THE FUTURE THROUGH THE EYES OF EXPERIENCE

2014 CORPORATE REPORT

DASSAULT SYSTEMES | The **3D**EXPERIENCE® Company

Summary

Vision

The world needs harmony and imagination. When we change the way we see things, we change the world. Inventing the future calls for a new type of experience, one that fires the imagination, is all-embracing, and easy to share. Virtual worlds achieve just that – revealing and achieving all that is possible. This is also what underpins the human, scientific, industrial, and economic purpose of Dassault Systèmes' project to harmonize products, nature, and life. **3D**EXPERIENCE® lends a human dimension to urban environments, helps us to read nature, and revolutionizes life sciences. **3D**EXPERIENCE reveals and unleashes extraordinary potential for progress and growth, making sustainable innovation happen. There is so much still to create! The world is watching us, showing us the way, and inspiring us. We must take a fresh look at the world we live in. We must invent the future through the prism of experience.

3DEXPERIENCE reveals and unleashes extraordinary potential for progress and growth, making sustainable innovation happen.

Bernard CHARLÈS
PRESIDENT
& CHIEF EXECUTIVE OFFICER

Charles EDELSTENNE
CHAIRMAN OF THE BOARD
OF DIRECTORS

2014, a year of strategic advancement for Dassault Systèmes

2014, A YEAR OF STRATEGIC ADVANCEMENT FOR DASSAULT SYSTÈMES

2014 was a year of strategic advancement towards realizing our purpose: providing **3D**EXPERIENCE universes to harmonize, product, nature, and life and to deploy our strategy to propose our clients in the 12 industries we serve a solution to maximize their products' success.

We advanced our purpose, focusing all our teams, notably our 5,500 R&D engineers, and also implementing strategic acquisitions, such as Accelrys, which expanded our addressable market in Life Sciences and materials and made possible the creation of our new brand BIOVIA, in global business operations planning with QUINTIQ, and in digital marketing with 3DEXCITE.

On continuing Dassault Systèmes' transformation, we successfully strengthened the organization and efficiency of our direct sales forces in all regions. We furthered sales channel transformation and increased the responsibility of country managing teams, providing our customers the benefit of a global company with strong local presence. Finally, it is worth mentioning that these strategic and organization works have been implemented while delivering on all the financial objectives we set.

TRANSFORMING OUR OFFER TO IMPROVE VALUE DELIVERED TO CUSTOMERS

To reach our ambitious mission and realize our strategic objectives, we have over the last three years created a **3D**EXPERIENCE platform, reshaped our applications portfolio to support industrial processes and adapted all facets of our organization.

Supporting our clients' innovation processes, the **3D**EXPERIENCE platform relying on V6 architecture helps our clients to unify marketing, engineering departments, operations and services efforts on a common collaborative platform available on premises and on the cloud. We launched our first cloud offerings during the year, with our software acting as a game-changer in areas such as simplicity of deployment and reduced cost of ownership.

STRENGTHENING OUR GO-TO-MARKET, EXPANDING THE ROLE OF GEOGRAPHIES AND PARTNERSHIPS

As a large and growing corporation, we want to benefit from operating as one Company to synchronize our strategy evolution with our targeted market's commercial coverage. From a go-to-market perspective, we have been adapting our sales channels to selling our industry solutions experiences, reinforcing responsibility at the local level, improving our sales process, and increasing our industry expertise in our new targeted verticals.

With respect to our indirect channels, we have been extremely careful in recruiting new commercial partners with an expertise in the new industries we are serving.

Finally, we are continuously reinforcing our partnerships with system integrators, ensuring that we have the appropriate partners with the adequate expertise in the right geographies to support our customers in deploying our software, extracting the full value of our industry solution experiences, while working together to accelerate deployments for the benefit of our clients.

ENRICHING OUR PORTFOLIO TO EXPAND OUR ADDRESSABLE MARKET

The acquisitions undertaken in 2014 are underpinning the deployment of our strategy while targeting new domains, notably molecular chemistry. Our largest acquisition during 2014 was Accelrys, now a key component of our BIOVIA brand. In addition to a leading presence in life sciences, BIOVIA has a number of customers in aerospace, chemical industries, as well as in High Tech and Consumer Packaged Goods. This acquisition illustrates how our diversification is beneficial to our current customer base, accelerating innovation at the intersection of multiple industries or disciplines.

With the acquisition of QUINTIQ, we have the capability to manage the most complex business planning challenges, bringing to Dassault Systèmes a technology second to none, and expanding our capabilities to provide new levels of innovation, operational efficiency and performance to many customers in production planning, workforce and logistics optimization. This acquisition complements the Dassault Systèmes range of technologies, from product inception to operations and logistics.

We expanded into digital marketing with the acquisition of RTT, now 3DEXCITE, which fits well with our strategy to support customers' innovation processes from ideation to sales and consumer experience, extracting marketing

"To reach our mission and strategy objectives, over the last three years, we have reshaped our applications portfolio and adapted all facets of our organization."

products from 3D design data. 3DEXCITE provides digital marketing solutions to automotive, aerospace and consumer goods companies.

These acquisitions should be considered in the broader context of developing our talents. Over 3,000 people joined Dassault Systèmes in 2014, bringing our total number of employees to 13,312. Our Research & Development department, which includes more than 5,500 people, represents a collection of talents unique in the industry.

ACHIEVING GROWTH TARGETS

In 2014, all our financial objectives have been reached. In constant currency, non-IFRS total revenue increased 16% to €2.35 billion on acquisitions and driven by double-digit new license organic growth. Non-IFRS margin improvement partly offset dilution from acquisitions, generating a non-IFRS operating margin of 29.8%. At €1.82*, EPS increased 4%, or an estimated 10% excluding net negative currency impact.
On a regional basis, non-IFRS revenue increased in all three regions. The strongest revenue growth of 20% in Americas benefited from the improved dynamic we saw in North America, particularly in our direct sales channel. In Asia, where revenue increased 15%, driven by Japan, China and South Korea. Europe, with revenue up 14%, delivered solid results, led by our largest region, Germany, notably with sharply higher new business activity during the fourth quarter.

Business diversification in our new targeted verticals continued, accounting for 27% of 2014 end-user software revenue, driven by the contribution of acquisitions in Life Sciences and good progress in CPG Retail, Energy, High-Tech and Construction. Our core industries, Transportation & Mobility also enjoyed a good dynamic and reported double-digit revenue growth on a constant currency base.

With a leadership position in each of their domains, our brands are delivering substantial value to our customers in their different verticals. Our largest brand, CATIA, delivered 7% non-IFRS revenue growth in constant currencies in 2014. ENOVIA, with non-IFRS revenue increasing 6%, saw sharply higher new business activity. We saw good support by SOLIDWORKS, SIMULIA, and our new brand, BIOVIA.

LOOKING FORWARD

2014 has been a year of solid expansion opportunities for Dassault Systèmes, accelerating growth and implementing our strategy. We intend to make further substantial progress in 2015, continuing to improve our processes and notably targeting double-digit revenue and earnings per share growth. We believe that it is critically important to establish strong partnerships to leverage our efforts and to be as close as possible to our clients throughout the world.

