Spring 2018

Tendances

The Data Journey

The Data Journey

Over 200 years ago, the economist Adam Smith wrote that "land, labor and capital" were the three factors for production and growth. Today data joins them as the fourth production factor, fuelling every stage of the value chain of a modern connected enterprise. It is, without doubt, the lifeblood of innovation and the food that enables companies to grow.

Data is the engine of artificial intelligence, the gears of the industry of the future, an accelerator of team performance and a source of new services for consumers. No matter what the field, data and its collection, circulation and use have become central issues that captivate managers today.

By 2020, the world will produce nearly 2.5 quintillion bytes of new data every single day*. To keep up, businesses will have to move fast to learn how to capitalize on this immense wealth of resources and find the right levers to unlock decisive competitive advantage and boost performance in the world of tomorrow.

Driving this transformation are the women and men who understand and have what it takes to use this amazing raw material for powerful effect. Generated by the tools of the digital revolution, data has to be processed in smart and creative ways in order to deliver its full potential.

This paradigm shift has pushed companies to reinvent their existing business models. Encouraging collaboration between departments and allowing new talents to rise is the only way companies will find the light to guide them in the data odyssey.

Within this world of data, we have staked out our identity as an infrastructure and services provider, acting as the heart and lungs that allow data to circulate faster and more smoothly. From collection to analysis, including transport, security, sharing and storage, **we support our customers through every step of their data's life cycle**.

*Source: IMS wResearch study.

Helmut Reisinger
CEO Orange Business Services

Unleashing the value of data

Whether it comes from connected objects, social media, CRM or other sources, data has an almost infinite value for businesses that know how to process it, as long as the proper organization is in place to unleash all of its potential.

With the digital revolution, businesses are producing more data than ever before. Gathered from different sources and highly diverse, this data is no more than a raw material until it is processed. That means businesses must rethink their organization in order to transform all the disparate elements into useful information.

Strategic, organizational and financial benefits

Data is a source of value creation — new customers, preventive maintenance, optimized management of resource, new services, predictive consumption models and more — so many ways that businesses can reduce costs, boost revenue and optimize management.

Bringing structure to the data journey

Businesses need to reorganize their operations around a structured data path. A fundamental element in this process is high-performing technology infrastructure that can take full advantage of generated data. Data's value is intrinsically linked to its processing time — data must reach the right person at the right time.

Becoming data-driven

Though businesses may have vast stores of data at their disposal, it's their ability to transform this data into useful information that will unlock its potential value. For this reason, a strong data strategy must be multidimensional: continuous collection, secure storage, processing with smart analysis tools and sharing with various services and customers.
"The biggest challenge for businesses today is to identify and operate value-creating data sources in an agile way," concludes Olivier Ondet, SVP IoT & Analytics at Orange Business Services.

75%

of businesses plan to integrate artificial intelligence and big data into their strategies by 2020.

Source: The Economist Intelligence Unit, "Artificial Intelligence in the Real World" (2017).

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Successful data-driven transformation by AccorHotels

In late 2014, AccorHotels initiated a digital transformation plan with the goal of becoming a data-driven company within five years. Now at the halfway mark, Fabrice Otano, Chief Data Officer with the Group, reviews the challenges and strategy of implementing the plan.

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Why did AccorHotels decide to implement a digital transformation plan?

Fabrice Otano: The CEOs and teams at each location have the ability to make decisions that are appropriate for their establishments, just like the captains of ships. They each have a vast wealth of experience in their business, which enables them to react based on their intuition. However, we are entering a competitive and disruptive environment with the arrival of new players such as Airbnb, Booking.com, etc. That has made our choices and decision-making processes much more complex. Intuition alone is no longer enough. Data has become an essential tool.

What are your challenges in this area?

F. O.: In today's world, people can no longer steer their businesses optimally without using data. Not only is that true for hotels, it is also true for the ultra-digi-tized functions across every industry (customers, e-commerce, marketing, etc.). Our strategy is to turn AccorHotels into a data-driven company — a company that can take full advantage of data (to generate revenue), become more predictive (to better anticipate demand) and expand our data capabilities (with more efficient tools and more autonomous analyses).

