

Innovation and sustainable cities:

how can we respond in concrete terms to the needs of metropolises?

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The Smart Metropolis Hub



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Innovation and sustainable cities: how can we respond in concrete terms to the needs of metropolises?

The provision of support for urban evolution and the anticipation of the needs of the cities of the 21st Century are at the heart of ADVANCITY'S missions. It is the only competitiveness cluster in France dedicated to cities and sustainable mobility, and one of the rare examples of such in Europe. Over its ten years of existence, ADVANCITY has accredited over 400 projects which bear witness both to our members' capacity for innovation and to our potential in view of the establishment of consortia for the development of commercially oriented projects. The partnerships solidly engaged with local authorities and spatial development establishments over the course of 2014, in France and abroad, make it possible to envisage the roll-out of pilot projects or experiments in various areas.

Within this context, ADVANCITY has taken the initiative, in partnership with the MEDDE (Ministry for the Ecology, Sustainable Development and Energy) and the Caisse des Dépôts group in developing a vademecum "Innovation and sustainable cities : milestones for action". This first work, accomplished in 2014 by the CMI / SEBAN & ASSOCIES and IFSTAR consortium, was designed to be a toolbox for use in support of the implementation of pilot projects and experimental and urban innovation approaches for sustainable cities. It makes **operational recommendations** emanating from the observation of best practice in France and in Europe. It is part and parcel of a long-term approach, characterised by a collaborative method making it possible to involve many public organisations, pioneer cities, urban enterprise and businesses, experts and will be completed by urbanwiki[®], the "urban innovation" wiki.

Urban innovation is at the heart of all the challenges facing the sustainable cities of the future

Urban centres generate the bulk of greenhouse gases and are destined both to grow rapidly and to be where two thirds of the world's population will be concentrated by 2050. In France, the urban population already represents 80% of the population, 75% of the final energy consumed and two thirds of the greenhouse gas emissions. **Consequently, innovation in cities acts directly on one of the major components of climate change.**

So, urban innovation is at the heart of many challenges for the cities of tomorrow: protection of the environment and of biodiversity, preservation of resources, control of greenhouse gas emissions, well-being of inhabitants etc. **This involves every domain:** construction, energy, transports, water and waste management, air quality, technologies and digital services, but also economic models, and the behaviour of individuals.

The establishment of **pilot projects in urban milieus** will make it possible **to validate practices, services, technologies and new urban objects, for the purpose of attaining the objectives** set at both European and national levels in terms of sustainable cities.

The Amsterdam case: a smart city to reduce greenhouse gas emissions by 40% between now and 2025.

The Amsterdam Smart City programme, launched in 2009 via a public-private partnership, leading to the financing of **16 pilot projects** (smart grids, open data, sustainable habitat and city districts, third places, etc.) which have made it possible, within a period of two years, to reduce emissions by **171 kilotonnes of CO₂, equivalent to 7% of the city's declared ambition: reducing CO₂ emissions by 40% by 2025, compared with 1990.**



Urban innovation: definition and associated methodological issues

Urban innovation is innovation whose purpose is to provide a significant improvement in the functioning of cities and their impact on the environment and society.

This can mean new technologies, new services, new approaches making it possible to effect a convergence between different sectors (transport, energy, construction, water and waste management, etc.), new practices or policies or new economic models¹.

Different examples of urban innovation, at different scales and on different themes

> **Optimod' Lyon:** An intelligent transport systems demonstrator aiming at centralising all the mobility data for the purpose of producing, in an integrated way, information for users, in real time, about all modes of transport. Two game-changing innovations are currently undergoing experimentation: the multi-modal navigator on mobile phones, and 1-hour urban traffic forecasting.

> **Climate street:** one of the most emblematic pilot projects of the Amsterdam Smart City programme. It aims to make the Utrechtstraat, a shopping drag, a "sustainable and exemplary street" by mobilising the most innovative technologies (district power management, waste management, intelligent public lighting) including new forms of governance and practices, actively involving some forty shopkeepers.

> **Loos-en-Gohelle:** a former mining town reconverted into a "sustainable development flagship town", Loos-en-Gohelle is experimenting, notably with new citizen participation and city-inhabitant collaboration schemes (e.g. the "fifty-fifty" programme). Research work was performed on the Well-being Participatory Indicator.

The goal of the vademecum "*Innovation and sustainable cities: milestones for action*" is to help professionals to **implement these innovations concretely in the urban space**, by responding to **seven key methodological issues** (see below). It also features several ways to take action to help cities to become "urban innovation territories"².

The 7 key methodological issues

- 1 **Establishing a partnership-style governance and a strategic heading partagé**
- 2 **Developing an organisation, skills and a culture of urban innovation**
- 3 **Involving the user-citizens in pilot projects**
- 4 **Innovating in economic models to achieve sustainable cities at an acceptable cost**
- 5 **Financing urban innovation approaches**
- 6 **Choosing the right IP, legal and management framework for good project management**
- 7 **Evaluating and generalising the urban innovation approaches and processes**

The Vademecum in short

It consists of three main parts:

Part I: Co-construction of a context favourable to urban innovation (methodological issues N°1, 2 & 3).

Part II: Set-up pilot projects (methodological issues N° 4, 5 & 6).

Part III: Evaluate, communicate, generalise (methodological issues N°7).

1. We are adopting the scope retained by the *Innovative projects for sustainable cities, (Projets innovants pour des villes durables)* CGDD, 2012.

2. The notion of "urban innovation territories" harks back to the determination to create, in a city, conditions that are favourable to the development of urban innovations, through the establishment of "models of governance and organisation that facilitate urban experimentation and innovation" (definition suggested by the ADVANCITY cluster).