"2014 has been a year during which our growth has been accelerating and with the implementation of our strategy, we intend to make further substantial progress in 2015."

We shall continue transforming Dassault Systèmes, progressing towards our long-term vision, becoming the **3D**EXPERIENCE company and delivering sustainable innovation harmonizing product, nature, and life.

Bernard CHARLÈS
PRESIDENT
& CHIEF EXECUTIVE OFFICER

Charles EDELSTENNE
CHAIRMAN OF THE BOARD
OF DIRECTORS

Focus on delivering value
for our shareholders

Objectives reached in 2014, setting 2014 – 2019 EPS growth objectives

Thibault DE TERSANT,
SENIOR EXECUTIVE VICE PRESIDENT,
CHIEF FINANCIAL OFFICER

When we initiated our goals for 2014, we made two strong operational commitments: Delivering two-digit organic new licenses non-IFRS revenue growth excluding currencies and improving organically by 150 basis points our operating margin. It was all the more rewarding to accomplish both these goals because we did so during an extraordinary year of transformation and advancement for Dassault Systèmes.

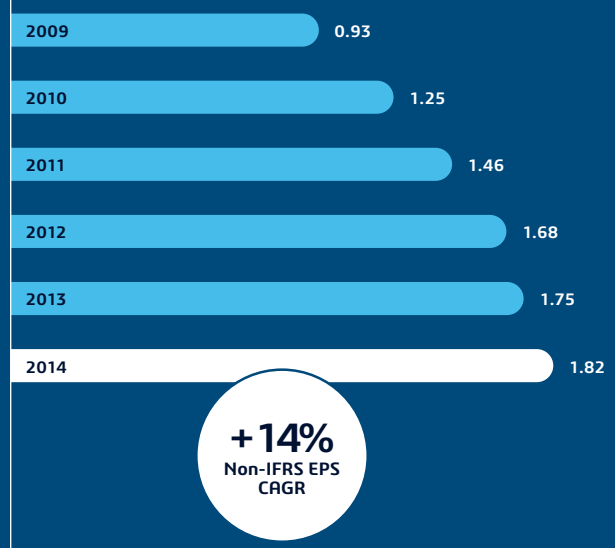
2014 has also been the year of the successful completion of our 2009-2014 objectives, to double our EPS, despite currency headwinds. Our performance was driven by non-IFRS organic software revenue CAGR of about 9% or about 14% when incorporating acquisitions. During the period, we improved sustantially our operating margin, partly reinvested in acquisitions.

Looking to the future, our 2019 non-IFRS EPS goal of doubling again EPS to about €3.50*, unveiled in conjunction with our Capital Markets Day on June 13, 2014, represents about 14% CAGR, top-line driven with multiple key growth drivers, notably including users expansion in core industries, adoption of V6 architecture, diversification in new industries and acquisitions.

These long-term goals are well supported by our 2015 financial objectives, embedding a non-IFRS revenue growth of about 14 to 15% at €2.77 to €2.78 billion.

*EPS adjusted to reflect the two-for-one stock split effected on July 17, 2014

DOUBLING NON-IFRS EPS 2009 – 2014



REALIZING ON ALL 2014 OBJECTIVES

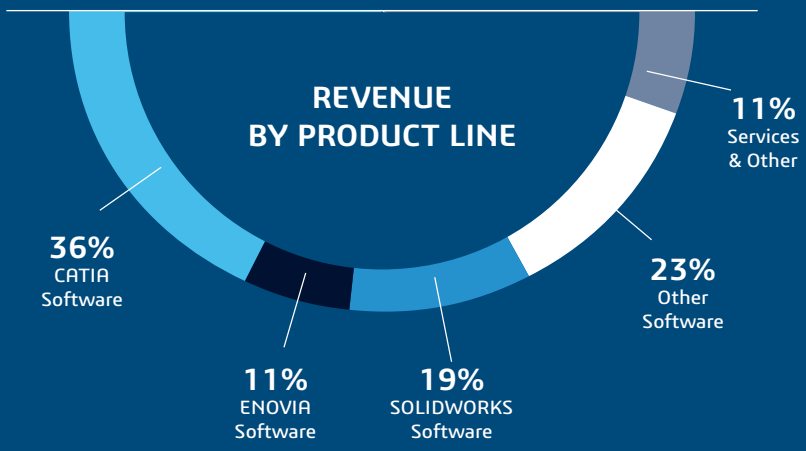
Total non-IFRS revenue growth in constant currencies	**16%**
New licenses non-IFRS organic revenue growth in constant currencies	**10%**
Improving non-IFRS organic margin	**150 basis points**

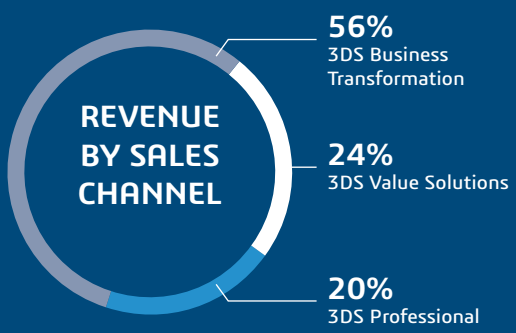
SETTING EPS GROWTH OBJECTIVES

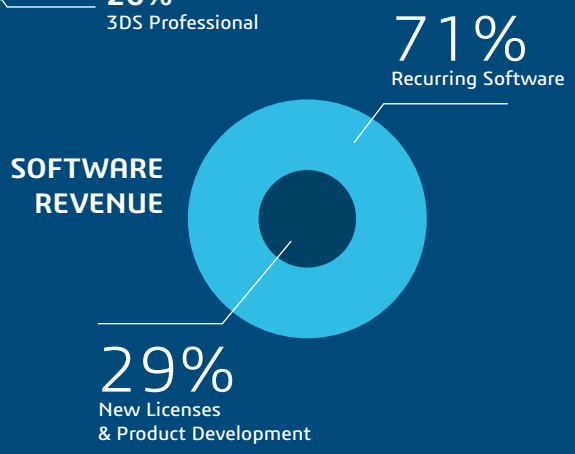
2015 objectives	**EPS € 2.04 – 2.09 (+ 12 – 15% CAGR**)**
2014-2019 plan	**EPS € 3.50 (+ 14% CAGR**)**