How does data figure into the larger corporate strategy at AccorHotels?

F. O.: Soon, AccorHotels will no longer own any hotels. Instead, our role will be providing services to hotels, and data will play an essential part in that role. First, because we will need to be able to justify our actions and provide evidence of profitability, and simple business intelligence is not enough to do that. And second, because data will be the key resource that we'll have to offer more competitive services.

What is your action plan?

F. O.: Our action plan is divided into three steps. The first step was to rethink our central and local organizations. We physically united onto a single platform all the teams working on data across the Group's various countries and departments. Then we created communities of business analysts and revenue managers specifically tasked with relaying information from the hotels. The second step involved renovating our infrastructure and making our data chains more reliable by acting on issues of governance, guidelines and compliance. We are already seeing the initial benefits of these efforts. For example, in terms of business moni-toring, reporting tools and indicators are now shared by everyone. Also, our progress in the area of data science (particularly in terms of customer value) enabled us to create our own price recommendation system.

What is the next step?

F.O.: The third step, which we will soon begin, will put all of this into action. Our goal is to put data to use in our operations. This phase includes support for users. They need to have total confidence in the new information. When algorithms and real-time come into play, people can feel overwhelmed and reject the new solutions. Therefore, it is essential that we provide training, communicate and promote an understanding of what we are doing.

What is your latest innovation in terms of data?

F.O.: We just recently developed one of the first applications available on Google Home. Thanks to artificial intelligence and machine learning, customers can audibly interact with our chatbot to get recommendations about our offers, find a hotel and more.

Can you briefly describe what projects you think are essential to any data strategy?

F.O.: Four projects should be carried out simultaneously finding data, setting up the infrastructure to use the data properly, recruiting people with the skills to manipulate the data and identifying use cases to justify the investment. The hard part is making progress on all four at the same time.

> **"Reflexes alone are no longer enough. Data has become an essential tool."**
>
> **Fabrice Otano,** Chief Data Officer, AccorHotels Group

Orange Business Services: putting people at the heart of data

To accompany its customers in their data-driven transformation, Orange Business Services assembled teams of experts at every step in the data journey — all driven by an unparalleled 360° vision.

"Data is not a technical subject, it's the story of the men and women it endeavours to serve," explains Vincent Brunet, Chief Marketing Officer at Orange Business Services. The challenge for businesses is to transform the precious commodity of data into pertinent and rewarding information for their teams.

Transforming data into value
Receiving support is crucial to ensuring a successful transformation. Businesses must design data-driven strategies that cut across departments at every step, from developing a data project to measuring performance.
Orange Business Services has assembled hubs of experts at every step in the data

163 bn

terabytes — the volume of data to analyze by 2025 — eight times more than in 2016.

Source: "Data age 2025." Seagate, April 2017.

journey: collection, transport, protection, storage, sharing and analysis. Running through all these functions is the same common thread: orchestrate, operate and optimize.

Comprehensive support
In terms of collection, 700 IoT experts work in a vast range of sectors — smart cities, health, finance, transport, industry, etc. For data transport, Orange Business Services can rely on its extensive knowledge of networks, including low bandwidth, mobile, fixed, international, virtual and more.
"Our value-add comes from knowing how to combine technologies to offer our customers the most reliable connectivity solutions designed for their projects," continues Brunet.
This same approach also applies to data storage. Sixteen hundred cloud experts roll out tailored solutions for their customers, while paying extra attention to questions of governance, privacy and security.