Co-construction of a context favourable to urban innovation

If we want to introduce an urban innovation dynamic sustainably in an area, it is necessary to establish a **framework that is fertile with regard to the development of pilot projects**. That requires three basic steps.

1) Defining a strategic heading grounded in a vision for the area

Before committing to an urban innovation process, it is capital to **define the strategic horizon and the objectives we are seeking to attain**. Pilot projects and the “smart cities” approach should be neither ends in themselves, nor simple “showcases”, but rather **means serving the purpose of a genuine territorial project**, whether it be a project oriented towards sustainable development and environmental performance (like in Amsterdam), an economic regeneration and job creation project (in Nice, the intelligent and connected metropolis plan aims to create 20,000 jobs in twenty years), improving inhabitants’ quality of life, or making savings. **Territorial diagnoses** are a necessary preliminary for any identification of **the priority needs and issues for a given space**.

Beyond this, **the definition of a course within the context of urban innovation can be the subject of a very clear targeting of priority areas of innovation, and even dedicated geographical zones for experimentation, such as Amsterdam**. This is why political leadership for such strategies is a decisive element in success.

Moreover, it can be interesting to try to **quantify the expected benefits of innovation for the various parties involved** (local authorities, government agencies and businesses, citizens etc.) by adopting target values for the purpose of more strongly mobilising the local stakeholders and, at the end of the day, being in a position to evaluate the success or failure of the strategy. These objectives must be **realistic and pragmatic**.

Finally, for enhanced efficiency, strategic objectives should be properly taken into account at the level of the **local authority’s various public policies**, for example, in a vote for a budget dedicated to the desired initiatives (multi-annual investment plan, etc.) or through the establishment of specific arrangements (steering committees, monitoring procedures, etc.) as illustrated by the Vienna example.

2) Establishing a collaborative inter-departmental and involved third party governance

Furthermore, the implementation of urban innovations requires a deeper **collaboration between public and private stakeholders, and user citizens**, along with a **greater integration of the different urban “occupations”** (water, waste, transport, construction, etc.). Consequently, it is strongly recommended that new, **open and collaborative forms of governance and organisation** should be established.

> **At the scale of the local authority itself, this is essentially a case of building the capacity to have various technical directorates talk to each other. This often becomes possible via the setting-up of a transverse steering authority with the role of developing the urban innovation strategy, deciding on investments, selecting and providing oversight for projects, assessing and reorienting the strategy as and when necessary. It is often necessary to have this authority led by a sponsor, in many cases the mayor or the chairman of the metropolitan council who embodies electoral and political legitimacy and vision.**

Vienna (Austria), a strategic “Smart City” framework applying to sectorial policies

The “Smart City Vienna 2050” strategy has given rise to the drafting of a roadmap integrating the objectives quantified in the 2020 horizon timeframe and an operational action plan for 2012-2015. The principle was to create a “constraining” strategic framework applying to all public policy. To that end, Vienna established a *Smart City Operational Group*, equivalent to an operational monitoring group. It is transversal to the different public policies and ensures that the objectives of the Smart City strategy are taken into account in the strategies and the initiatives of the municipal administrations and businesses.

> **At the scale of the territory, this is a case of learning how to cooperate with external partners** (businesses, users and citizens) by involving them at the right moment, in the right subjects and in the right formats. **Three main key moments can be identified.**

1>

The diagnosis followed by the identification of the territory’s priority issues: it is very important to associate citizens, as the future users of the city and its innovative services, both to broaden one’s understanding of needs, and to have new avenues for innovation emerge. This may be done within the context of **occasional forward-looking workshops** (e.g. the “Nantes 2030 – my future city” process) which brought together over 20,000 citizens between 2010 and 2012) or sustained such workshops (e.g. neighbourhood committees in Amsterdam). Moreover, **instruments such as living labs, digital mock-ups, serious games or social networks** are also beginning to be used by some cities.

2>

The co-construction and the monitoring of public policy on the subject of urban innovation: the association and involvement of all the interested parties (businesses, citizens, academics and experts, public development agencies, other local authorities) is also a way to ensure success, even if it is more complicated to implement. It does, however, allow a genuine contribution of competencies and facilitates mobilisation and joint financing from private sources. It **can take the form of occasional collaborative workshops, and equally that of a more sustained consultative role** devolved upon external experts, urban businesses and citizens, within the context of consultative committees or experts’ committees. While it is possible to invite businesses into the urban innovation strategy governance bodies (e.g. Centrex in Nice), certain cities go even further in establishing governance structures which **are partenarial from the outset**. Thus the Smart City Amsterdam programme is **entirely steered and co-financed by a public-private partnership** made up of the municipality, the development agency and the major urban services-providing businesses.

3>

Designing, setting-up and completing pilot projects.

• **In the design phase**, it is important to create a context that is propitious for open innovation and co-design. This notably involves the mobilisation of businesses and research laboratories around the design of new urban solutions in phase with the local authority’s needs and objectives (e.g. the “Open innovation club” day in Montpellier). **“Mixed laboratories”** and **“co-design spaces”** involving businesses and local authorities’ technical departments are also beginning to develop (e.g. the future “Smart lab” in Nice; the “Bit for the habitat” foundation in Barcelona).

• **In the completion phase**, projects are very often steered by *ad hoc* public-private consortia, but **new legal frameworks are possible** (innovation partnerships, SEMOPs, etc.), cf. part II – “Setting up pilot projects”.

3) Constructing new forms of organisation and management of innovation in local authorities

In terms of organisation, first of all, it is useful to reflect upon the best possible configuration for implementing the urban renovation strategy. There are at least four possible models:

Appoint an **“operational adviser”** whose mission it will be to coordinate the operational implementation of the strategy and to organise and stimulate the dialogue between the technical directorates on this subject (Lyon model).

