opendatasoft

Ebook

Harnessing open data to create smart communities

Why you don't need to be a major city to benefit from becoming smart

INTRODUCTION

The changing role of the smart city

Cities have been using technology to become smarter for over half a century. However, as we move forward smart cities have never been more important. In an increasingly urban world, there's a real need for municipalities to become more efficient, to deliver on citizen/stakeholder needs, to innovate, and in particular to become more sustainable.

Deployed effectively, smart technology benefits communities of all sizes in multiple, very visible ways. For example, traffic congestion can be reduced through a combination of parking and vehicle sensors and connected, responsive traffic signals. Air quality can be monitored in real-time, enabling targeted improvements to be made that benefit the wider environment. Smarter municipal buildings can cut energy use and drive sustainability. Communities can even install smart trash cans that let authorities know when they need emptying, reducing the need for staff to regularly check them. All of these applications require the collection and sharing of open data with all relevant stakeholders.

We're also seeing a shift of people and businesses away from big cities thanks to home and hybrid working, providing municipalities with an opportunity to grow - but only if they deliver on expectations. In an era where citizens are increasingly tech-savvy they demand the same seamless digital

experience from their local town or city as when they are shopping online or accessing other digital services. Failure to understand and meet these requirements will mean municipalities will fall behind rival towns. That brings a real risk that residents and businesses will move elsewhere, hollowing out communities and reducing municipal revenues.

Over the last half century many large cities across North America have seen the benefits of smart projects built on open data. However, as technology, such as sensors, becomes more mature and drops in price, it opens up access to smaller municipalities with fewer resources. They can harness and open their data to become smart, driving benefits for administrators and their stakeholders, as this ebook explains. Illustrated with a range of case studies and bringing together best practice from multiple open data projects and industry experts, it demonstrates that now is the right time for every municipality to become smarter, and that they can do this cost-effectively with minimal resources using open data.

Index

1

What is a smart city?

A smart city uses information and communication technology (ICT) to improve operational efficiency, share information with the public and provide a better quality of government service and citizen welfare.

Different organizations describe smart cities in different ways - for example IBM defines a smart city as, “one that makes optimal use of all the interconnected information available today to better understand and control its operations and optimize the use of limited resources.” IDC looks more at how it changes the municipality, saying that a smart city, “embraces technology for urban transformation to meet social, financial and environmental outcomes.”

What is important is that we live in a more urban world. It is estimated that 83% of the U.S. population lives in urban areas, rising to 89% by 2050*, according to the University of Michigan’s Center for Sustainable Systems. This brings challenges in terms of congestion, the environment and overall quality of life - all of which smart technology can help meet. These urban areas aren’t just large cities - they can be towns or even collections of smaller municipalities that work together. There are an estimated 300 towns in the U.S. with populations between 100,000 and 500,000 for example.

83%

of the U.S. population lives in urban areas, rising to 89% by 2050.*

*University of Michigan Center for Sustainable Systems U.S. Cities Factsheet

All of these municipalities can benefit from becoming smarter in a whole range of ways, overcoming challenges around sustainability, decarbonization, waste management, citizen engagement, and tourism by sharing and harnessing their data.

Bringing together data, technology and public policies creates enormous public value. Delivering these through smart cities provides the ability for citizens and governments to collaborate in shaping their shared future. To me, smart cities are about people. Our focus should be on creating collaborative and open communities that continually flourish and evolve as the needs of the people change. This requires promoting a culture of innovation, openness, diversity and inclusion. In a rapidly urbanizing world, smart cities can be an opportunity to meet many of our pressing global challenges, from sustainability and climate change to population growth.

Ibrahim El Badawi
CEO

01GOV
Future Now

The evolution of the smart city

The smart city concept itself has changed over time, with three clear generations of how it is organized and managed:

Smart City 1.0

Smart City 1.0 was led by technology providers. That meant it didn't focus on the needs of the city or citizens, but instead showcased the possibilities that the latest technology provided.

Smart City 2.0

Smart City 2.0 was led by and controlled by cities. While this enabled programs to meet the needs of municipalities it didn't necessarily take into account the requirements of citizens and businesses.

Smart City 3.0

Smart City 3.0 is not solely controlled by either city leaders or technology providers. Instead, it revolves around a citizen co-creation model that ensures that smart services built on open data meet the requirements of residents. Examples of this include Vancouver, which involved 30,000 of its citizens in the co-creation of the Vancouver Greenest City 2020 Action Plan, and the Town of Morrisville, NC, which has monthly open meetings with citizens to steer its smart city roadmap.

The role of data in smart cities

Smart cities rely on data being collected, distributed and shared in real-time with all relevant stakeholders, from municipal staff to businesses and citizens. That requires an effective technology infrastructure covering:

A comprehensive 4G/5G communications network that spans the municipality

Real-time Internet of Things (IoT) sensors, deployed to collect a range of data, from air quality and traffic volumes to energy usage and water levels

Open standards for data, that mean they can be easily shared internally and externally

User friendly interfaces to deliver information to citizens, businesses and staff. These could be online portals, digital signage, apps, connected cars, or data visualizations

Ways of analyzing/using data (such as AI, digital twins, and automation), enabling effective action to be taken, based on up-to-date information

Moving beyond technology in the smart city

However, smart city success is about much more than technology. As Gartner points out*, it is about cooperation, collaboration and how data is used. Municipalities need to think about these questions if their smart cities are to deliver success:

- How do we harness data and use it effectively?
- Do we have the right culture in place to embrace new ways of working, driven by data?
- Are we communicating effectively with stakeholders to listen to their needs and demonstrate value through open data?
- Are we committed to innovation over the long term?

*Technology Is Almost Irrelevant for Smart Cities To Succeed, Gartner

2

The benefits of a smart city

Becoming smarter thanks to open data delivers benefits to everyone involved:

Helping municipalities to become more efficient and accountable

- Increased productivity as previously manual processes are automated, saving time.
- Improved sustainability and cost savings, for example by optimizing energy use within buildings or through smart street lamps that dim when there is no traffic around.
- Higher efficiency, for example, by deploying smart data portals that can proactively provide information to citizens without them having to call or make Freedom of Information requests, saving staff time.
- Enhanced collaboration - sharing data internally means it is always available, breaking down barriers between departments.
- Greater transparency as municipalities can demonstrate performance against KPIs and budgets, as well as sharing information on local services, such as police and fire incidents.