First cybersecurity operator in France
Orange Cyberdefense emerged to meet the need for more efficient methods of combatting cyber threats. Its 1,200 experts deliver solutions that combine technology and people power to secure companies' activities and help protect them against a threat with many dimensions.
"Security models must be improved, enriched and reinvented on a permanent basis," underlines Fabrice Mourron, CTO at Orange Cyberdefense.
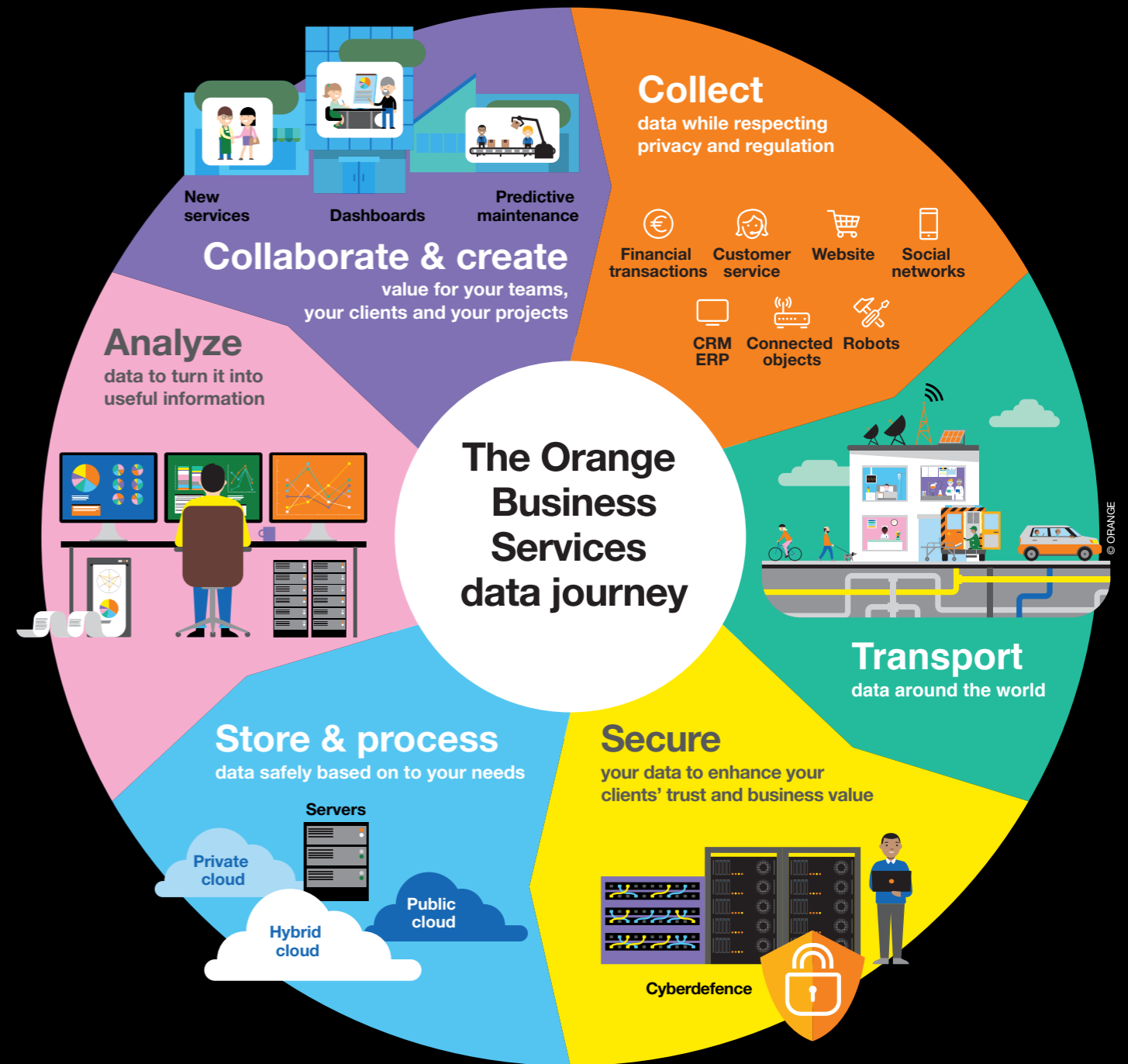*"The challenge consists of finding the right balance between agility and security."*

The magic moment
Finally, Orange Business Services helps its customers analyze and process their data, so they can transform it into value. Its team of cyber intelligence experts helps businesses turn information into insights.
This skill is backed by recognized expertise in application design to develop simple and intuitive decision-making tools.
Their goal is to empower teams to create value by adapting to the needs and demands of customers and employees in real time.