** Compounded Average Growth Rate

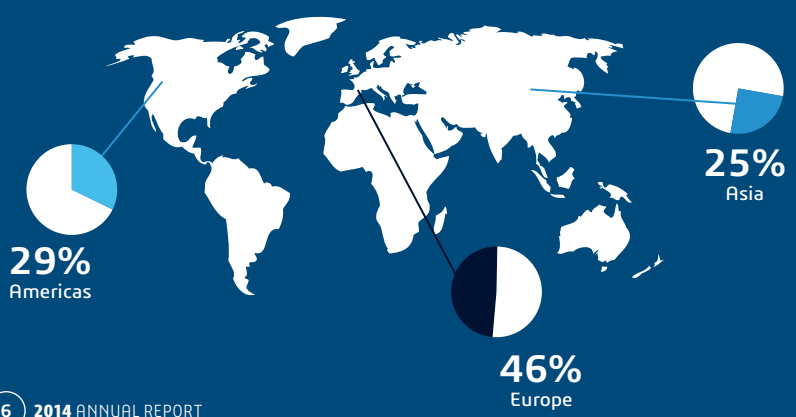
Financial performance 2014

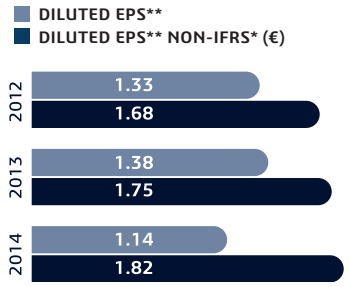


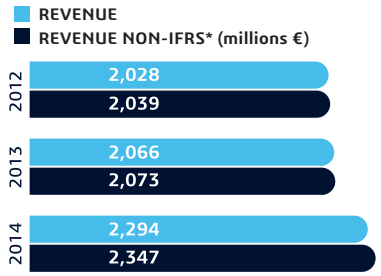


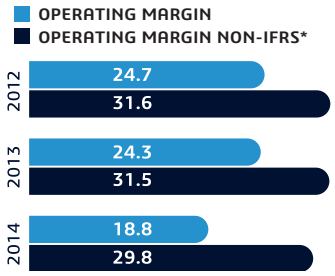


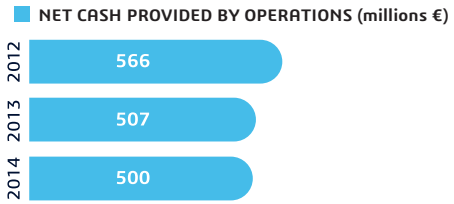
REVENUE BY GEOGRAPHIC REGION





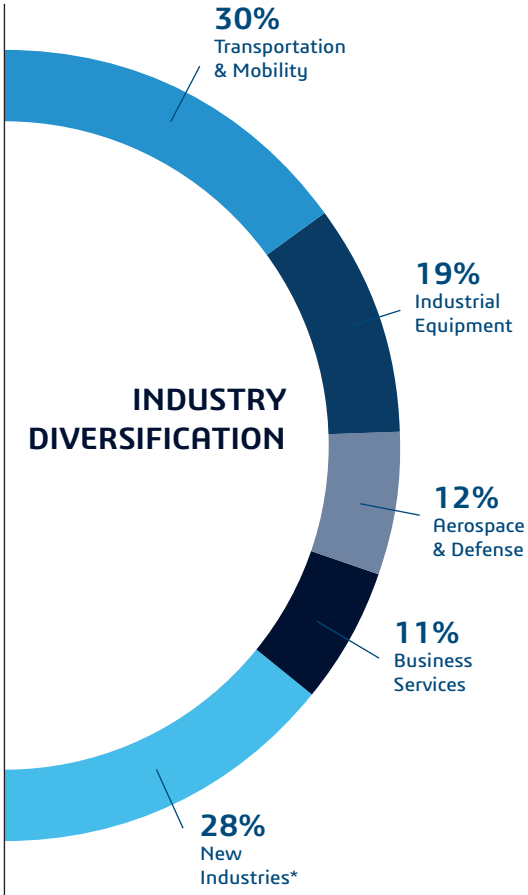






*All financial information is reported according to IFRS. In addition, the Company has provided supplemental non-IFRS financial information which excludes the effect of adjusting the carrying value of acquired companies' deferred revenue, the amortization of acquired intangibles, share-based compensation expense, certain other operating income and expense, net, certain one-time items included in financial income and other, nets, and certain one-time tax effects and the income tax effects.
**EPS adjusted to reflect the two-for-one stock split effected on July 17, 2014.

2014 key facts



* High-Tech, Consumer Goods & Retail, Consumer Packaged Goods & Retail, Life Sciences, Energy, Process & Utilities, Architecture, Engineering & Construction, Financial & Business Services, Natural Resources, Marine & Offshore

Acquisition of QUINTIQ

July 2014
Leader in planning software and supply chain optimization solutions, on-site or cloud-based operations.

FROM 3D MODELING TO THE NOBEL PRIZE

October 2014
BIOVIA worked with the 2014 winner of the Nobel Prize in Physics, Professor Hiroshi AMANO, from Nagoya University.

BIOVIA

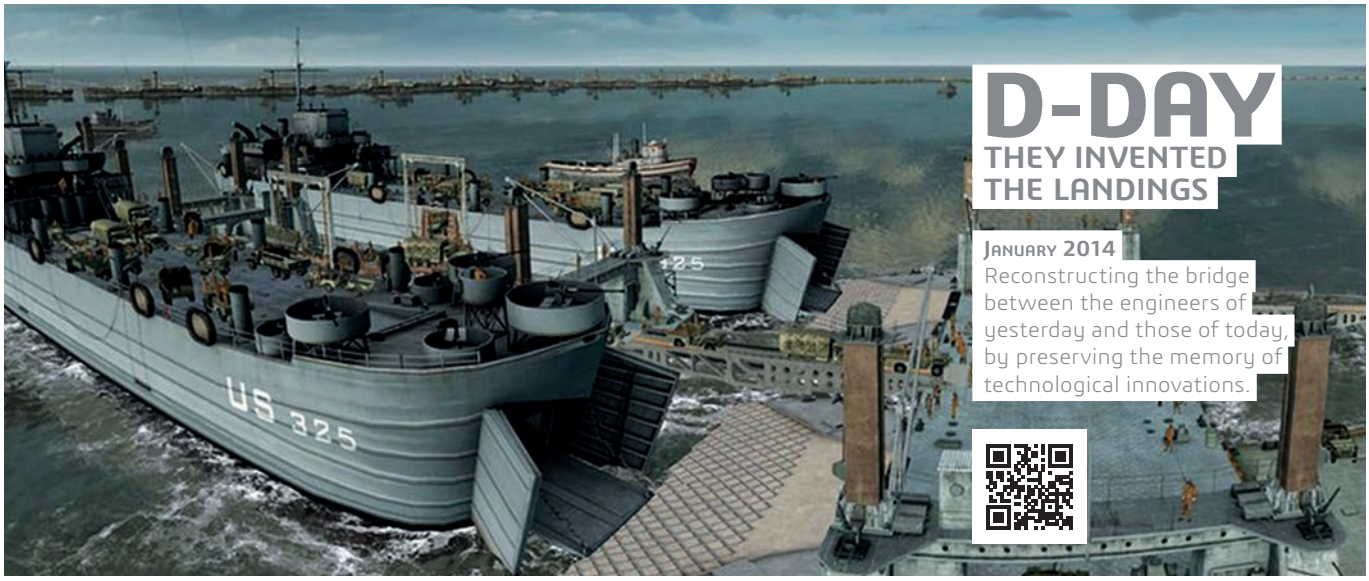
May 2014
A new brand bringing together the savoir faire of Accelrys and BioPLM for the life and materials sciences.

3DEXCITE

Creation OF 3DEXCITE

May 2014
RTT became 3DEXCITE, the brand that lends all its power to marketing in the Age of Experience.

