

SMART DATA IN ENERGY

Smart data is a relatively new and wide-ranging term; however, it relates to an idea that is, in itself, not new: the acquisition, processing, storage, management and provision of data.

The new dimensions it brings are both an emphasis on generating **value** from the data, and on the increase in its sources, volumes and flows, **in real-time** in a world that is connected and « Smart » (Smart cities, Smart homes, etc.).

In the energy sector, Smart Data is a **game changer**. The convergence between digital and the world of energy is driving tomorrow's solutions: smart energy networks, development of renewables, storage, matching production to demand, or vice versa, and so on; while at the same time demanding more local and area-based energy system architecture.

As we know, connected objects are deployed in energy networks and meters, as well as in housing and cars, buildings and factories, cities and broad geographical areas. Customers are using energy in increasingly connected systems, which will then generate more and more data.

These connected objects and their large quantities of data - more varied, more immediate, more accurate and more value generating than ever before - will lead to profound changes in the way this information is used and cause new players to appear, transforming value chains and bringing new challenges to existing business models.

The energy ecosystem is more open and intelligent, and able to improve and learn (through «smart homes,» «smart meters,» «smart grids», and so on); data is thus becoming a core issue for energy players. Exploiting data will allow energy players to create value, strengthen their legitimate areas of business activity, and defend and expand their positions in the sector.

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The crux of the Smart data challenge lies at the interface between the world of dynamic technology and its specific business applications, which allow value to be created.

The question is **how to transform the potential now offered by Smart data into operational tools.**

In companies, data is changing the rules of the game in terms of:

- / **The management of assets and operations** - by offering new sources of productivity;
- / **How innovation occurs** - by changing its character: more agile, more open, more collaborative, and more experimental;
- / **Working patterns** - increasing the need for cross-functional working and the dismantling of silos;

In this area, which many believe will revolutionize the market, the challenges are ever more multifaceted.

SMART DATA: AN IDEA THAT ENCOMPASSES ALL DATA TYPES

Internal data: a true goldmine!

This is data generated within the company, by its IS; it is known as « first-party » data. Depending on the company in question, it may relate to data about the amount of power generated, the cost of maintenance systems, operational efficiency, contractual matters, network quality, pricing, capacity, the environment, demand-side management (DSM), energy efficiency, customer bases and prospects, meter data, etc.

New resources are being put in place, such as the establishment of DMPs (Data management platforms), allowing web-navigation data to be reconciled, the tracking of activity on different media, data from RTB (Real time bidding), affiliation, call center and CRM data, and information from the catalogue of offers.

This data, anonymous, or linked to existing customers, is collected in the course of different marketing activities: advertising campaigns, emails, etc. This contextual data arises from the online behavior of internet users, their geolocation and the contexts

of the sites visited. It is then analyzed by algorithms and directly integrated into the platform.

In the domain of operational data, the example of energy metering data illustrates well the possible sources of value:

- / Analysis of the energy efficiency of a dwelling or building allows valuable advice to be provided in terms of possible improvement works to improve energy performance;
- / The optimization of industrial processes and the use of equipment for companies;
- / The optimization of consumption (and, in the medium term, production), and the proactive replacement of inefficient or faulty equipment for individual customers;
- / The optimization of demand/response via flexibility services (for example, demand-side management or switching equipment on or off) in the context of a Smart grid.

External Data: indispensable for cross-connection of information

External data is not a corporate asset. In this area, we can distinguish, in general terms, between data that relates to the environment (weather, pollution, etc.), to regulations, auditing or the trading of energy.

This type of data can be obtained in two ways:

- / **By exchange partnerships with other companies («second-party» data).** In various sectors such as banking and energy, a key moment in the customer journey is moving house; here, it may be worth considering the use of cross-sector (second-party) data through such an exchange relationship.
- / **By direct acquisition of data via specialized companies** like Numberly (developed by French data marketing group 1000Mercis), Google, Facebook, etc. («third-party» data). They provide information such as the socio-professional category of the internet user, their purchasing intentions or interests.

