



press pack
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Smart Cities technology serving the community



public transport - connected cars - smart grids - smart buildings and neighborhoods -
innovative urban services

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Technology at the heart of city and community development

In 'Smart Cities,' digital technology is integrated into traditional city services (water, electricity, gas, public transport and amenities, buildings, etc.). It contributes to sustainable development, helps to improve residents' quality of life, and plays a role in the growth of businesses and the area's appeal for economic and tourist activities.

A major transformation of the urban landscape

More than half of the world's population now lives in cities, which cover only a tiny portion of the planet's surface area. They consume more than three quarters of all energy produced and they are responsible for 80 % of CO₂ emissions¹. And this phenomenon of urban densification is accelerating. UN estimates predict that there will be another 2 billion people on the planet by 2050 and that 70 % of the world's population will be living in cities.

A buoyant market

According to ABI Research, the market for technologies that contribute to and support the plans and programs of smart cities should reach 39 billion dollars in 2016 (from 10 billion in 2010). Various studies by consultants and analysts have come to the same conclusion: smart cities have a bright future.

Orange has identified smart cities as a growth driver as part of its Conquests 2015 strategic plan. The Smart Cities Program was created at the end of 2011 to support this growth area.

A challenge for local authorities

Cities and local authorities are well aware of the value of new technologies for the effective and sustainable development of the different types of services they offer residents, visitors and businesses. Digital technology is increasingly being used for traditional city services, such as public transport, travel (carpooling and sharing), road maintenance, traffic, parking, energy, waste disposal, street lighting and urban furniture. Technologies also play an essential role in building relations with the local population, encouraging tourism and culture and developing the area's appeal for businesses, companies and shops.

¹ United Nations Department of Economic and Social Affairs, World Population Prospects, The 2010 Revision

Digital coverage encourages innovative uses

From broadband to ultra-broadband, for both fixed and mobile customers, Orange covers the entire French market with its networks. Equipping an area with digital technologies makes it significantly more attractive. It is a strategic challenge for local authorities and a priority for Orange.

Orange has been investing in ultra-broadband networks and alternative solutions which benefit individuals, businesses and communities for several years.

Optimized exchange and smart use of information

Orange has always supported local authorities in the economic development of their communities, bringing every citizen and every business the best technologies and services and helping to increase usage in a shifting technological environment.



To plan for this shift, Orange created the Smart Cities Program, because developing smart services for the community means optimizing the flow and making smart use of information. In other words, telecommunications networks are one of the building blocks for the development of smart digital services.

Improving coordination across services and departments in France

Coordinating the various services and departments provided by the local government is essential when deploying smart city solutions. The city needs to be able to manage the supervision of these solutions in real time, so the systems used by the various departments must be interoperable, but most organizations currently operate in silos. Orange helps cities with their smart city projects by encouraging cooperation to bring together the different players, based on collaboration and interaction between the different municipal departments and the local authorities.

Combining skills

The ecosystem of cities and communities is characterized by a dual approach:

- that of the professionals and services that coexist: managing citizen relations, maintaining roads, developing the attractiveness of the area, public transport, waste disposal, traffic flow optimization, and
- that of the parties capable of catering to these different needs; they come from the world of industry, services and technology.

Faced with this multi-player ecosystem, Orange has chosen to adopt a diversified partnership strategy. This is one of the key drivers of the Smart Cities Program. From major automobile manufacturers and energy companies to city bodies and innovative start-ups, Orange develops partnerships to enable it to provide cities with integrated solutions. Orange can thus meet the needs for new services and uses for cities and city dwellers, which increasingly require real time information, continuous anytime, anywhere connectivity and cost optimization for local authorities.

Smart Grids - optimizing energy management

Smart Grids, or distribution network optimization, enables malfunctions to be rapidly identified and speeds up reaction times. One of the essential elements in this optimization is remote metering for all utility networks: electricity, gas and water.

Energy suppliers are now required to produce invoices that increasingly reflect end users' real consumption. They have developed long-standing partnerships with meter manufacturers, who provide one of the key elements in the value chain. While suppliers are prepared to enhance their IT systems in order to accommodate the massive flows of data that will be sent back by their water meters, it is problematic for them to position themselves as specialized telecoms network operators. These remote metering projects require electricity, gas and water suppliers to deploy networks of objects connected at millions of points. High performance telecoms systems are essential for the supervision and monitoring of remote connected objects in order to sustainably manage these networks.



As an expert in M2M and telecommunications network connectivity, Orange is well positioned to supply M2M SIM cards and the data collection platforms that enable communications with the meters, as well as supplying systems which allow suppliers to operate their connected metering networks (data collection, network supervision, incident diagnostics) or to offer a complete operated network solution, including the deployment and operation of the meter network on behalf of the supplier.