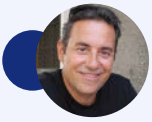
- Closer engagement with citizens, helping build community and reinforcing democracy
- Regulatory compliance and sustainability, through the ability to seamlessly monitor air quality, pollution, and water quality within the local environment, and share this information with state/national regulators.
- Attract new residents and business investment, by offering new, innovative services and differentiating against rival towns
- Increased resilience to meet challenges, such as COVID-19 or natural disasters. According to IDC, just 56% of government organizations said they were sufficiently prepared for the coronavirus epidemic*.

Just

56%

of government organizations said they were sufficiently prepared for the coronavirus epidemic.*

> *As smart cities become more sophisticated they create data-driven ecosystems that provide everyone with a concrete picture of what is happening on the ground, covering everything from air quality to population flows. There's a real ability to connect more deeply with citizens by analyzing the city environment and using this data to make more informed decisions. To really gain the benefits and create citizen-centric cities, public administrators need to focus on communication - listening to what citizens want and providing information in clear, understandable ways, through everything from data portals and apps to digital signage.*



Alessio Dragoni
CEO

[Sciamlab]

*IDC, Building Digital Resiliency in Smart Cities and Communities

Making the lives of citizens easier

- Enables them to interact with their local municipality seamlessly through digital channels, valuing their time and ensuring they can find information or make requests quickly and seamlessly.

- Builds a positive sense of community. By providing real-time information and increasing communication through open data, residents can enjoy living in their city/town and make the most of the facilities it offers. For example, they can see where parking spaces are free to cut journey times, monitor local weather/ park closures, and see how busy leisure facilities are in order to plan activities. This increases civic pride and also encourages them to shop and spend leisure time locally, boosting local businesses.

- Meets the rising expectations of tech-literate residents and demonstrates to them that the municipality understands their requirements and is focused on their needs.

Meeting the diverse needs of all stakeholders

- **Businesses:** Smart sensors give them the information they need to better run their business. For example, sharing traffic and footfall data can help retailers optimize their opening hours or farmers can benefit from accessing rainfall data or water levels in local reservoirs/rivers. These open data use cases all promote economic growth and bring new businesses to the area.

- **Tourists:** By showing visitors what the town has to offer, and making it easy to navigate, smart city projects encourage them to visit and spend money in the locality.

- **Healthcare:** Sharing monitoring data enables organizations to collaborate and plan/react to health needs. For example, Cary, North Carolina used sensors to monitor opioid levels in wastewater, enabling a geo-targeted response to engage with citizens and provide tailored support.

- **Mobility players:** Bringing together open traffic and transport data from the town with information from other providers enables new Mobility as a Service apps that give citizens and visitors a holistic, smart way to get around.

- **Startups:** By opening up smart data, startups and prosumers can create new tools and solutions that provide innovative new uses for data and meet changing resident needs.

- **Academics:** Sharing smart data enables academics to monitor trends at a macro and micro level, carry out research, and drive innovation.

3

The challenges to smart city success

Municipalities and their stakeholders understand the benefits that smart cities provide. However, turning strategy and vision into successful reality mean overcoming a set of key challenges, particularly in smaller municipalities.

Putting the right infrastructure in place

The technology required for smart city infrastructure, from sensors to networks, can appear daunting - and expensive. And they can require specialist data skills to manage, and be difficult to use for everyday employees, further adding to cost. At a time of increasing pressure on budgets, justifying spend can feel like a difficult job.

However, technology is becoming cheaper in many areas, such as sensors and networks, with powerful software available to collect, enrich and share open data in compelling ways. This ensures that use cases and software tools can demonstrate clear ROI in terms of efficiency cost savings, around areas such as energy savings and staff time. There's no need to take a "big bang" approach. By building a timeline of discrete projects, rather than trying to do everything at once, municipalities can spread costs over the long-term, while also ensuring that the program is flexible and adaptable to changing needs.

The Smart City concept can be daunting to many municipalities, particularly smaller cities and regional towns who might worry they won't have the budget or IT knowledge to make it a success. That's why it is critical to take a strategic approach - start by looking at what your objectives are and how you can deliver the experience that residents and businesses want. Then you can focus on targeted use cases that meet their needs while increasing your internal efficiency at the same time. Share and learn from other towns and cities, and adapt their successes to your particular requirements. Once you have identified the most relevant smart city projects then you can focus on the infrastructure you need. The good news is that smart city technologies are becoming more affordable, meaning projects can deliver rapid return on investment, while delighting and engaging your residents and other stakeholders.

Alex Sales
Founder and director

peclet TECHNOLOGY

Culture

Smart cities are all about creating, opening, and sharing data. That means municipalities need to move from an internally-focused closed culture to one that is open, innovative and transparent. This can be a major cultural change program for many public sector organizations, who are used to working in silos and may be risk-averse. It can be a particular issue for smaller cities, with fewer staff located across multiple different departments. While daunting, this cultural change is anyway necessary to meet the new requirements of citizens, businesses and other stakeholders.

Successfully delivering change is about engaging internal staff, building an understanding of the potential benefits for them personally, training on new smart city tools, building an open data culture, and communicating around milestones and next steps.

Engaging citizens

Clearly, if no-one uses your smart city and open data platforms, your projects won't deliver any benefits. Municipalities need to engage with their citizens, and make it easy for them to interact with their smart city data in order to drive transparency and increase data democratization.

As well as answering any potentially negative questions about the program, make sure you engage people by explaining the positives, through compelling use cases based on their particular needs. And make sure that open data is shared in seamless and intuitive ways, through easy to use portals, visualizations, apps, data experiences and digital signage. This will spread data democratization and benefit the entire community.

Communication and compliance

Collecting more data, some of which is potentially sensitive or personally identifiable, does bring security and compliance risks. Data needs to be protected from external threats, and sensitive information needs to be accessible only by those that require it for their roles. There may also be concerns from citizens themselves around being tracked through smart city infrastructure, particularly cameras.