– Create a **substantial smart city directorate** within the local authority, merging several former departments (at least town planning, energy, ICT), (the Barcelona model).

– **Enlist the support of an external operator (an urban innovation agency, for example)** responsible for managing and implementing the urban innovation policy (Vienna model, with the Tinna Vienna agency).

– Establish a **“cluster”** or an urban innovation platform (with a dedicated technical team, often partially sourced via secondment from network members, to implement the urban innovation strategy and provide support to the project sponsors or leaders (Amsterdam model).

New jobs and service offers can also be developed with regard to urban innovation, such as, for example, an internal innovation laboratory within the local authority for the purpose of jointly designing new solutions with the end-users, **a data management function, a unit or an operator supporting urban experimentation**.

These developments also require the **integration of new skills** (managers with experience in both public and private sectors, specialists in innovation, data and user relations, community managers, sociologists, designers, etc.) **The training of officers** is also particularly important, as is the **establishment of partnerships with stakeholders in research or specialised service providers**.

Moreover, this makes it essential to **innovate in human resource and organisational management**, in order to encourage the colleagues who engage in urban innovation approaches and processes. **Internal communication around the possibilities available via the law governing public bidding procedures also play a major role in reassuring** legal and procurement departments, thus promoting more innovative behaviour. It is a matter of establishing a genuine urban innovation culture, based in part on **the right to experiment and the right to make mistakes**.

Setting up pilot projects

The technical, legal, economic and financial set-up of urban demonstrator projects is strongly **dependent on the “stance” that the contracting authority adopts in view of these projects and of its private partners:** is it simply making its public space available to allow businesses to test their innovative products and services? Has it taken the initiative in the project, with a robust control over the content of the project? Has it adopted a co-development stance, within a joint initiative framework with a private partner in which each is engaging on the same terms?

For the purpose of analysis, we have identified **three principal possible stances**, which **weigh heavily on the set-up of projects** and which **give rise to specific methodological issues** on the legal, organisational, economic and financial fronts. These various stances are **not mutually incompatible**, and may **usefully be combined**.

The three possible stances for the contracting authority with regard to projects

- | | | |
|----------|---|--|
| 1 | Facilitating contracting authority | <i>“I make a space available for the testing of innovations”</i> |
| 2 | Organising contracting authority | <i>“I organise the implementations of urban innovations”</i> |
| 3 | Partner contracting authority | <i>“I co-develop urban innovations”</i> |

1 Stance 1:

“I make a space available for the testing of innovations”

This is a “facilitator’s” stance. The local authority is not “an involved party” in the urban innovation project and has not defined a precise need, but it commits to making its public space available to permit businesses to test (during a limited period of time) their innovative services and products.

The first objective of these approaches is often **economic development and the creation of activities and jobs in the area:** it is first of all a service provided to businesses to help them test, validate and, in the long term, market their innovations. Urban experimentation support processes are also a good way for the local authority to **monitor urban innovations that it might wish to deploy later at a broader scale across its territory.**

The establishment of a structured experimentation support process involves several steps:

The establishment of a structured experimentation support process plusieurs étapes :

– **Setting up an experimentation support unit**

This unit’s objective will be to support those stakeholders benefiting from access to public space for the purpose of testing their innovations as effectively as possible.

– **Establishing an experimentation project detection, selection and support process.** This is a matter of organising a process operationally so as to have projects emerge (with a system of calls for projects, for example, or by networking, linking territorial authorities with needs to businesses with solutions to test), selecting them using a criteria matrix, providing them with technical support, evaluating them and giving them visibility with appropriate communication.

– **Financing experimentation projects.** As a general rule, experimentation projects are self-financed by the project sponsors. **For example, not spending any public money on pilot projects is a robust principle for Barcelona.** That said, public stakeholders may wish to support certain projects deemed particularly strategic or certain types of project sponsors (e.g. competitiveness clusters, local SMEs) in association with the appropriate stakeholders (Regional Council, Bpifrance etc.). This can take several forms: dedicated financing within the context of a call for projects (e.g. Appel Aixpé in Ile-de-France), seed funding dedicated to experimentation, support for sponsors in applying for national or European funding (FEDER, Horizon 2020, support for innovative SMEs, etc.), etc.

– **Confer long-term viability on the projects, via the opening of new business opportunities** in a local economic development perspective. This is a case of providing support for businesses to help them market their innovation, thanks to broad communication around projects, to the completion of market research or testing with end users, or even raising awareness of the procurement department of the local authority in a future acquisitions perspective.

LEGAL FOCUS: the agreements making public space available

In order to facilitate the implementation of an experimental pilot project, local authorities may put an area used by the public or by a public service at the disposal of an initiator (e.g. roads and highways, public facilities or amenities). This type of access requires the signature of a public space occupation contract subject to payment of a fee (see article L. 2125-1 of the code général de la propriété des personnes publiques – the legal code of public corporate entity ownership)

Such contracts are subject to a flexible set of rules. In particular, the rules governing public procurement do not apply to these agreements unless the latter are linked to contracts that are themselves subject to the rules governing public procurement (award of contracts, delegation of public service, etc.)

Some elements of best practice...

> **Proceed with the signing of the contract giving access to the public space for a call for projects after having defined a theme.** This makes it possible to guarantee a certain level of transparency in the attribution of agreements and to select the projects that are suited to local public interest and to the public space occupied.

> **Make provision for a system to monitor the execution of the agreement:** this makes it possible to maintain the compatibility of the pilot project with the purpose of the public space occupied.