The Orange Business Services data journey

Collect — data while respecting privacy and regulation
Collaborate & create value for your teams, your clients and your projects
Analyze data to turn it into useful information
Store & process data safely based on to your needs
Secure your data to enhance your clients' trust and business value
Transport data around the world

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Data culture: long live data literacy!

The avalanche of data generated by digital transformation is shaking up businesses. Transversal by nature, data breaks down organizational silos by encouraging a collaborative approach that allows everyone to become an agent of change.

It's true: the businesses that will succeed in tomorrow's world are the ones that integrate data into their corporate culture. To make that happen, a data culture must extend beyond specialists and be shared by all of the company's employees.

Data for everyone
One of the main uses of data is to monitor the company's performance in real time and understand user behaviors. It also enables detailed control of activities, with the ability to tweak operations at any time. Data must be shared as widely as possible across the organization to give employees the resources they need to make the best decisions.

Supporting change
As the pillars of change management, upper management and human resources play a key role in driving this transformation.
They must communicate the meaning of the data-driven strategy to employees, reassuring them that people are the heart of the organization.
With respect to customers, data enriches the human relationship by creating more frequent and meaningful interactions. Internally, data helps to refine teams' business vision by measuring the performance of actions taken with extreme precision.

Setting the company in motion
Internal training is an indispensable tool in the transformation process. In addition to the development of new functions, data affects every area of the business. The entire ecosystem must evolve to ensure that the company's future is firmly data-driven.

79%
of companies say that data scientists are important to their success.
Source: SAP, "Data 2020." August 2017.

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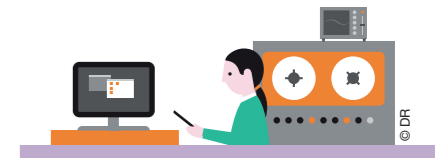
Blue Search: data specialists wanted

Data can serve as a powerful lever of productivity and innovation, as long as a company can update its organization, according to Pierre Cannet, CEO of Blue Search Conseil, a recruitment consultancy specializing in new technologies.

How does data contribute to internal transformation?

Pierre Cannet: Data is not just for marketing anymore. Its use extends to every discipline, transversely.

It provides a better way to plan for the obsolescence of machines, to manage production chains and to organize workstations.

Above all, it delivers a powerful opportunity for managers to rethink their business models and design new services, as long as they have surrounded themselves with talented people capable of analyzing the data and extracting the insight necessary for resolving problems and making decisions, such as whether or not to launch a product, which products to offer at what price, which customer segments to target, etc.

The Chief Data Officer, working at the crossroads

When it comes to data, the Chief Data Officer (CDO) serves as the central and primary contact. This position maintains a broad understanding of the company's business challenges through close collaboration with the company's top managers. This is critical, since the CDO is responsible for driving the data strategy and recommending the most appropriate applications. In addition to this global vision, the CDO also maintains a technical vision.

To be able to establish the appropriate infrastructure for acquiring quality data, the CDO must interface with and understand the constraints and challenges of the technical teams. Lastly, as the one in charge, the CDO is responsible for determining what type of data to collect, with consideration for the issues at hand.

What organization can enable the best use of data?

P. C.: The rise of data goes hand-in-hand with the arrival of new job descriptions. Three positions in particular have become standard, redefining the scope of services within the company.

The first is the Chief Data Officer, now a key internal player in digital transformation, whose role is to define a strategy and ensure its implementation. This position is supported by the Data Analyst, who collects and analyzes data, and the Data Scientist, who works on more complex issues like developing algorithms. And more organizational changes are on the way.

For example, the increase in data volumes will surely expand the importance of artificial intelligence and its specialists — engineers, connected-object designers, deep learning and machine learning experts, etc. Not to mention all the professions that do not yet exist but will certainly emerge with each new technological revolution.