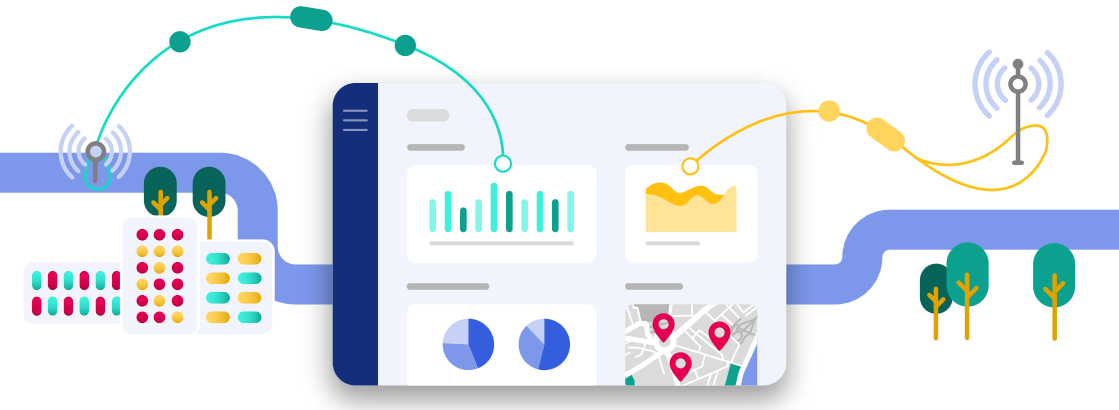
All of this requires cities to put in place a robust data governance and security policy that is clearly communicated internally and externally. Take the time to explain to audiences what data will be collected, how it will be stored and how any personal information will be removed to safeguard privacy.

4

Building a cost-effective smart city

The building blocks of your smart city

As with any municipal project, your smart city program needs to bring together the right components, process and best practice to deliver on your strategy.



The technology components you need for success:

Pervasive connectivity through both wired and wireless networks. In many cases this infrastructure is already in place, and may also deliver other benefits to citizens, such as by providing free WiFi in public spaces.

Real-time IoT sensors to collect data on a range of environmental factors, such as water/rainfall levels, temperature, humidity, traffic, footfall, air quality, building performance, parking spaces, and motion sensing. These sensors are becoming much cheaper and more available - in some cases you can even 3D print your own, as the town of Morrisville is doing with its smart trash can sensors.

> *The rapid growth of urbanization is increasing the need to better protect our planet, resources, and public health. Cities therefore must act swiftly to understand and improve their environment in order to safeguard people's quality of life. Air quality smart sensors combined with data analytics and AI provide the ability to better understand what is happening across the city environment, delivering the insight needed to make better decisions and develop new services. By installing air quality IoT sensors and sharing the data, cities can become truly more transparent, smarter and more sustainable, improving the lives of all of their residents and visitors.*

Julie Pelletier
North America Regional

ECOMESURE

A powerful data platform that can bring data together, enrich, and analyze it. This can be SaaS-based to reduce cost overheads, but ensure that it is easy to use and administer without requiring too many internal resources. As you become more advanced you can add new ways of analyzing and monitoring open data, such as through AI and digital twins.

Smart cities are built on data from a huge range of different sources. To turn data into value, this information needs to be brought together and made available through intuitive, understandable and actionable applications. Creating accurate digital twins enable stakeholders to understand and visualize the "as-built" environment. With connected infrastructure, stakeholders can see exactly what is happening in their smart city, region or district, in real-time. Furthermore, conducting simulations using digital twins also allows city leaders, urban planners, and other stakeholders to anticipate the impacts of proposed urban transformations and compare different scenarios. These inclusive and interactive capabilities provide a comprehensive, detailed picture of real-world events and performance, allowing better informed decision-making, proactive city management, and more detailed planning for the future. All of these capabilities contribute to building smarter, more sustainable, more resilient, and more efficient towns and cities that are well-positioned for the future.

George Reed
Senior VP of Sales and Marketing Manager, NORAM

Strong data governance. Put in place the right processes to safeguard security, data quality, anonymization, and privacy, while making sure you meet relevant standards.

Communication and sharing layer. Look for a solution, often part of your data platform, to share data internally and externally via data visualizations, open data portals, signage, apps, and APIs.

Cities have access to a growing range of data, stored in multiple places across their infrastructures. Being able to connect and combine this data, breaking down silos, is vital if smart cities are to deliver on their promise. That means public institutions and cities need to put in place technology that enables them to integrate data in a dynamic way, rather than trying to centralize it in a single data warehouse. Democratizing data in this way increases smart city efficiency and enables the creation of new, data-driven services that meet the changing needs of citizens, businesses and municipalities alike.

Raynald Bouchet
Western Europe Alliances & Channels Senior Director

denodo

Putting in place a clear process:

1

Collect:
Gather real-time data through IoT sensors distributed throughout your municipality.

2

Analyze:
Process the data and potentially enrich it with other information (such as geolocation and weather) to gain insights into actual performance and activities in real-time.

3

Communicate:
Share the results of your analysis internally with decision-makers and externally through your open data platform to drive transparency.

4

Take action:
Act on the results, either through automated processes or human-decision making that drives improvements.

5

Best practice recommendations

Smart city success is about much more than technology or process - follow these best practice tips to maximize the results of your project. Discover the 10 steps to becoming a smart municipality using open data:

Involve the community

Listen to the needs and requirements of your community, including residents, businesses and other stakeholders. Test ideas with them and regularly get their feedback on what they want their smart city to do for them. Getting everyone on-board will drive usage and forward momentum.

Get leadership buy-in

Things go much more smoothly if councilors are on board. Take the time to explain what a smart city can do for them, tailored to their portfolios or areas of interest - and make sure you use understandable language, rather than tech jargon in order to keep them involved.

Build a tech framework

While specific smart city projects might get public attention, they are only possible if you have the infrastructure in place to underpin them. Therefore, ensure you have the right framework to support your current and future requirements when it comes to collecting, processing and sharing data.

Make data accessible

Share your smart city data in multiple ways (such as through open data portals, apps, APIs or digital signage). Ensure that these are all easy to access and use by non-specialists so that data is understood and widely reused.

Communicate results

Don't be shy about your smart city successes. Share them as widely as possible, through channels such as newsletters, emails, and billboards. Make sure your communications emphasize the benefits, but also address any concerns that people might have about security, privacy or cost. Gain validation for your projects by entering them in awards schemes.

Visualize open data to engage your audiences

A table of figures might excite a data scientist, but it is likely to mean nothing to a citizen or employee. Therefore, provide them with targeted, compelling data experiences to democratize access, such as zoomable maps, data stories or interactive graphics.

Build an internal data culture

Bring internal staff with you by showing the benefits of smart city initiatives to their jobs on a day-to-day basis. Emphasize the opportunities that smart city projects bring and encourage them to come up with ideas for new initiatives to add to your roadmap.