Solutions for
12
industries
in
140
countries



Executive committee

Spurred on by their passion for virtual worlds, the Dassault Systèmes executive team levels up on all the company's talents to become the "**3D**EXPERIENCE Company" and to help its clients transform their business with solutions for sustainable innovation.

Bernard CHARLÈS
President & Chief Executive Officer

Monica MENGHINI
Executive Vice President
Chief Strategy Officer

Dominique FLORACK
Senior Executive Vice President
Research and Development

Bruno LATCHAGUE
Senior Executive Vice President
Global Field Operations (Americas),
Industry solutions and Indirect channels

Sylvain LAURENT
Executive Vice President
Global Field Operations (Asia),
Worldwide Business Transformation

Thibault DE TERSANT
Senior Executive Vice President
Chief Financial Officer

Pascal DALOZ
Executive Vice President
Brands and Corporate Development

Laurence BARTHÈS
Executive Vice President
Chief People and Information Officer

Laurent BLANCHARD
Executive Vice President
Global Field Operations (EMEAR),
Worldwide Alliances and Services

Philippe FORESTIER
Executive Vice President
Global Affairs and Communities

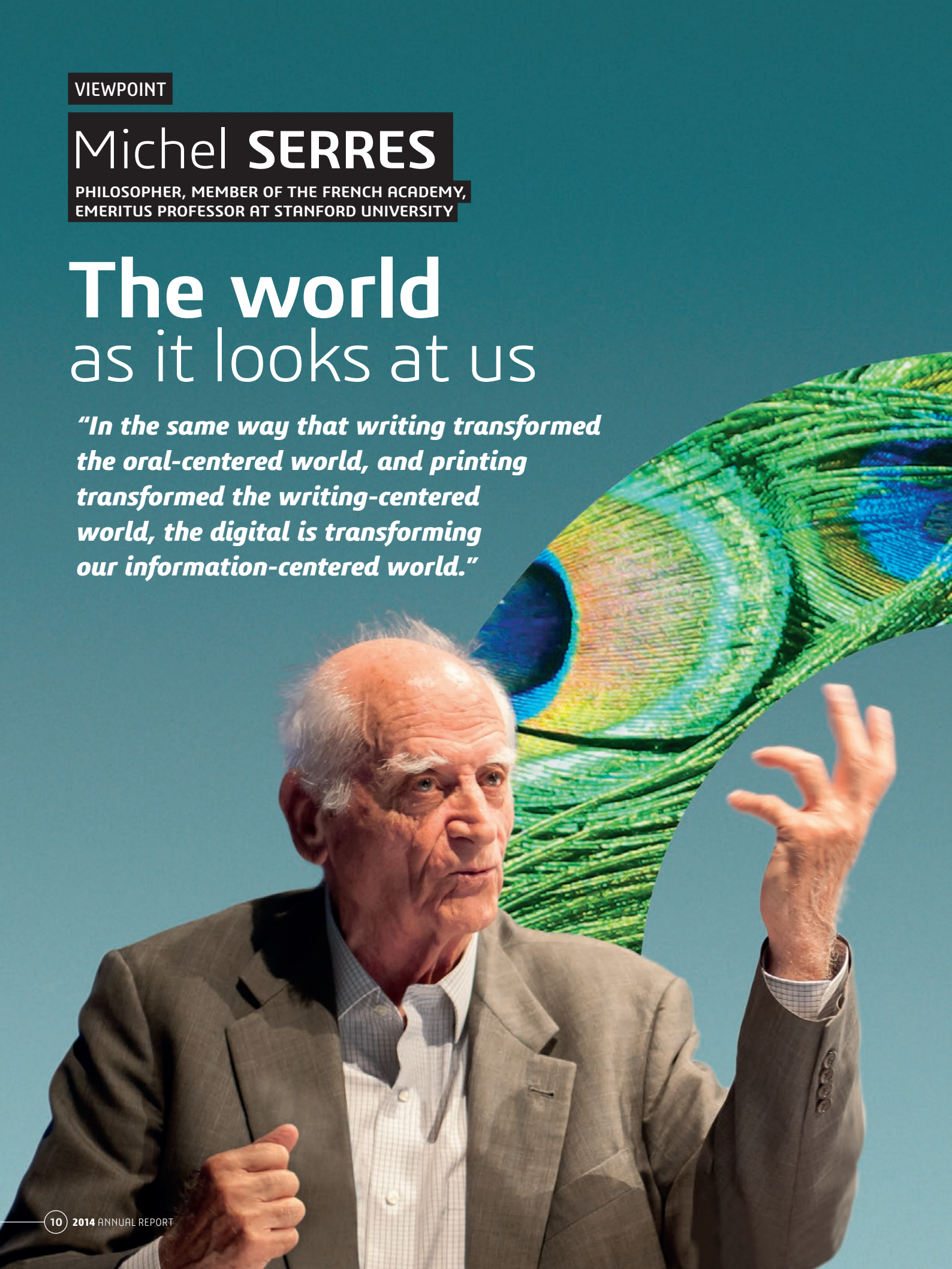
VIEWPOINT

Michel **SERRES**

PHILOSOPHER, MEMBER OF THE FRENCH ACADEMY, EMERITUS PROFESSOR AT STANFORD UNIVERSITY

The world as it looks at us

"In the same way that writing transformed the oral-centered world, and printing transformed the writing-centered world, the digital is transforming our information-centered world."



From where does this atypical idea of a world that looks at us as much as we look at it come?

Michel SERRES: I dream of creating a museum where we can show the world from the point of view of a cricket, a boa constrictor, a rhinoceros... It's slightly narcissistic to only be interested in what humans see. Animals also have eyes and brains but they are structured differently, in such a way that they obviously see the world in different ways to us. But that goes much further because sight is not the only vector of information. As human beings, we receive, we emit, we stock and we treat information. However, these four rules are universal, everything in the world does this much.
And this idea gives new dignity: we can no longer treat the world as an object that we can exploit without difficulty. Thinking that the world is looking at us, is a sort of protection for the world.

What link do you make between this vision of the world and Dassault Systèmes?

M. S.: I'm going to tell you about an extraordinary memory. I originally come from south west France and am old enough to have been able to visit the cave at Lascaux – a revelation. Now the technology from Dassault Systèmes allows me to rediscover this cave with new eyes, with more freedom because we can go through the wall, we can fly...

You speak about caves, coincidentally, the place for 3D experiences are called "CAVEs"...

M. S.: I have 2 other stories to share with you on this subject. The myth of Plato's cave is one that everybody knows. Deep in this cave the prisoners only have access to the shadows. Plato says: "You have to free yourselves from the cave to see reality in full sunshine." The other story is the one that Jules Verne tells in *The Vanished Diamond*. It's about a crystallographer who has the completely crazy idea to find the source of all the diamonds in the world. He then discovers a cave that contains all the precious stones imaginable: emeralds, sapphires, corundum, beryllium, etc. This cave is the opposite of Plato's cave. When we come out of Plato's cave, we are lit the one and only sun. Jules Verne's cave, on the other hand, is lit by the multitude of precious stones.
The truth is multi-faceted; it contains all the colors, all the angles. It reveals itself against a background of black, a background of ignorance. The model of knowledge is more the night than the day. And, Verne's cave is a bit like Dassault Systèmes'. The cave of wonders!
It's a cave that projects a multicoloured view to its visitors. It's also the world of the possible, the virtual, the digital. Like a symbol of the world in which we live.