> **Limit the degree of technical requirements in the contractual documents in order to avoid requalification as an award of contract.**

> **Modulate the amount of fees in accordance with the profits/benefits expected from the demonstrator in terms of general interest.**

> **Supervise and assess the agreement, modify the clauses on the basis of feedback, if necessary agree an addendum during the performance of the contract.**

An example of an operational experimentation support unit

The **Cellule Expérimentation du Grand Lyon** has a part-time economist programme officer whose role consists in organising the availability of public space for the businesses wishing to test their innovations. The programme officer selects and supports projects, and also deals with the operational monitoring of the projects and builds partnerships with innovating businesses. To date, some forty projects have emerged, of which 4 or 5 have been completed.

2 Stance 2:

“I initiate the implementation of urban innovations”

This stance is particularly well adapted when the local authority has clearly identified its need for innovation and finds itself taking the initiative in an innovative project that it is commissioning (via a public procurement contract), to which it is giving impetus (via a consultation with operators, for example) or that it is implementing itself (the case of services managed by the authority).

The types of contract concerned are notably innovative building, amenity or infrastructure projects, such as the development of sustainable and eco-efficient neighbourhoods that require substantial investment and so cannot be the subject of a simple limited-term experiment or, again, the innovative management of urban services (water, energy, waste, mobility, etc.).

The recommendations may be expressed around five points:

- **Raise awareness and train the procurement service in innovative purchasing.** Public buyers, either through habit or apprehensiveness, exploit the possibilities offered by the laws governing public procurement inadequately with regard to the promotion of the emergence of innovative solutions. In order for the way things are done to evolve, it is important to take action upstream even from the awarding of contracts, by working hard on awareness-raising and training of purchasing departments: promotion of a “principle of innovation”, definition of priority procurement sectors, provision of support for agents, and follow-up on purchases made.
- **Adapt the drafting of the specifications and the procedures linked to calls for tender.** It is possible, in the law currently in force, to gear public procurement towards the promotion of urban innovation, by **optimising the use of several levers upstream from the award of contract, during the awarding, or in the execution phase.**

- **Upstream from the awarding of contracts:**

- ✓ Clearly define the performance objectives that you are seeking to attain;
- ✓ Acquire a sound knowledge of the market and of the most innovative solutions;
- ✓ Avoid dividing the contract into work packages or provide for broad and multi-job-line batches (electricity, sanitation, water etc.) in order to promote transverse optimisation.

- **At the moment of the drafting of the specifications:**

- ✓ Involve the right experts in the drafting of the specifications;
- ✓ Insert financial clauses that incentivise performance;
- ✓ Invite variations from the candidate businesses and authorise options;
- ✓ Elaborate selection criteria making it possible to favour innovative or virtuous offers. Warning: these criteria must be objectifiable.

- **At the moment of the dissemination of the specification and of the selection of the service provider:**

- ✓ Disseminate the specifications within clusters;
- ✓ Pursue negotiation with the candidates so as to orient offers towards innovative solutions.

- **During the contract execution phase:**

- ✓ Make provision in the contract for a regular activity report by the tendering party;
- ✓ Draft the call for tender in such a way as to require results rather than the means deployed.

In the case of disposals of land with transfer of property charges

In the context of a disposal of land with transfer of property charges and the consultation of operators, it is also possible to **innovate in the process and provide for a fairly long time (memorandum of understanding of 12 to 18 months) to refine the project with the teams retained upstream from the registering of the building permit.** This was the subject of an experiment by the Strasbourg metropolis in the construction of an energy-efficient “wood” residential block.

- **Promote innovation within the context of public service delegation,** by adapting the articles in contracts according to the local authority’s needs.

LEGAL FOCUS

With regard to public service delegation and partnership contracts, public corporate persons enjoy a very high degree of liberty in the organisation of the negotiation phase, subject to compliance with the fundamental principles of public procurement.

> **Make provision for articles specific to the ceding of public service anticipating the intervention of a third party demonstrator adding value to the contract.** This makes it possible to have concession contracts evolve to take new services into account (for example, for public transport, information in real time on the best options with regard to available choices of means of transport and itineraries). In the matter of currently executed concession contracts, these clauses may be inserted as riders on the condition that they do not upset the economics of the contract.

> **Fix the remuneration of the assignee on the basis of performance results and not on quantitative elements** (volume of energy, of water, etc.)

> **Organise a co-ordination between two or several competent local authorities, if the local authority that wishes to facilitate the implementation of a demonstrator is not that which enjoys exclusive competency in view of the management of the public service involved.**

> **Remove the constraints specific to networked public service activities** (for example, it is possible to obtain waivers to regulations in the implementation of certain experimental projects in the energy sector).

- **Implement an urban innovation within the context of a local authority managed service.** Finally, a person may develop their urban innovation project under local authority management (e.g. Optymo in Belfort). This choice is reasonable only in cases where the local authority is capable of conferring upon itself the necessary means, notably in terms of human and financial resources. In this regard, the mutualisation of the means allotted to the management of this innovative service within a Joint Association can be a good solution.
- **Optimise the implementation or procurement costs of pilot projects and build economic models that make them sustainable.** Several avenues for reflection are open: mutualising the implementation costs of pilot projects between several operators, profiting from the local authority’s investment in a pilot project through an improvement in the performance of public services or through a reduction in operating costs, developing participatory funding models, etc.

3 Stance 3:

“I co-develop urban innovations”

In this case, the local authority and its partners in the economic sector and academia have a **shared interest** in engaging in an urban innovation project and need to mutualise their respective resources and competencies in order to accomplish it. They are all **co-designers and co-initiators** of the project (each party contributes in a concerted way to defining the subject and the objectives of the project), **co-investors** (each party invests a share of its financial and human capital in the project), **co-engaged in the roll-out of the project** (each party plays a role in the project and engages according to an optimal distribution of skills and competencies).