Be open

As a municipality, you won't have all the answers or be able to think up all the potential use cases for your smart city program. As well as talking to citizens and employees, share your open data as widely as possible externally. That means making it easily available to third-parties to create their own tools and apps. Consider running competitions and hackathons to gain new ideas and tap into innovation.

Take a step-by-step approach

Don't try and do everything at once. Instead, build a pipeline of projects based on citizen/employee requirements and what is technically feasible. Start with ideas that will generate quick wins that meet pressing needs and continually adjust your pipeline to keep it relevant.

Learn from your peers

Particularly in smaller municipalities, the smart city team might contain just one or two people. Luckily, there's a whole ecosystem of people out there who are willing to share their experiences, successes and learnings around open data and smart cities. Therefore attend conferences, read relevant media and talk to your counterparts in other towns to exchange information and learn from your peers.

Use cases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Ajman Data


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CARY


KINGSTON


THE CITY OF JERSEY CITY


Southern Grampians
SHIRE COUNCIL


Western
Parkland
Councils


BRISTOL
CITY COUNCIL

Emirate of Ajman digitizes government and drives engagement through smart city open data portal

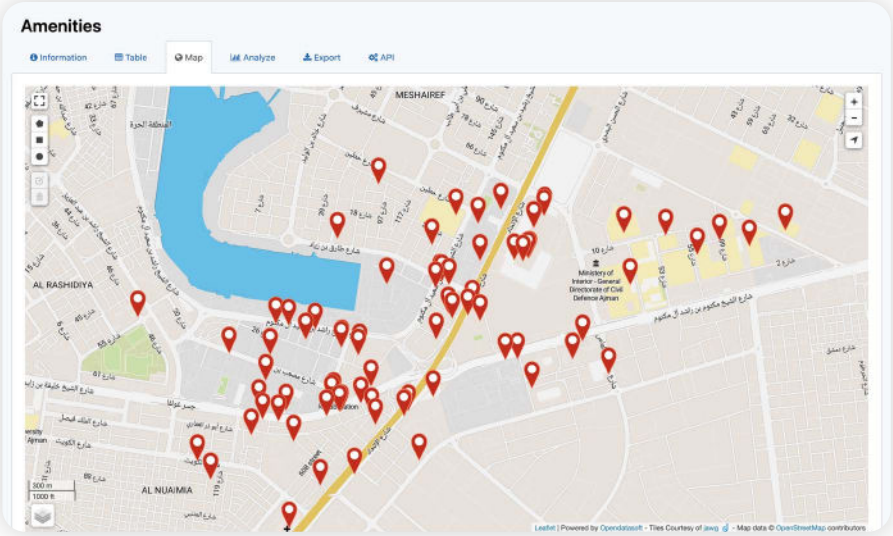
156
datasets

5,000
visitors in six months

140,000
API calls in six months

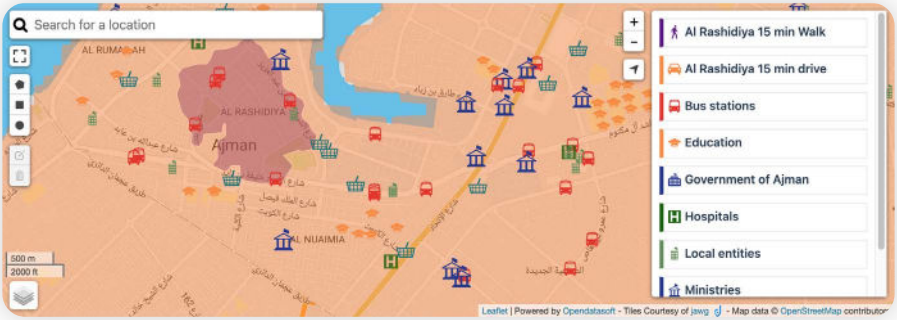
One of the seven emirates that make up the United Arab Emirates (UAE), Ajman has a vision to deliver smart government services that improve the experience of its 500,000 residents and support businesses and other stakeholders through digital channels.

Ajman understood that data sharing was the foundation to achieving its goals. The Department of Digital Ajman therefore now collects and publishes open data from government departments on its new data portal. Implemented by Opendatasoft and its partner 01Gov, and available in both Arabic and English, the portal provides the foundation for collecting, sharing, and visualizing open data from across the Ajman government.

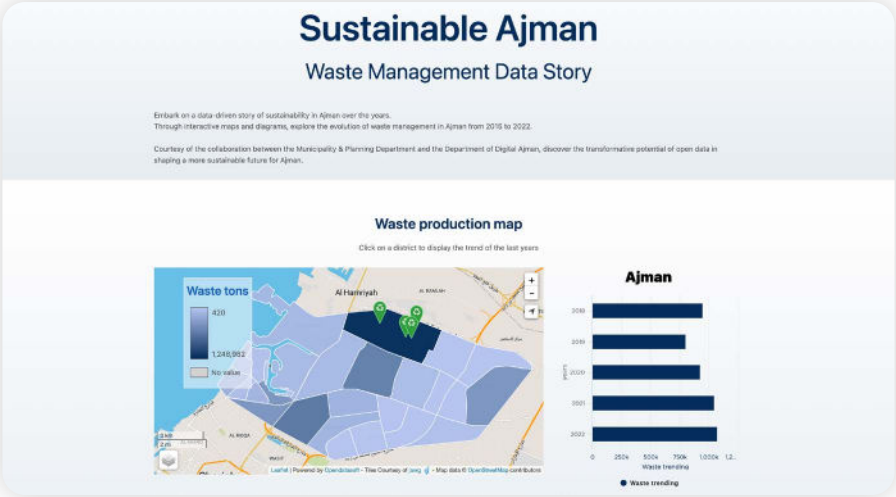


In line with its people-centric approach, the Department of Digital Ajman created an in-depth program to train data ambassadors from nine government departments. Ambassadors are responsible for providing quality, regularly-updated data and have a wider role in communicating the vision of becoming data-driven and creating a data culture across government. This has helped the portal grow to contain 156 datasets, covering areas as diverse as local amenities, business information and building projects. These are available through visualizations and maps as well as tables and are all downloadable via APIs.