How do you associate the possible with the digital?

M. S.: The possible is the virtual. The Dassault Systèmes' Lascaux cave is virtual, and, from every angle that I look at it's a possible cave. There is therefore a profound relationship between the digital and the virtual. What's new is that in your professions, you work first of all on the virtual in order to end up in the real. The virtual is the modern day treasure.

According to your point of view, what does this treasure allow us to access?

M. S.: Vision is the classic way of entering knowledge. Moreover, intuition is the view in Latin. Theory is the view in Greek. But, the other senses also participate in the exchange of information. Experience can only be total and immersive if we put all of our senses to work. When we manipulate digital objects, touch is often in play. And, touch is the whole skin, the whole body, in as much as vision is only two eyes.
It's not by coincidence that the heroine of one of my books is called *Thumbelina*.

As well as our senses, shouldn't we also count a little on our imagination?

M. S.: We often think that science is only reason, dry and austere. But, if you have ever done science it is impossible to think of it as stripped of all imagination. Nothing is as poetic as science. Wherever there is imagination there is a dream. Those who say that science is the disenchantment of the world are completely mistaken. Look at astronauts, astrophysicists, or even biologists. Science is pure enchantment. Just like the digital.

What do think about those who say that the digital is the catalyst for the Third Industrial Revolution?

M. S.: It's not just a stage in an industrial revolution. The digital is a total revolution. There was a first revolution almost 3,000 years ago, when humans first started to write, that transformed all human relations, teaching, law, politics, religion and even money. Instead of exchanging cattle and wheat, they started to exchange recognition of debts.
The second revolution was printing, this transformed everything.
Today, we are living through a third revolution, the digital revolution, with a spectre of change as great as those before. In the same way that writing transformed the oral-centered world, and printing transformed the writing-centered world, the digital is transforming our information-centered world. We have destroyed the world enough; we have exhausted its resources. With this new revolution we will have to bring together digital science with life and earth science because we can no longer consider the world as an object. Dassault Systèmes is part of this shift in civilization, part of this fundamental transformation that we are living.

Michel Serres' latest book *YEUX* is currently available in bookshops.

REVEALING DATA INTELLIGENCE

In five years, the quantity of data generated and exchanged throughout the world has multiplied by seven. Behind this data, which only needs to be interpreted, hides a potential treasure that we must learn to exploit.

Our modern societies generate all sorts of data in huge quantities. Given the abundance of this raw information, the question today is how to use it and what uses this data may have. In order to exploit its full potential, we must rely on tools to manage and valorize the information, but also on qualified people.

Exploiting *Big Data*

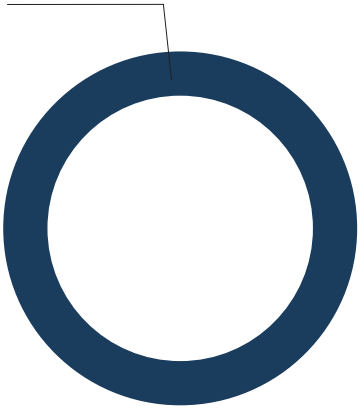
Geographical, urban, economic, medical, personal. All around us, data is omnipresent. The diversity and the incredible speed at which data is generated make it difficult to stock, use, and validate. But once it's reworked, cross-referenced, put into perspective, and given as knowledge to citizens and researchers, associations or public offices, the data reveals a veritable gold mine of solutions and innovative services. It can help to improve the lives of millions of people... on the condition that data confidentiality can be preserved.

The business world doesn't escape this trend. It also generates, collects, stores, and exchanges a colossal amount of data on its clients, its processes, its employees or its market. The sector has already begun its digital transformation. This transformation relies firstly on technological solutions, essentially based on the cloud. Notably, these tools help to overcome the constraints of storage and calculating power by being hosted and treated in distant servers. These servers are responsible for assuring the availability and the security of the data.

Moreover, Big Data experts are being employed by more and more companies. These Chief Data Officers have the opportunity to serve as the veritable catalysts of an inescapable change. Their role is not only to manage the data, but also to profoundly change practices to build a real digital business culture.

"This data conceals a veritable gold mine of solutions and innovative services. It can help to improve the lives of millions of people... on the condition that data confidentiality can be preserved."

25%
of companies will have a Chief Data Officer by 2017



EXPERT VIEWPOINT

François BOURDONCLE

CEO OF FB&CIE, CO-LEADER ON THE FRENCH BIG DATA INITIATIVE

What is Big Data?

François BOURDONCLE: Big Data is an industrial revolution in which data plays a central role. The logic is no longer producing things and letting people do whatever they want with them. The user economy sells an object to be used. Let's take the example of an airplane's motor. Including the maintenance in the sales contract means including the predictive analysis of terabytes of data. In a more general manner, the new added-value uses are connected and rely on the collection, the analysis, and the reutilization of data in real time. The challenge for all industries is, therefore, to invent new uses outside of their traditional comfort zones, based on computer systems that they are not used to using, and on interfaces they have not mastered.

It's the organization in its entirety that is affected...

F. B.: Traditional industrial organizations, organized by silos, are put in a difficult situation by this revolution, because the new uses are carried by ecosystems such as cars, energy, or cities. These ecosystems are transversal to diverse industries. Each new use builds itself on its own productive tool, its own distribution, and its own client relations. The real question is not how the digital will be dissolved into existing industries, but how existing industries are going to dissolve into the new digital uses. The stakes will help the industries in silos to imagine new uses. Designating a Chief Digital Officer to embody data is a good start. But the question is yet more strategic. Because today, competition is everywhere, even among the new players whose sole objective is to fill the needs before they arise.

Where is the Big Data Initiative that was launched by the French state?

F. B.: The objective is essentially to put the state and industry in movement by training, but also by identifying the eventual sticking points. In the future, the Information Technology, Data Files and Civil Liberties Act, for example, should allow innovation while guaranteeing the trust of the user. We should incite the big groups to embark on user innovation by associating them with the start-up ecosystem.

"The real question is not how the digital will be dissolved into existing industries, but how existing industries are going to dissolve into the new digital uses."

Transform
our idea of the world

To unveil data intelligence, Big Data specialists must make use of the technical solutions that enable them to store and increase the value of the information created by nature and by human activity to transform the way we see the world. Dassault Systèmes offers a number of useful brands for mining Big Data, such as NETVIBES, which helps create personalized dashboards. The tool is able to bring together both internal and external data with other Dassault Systèmes' solutions and relay it in a pleasant and readable manner. EXALEAD employs its semantic search engine to understand what terms mean in order to provide more pertinent results.

For the challenges of storing, Outscale enables secured hosting and makes locating data possible according to legal criteria.
In France, it is the first cloud solution to be given ISO 27001:2013 certification, which guarantees data security and traceability.