Consequently, this type of project requires a departure from the usual approach to public procurement, which provides for a local authority purchasing a product or a service that has been subject to prior validation and is ready for marketing. This can involve, for example, the development of a new technology within the context of a collaborative research and development project, experimentation with new urban practices, and the development of applications to make cities more intelligent.

The recommendations may be expressed around four points:

- **Structure an ecosystem of innovative partners at the local level, by weaving networks with the specialised networks (clusters) and the intermediary stakeholders in innovation (incubators) to launch ideas competitions, identify opportunities for both occasional and long-term cooperation** (set-up of public-private research laboratories or co-design hubs) and **potential partners.**

– Ground endeavours in the right legal framework

LEGAL FOCUS: the possible frameworks for public-private collaboration in urban innovation

> **Recourse to Article 3.6° of the code of public procurement makes it possible to negotiate research and development service contracts** in view of which *the contracting authority does not acquire exclusive property rights to the results nor entirely finances the service provided*, and which are thus excluded from the scope of the code of public procurement. This is very practical in **collaborating flexibly within the context of an R&D project**, with private enterprise.

> The partnership for innovation is a new type of contract created for the purpose of promoting research and innovation through Article 31 of Directive 2014/24/UE. It targets the development of innovative products or services or works and their ulterior acquisition by the public corporate body if the levels of performance and cost agreed are fulfilled. The main advantage of the partnership is that **a further competitive tendering process does not precede the acquisition of the innovative solution**. The innovation partnership can be **agreed with several businesses or even a consortium**. The contracting authority has the possibility of structuring the contract in as many successive phases as prove necessary and of **fixing intermediary objectives** allowing for monitoring of the progress and performance of the projects implemented and deciding, where appropriate, on the basis of the intermediary results obtained at each step, to terminate or to prolong the contract.

> **The creation of an ad hoc structure makes it possible to formalise public-private cooperation over time: being co-shareholder, and even co-operator, of an innovation. By way of an illustration**, the partners in a smart grids innovative project must ask themselves the question of creating a common structure to run intelligent energy management at the scale of the territory concerned. According to the project's characteristics - material and/or financial involvement of the public corporate entity, the more or less commercial nature of the envisaged innovative activity, relationships with third parties - **the choice of a purely associative structure (civil society organisation, syndicate), commercial structure (semi-public company, SCIC, SEMOP) or again a cooperative (EIG, GIP) will appear more or less appropriate. SEMOPs, notably, are a new legal instrument** allowing local authorities or groups of such to create public companies with at least one private shareholder selected after a competitive procurement process. Use of this new instrument should be particularly adapted to the development of complex projects requiring the use of innovative technologies. Recourse to SEMOPs is already envisaged in order to perform energy management in territories within which *smart grid* models are undergoing testing.

- **Identify the appropriate modes of contractual and intellectual property management.** In all cases, public-private collaboration must be secured by definition upstream from the arrangement on data ownership, the conditions of their use by the different parties and the distribution of the revenue resulting from the future marketing of the co-developed innovations. **Win-win combinations may be imagined**, notably to allow the local authority to receive a return on investment (e.g. the Bordeaux tramway: royalties paid to the local authority when the innovative solution is deployed in other territories).
- **Identify the appropriate financial vehicles.** Many systems exist that allow for the financing of collaborative innovative projects. The right front office should be identified. In general, **French stakeholders could reinforce their capacity to access European funding**, to bring themselves up to the level of other countries such as for example the Netherlands. An effective insertion of local authority project managers into the **European thematic networks** and **research platforms** seems to be a means of ensuring success in meeting partners and influencing the themes of calls for projects.

Echelon	Front office "R&D projects"	Front office "Innovation projects and pilot projects"
European	Horizon 2020	Horizon 2020 FEDER
National	ANR FUI (clusters)	Future cities (PIA) CPER ("territories catalysing innovation" section) ADEME (PIA demonstrator fund)
Local	Regional funds	BpiFrance, Regional and metropolitan funds, etc.

Zoom on intelligent cities

The first series of recommendations bears of the establishment of **models of open and interoperable digital networks and infrastructures**, in order to avoid "a locking of networks entrusted to private assignees¹" and local authorities being locked into long-term ownership solutions.

The second series of recommendation concerns **the financing of smart cities**, through the savings made thanks to certain applications (mainly intelligent lighting and parking) or by having a share of infrastructure maintenance costs dealt with by private enterprise.

Finally, the last series of recommendations concerns the acceleration of the **making available of public and private data** through the development of interactive systems for the stakeholders who possess these data and of licences that promote the reuse of these data by everyone.

3. FNCCR, *Réseaux et territoires intelligents : Quelles contraintes et quel positionnement pour les collectivités ? (Intelligent territories and networks: the issues of constraints and positioning for local authorities)*

Evaluate, communicate, generalise

1) Evaluate

Evaluation makes it possible to **measure the performance and the externalities of a pilot project or of a territorial area urban innovation approach**. It takes place upstream from projects (when it is often referred to as a diagnosis) during projects to promote continuous improvement, and at the end of projects for the purpose of verifying that objectives have been attained and deciding on the pursuit or halting of pilot projects.

The "right questions to ask oneself" to evaluate an urban innovation project:

1>

La pertinence du projet : the match between the project's expected or measured impact and the territory's strategy and the major objectives targeted by the local stakeholders

2>

Project set-up: the quality of the human resources, governance, processes, modes of interaction between stakeholders and the legal and financial set-up of the project

3>

The economic model: the project's capacity to lead to new market opportunities for businesses; robustness and practicality of the economic model

4>

Replication: the capacity of a project to participate in the dissemination of the urban innovations that it develops via a system of knowledge capitalisation and a grounding in, or the establishment of, shared standards.