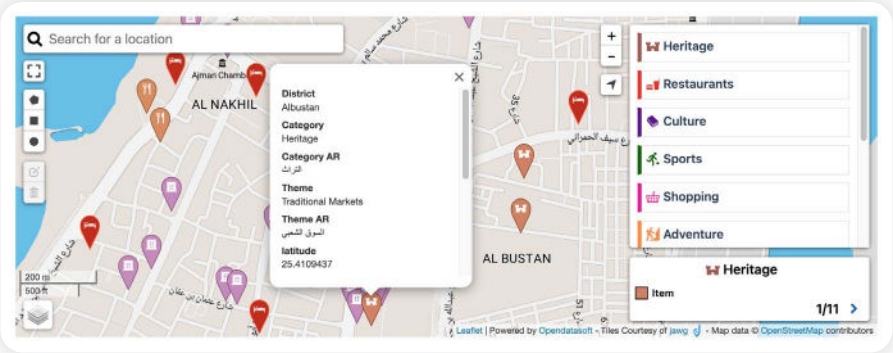
Data is underpinning a range of innovative use cases. For example, Ajman is working to become a 15-minute city that enables everyone to access urban services such as schools, hospitals, government entities and entertainment centers within a 15-minute walking or driving distance. The project relies on open datasets shared through the portal, accessible via an interactive map.



Another innovative use case is around sustainability and waste management, created through a collaboration between the Municipality & Planning Department and Digital Ajman. Delivered through an interactive, comprehensive data story, this provides citizens with information on how the emirate is handling sustainability and building a circular economy. It encourages citizens to recycle more and highlights available facilities.



As part of a wider objective to attract visitors, the site now features a data story based on information supplied by the Ajman Tourist Department. This provides tourists with an introduction to the attractions, facilities, and accommodation available within Ajman City, accessible through a drill-down map which provides locations and more details.



Ajman Data is now one of the emirate's digital government pillars, providing key information to the local community, international investors, businesses and government departments. It is improving data-driven decision-making for citizens and government, demonstrating innovation globally and delivering ROI from open data.

> *Everyone can benefit from access to data, whether to improve decision-making, increase engagement with government departments or carry out research. That is why we are putting data sharing at the heart of our digital vision, involving and engaging all internal and external stakeholders in our program.*

Dina Fares
Director of Digital Transformation
Department of Digital

بيانات عجمان
Ajman Data

Town of Morrisville becomes a data-driven community and creates cost-effective smart city through open data

1,800
users

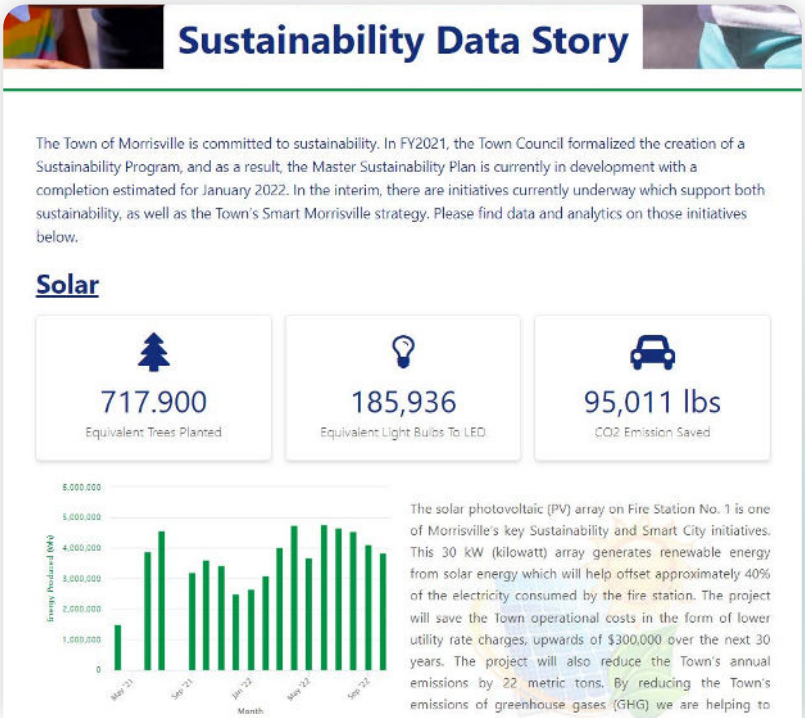
14
datasets

Nearly 50,000
annual API calls

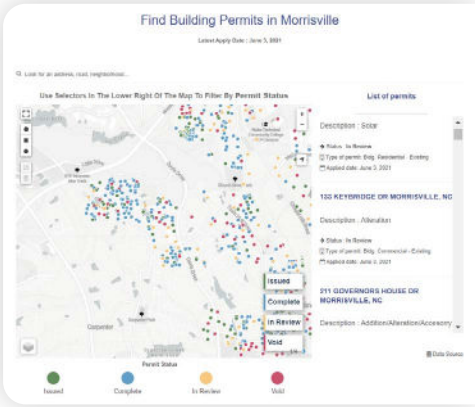
Situated at the heart of the North Carolina Research Triangle area, the Town of Morrisville, NC, has a population of nearly 30,000. While a relatively small municipality, Morrisville is committed to embracing smart technology and data to deliver enhanced services that attract and retain citizens and businesses.

In 2019 it created its Smart Morrisville program. Based on extensive research with citizens, businesses, internal town departments, and councilors, this evaluated potential smart city initiatives according to investment cost, required implementation efforts, and overall business value.

By taking a step-by-step approach, Morrisville has been able to focus on its most pressing needs, beginning with its Connected Parks project. IoT flood and ground moisture sensors were installed at one of its parks and across its soccer pitches. If the park floods or fields are too wet for play, this data triggers an automatic closure of the park gates, with digital signage at the entrance explaining which part of the park is closed. People can sign up online to get text alerts on closures, or view Morrisville's smart city dashboard to see the latest status. The aim is to deliver information quickly in a way that suits people's needs, without them having to call a weather hotline for updates.



A second project harnesses open data to increase transparency and efficiency. Information on all permit applications, such as for building alterations, is available through a drill-down map. Citizens can see the exact status of their application, avoiding the need for them to call council members, and therefore freeing up staff time to focus on more complex queries.



Thanks to its smart city and open data foundations, Morrisville is now accelerating its plans. It recently began publishing police incident data, which will be mappable by location and can be easily analyzed by topics such as area and type of offense. On the smart city side it is introducing IoT smart trash sensors with 3D-printed enclosures that it aided in developing with a local vendor. These sensors will automatically detect when trash cans are nearly full and require emptying. Previously, monitoring trash can status required four staff to drive around the Town, taking two to three hours per day, and creating unnecessary transport emissions. Through its approach, Morrisville has been able to create and extend its smart city program, using data to engage with citizens, businesses, and other stakeholders.