How should companies manage this transition?

P. C.: In order to acquire these new and specialized skills, businesses should encourage internal mobility through training, while also recruiting additional resources.

That will be necessary to obtain employee support of the changes and enable external talents to be welcome as associates.

The Data Analyst, making sense of data

This expert in statistics and tools for collecting, exploring and storing data is a new, though already essential, player in digitization. The Data Analyst's role consists in identifying the most relevant data to collect, based on the needs expressed by each department. Then the job of processing and analyzing the massive volumes of data can begin. The Data Analyst organizes the data for the benefit of decision-makers, employees and customers and communicates the results of their work by developing dashboards, data visualizations and other reports, which provide valuable insight to the business's management teams. More broadly, the Data Analyst is able to identify patterns and trends from which to discern development opportunities.

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Bosch: step into the factory 4.0

By digitizing and robotizing its Mondeville production site in Normandy, Bosch turned to connectivity and data to become more competitive. Pierre Bagnon, Electronic Manufacturing Services (EMS) Director, looks back on this successful operation.

© BOSCH

Can you talk about the history of the Mondeville site?

Pierre Bagnon: The Mondeville plant has gone through a series of transformations since it was built 50 years ago. The latest transformation — tied to its digitization and robotization — came three years ago. We wanted to equip our company with a resilient and agile production facility to meet new industrial challenges, particularly those tied to connected products. We also needed to find ways to boost our productivity, so that we could keep our industrial jobs in France. Our expertise enables us to meet the most complex industrial challenges and win over new customers, including major groups and start-ups like Devialet, among others.

How do you use data on your production lines?

P.B.: The first way we use data is in machine-to-machine communication. Each position in the assembly chain can exchange information about its performance and decide whether or not to apply corrective actions. Data also enables better communication with the operators. Machines send them information about their status, available parts inventory and more.

That enables maintenance workers to take action before machines break down. Another application is total traceability: not only can we trace the product, we can now also trace all of its parts.

What benefits do you unlock from using data in this way?

P.B.: The benefits that we've gained through the use of data can be seen in our performance indicators — fewer quality defects, fewer losses and fewer breakdowns. It also improves the time it takes to change production lines. We can change a product in five minutes, while the average time in France is 30 minutes.

How will data impact the work performed by people?

P.B.: One example is with manual assembly. We set up connected workstations where sensors, data and intelligence all serve to help users. The

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Bosch Mondeville

€200m revenue

600 employees

2bn electronic parts installed each year

7 high-speed production lines

Factory of the Year Award 2017

> ## " Our expertise enables us to meet the most complex industrial challenges."
>
> **Pierre Bagnon,** EMS Director at Bosch

assembler wears a bracelet equipped with ultrasound, while an overhead 3D camera provides precision. A touchscreen and lighted display can also help with assembly.

The 3D camera analyzes the assembler's movements and warns of any risk of error. This makes manual assembly more efficient and easier for operators. It is even possible to view a complete history of the manual operations performed. Another revolution that data has offered: all production data collected in the factory is available and displayed on large touchscreens during daily reviews. This enables the whole team to analyze production in a dynamic and interactive setting.

Do you also communicate the data to your customers?

P.B.: We can indeed communicate with engineering offices, share test results with them in real time, alert them of a parts shortage, etc. The feedback has been very positive. Our customers can monitor their production on a daily basis and with full transparency. Offering this service required specific developments that guarantee the robustness and security of our IT solutions, especially in terms of virus or IT attack risks.

How do you see the future of industry?

P.B.: Industrial production involves a great deal of uncertainty that must be managed on a daily basis. In order to more precisely model these risks, we can still draw on the vast quantity of data currently stored in data lakes. This will enable us to continue improving our production continuity.

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Data: an innovation accelerator

Fuelled by the data generated by connected objects and information systems, artificial intelligence will improve considerably and reshape the world of tomorrow.