Is it preferable to choose an existing frame of reference or to develop one's own evaluation instrument?

The choice of frame of reference (existing or *ad hoc*) may be guided by the three following questions:

1>

What are the **scale and the subject of the evaluation**? Is the focus a global strategy covering the territory (Agenda 21), an urban project (EcoQuartier) or a technological demonstrator (TCSP, EURBANLAB benchmarks)?

2>

Does the urban area (or the territory at a broader scale) have a **frame of reference or a set of benchmarks**? The use, as a priority, of one of the reference systems available on one's territory is recommended.

3>

What **level of consolidation is acceptable for the frame of reference according to the means available and the objectives of the evaluation**?

✓ **Case 1:** consolidated benchmarks, for example those that are available in the form of a certification or of an accreditation (like the EcoQuartier accreditation). This type of approach often demands fewer resources, allows comparison between approaches and is more easily used with regard to communication and the calibration/benchmarking of the approach. Caution, however, is necessary: the consolidated benchmarks (EcoQuartier, Agenda 21, Reference framework for European sustainable cities, etc.) only partially deal with the issues linked to urban innovation.

✓ **Case 2:** the benchmarking systems currently under consolidation, such as Efficacy Insight for example (a frame of reference under development within Efficacy⁴), or again **EURBANLAB** or **ISO Ville Durable**. These benchmarks, explicitly centred on urban innovation, are often better adapted to the evaluation of pilot projects, but require the establishment of substantial human and financial resources as the evaluation methods and indicators are still undergoing adjustment.

✓ **Case 3:** construct one's own frame of reference. Many French metropolises have opted for this (Paris, Lille, Lyon, Strasbourg). It is an ambitious, long-term approach that requires strong leadership from all the parties involved. Whereas this type of approach presents the advantage of a perfect alignment between the issues faced by a territory and the data available, it makes the identification of externalities, the positioning of the project relative to other comparable projects, and the dissemination of results, more difficult.

4. Efficacy is an Institute for energy transition accredited by the State in 2013.

2) Communicate

The **capacity to generalise an innovation** begins with **the capitalisation and the dissemination of results**, for which provision must be made upstream from the design of the pilot project. **For example, in Amsterdam**, provision has been made for each experiment to be documented and written up in a **smart story capitalised on a shared platform open to all**.

Beyond communication around projects, it can be useful to establish **more structuring, large-scale communication tools**, such as a major event (trade fair, exhibition, business convention), **a showroom, a resource centre or a knowledge platform** making possible the sharing of feedback and the federation of **genuine urban innovation communities at the international level**.

3) Generalise and duplicate urban innovation approaches

The success of the duplication and generalisation of an innovation requires **method and a capacity to adapt to different urban contexts**.

The **devising of shared standards at the European level** is also a crucial question for the dissemination of urban innovations.

The **professionalization of the participation of cities in the appropriate networks** (regional, national, European or international, as the case may be) is strongly recommended, in order to have access to feedback and to identify innovative solutions that should and may be duplicated, **in order to promote the transposition of an innovation from one context to another, and to move the thinking on norms and standards forward**.

Perspectives: urbanwiki®, constituting a corpus of new knowledge, savoir-faire and savoir-être (“knowing-how-to-be”) that go beyond mere technical knowledge

These first endeavours have made it possible to bring together important elements of knowledge and experience on the manner in which stakeholders in charge of the spatial planning process tackle the integration of innovations in their projects.

The sharing of best practice and the analysis of hindrances, of whatever nature, are essential for the provision of support to public stakeholders (local authorities, development establishments, etc.) with a quintuple requirement:

- Helping them maintain or develop the competitiveness of their territory, in a economy which, even at smaller scales, is subject to the influence of globalisation;
- Supplying them with innovations, including methodological innovations, that will allow territories to remain creative and to adapt themselves to changing conditions, under the effects of climate change and the scarcity or rising prices of certain energy resources;
- Allowing them really to create convivial cities, meaning those cities that do not promote the phenomena of ghettos, of whatever nature, as it is important that all the districts in a sustainable city can benefit from the advantages of the metropolitan effect;
- Being vigilant to ensure that cities are consensual, through appropriate governance allowing all their inhabitants or users to participate in their design, in their transformation and in their functioning.

C'est ce dernier point qui amène ADVANCITY, avec le support du Commissariat général au développement durable du Ministère de l'écologie, du développement durable et de l'énergie, à poursuivre les travaux entrepris par la mise en place d'un wiki « innovations urbaines » : urbanwiki®.