The company **M2Ocity**, created with Veolia in January 2011, stands out due to its real operational experience, as it currently operates nearly 700,000 water meters. Orange is the expert service provider for the network part of the remote metering system.

Smart Buildings – developing smart buildings for the city of tomorrow

Smart buildings are currently a growing market with a huge range of players: equipment suppliers, energy specialists, real estate promoters and developers, service providers, DIY

stores, telecoms operators and IT companies that develop new home services. These new offers lie on the fringes of a multitude of existing sectors and mainly focus on issues like energy efficiency, security and comfort. Energy efficiency can no longer be ignored: electricity consumption has tripled since 1970. The transformation of the energy industry translates into a growing requirement for solutions to manage demand, such as visibility of consumption, personalized advice, remote programming and management, delegation of management to the energy company in order to smooth out consumption at peak times, etc.

At the same time, driven by cities, the historical layers in the field of technical building management are gradually migrating to smart, digital buildings. At the crossroads between energy, IT and automatic controls, new technologies help to make buildings smart by enabling:

- better management of resources and environmental impact
- consumption and cost reductions (maintenance and running costs)
- improvements to the building's security and its occupants' comfort
- new services for end users and visitors
- easier access to building data for operators

Orange offers services such as a personalized welcome for visitors, simplified by using mobile phones; centralized access control using Near Field Communication (NFC); real time and multi-site energy consumption management; dynamic displays to enrich communications between employees; geolocation for guidance and traffic control applications, among others.



In Saudi Arabia, Orange has been working with the Rayadah Investment Company (RIC) for almost five years to develop two new digital neighborhoods: the King Abdullah Financial District (KAFD) and the IT & Communication Complex (ITCC). Orange has undertaken consultancy, design and supervisory work for the implementation of telecoms services (fiber, TV, VoIP, data centers...) and value-added services for the city (smart buildings, smart metering, dynamic display...). Orange, through its partnership with RIC, has developed a strategic vision of the smart city, the guarantee of an optimized telecom network and operational convergence of these services.

Smart Electric Lyon: the EDF Group is bringing together 21 partners from the world of industry, telecoms, research and academia in this consortium.

A full-scale pilot will enable 25,000 individuals, shopkeepers, businesses and local authorities to test the electrical systems of tomorrow, along with the innovative solutions that go with them. Participants will assess the effectiveness of these new electrical devices and digital solutions for managing their consumption in real life situations and as part of their daily lives.

Orange was involved in the creation of the consortium, which it provides with an open and standardized connectivity platform based on its expertise in ICTs, to offer broader access to these services and actively contribute to promoting eco-friendly attitudes.

Orange is a member of the [**Smart Building Alliance \(SBA\)**](#), which includes leading companies in the fields of energy, automated building management, information technologies and

communication. The SBA aims to create the conditions in which to develop a multi-discipline economic and industrial approach involving all smart building stakeholders. It promotes the development of innovative services in buildings for both occupants and operators.

The connected car – innovation for on-board comfort and safety

Encouraged by regulatory and social trends alike, the connected car is becoming increasingly accessible. For customers, the connected car is first and foremost safer, with cars capable of automatically calling emergency services following an accident. This emergency call system will become compulsory in Europe in 2015. The connected car also makes travel easier thanks to real time information about traffic jams or available parking spaces, which helps to save time and fuel. In fact, by exploiting the anonymous data generated by its mobile phone network, Orange has an innovative and efficient source of information that can predict traffic conditions with increasing accuracy and thereby assist cities in dealing with the challenges of transportation.

The connected car makes it possible for drivers to listen to all their favorite radio and music channels with on-demand music services and for passengers to use the Internet and access videos or their e-mails.

Orange supplies all the SIM M2M cards installed in **Renault** vehicles equipped with the R-Link system, an integrated tactile and connected tablet developed by Renault.

Orange and **Renault** have also pooled their expertise for a research project to test the possible uses of 4G / LTE (Long Term Evolution) ultra-broadband connectivity installed in vehicles.

The connected car also helps to encourage a new use for cars: car sharing. Orange uses a car sharing solution on its own fleet of vehicles, with the objective of spreading these services to other companies.

Orange, in partnership with Streetline, is developing a smart parking solution for a French city. Drivers will use a mobile phone application to receive real-time information on the availability of parking spaces and be guided to them. This smart parking solution will help to regulate parking and reduce congestion.

Orange has joined forces with SNCF and Total to develop sustainable travel through a joint investment fund called the Ecomobility Venture. This company specifically targets start-ups focused on ecomobility. The first three companies to benefit from the fund are each contributing to the emergence of new means of transport and travel solutions in their own industries:

- **Move About:** a Norwegian company founded in 2008 that offers a car sharing service for vehicles belonging to businesses and local authorities.
- **EZ-Wheel:** a French start-up that, since 2011, has been developing and selling the only integrated, plug-and-play electric wheel that can quickly and easily power rolling vehicles and handling equipment.