Data, automated learning and algorithms have already become standard features of business and everyday life. And the phenomenon is set to grow even further.

The ingredients of the digital transformation
Digital transformation relies on fundamental elements that are currently experiencing unprecedented acceleration: artificial intelligence (AI) and processing power.

However, to continue to develop at this pace, they need the data generated by information systems and connected objects.

What links artificial intelligence and smart systems is the telecommunications network. It transports data to AI systems and transfers the decisions to smart objects.

Transforming practices
These innovations are shaking up business functions regardless of the sector, with marketing at the forefront of the changes.

Brands can now build enriched and omnichannel relationships with their customers to offer an extremely personalized experience.

Using data to serve users
In cities, data meets the needs of residents by optimizing the management of public space, security and energy consumption.
With the emergence of self-driving vehicles, AI and data are revolutionizing mobility and redefining territories.

Another promising horizon is health, where innovation is set to improve quality of life for everyone.

74%
of companies believe digital innovations will help to improve the quality of customer relations.
Source: Boston Consulting Group "Evolution of customer relations." October 2017.

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American Express: data reinvents relationship marketing

How can data help brands conquer new customers and mobilize their existing ones? Insights from Jean Diacono, VP and General Manager of Global Merchant Services at American Express.

Why has data become the new gold of marketing departments?

Jean Diacono: The challenge for marketing departments is to offer customers and propects the right product at the right time. Data is essential in performing that task and enables companies to better understand and analyze consumer behaviors.

However, while data is critical, quality is even more important. Knowing what people do, what they like and what they don't like remains an extremely complicated task.

What strategies do brands employ to gather this information?

J.D.: One classic method for gathering data involves creating a loyalty program. These programs focus on customers' demographic data, as well as their tastes and preferences.

There is a limit to this strategy, however: it only sheds light on purchases and habits within a single store.

It provides no insight into customer behavior outside the store, or about consumers who are not yet customers of that store.

What makes your data different?

J.D.: Our distinction is that we have information from many retailers, in a wide range of industries. Our payment model places us in a closed circuit:

we have access to data pertaining to our cardholders and the retailers that accept our cards.

Our Business Insights department collects this data and analyzes it in real time to obtain powerful behavioral data.

We use this insight to help our partner retailers optimize their marketing campaigns by promoting their products and services among cardholders through affinity campaigns.

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What types of actions can brands implement by using your data?

J.D.: Our Amex Offer digital platform makes it possible to create offers focused on the brand's targets, such as gaining new customers or retaining existing ones. The targeting algorithm helps to present these offers to customers based on their specific tastes. It offers many options — incentives to visit stores, cash back for a certain average purchase amount, etc.

Brands can also identify their customers' affinities for other stores. They can use this information to set up partnerships and develop joint offers.

> ## " Data helps brands offer the right product at the right time."
>
> **Jean Diacono,** VP and General Manager, Global Merchant Services, American Express

How can companies do even more with data?

J.D.: We launched a new solution in the United States in 2017: Amex Advance. It combines our big data and machine learning skills to develop predictive modelling of purchasing behaviors. This has led to some surprising and significant discoveries.

For example, we noticed that in the United States, customers spent about 1.8x times more at the barber or hair stylist during the six months prior to a wedding proposal.

It's possible to use these predictive models to boost the performance of ad campaigns by targeting relevant groups.

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Data will build the city of tomorrow

Since 2015, Cécile Maisonneuve has managed La Fabrique de la Cité, a think tank dedicated to urban innovations and foresight. Its goal is to bring together public and private players to develop a common vision for the city of tomorrow — which is a city where data will play a central role in improving life for residents.

What is your définition of a Smart City?

Cécile Maisonneuve: Though the Smart City is shaped by the digital revolution, that doesn't mean it's only a connected city. The Smart City is not a product, it's a process. It's a new way of doing things, powered by digital technology, which has wide-reaching impacts, especially in terms of mobility, energy and security. Cities are no longer designed in terms of silos such as infrastructure, transport, buildings, business, etc. They now center around the habits of residents and take a transversal view of how cities function. As such, they rely on a flood of data from a broad range of sources: public operators, citizens, car manufacturers, telephony operators, etc.