> *We want to use technology to enhance the lives of our citizens and the performance of our staff. That means becoming a data-driven, community focused town. Data will drive everything in the future, so we want to make it available for everyone to use.*

Billy Whitehead
Smart City Program Manager

Morrisville
Live connected. Live well.

Find out more by reading a full case study on the Town of Morrisville here.

CARY

OPEN DATA

Town of Cary becomes smart and connected with open data and IoT

37
datasets

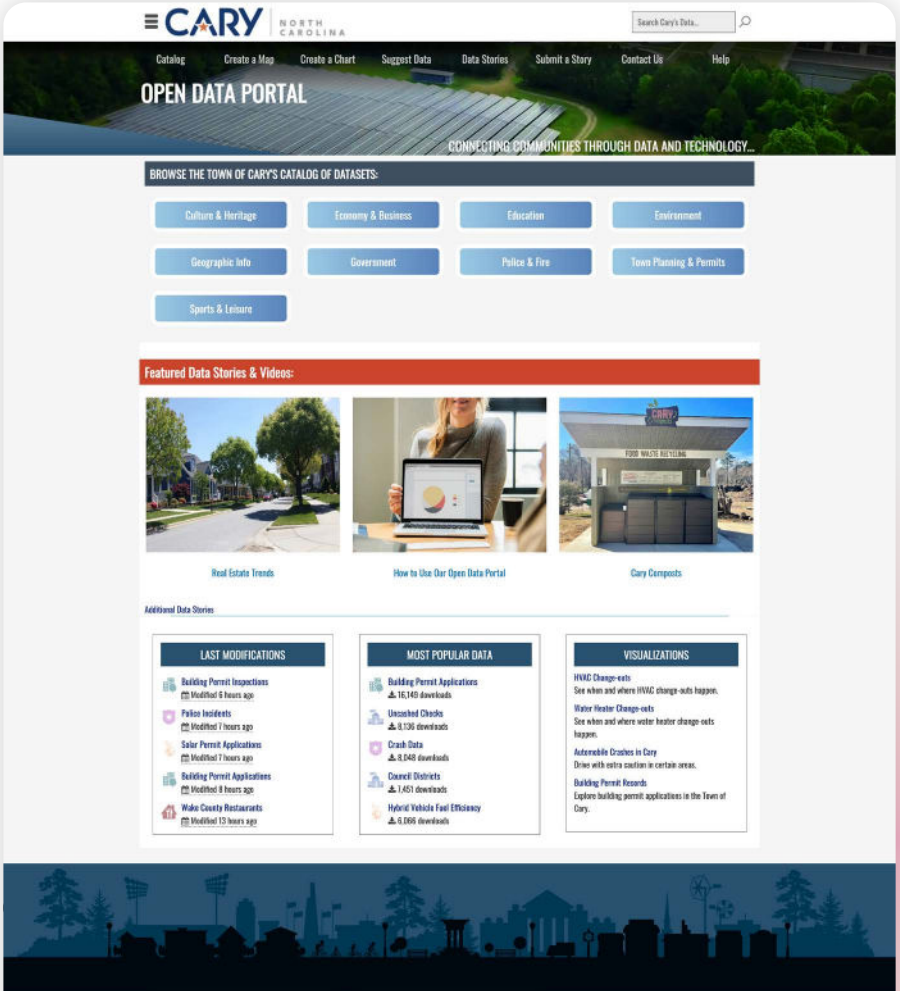
7
smart city awards

325,000
average monthly API calls

The largest town in North Carolina, Cary aims to use data to connect its communities, become smarter, and increase transparency. Users of its open data portal can download datasets, create maps and data experiences, and even suggest new data sources to add.

As part of its program Cary launched an innovative smart city project, analyzing wastewater for traces of opioids*. This not only provided a more detailed picture of the issue of opioid addiction in the town, but also helped target actions to where they would deliver best results.

*Fighting the Opioid Crisis in Cary



Due to its location at the heart of three river basins, Cary is prone to flooding due to stormwater surges. To provide an early warning system and to predict flooding it has installed IoT water sensors and rain gauges across the town. The water sensors send alerts when levels hit a certain threshold, and the gauges provide minute-by-minute information on rainfall. This enables Cary officials to make faster, better informed decisions such as closing roads or greenways, rerouting traffic to prevent drivers from encountering floodwaters.

To help further extend the use of data, Cary has created a range of data stories on specific topics, using information to inform and explain. These include stories on the town's trails and greenways. All of these aim to bring data to life for users, whatever their interests and technical skills.

> *Opendatasoft provides Cary with the ability to share large datasets with not only our citizens or residents, but also our local business and regional partners outside our organization. With visualizations that are robust, configurable, and flexible, the platform gives Cary the tools to be a more transparent local government.*

Justin Sherwood
Deputy CIO

Learn more about the Town of Cary and its smart city initiatives by visiting its [open data portal](#).

OPEN DATA

City of Kingston engages citizens with open data

62
datasets

2
Smart City Dashboards

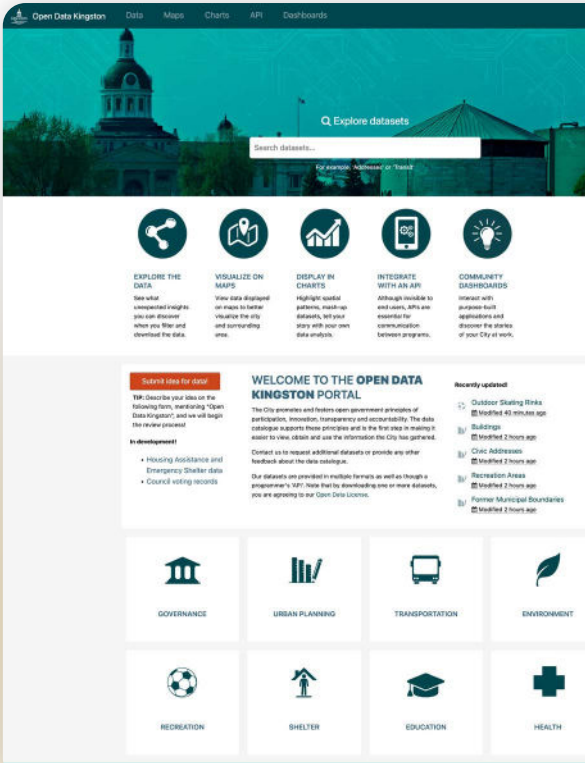
239,000
API calls in the last 3 months

Kingston is a Canadian city on Lake Ontario, at the mouth of the Cataraqui and St. Lawrence rivers with a population of over 120,000 people. With a stable and diversified economy that includes global corporations, innovative startups and all levels of government, Kingston's high quality-of-life offers access to world-class education and research institutions, advanced healthcare facilities, affordable living and vibrant entertainment and tourism activities.