- **Ouicar:** a pioneer in collaborative consumption offering a car rental by owner service via a Web portal.

Public transport – simplifying and improving the flow of public transport

For public transport, Orange has decided to develop services based on connectivity, ticket sales and travel information. The group is well aware of the increase in connected uses for public transport and is working on a large number of practical initiatives to encourage connectivity for means of transport.

A first in France, Orange has signed a partnership with the Loire Atlantique Departmental Council to equip a new line of buses with Wi-Fi using its 4G network and on-board 4G cards. The service will be free-of-charge for passengers and accessible to all.

In terms of ticket sales, new technologies, and particularly NFC, play a key role in the dematerialization of tickets. NFC technology is actually revolutionizing ticketing as it allows users to buy their tickets electronically and have them available directly on their mobile phone. Following a successful test of interoperable ticketing systems in Haute Normandie in partnership with world-leader ACS-Xerox, Orange is launching other initiatives to make various transport networks interoperable.

Finally, travel information is essential in order to provide the public transport users with a high-



quality service. Based on this, Orange has decided to invest in designing innovative systems for the passengers, including access to the information displayed on static public screens directly on their mobile devices.

For its latest project, Orange is working in partnership with Eurostar to put in place information systems for passengers on board trains as part of an overhaul of Eurostar's trains.

City and community services

▪ **keeping citizens informed**

Since 2012, smart phones have for the most part been in people's pockets. It is with a view toward placing this new type of screen at the heart of the 'urban experience', that Orange has launched 'My City in My Pocket', the smart assistant for city dwellers. The service, which is based on new Smart Personal Assistant technologies, is a new generation of mobile application, which makes it possible to combine all the relevant information about a city into a simple, personalized presentation. With innovative recommendation engine functions, the sending of contextualized messages and multi-source aggregation and storage of profiles in the cloud, My City in My Pocket is the preferred way for citizens of smart and connected cities to stay in touch.

In 2014, the city of Bordeaux will launch its new application 'Pocket Bordeaux'. This solution will enable residents to access various municipal services using their mobile phone (NFC): information about their local swimming pool, ice rink and the library, access to pedestrian areas and resident parking and, over time, these services will be broadened to include options like updating a national insurance card or buying tickets for a swimming pool.

The city of Bordeaux has chosen Orange to support it throughout the lifetime of the project. The initial phase will be the launch of the first version of the 'Pocket Bordeaux' application at the end of the first quarter 2014.

Canteens, pools, libraries and public transport, as well as tourism, culture, sport, leisure pursuits and even small shops... today's metropolitan areas provide residents with a whole range of urban services managed by different IT systems. NFC technology makes it possible to concentrate access to all these services on one or two objects, namely an NFC card or a mobile phone. In line with this trend, Orange has developed a solution to install access and payment for these services on new digital media and to manage them over time. Apart from creating a new relationship with citizens and simplifying their everyday lives, the solution helps to make the numerous existing IT systems consistent and makes management of the digital identities of citizens secure.

The Strasbourg Transport Company (CTS) was seeking to dematerialize ticketing for its trams and buses by using travelers' mobile phones. Strasbourg welcomed the first users equipped with NFC tickets in June 2013. Following Strasbourg, around fifteen other cities announced that they too would be moving to contactless mobile for municipal services, tourism and leisure pursuits, transport and even shops this year.

Anticipating and managing natural disasters is one of the major responsibilities of local authorities. To help meet this need, Orange and Thales Alenia Space have developed a natural disaster management portal: CEMER. By cross-matching the climatic and geographic causes of natural disasters, it is possible to improve the decisions made by Departmental Councils and the coordination of action plans by Prefectures. The Alpes Maritimes Departmental Council has decided to implement it as of this summer. The data collected is enriched by an early warning system that employees can activate directly using their Android mobile phone.

In addition, by exploiting the anonymous data generated by its mobile phone network, Orange is now able to offer local authorities a new, high value-added source of information, so they can make road traffic smoother by accessing accurate traffic forecasts.



- **optimizing paths for customers and the public**

Having reliable indicators that can help improve and smooth the way for customers and the public alike within a given area is a real advantage for local authorities and businesses. In November 2013, Orange took on the challenge by launching [Flux Vision](#), the first big data offer intended for public and private bodies involved in road traffic control, tourism and commerce.

Thanks to Orange's expertise, Flux Vision can convert the millions of pieces of technical data generated by the mobile phone network into statistical indicators in real time. These indicators are then used to analyze the level of activity in a given area, as well as population movements. With Flux Vision, businesses and local authorities have reliable information that helps them improve their knowledge of the movements of customers and the public, to adapt their infrastructure and services and to adjust their marketing, commercial and tourism strategies.