The use of data from outside the sector, and analysis of information provided by users themselves, on social media, for example, are both ambitious levers of development

that can be activated to take full advantage of all the possibilities offered by Smart Data. This is the challenge that made Enedis (formerly ERDF) expand its mapping tool PRECARITER. This statistical service for local authorities brings together a raft of public data on French housing stock, mobility, households, and incomes, and some specific data collected by Enedis.

EXTRACTING VALUE FROM DATA: THE CREATION OF NEW USES

For energy sector players, or local authorities that adopt a data-driven approach, there is a high risk that they will simply want to accumulate as much data as possible and gather it into a «comprehensive» data bank. This will entail huge costs in processing, storage, and maintenance, without necessarily any return in terms of value generated. This entails considering the possible applications, and determining what uses and services to concentrate on.

The search for performance

To meet the challenges of the energy transition, a major use of energy data is the search for performance: optimizing assets and operations. The first thing that comes to mind is the management of networks, involving the aggregation of different types of energy and the integration of distributed generation, the management of the sources of this energy, and its supply at the right price, at the right time, and in the right place.

Today, initiatives are being developed around the idea of flexibility, allowing demand-side management to take place, as a result of the IoT and Machine Learning (which models thermal inertia on a dwelling-by-dwelling basis), all while ensuring indoor temperatures remain comfortable.

Exploiting the value that data can offer should allow actors to succeed in optimizing their industrial and business processes, or even achieve real step-changes in performance. For a business, it will be about the profitable use of the information it holds, and generating value from it by using it in conjunction with other data and analytical activities, which then offers new potential as

it is applied to prospective customers. The notion of time-limitedness is a very important consideration when deriving value from data; its worth can be degraded by the passage of time, as well as by the «anonymization» of personal data.

Improved customer engagement

The data also allows operators to improve customer engagement. Using their DMPs, energy suppliers can bring their data into play by carrying out multichannel activity that delivers personalized messages to target customers, and developing marketing content based on the interests of

their prospects, thus encouraging their involvement.

The emergence of tools that facilitate instantaneous access to information is one of the other disruptive elements. From the customer's point of view, the ability to check the status of their account (invoices, consumption, comparisons, etc.), to communicate with their provider (to request something or make changes) from their smartphone, or any other equipment, is essential; it marks a real change in the interaction, and increases the opportunities for contact.

Their data infrastructure can allow suppliers to track whether a transformer substation or power line is in service; this information also offers an additional value because it allows end-customers to see the operational status of the system that supplies them. Putting the available system data at the disposal of others, particularly end-customers, will facilitate the creation of new services to forecast consumption and its drivers, comparisons with data from peers, demand-side management, etc. Energy players will be able to consolidate their relationships with customers.