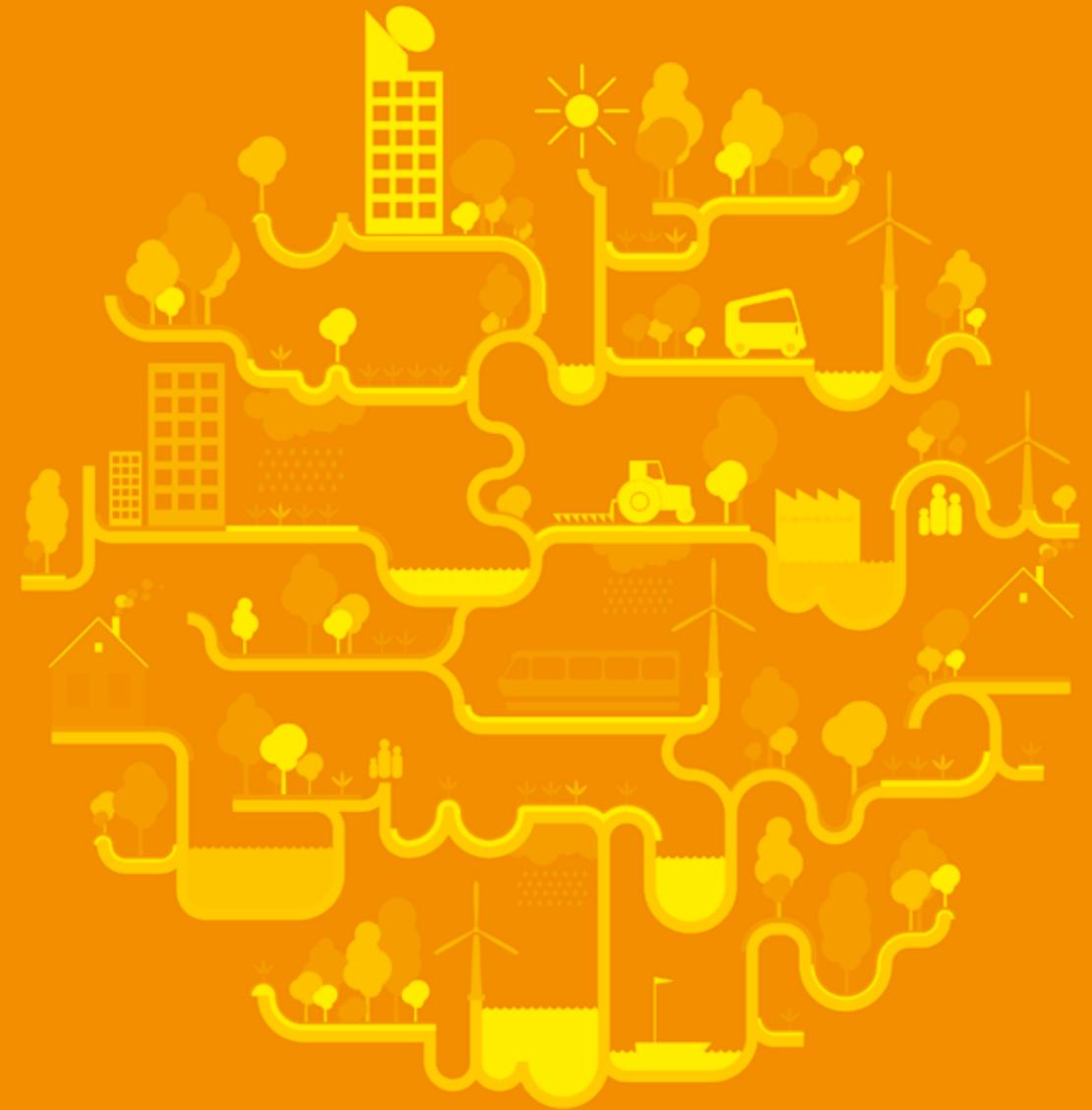
It is this last point that has led Advancity, with support from the Ministry of Ecology's general commissariat for sustainable development and energy, to pursue the work undertaken through the establishment of an "urban innovation" wiki: urbanwiki®.

The digital revolution is overturning current practice by allowing for the establishment of new modes of governance, partnerships, organisation and management, citizen involvement and economic models. It make it possible to invent new services that transform individual and collective living in cities every day, and produces new values of use and exchange, new social values that lead to new forms of the exercise of citizenship.

urbanwiki®, a digital contribution platform, by adding to the initial work of the vademecum, aims to enable the development of a corpus of shared knowledge concerning innovation in urban services, integrating the major economic, environmental and social issues.

It will provide support to cities' technical and political leadership in their search for new modes of governance and new forms of services to citizens for the purpose of administering cities that are more sober at the ecological level, more efficient and productive of new, more socially and economically sustainable and robust modes of living together; it will also be productive of knowledge on new forms of citizenship.

In the prolongation of the vademecum and also founded on a collaborative methodology, urbanwiki® will bring together public organisations, pioneer cities, businesses working in the urban sector, experts and citizens in order to create a values-based frame of reference giving meaning to joint initiative and encouraging the creation of consortia for the purpose of implementing innovation projects in the urban milieu.



Synoptic table presenting the advantages of the different contractual arrangements available to public corporate entities relative to urban innovation

This table features a comparison of the different contracts that may be entered into by a public body to serve as a legal framework for a pilot project, and provides an appreciation of the advantages each represent.

