, the focus will have to shift from planning to delivery. The next Journal will evaluate the full implementation process in the light of the first results, and will present a first feedback on the effectiveness of its monitoring and evaluation system. In the meantime, a second Zoom-in will be published, focusing on the Consortium, the Public Private Citizenship Partnership (PPCP) and the Local Energy Operator (LEO).

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.



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