"EXALEAD CloudView is a very open and adaptable platform with all the tools, as well as the semantic and natural language processing, needed to automate the complex process of matching job seekers with relevant opportunities."

Duncan NORMAN
SENIOR PRODUCT MANAGER
SEARCH EXPERIENCES, SEEK

BRINGING TOGETHER JOB SEEKERS AND JOB OFFERS

seek

The SEEK platform puts job seekers in contact with recruiters. Up to now, that's nothing exceptional. However, it brings together around 125,000 job offers to attract over 30 million visitors every month.
What's the secret of its success? The semantic search engine EXALEAD.
This engine enables SEEK to offer more rigorous, more targeted, and more pertinent results. The platform presents the job seeker with offers that match better, while bringing recruiters closer to the profiles of the better qualified candidates. The online experience also is improved thanks to a more efficient interface and a series of advanced and related applications that are configurable by the platform's managers. For example, employers can send information to the candidates with a simple click.

NETVIBES:
the dashboard of things

Have you already heard of the Internet of Things? Now NETVIBES can offer you an innovative service: the dashboard of things (DoT). This new type of dashboard allows you to automate a number of actions in your digital life. To do this you no longer need to be a coding expert. Programming your DoT is done via visual blocks that you connect intuitively together, such as services (weather forecasts, stock exchange, etc.), applications (Facebook, Twitter, etc.), data (files .csv or .xls, etc.), or even intelligent objects (Withings, Apple watch, etc.). DoT services are geared toward the general public, but its potential could also be harnessed by professionals. Relatively complex associations could be put in place, and the system could be fed by all kinds of data formats (Internet, social networks, internal servers, etc.). In as little as one click, you could ask it to send you a daily to-do list every day or alert you by email if your stocks or shares fall below a certain level: the first step toward a programmable Web accessible to all.

ARC INTERNATIONAL
L'Art de la Table
1825

DATA AT THE SERVICE OF CREATIVITY

When talking about tableware, tastes and customs vary from country to country and even from region to region. So, to answer the needs and desires of all customers, Arc International has set up production units on every continent. But, this local presence would never be fully efficient had the company not invested in collaborative work. Arc International is counting on this with the data management solutions provided by the **3D**EXPERIENCE platform to give life to creativity, administer the production processes, and to maintain a close link to local cultures.

HUMANIZING THE CITY

Every day, more than 200,000 people arrive in urban centers, increasing the worldwide urban population*. This movement of people pushes us to rethink how we conceive of the city to transform it into a more efficient, sustainable and, above all, human territory.

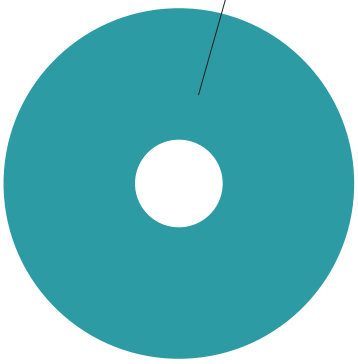
*Figures from UN Habitat

A growing number of people live in cities that are getting larger and larger. Faced with this disproportion and the omnipresence of technology, it would appear essential to change the city sustainably while not destroying its soul.

A city where people meet

Today the city is the center of a colossal accumulation of all types of data. From numerous consultations in health centers, to the most borrowed books in libraries, without forgetting where to find the most remarkable trees in the area, nothing escapes the digital city.

75%
of the world's population will be urban by 2020



Founded on its digital infrastructure, the smart city makes the most of collective intelligence to improve the way it works and the well-being of its population. In South Korea, the newest city of Songdo, has 75,000 inhabitants and is pushing the principle to its extremes. This is a hyper-rational city that can, for example, modify its routes to get around an accident so that in turn, it can speed up the passage of an ambulance getting to an emergency.

Is this the model for future cities? Rather it is a first step towards the idea that technology is only valuable if it is deeply rooted in what is human. Creating a direct link between the city, nature, and its inhabitants, are the stakes for a more sensitive city. This new city will produce, for example, cultural data with high-added value to adapt better architecture and services to preferences and habits of the inhabitants. The sensitive city also will place emphasis on emotions and sharing. It will give the opportunity to its inhabitants to really enjoy its assets and services, at the right place and the right time. Finally, the sensitive city will be vegetal, not only to improve the well-being of its inhabitants but also to fight against climate change. With the sensitive city, our whole way of living is to be reinvented.

6
million
city dwellers by 2050

EXPERT VIEWPOINT

Carlo RATTI

ARCHITECT AND ENGINEER, TEACHER AT MIT, SENSEABLE CITY LAB DIRECTOR

Carlo, I assume the name of your lab is a program. Could you describe what you mean by "Senseable" and how your approach deviates from traditional approaches to map, and design the city?

Carlo RATTI: We like the word 'senseable,' as it has a double meaning of 'sensible' and 'able to sense.' I suppose that the field we work in is what most people would call 'smart cities' – but we prefer the word 'senseable city' better as it fits our vision of focusing on the human – rather than technological – side of things.
The technological transformations, however, are very visible. What is happening on an urban scale today is similar to what happened two decades ago in Formula One racing.

"We want to investigate and intervene at the interface between people, technologies and the city - developing research and applications that empower citizens to make choices that result in a more livable urban condition."

Up to that point, success on the circuit was primarily credited to a car's mechanics and the driver's capabilities. But then telemetry technology blossomed. The car was transformed into a computer that was monitored in real time by thousands of sensors, becoming "intelligent" and better able to respond to the conditions of the race. In a similar way, digital technologies have begun to blanket our cities. Broadband fiber-optic and wireless telecommunications grids are supporting mobile phones, smartphones, and tablets that are increasingly affordable. At the same time, open databases where people can read and add to are revealing all kinds of information. Our cities quickly become "computers in open air."

How does your research inquire and change the Senseable Experience of the city?

C.R.: We want to investigate and intervene at the interface between people, technologies, and the city – developing research and applications that empower citizens to make choices that result in a more livable urban condition. The role of the lab, in particular, focuses on what we call an "urban demo," i.e,. an idea made tangible at the city scale.
I think it's also very important to understand the role of designers in this framework. According to Herbert Simon, "The natural sciences are concerned with how things are... Design, on the other hand, is concerned with how things ought to be" (*The Science of Design*, 1988). As it changes existing situations into preferred ones, the act of design is inherently future-facing, aiming to transform the present by effecting material or experiential change.
We believe that designers must challenge what exists today, introduce new and alternate possibilities, and ultimately pave the way towards a desirable future.