	Origin of the financing and financial risk sponsorship	Intensity of the monitoring performed by the public corporate body	Participation of the private entity in the innovation effort	Use and transformation of the fruits of the innovation project	Examples
Local authority management	Public entity finances the project and shoulders the financial risk alone	Maximal: monitoring corresponds to that which the public entity exercises over its own services.	None. When the public body decides to develop a demonstrator under in-house management, it must have all the resources available internally.	Public entity.	Optymo project in Belfort: deployment of an innovative mobility service managed by a mixed syndicate
Public contracts	Public entity finances the project and shoulders the financial risk. Moreover, it is important to remember that deferred payment is not authorised for this type of contract	Considerable: monitoring is linked to the stipulations in the specifications. It is generally considered that the public contract enables a high degree of monitoring by the contracting authority over the successful bidder. This is advantageous when the public body has a precise idea of the demonstrator it envisages creating.	Limited: the successful bidder must comply with the obligations stipulated in the specifications. Consequently, the choice of a public contract is justified when the public entity has a precise idea of the demonstrator it wishes to create and when it is in a position to translate that into a specification.	Public entity except in the case of a specific agreement between the contracting authority and its co-contractor.	Dutch Ministry of infrastructures and environment for the renovation of its buildings in the Hague: specification with result objectives compliant with the Cradle to Cradle regenerative design principle
Sale of land with sale of land taxes and consultation of operators	Private entity finances the project and shoulders the financial risk	Considerable: supervision is linked to the stipulations in the specifications within the context of consultation of operators. This is an advantage when the public entity has a precise idea of the demonstrator it envisages creating.	Considerable: the operator spearheads proposals and enjoys considerable freedom in the definition of the project it is offering to the local authority, even if it is broadly co-developed with the latter.	Private entity.	Urban community of Strasburg: development of a new process for collaborating with operators for the implementation of an energy-efficient "wooden" street block
Public service delegation agreement (concession, leasing or third party management)	Co-contracting private (or public) entity finances the project and shoulders the financial risk	Limited: the contracting authority has the power to monitor the proper operation of the service delegated	Considerable: the assignee enjoys considerable liberty regarding the way it performs the assignment entrusted to it. The candidates to a PSD contract may propose innovations to the public body, which may be appropriate in a situation in which the public entity does not have a precise idea regarding the manner in which it wishes the demonstrator to be developed.	Elements provided for in the contract.	City of Zaanstad: contract for energy management based on results obtained (20% reduction in consumption) and quality (renewable) of the energy supplied
Public-private partnership	Financing can be shared (at least over time) as can the financial risk	Limited: the extent of oversight exercised by the public entity depends on the stipulations in the contract but is, by definition, limited.	Considerable: the partner of the public entity enjoys considerable freedom in the way it performs and operates the project that is the reason for the partnership contract. Like the PSD contract, this set-up is adapted to a situation in which the public entity has no precise ideas as to the modalities of its demonstrator's development.	Elements provided for in the contract.	

Overview table of the different types of structures and their advantages/drawbacks relative to an urban innovation approach

		Advantages in the context of an urban innovation approach	Drawbacks in the context of an urban innovation approach
Les structures associatives	Associations loi 1901 – non-profit organisations	<ul style="list-style-type: none"> Structure allowing collaboration between private and public entities; Considerable freedom in the determination of the purpose of the organisation, the drafting of its bye-laws and the establishment of its governance; When it is declared, the organisation acquires legal personhood; The payment of a subsidy by a local authority is possible, if it corresponds to a local public concern. 	<ul style="list-style-type: none"> Avoid the financial risk of de facto management declaration as well as risk of illegal acquisition of interests; Ensure that the association is not qualified as transparent (subsidiary bodies' oversight of accounts); Ensure compliance with the rules governing public procurement.
	Associations syndicales libres (ASL) - freely organised syndicates	<ul style="list-style-type: none"> Structure making possible collaboration between private and public entities that may be members of the ASL if they are owners of an asset that comes within the scope of the syndicate; Considerable freedom as to the drafting of the articles of association; Strong and automatic involvement of the owners concerned by the scope of the ASL. 	<ul style="list-style-type: none"> Compliance with the provisions in Article 1 of the Decree dated 1 July 2004 and the constraints linked to the purpose of the ASL: an ASL may be created notably for operations linked to the exploitation of natural resources or to the development and the maintenance of networks; Only the owners concerned by the scope of the ASL can be admitted as members.
Les structures en groupement	Groupement d'intérêt économique (GIE) – economic interest grouping (EIG)	<ul style="list-style-type: none"> Its members are natural or legal persons; The EIG can be used to bring together the means to develop a research project. Constitution with or without capital; Considerable flexibility regarding operating rules; Dissolution by completion or extinction of its purpose. 	<ul style="list-style-type: none"> Its activity must be linked to the economic activity of its members and may only be ancillary thereto; The EIG's members are jointly and severally liable from their own assets for the grouping's debts; The participation of a legal person under public law is possible upon the double condition that it exercises an economic activity and that its bye-laws do not prohibit it from participating in a legal person whose members bear unlimited joint and several liability.
	Groupement d'intérêt public (GIP) – public interest grouping (GIP)	<ul style="list-style-type: none"> Legal person under public law with administrative and financial autonomy; This grouping makes it possible to associate private and public corporate entities for the purpose of exercising a non-profit activity in the general interest; Sharing of the resources necessary for the performance of the activities; The members of the grouping are not severally liable with regard to third parties; The GIP can receive subsidies. 	<ul style="list-style-type: none"> The GIP's constituent convention must be approved by the State; Legal persons under public law and legal persons under private law responsible for a public service mission must together hold more than half of the capital or votes in the deliberative bodies; Supervision by the public audit office or regional chambers of accounts.
Les structures commerciales	Société par actions simplifiée (SAS) – simplified joint stock company	<ul style="list-style-type: none"> Shareholders only bear losses up to the level of their contributions; Considerable freedom in the drafting of articles of association; No minimum share capital. 	<ul style="list-style-type: none"> Purely commercial purpose; Membership of public bodies as shareholders in limited cases; Certain legal persons under public law may not become shareholders in an SAS; Compliance with the rules of public procurement.
	Société d'économie mixte (SEM) – semi-public company	<ul style="list-style-type: none"> Mixed shareholding making possible the association of private and public entities; Operational flexibility (public company rules). 	<ul style="list-style-type: none"> Minimum share capital; The mix of share capital is defined: shareholding is constrained, the share held by public entities must be higher than 50% and lower than 85%; Can only be entrusted with assignments subject the rules governing public procurement; Compliance with the rules of public procurement.
	Société d'économie mixte à opération unique (SEMOP) – semi-public company with a single purpose	<ul style="list-style-type: none"> Mixed shareholding allowing the association of public and private entities; Legal status created to promote the joint development of projects; Operational flexibility (public company rules); The rules of public procurement are taken into account upstream, at the stage when the private shareholder is chosen. 	<ul style="list-style-type: none"> New mechanism, so many as yet unanswered questions (notably on the modalities of selection of the private shareholder); The mix of share capital is defined.