Do you have any examples of these transversal practices?

C.M.: I can mention two cities experimenting with pooling their data. Boston, for example, formed a partnership with Waze. Waze shares its traffic data with the city, which in turn provides its information on construction, road closures and more. The result: traffic reduced at certain intersections by 20%. In France, the Lyon metropolitan area set up a platform for distributing urban data. It enables the various participants to share their data and optimize their services in different sectors, including airports, air quality, acoustics, mobility, bikes, etc.

What is the next step?

C.M.: First we understand, and then we manage. For example, Dijon innovated by launching a large-scale call for bids to manage a diverse range of services — street lights, highways, video surveillance, environmental data, etc. — through a centralized operator. It's a step towards integrated urban management. On the one hand, it will transform the city's organization and services. On the other, it will require operators to collaborate within consortiums to meet these new demands.

What will our cities look like in 20 years?

C.M.: Many different scenarios are possible, depending on how technology and practices evolve. In terms of transport, for example, one possibility is that small, autonomous vehicles may become the standard. Fleets of these vehicles may fill our cities and help to optimize routes and congestion. Studies conducted by American universities show that these solutions could cut the number of vehicles in cities by a factor of 10 which would radically reshape our cities. Freeing up space on roads would mean more room for pedestrians, bikes and new construction, while combating urban sprawl.

What other sectors may be impacted?

C.M.: In terms of energy, we may see urban microgrids appear alongside distribution grids. Neighborhoods would manage their own energy through a transversal approach — energy being used at offices during the day, then shifting to homes at night, electric vehicles used as backup storage tools, etc. Another major research area is focused on security. A lot of security-related data is collected today, especially through video surveillance. The question now is to determine how to use that data to improve security for citizens without taking away at their fundamental freedoms. Do we want a system like in China, where police are testing facial recognition glasses linked to wanted person records so they can identify these individuals in a crowd?

What limits might stand in the way of these new practices?

C.M.: Technology is not the limit. The primary impediment comes from society. Cities are not just technical constructions. They are people, first and foremost. If we take a purely technical approach to the city of the future, it will never come about.

> " One possibility is that small, collective vehicles may become the standard. ”

Cécile Maisonneuve, President of La Fabrique de la Cité

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E-health: for the benefit of patients

Data is opening up promising avenues in the health industry, and is pointing the way towards a more efficient and personalized form of medicine.

One health trend has already gained widespread popularity: self-monitoring on a daily basis using smartphones and other connected objects (watches, blood pressure monitors, etc.). *"These are the beginnings of a new method of managing one's health"* predicts Lyse Brillouet, Director of the Digital Society research field at Orange Labs, *"one that favors preventive over curative care; one that takes a different approach to patient responsibility."*

For health professionals, data is already revolutionizing care practices and the relationship to diseases, for example, through the development of robotics. Major changes will come from elsewhere: *"Virtual reality, combined with data collection and modelling capabilities, should transform methods for teaching and updating skills,"* says Brillouet, *"not to mention all the research based on decoding and using the human genome. But the challenges are both technical and ethical in this field."*

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Personal data: the GDPR revolution

Starting on the 25th of May, 2018, all companies that collect personal data from citizens in the European Union must follow the new requirements outlined by the European General Data Protection Regulation (GDPR).

"IT, legal, marketing—every function within the company must work together to carry out this mandate," explains Steve Coope, Lead Regulatory and Compliance Counsel at Orange. The text lays out several new rules: privacy by design, obligation to keep records of data processing activities and to conduct privacy impact assessments, designation of a Data Protection Officer, prior consultation with the Data Protection Authority for high-risk situations, consent limited to a single and precise use, responsibility of service providers, etc.

"The GDPR demands an unprecedented effort of compliance that will impact companies' data strategies," advises Coope. *"But it's also a unique opportunity to improve consumer confidence and develop business."*

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