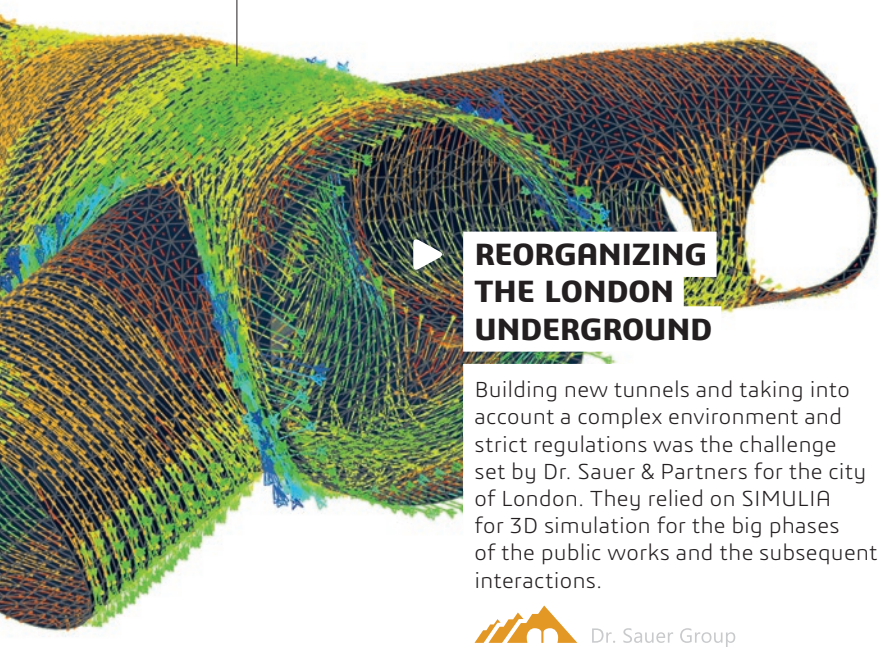
Interview by Ingeborg ROCKER

Transforming the city

To humanize the city, engineers, architects, and urban planners should have technical solutions that allow them to transform the way in which we live in the city, to explore the future they imagine, and experiment with the impact of their actions, as much as on the citizens as on the planet as a whole.

Dassault Systèmes' expertise in the matter of territorial development and underground works, whether urban or not, can be answered in one word: GEOVIA. Among other things, the brand renders the possibility of creating virtual and holistic models of the cities of tomorrow. Integrated models as in the Globe solutions, a realistic 3D representation of the Earth in its entirety, allows us to lead an analysis of the simulations on different scales with the help of SIMULIA (noise, pollution, wind, impact dust from of building sites, etc.).

Flux circulation simulation on new galleries



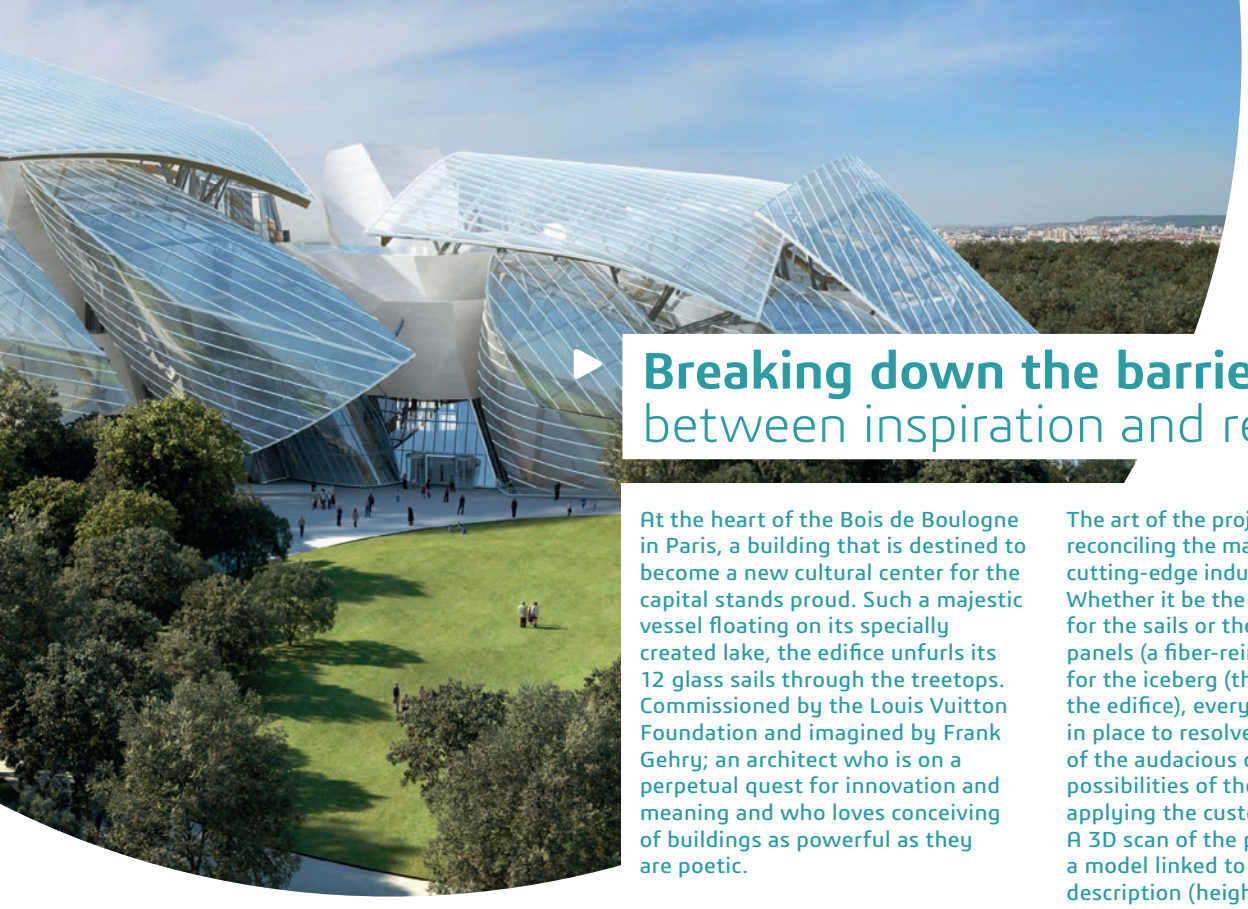
REORGANIZING THE LONDON UNDERGROUND

Building new tunnels and taking into account a complex environment and strict regulations was the challenge set by Dr. Sauer & Partners for the city of London. They relied on SIMULIA for 3D simulation for the big phases of the public works and the subsequent interactions.

Dr. Sauer Group

PARIS, FROM THE RECONSTITUTED PAST TO THE IMAGINED FUTURE

The engineers at Dassault Systèmes also know how to explore new domains at the frontiers of scientific knowledge, imagination, and intuition. The "See Paris Again" project is a great example. It offered a chance to discover three emblematic monuments of the capital as they might be in the future: Notre-Dame de Paris Cathedral, the Eiffel Tower, and la Grande Arche de la Défense. And, in the blink of an eye, project themselves into the imagination of François Schuiten and Benoît Peeters, to dive into a hypothetical future. To give an unforgettable experience, these images were projected onto a circular screen with a tactile table that gave an interactive experience in the eponymous exhibition.



Breaking down the barriers between inspiration and reality

At the heart of the Bois de Boulogne in Paris, a building that is destined to become a new cultural center for the capital stands proud. Such a majestic vessel floating on its specially created lake, the edifice unfurls its 12 glass sails through the treetops. Commissioned by the Louis Vuitton Foundation and imagined by Frank Gehry; an architect who is on a perpetual quest for innovation and meaning and who loves conceiving of buildings as powerful as they are poetic.