The City promotes and fosters open government principles of participation, innovation, transparency and accountability. Its open data portal, begun in 2015, supports these principles and aims to make it easier to view, obtain and use the information the City has gathered. Datasets cover a wide range of topics, from places of interest to budget data.

The strategy behind Open Data Kingston is to engage citizens and users by making it easy to interact with information by providing it in ways that answer their questions. Therefore as well as making it simple to find and explore data, visualize on maps, display on charts or export via APIs, Kingston has also created community dashboards on popular subjects such as customer request data and fire and rescue incidents. These tell a story with data, giving added insight to citizens and increasing transparency.

Kingston is continually looking at new ways of using data to engage citizens, and has created a suggestion portal where ideas for additional datasets and stories can be submitted. Plans for new innovations include housing assistance and emergency shelter data, as well as council voting records to increase transparency.



Click here to visit the Open Data Kingston portal.

Jersey City improves the experience by visualizing data

20,000
annual users

34%
of usage via mobile

2.3M
average API calls per month

With over 265,000 residents, Jersey City is the second most populous city in New Jersey and is the most diverse city in the state. Once a city driven by immigrants working in the shipping and manufacturing industries, it has transformed into a modern urban community. Old factories have been repurposed and reborn into office buildings, housing units and abandoned rail yards are now landscaped parks. Jersey City's vibrant arts, cultures, and diversity, and commitment to collaboration create an unparalleled quality of life for residents and businesses alike.

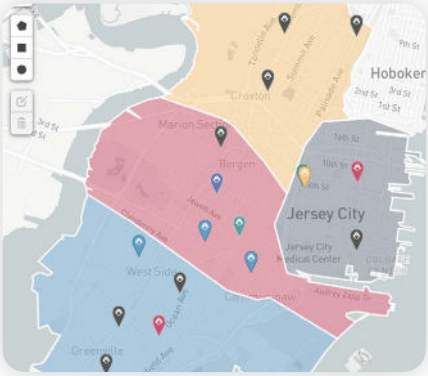
The City understands the importance of sharing data with its over 247,000 residents and helping them to use it to improve their experience. Since it created its open data portal using Opendatasoft's technology it has therefore focused on making it easy for citizens and businesses to access and reuse data.

To achieve this the City's teams now publish multiple open data portals providing a wide variety of visualizations, including for:

- Locating **bicycle facilities**

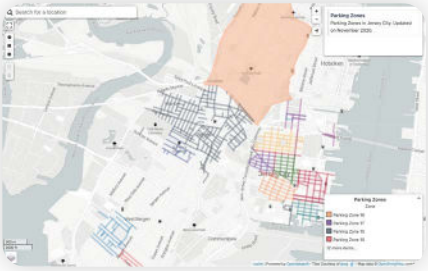
- Finding murals and **street art via an interactive map**

- Identifying the location of **trees planted in the city**



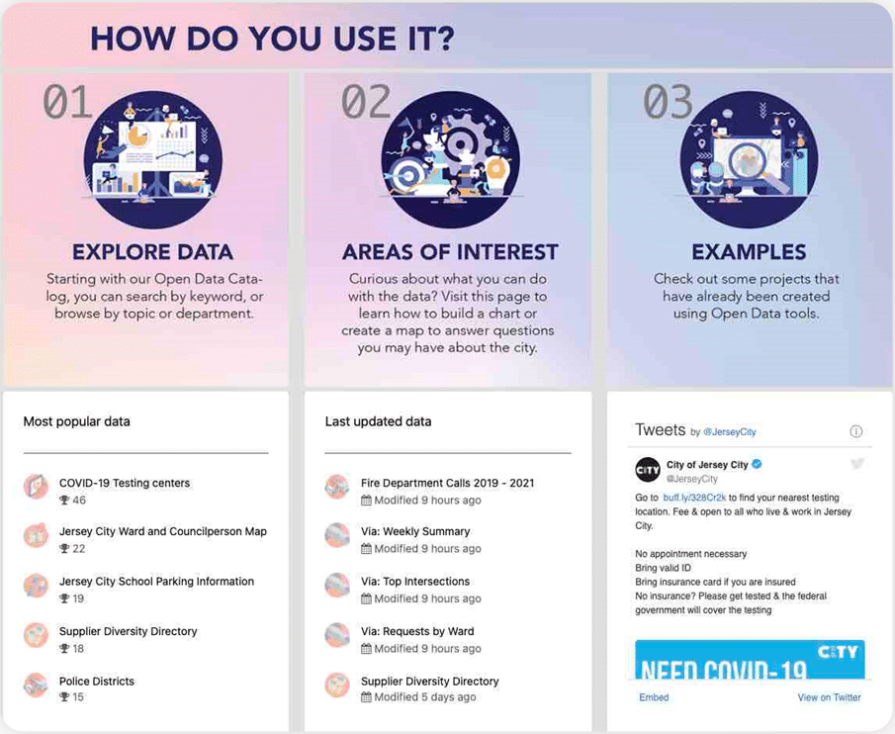
- Getting information on **firefighting activities**

- Finding information about **suppliers employed by Jersey City**



- Showing **parking zones across the city**

A clear, intuitive interface and step by step explanations aim to make data accessible and usable by everyone, creating a community built on data. The portal includes all the tools people need to build their own visualizations, along with examples of projects that have already been created. The result is a more open, transparent and efficient City for all.



Click here to visit the Jersey City open data portal.

Southern Grampians
SHIRE COUNCIL

OPEN DATA

Southern Grampians Shire Council builds a smart connected rural community

Over **1.2M**
data points

206
council facilities

Over **1,000**
data downloads

The Southern Grampians Shire Council (SGSC) is a local government area in the Australian state of Victoria. Although small in size, this rural council aims to be a leader in smart city initiatives in the region. it is therefore working on a number of technology-based projects to better connect the community and showcase innovative and effective uses of technology.

Sharing data with business and citizens is at the heart of SGSC's vision of creating a digital ecosystem. To deliver this the Council chose to work with Opendatasoft and its partner Peclet Technology to deploy its smart city and open data sharing portal.