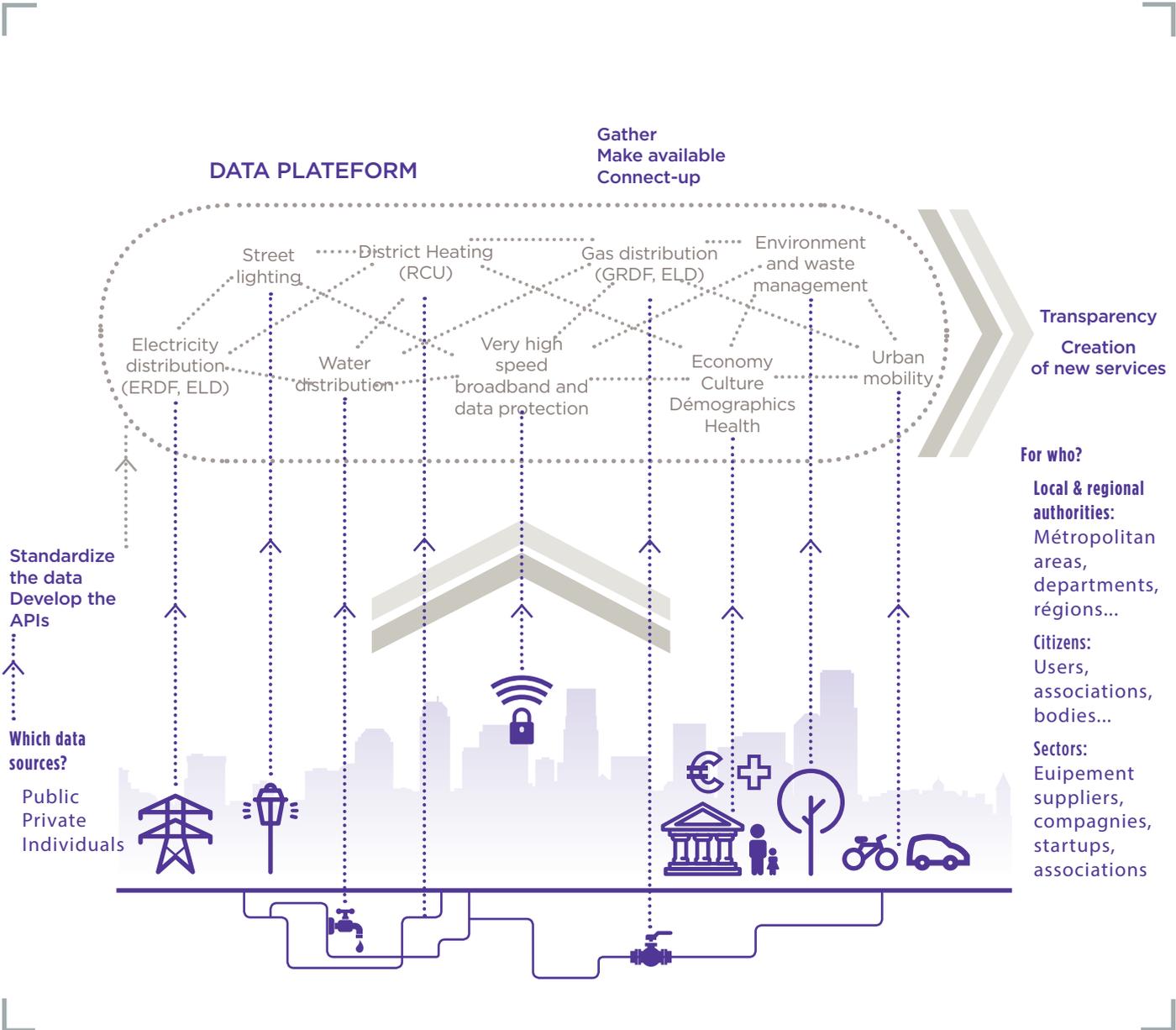


Illustration of new applications: a focus on area-wide data platforms

Different areas rely on infrastructures (such as the vertically integrated networks of water, electricity, gas, transport, etc.), which are often managed by DSPs (Délégation de Service Public - public service concessions). Each of these «verticals» and concession operators is producing more and more data as a result of the rise of the IoT and smart meters. These area-based bodies are creating data platforms to store, make available and connect-up, data from the infrastructure in the areas at the scale of neighborhoods, cities, metropolitan areas or regions.