The offer depends on Orange's exclusive and irreversible processes for making the data anonymous, thus eliminating any possibility of customers being identified, and transforming millions of pieces of data per minute into statistical indicators. They were developed in cooperation with the CNIL (the French data protection authority).

Following the success of the experiment undertaken by Orange and the Bouches-du-Rhône Tourism Development Agency (ADT) in 2013, when Marseille was the European capital of culture, the Réseau National des Destinations Départementales (Rn2D, or National Network of Departmental Destinations) signed an agreement with Orange to offer the Flux Vision solution to all ADTs in France. Thanks to this partnership, the ADTs will be able to rapidly obtain reliable indicators on visitors to their area and events so they can improve the support they provide to local bodies for their tourism strategies. A third of all ADTs are already customers.

- **improving the quality of life of employees and entrepreneurs with tele-working centers**

In France, 72 % of professionals claim that distance working schemes improve productivity and 76 % believe that they help to develop a sense of responsibility and time management [1]. Orange has contributed towards these major changes in working methods in partnership with Regus, the leading global supplier of tele-working centers, and the *Caisse des Dépôts* (French development agency), by creating France's first network of tele-working centers.

This partnership will lead to the creation of sites where employees or independent workers can enjoy a professional environment and use open workspaces, individual offices, meeting rooms equipped with ultra-broadband, video-conference services, and a whole range of other services which are lacking for those who work from home. The sites will be available for public and private companies and independent workers.

These facilities will be created in partnership with local authorities in order to encourage development of the local economy, facilitate town planning, provide a partial answer to the need to regulate urban traffic, and improve employees' quality of life.

The initial objective is to open around fifteen tele-working centers by end 2016, mostly in the greater Paris area, with the possibility of extending the scheme to more than fifty tele-working centers throughout France.

Orange relies on a wide range of services and applications

Orange has developed considerable expertise that it uses to support major customers in all phases of service projects: design, integration, deployment and running its own or its partners' solutions. This type of expertise is vital when developing or operating smart city solutions that involve network components, data collection, the cloud, user interfaces and relations with residents, as well as city departments. Orange has chosen a made-to-measure approach for each city, local authority or community in need of transformation, infrastructure or assistance with developing its own strategy. For this, Orange relies on its offers and its expertise as an integrator to design and deploy ad hoc solutions.

Machine-to-Machine: Machine-to-Machine enables objects equipped with SIM cards to communicate with each other using the mobile network and with no human intervention. It also offers numerous applications, such as vehicle fleet management, remote metering and the monitoring of environmental indicators (pollution, flooding). With a range of SIM M2M cards, connectivity offers, and portals for managing and monitoring connected objects, Orange has a wide range of offers and M2M integration services that it makes available to city authorities.

[1] A Regus study involving more than 20,000 professionals from 95 countries in September 2013. The respondents came from the worldwide Regus data base of contacts. It includes more than one million active workers, of whom the vast majority are senior management and business leaders. The results of the study are based on questions concerning the links between flexible working and productivity. The study was conducted and managed by the independent body MindMetre www.mindmetre.com

On-board connectivity: using its network expertise, Orange develops solutions, which can be used, for example, as routers on board public transport, such as a train or a bus, to enable passengers to log on and access their entertainment services.

Mobile applications and Web portals: Orange has teams of experts and partners specialized in designing and developing Web portals and mobile business applications, as well as applications for the general public that cities can make available to employees or local residents.

NFC Services: NFC technology makes it possible to exchange data between a reader and a mobile device (smart phone or tablet) equipped with an NFC chip. This technology, for which Orange is one of the leaders in France, has practical applications for cities. It can be used to develop shopping or ticketing services or an application for tourist information about the city for use directly on a mobile device.

Cloud computing: thanks to its expertise in the field of cloud computing, Orange is able to offer cities "as a service" solutions hosted by its data centers and billed for actual usage. For cities, having access to solutions in cloud mode makes it possible for them to deploy them rapidly and with no up-front investment and also manage their costs by paying for these services as they use them.

Video-surveillance: Orange can offer video-surveillance and warning systems to local authorities and building operators to meet their needs in the field of smart building management.

Citizen relations: Orange has a range of multi-channel contact centers that can be adapted to the needs of cities to help them optimize, for example, their welcome for visitors and residents alike.

Big Data: Orange is making the wealth of data generated by its networks available to businesses through its Flux Vision offer. Orange is collecting technical data from its mobile phone network, which is then made anonymous in order to guarantee the protection of personal data and subjected to large scale statistical processing to produce indicators on mobility and traffic. This unique and globally recognized expertise developed by Orange Labs, enables Orange to process the data in its real geographic environment (in urban, flat and mountainous areas, for motorways...), to map it and to precisely analyze population.