This is sharing data from a variety of sources:

- Weather stations that show live weather data via an online dashboard
- Water level monitoring at key locations across the area, including reservoirs and rivers
- Smart parking sensors that give an overall view of usage
- Information on all council facilities, as well as details of waste zones, showing when collections are scheduled.

The portal makes it easy for anyone to create charts and maps or reuse the data through the platform's open APIs. Future plans include extending the sensor network to include soil sensors to measure moisture in sports facilities and gardens to enable greater water efficiency and early warning systems for potential flooding. SGSC's smart city project is helping the council deliver on its long-term vision to transform its rural community into a thriving smart, connected community, and is reducing the digital divide by providing everyone with strong connectivity, digital opportunities and relevant use cases.

> *The Opendatasoft platform allows our community to create their own visualizations and slice and dice the data any way they choose. Commencing with localized weather data and parking data, Southern Grampians Shire Council will continue to add datasets to this user-friendly community portal.*

Russell Bennett
Manager Business Systems

Southern Grampians
SHIRE COUNCIL

Click here to download a full case study on Southern Grampians Shire Council

Western Parkland Councils collaborate to create a connected smart city

4M
data points connected per month

170+
sensor locations

180+
datasets

The Western Parkland Councils area is one of the fastest growing areas of Australia, with its population expected to rise from 1 million people in 2020 to 1.7 million by 2036. The Western Parkland Councils is an alliance of the area's eight local councils, who have committed to working collaboratively to deliver better outcomes for their communities and the Western Parkland City.

In order to measure population growth, and the impact of development and urban growth on the environment the eight councils have established the Western Parkland City Sensor Network Project. This has created a shared, scalable sensing network, data sharing platform, and data governance processes across all of the councils. Opendatasoft's data sharing platform is at the core of the technology, deployed by its partner Peclet Technology alongside the Ubidots IoT management platform.

Data is now collected from a range of sensors:

- Environmental sensors, measuring soil moisture, air quality, weather stations, water quality and noise levels.
- Movement and counting technologies, including people/device counters, CCTV and thermal cameras.

All of this data is collected and then shared internally and made publicly available via APIs and dashboards. It is shared through nine data portals, one for each individual council and an overall project portal.

Through the project, the councils have created a connected, smart city built on data. This enables them to minimize the environmental impact of development by monitoring over 4 million monthly data points, maximize the return of economic development initiatives by collecting people and vehicle movement data, to measure the effectiveness of projects, all while streamlining council operations and enhancing service to customers.

> *It did not take us long to reach consensus on selecting Ubidots and Opendatasoft and partnering with Peclet, as it is giving each council the flexibility to have their own secured environment and branding while providing us the ability to easily share data between us, with our business partners and with our community.*

Sharlene Van Leerdam
Business Solutions Manager

CAMPBELLTOWN CITY COUNCIL

Read more about Western Parkland Councils in [our in-depth case study](#).

OPEN DATA

Bristol uses smart sensors to monitor and report on air pollution

237
datasets

685
air quality monitoring sites

More than **1M**
API calls in the last three months

Bristol is the fastest growing city in the United Kingdom and boasts a unique vision of urban sustainability. It is a pioneer in innovative solutions for public services such as energy and waste management.

As part of its drive to become smarter the council wanted to successfully engage stakeholders and residents, share relevant data with businesses, and use technology to meet sustainability requirements.

One area it is focusing heavily on is sharing information on air quality across the city. Through an open data dashboard available via its Opendatasoft platform it is displaying the results of real-time air quality monitoring, visualizing the levels of pollutants across different parts of the city. This data dashboard helps explain the council's actions and policies, such as around restricting traffic in specific areas, in a clear, transparent way. This engages residents in the process, driving greater buy-in.

> *We wanted to be able to provide information on air quality in an open format that anyone could query, and that is as transparent as possible. A platform that not only allows you to dig into a high level of detail, but allows you to visualize information in a way that is accessible to the vast majority of people. And this model is replicable across any urban monitoring indicator!*

Steve Crawshaw
Program Coordinator for Air Environment

Download a full case study on Bristol here.

CONCLUSION

Delivering the benefits of smart cities cost-effectively thanks to open data

When it comes to public services, the expectations of citizens and businesses are constantly rising, leading to greater competition between municipalities to attract residents and businesses. It is all about the quality of life that a town or city can deliver - both through digital interactions and physically through the facilities and environment it offers. At the same time municipalities need to operate efficiently, maximizing budgets to increase effectiveness, while providing transparency to their stakeholders across all their activities.

Technology is key to meeting all of these demands, with smart city initiatives allowing municipalities of all sizes to enhance the lives of their residents and improve their own efficiency. Open data is the fuel that drives the success of smart cities, whatever their size.

As this ebook explains, smart cities are no longer solely the province of larger urban areas. The combination of available infrastructure, falling hardware prices, open data, and powerful digital software platforms mean they are open to all players.

However, smart city success isn't just about technology - municipalities need to adopt open, data-based cultures and focus on listening and acting on the needs of citizens if their programs are to deliver meaningful results. Taking a long-term, phased approach is vital, building smart projects on top of the right infrastructure to meet the changing needs of residents, employees and businesses alike, and sharing data openly with stakeholders.

Municipalities therefore now have a golden opportunity to embrace technology and cost-effectively build a smarter future for all, built on open data initiatives, openness and flexible data experience platforms.

Opendatasoft and municipal government

For over a decade Opendatasoft has helped public sector clients to open their data to increase transparency, improve efficiency and enable innovation. We work with municipalities and local authorities across North America, Europe, and Australia to help them become smarter through data sharing inside and outside the organization. Our clients rely on our all-in-one technology platform to quickly create and share compelling digital experiences with their data.

Our customers include:

opendata**soft**

Opendatasoft is a global leader in the democratization of data, dedicated to increasing access and data use. It provides an all-in-one SaaS platform that allows all teams to quickly create compelling digital experiences with their data and share them across their internal and external ecosystems, from the technical expert to the consumer or citizen. This allows its customers to accelerate digital transformation and development, positively transform their operations and establish more transparent relationships with their stakeholders.

More than 350 organizations around the world have adopted Opendatasoft's platform. Among them are large companies such as Schneider Electric, Groupe BPCE, SFR, Veolia, Enedis, and Saint-Gobain, government departments in Europe and the United States, as well as cities such as Paris, Vancouver, Lille, Bristol, Namur, and Eindhoven.

www.opendatasoft.com