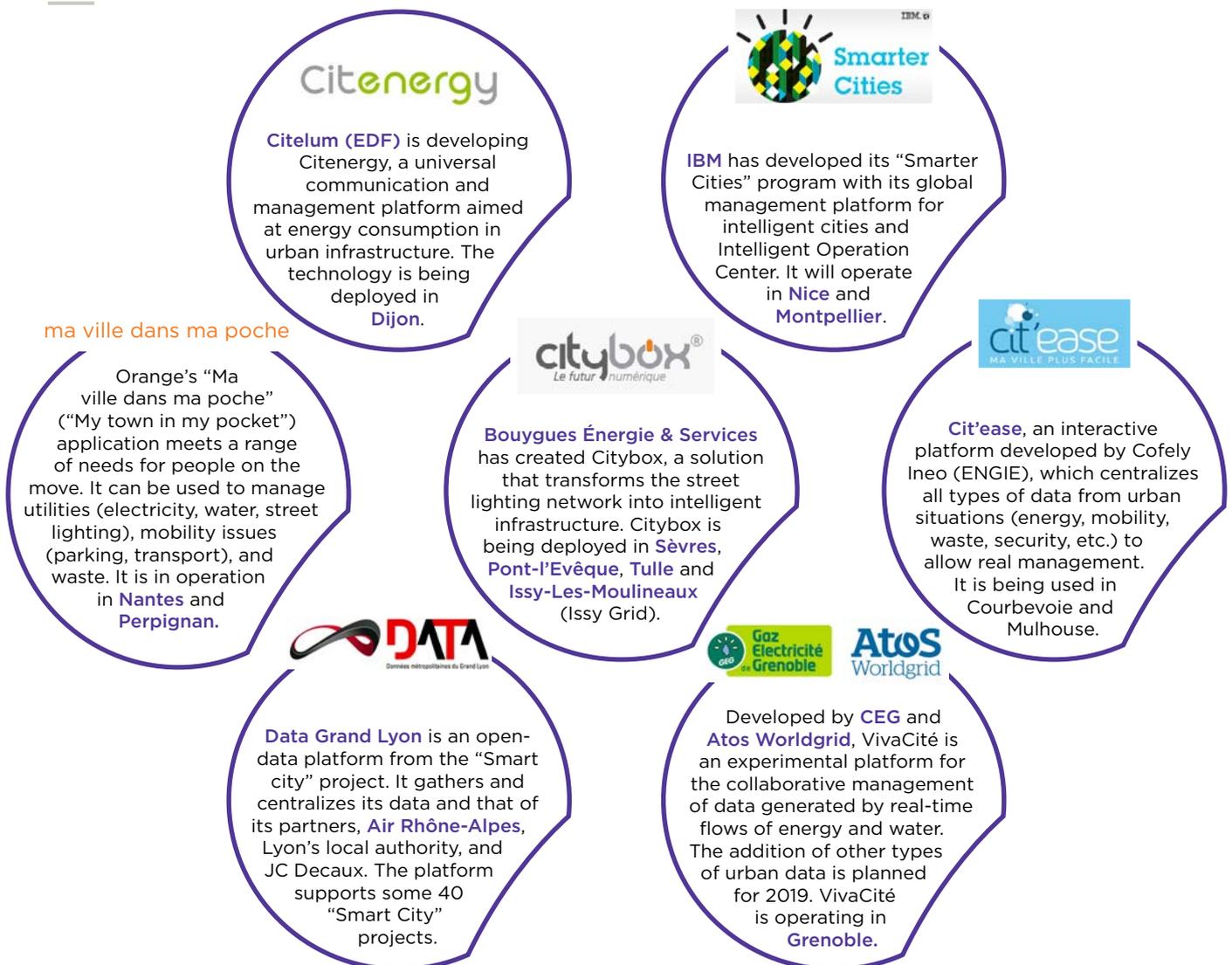
Local authorities want to develop the attractiveness of their areas and, by using these platforms, to catalyze the creation of new services for their citizens and provide a boost to local economies. This involves a transition from so-called vertically-integrated economic structures to horizontal integration, as a result of collaboration between large groups, small local economic systems, and public players. Area-based data platforms meet both performance challenges for the area, and the challenge of greater transparency with regard to its citizens.

Numerous experiments have emerged that are linked to the use of real-time data. For example, Grand Lyon (a body for the Greater

Lyon agglomeration) is using its data platform to support some forty «smart city» projects such as Optimod Lyon, aimed at transport mobility, and Lyon Smart Community and Green Lys (both aimed at energy).

According to these experimental initiatives and projects, energy companies can position themselves as data producers, facilitators, or even as real drivers of value creation. For all these actors (local authorities as well as energy companies), data platforms present a real challenge for the future; an investment that brings reputational benefits in terms of innovation, partnerships, and overall engagement in the area.

Examples of platforms



**FROM THEORY TO PRACTICE:
SEVEN KEYS FOR A SUCCESSFUL
APPROACH**

Action, action, action!

« *The only way to do it IS to do it* » is the first message you see when you enter Stanford's d.school (the university's design institute). This maxim is especially relevant when it comes to generating value from data.

In this frenetic environment, marked by constant change and a raft of agile players, there is no time to waste on analysis or lengthy planning exercises. It is only by testing solutions and interacting with customers, start-ups, and actors from other sectors, without fear of failure, that learning can take place.

There has to be a passion for idea generation, action, and experimentation. As a result, there must be no hesitation in targeting challenges faced by a business and launching into dealing with it!

Think: development of the business model. Forget business plans!

Disruptive innovation rarely stands up to the requirements of business plans, which demand visibility on payback periods. Data in itself does not offer ROI: it must instead feed the business models that create value. The key is to find the rich seams, in terms of value creation, test them and then develop them in practice.

Stories of successful startups are always based on «pivot» phases, which, through action and experimentation, have enabled

business models to be developed into winners.

This approach allows financial results to be weighed up, and the various KPIs, which are key for business growth, to be developed.

Be rigid when it comes to flexibility!

Large companies are often hostages to unwieldy ways of working.

Our experience within large groups shows that the development of agile and innovative approaches on the margins of organizations, where they are sheltered from organizational constraints, is one response to the digital revolution. This approach allows companies to gear-up for the future, create new business activities and offerings, and accelerate

Business models et organizations				
	VOCATION	CONTROL	KEY SUCCESS FACTORS	EXAMPLES
« START-UP » MODEL	Develop new activities using an innovative business model	<ul style="list-style-type: none"> Operational independence, compared with traditional business activities Control in "investor mode" 	Sharpness of business model definition: concentration, differentiation, arbitrage	 
« HOST » MODEL	Add to a business model by developing innovative offerings that draw on an existing value chain	<ul style="list-style-type: none"> Strong operational autonomy Control of interactions 	Control of costs through digitalization, lean management, and strategic positioning	  
« AGILE ORGANIZATION » MODEL	Reinforce an existing business model by accelerating time-to-value across different projects	<ul style="list-style-type: none"> Limited autonomy Control in "project" mode 	Mastery of an agile, multi-competence business model, especially through IS-related functions	



the pace of development in the face of competitors, through technological leadership, agility, and deep knowledge of the new worlds of commerce.

By viewing things through this lens, large companies can learn from the approach of start-ups as they search for improved business models: what's needed is the capacity to measure the performance of different approaches, monitoring indicators (such as the percentage of successful projects and speed of time-to-market, compared with traditional-type projects, etc.), and then to be able to develop them, to realize their full value.

This approach of incubation is often what's

needed to be able to escape, at least temporarily, from the heavy and complex processes that can result in initiatives with no immediate ROI being «nipped in the bud».

Co-create with your customers, in a spirit of «design thinking»

Gaining value from data will be judged in relation to external customers, in terms of enhancing the value proposition; or in relation to internal clients, in terms of optimizing performance.

This means developing empathy with end users; understanding and observing what they do with the data, what they think, and what they feel, much more than what they say. Showing them how to make better use of the services,

Designthinking method





or encouraging them to do this, even using less-than-perfect prototypes, is better than telling them. The human and emotional sides also need to be addressed, even in B2B activities. This is the true spirit of «design thinking».

The mathematical analysis applied to the data requires new types of skills that the major players must acquire and develop. By doing this, they will be able to optimize their operations, and offer more competitive and better-tailored services in line with their deeper customer insights.

Dismantle the silos and invent new models of collaboration and partnership

Creating value from data assumes the exploration of new structures, which will bring together different skills and profiles.

In fact, a multidisciplinary approach helps set limits on the scope of research and enables the best dataset to be obtained by considering both the business drivers and the technological constraints. For example, imagine a co-working space dedicated to innovation in a company; the act of aligning business knowledge with technical and operational expertise enables both productivity and the scope for innovation to be optimized.

Transdisciplinarity, the diversity of profiles, and collaborative reasoning... these, then, have to be the ingredients for the seventh key.



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