Throughout this ambitious project, architects, designers and builders have worked in strict unison. Dassault Systèmes' solutions allowed each trade to position itself clearly and without ambiguity.
The digital tools also ensured global coherence of the project under the managerial direction of the architect.

The art of the project consisted of reconciling the made to measure with cutting-edge industrial production. Whether it be the 3,584 glass panels for the sails or the 19,000 Ductal® panels (a fiber-reinforced concrete) for the iceberg (the central part of the edifice), everything was put in place to resolve the compatibility of the audacious design and the possibilities of the realization, by applying the customization of mass. A 3D scan of the physical mock-up, a model linked to the physical description (height, length, etc.) and the digital metadata (order and localization in relation to the other panels, etc.), a simulation with multiple objectives but also the alliance of silicon molds, and specific polystyrene templates, all bring together architectural and industrial *haute couture*.

"Throughout this ambitious project, architects, designers, and builders worked in strict unison."

AND FOR TOMORROW?

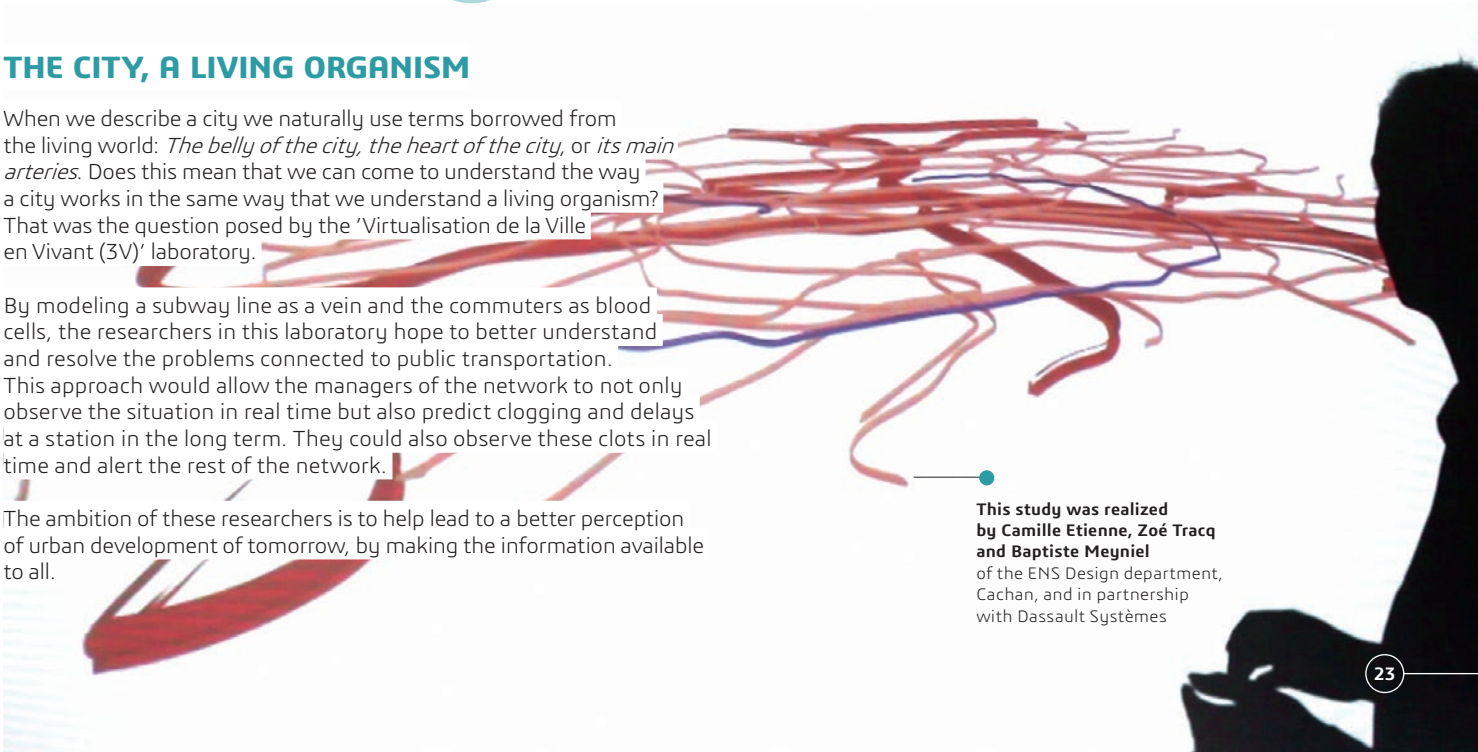
Cohort study by the ENS Design department, Cachan

THE CITY, A LIVING ORGANISM

When we describe a city we naturally use terms borrowed from the living world: *The belly of the city, the heart of the city*, or *its main arteries*. Does this mean that we can come to understand the way a city works in the same way that we understand a living organism? That was the question posed by the 'Virtualisation de la Ville en Vivant (3V)' laboratory.

By modeling a subway line as a vein and the commuters as blood cells, the researchers in this laboratory hope to better understand and resolve the problems connected to public transportation. This approach would allow the managers of the network to not only observe the situation in real time but also predict clogging and delays at a station in the long term. They could also observe these clots in real time and alert the rest of the network.

The ambition of these researchers is to help lead to a better perception of urban development of tomorrow, by making the information available to all.



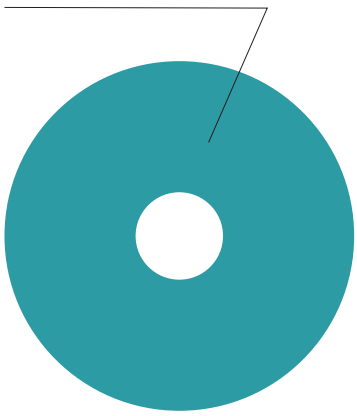
This study was realized by Camille Etienne, Zoé Tracq and Baptiste Meyniel
of the ENS Design department, Cachan, and in partnership with Dassault Systèmes

Experience the city
3DEXPERIENCity

> "Perhaps the easiest way of making the town's acquaintance is to ascertain how the people in it work, how they love, and how they die." Albert Camus shows us how the reality of a city is neither inanimate nor austere but made living by its inhabitants. The city isn't disembodied, neither are the solutions that allow it to develop harmoniously.

Big cities currently consume 3/4 of energy produced and emit

80% of the CO_2



INCARNATION

With the same success that has been seen in the areas of aviation and the automobile industry, the savoir faire of Dassault Systèmes started with a realistic representation of the city as a digital model. But where others stop, the technology used at the center of **3D**EXPERIENCity expands and embodies a multitude of possibilities. The model not only allows us to see and understand the scale of the city, the layout of the buildings, the streets, the squares, and the districts but also all the overlapping features whether that be networks, such as water or gas, etc., and public or individual transport; all systems that contribute to the cities existence. The link between the city and its inhabitants becomes stronger because of it.
"We now have this ubiquitous digital layer that suffuses the city. We have physical space that is always the same like the parks, the squares, and the streets, and, in that, we have a digital layer. So everything that we do in the city has actually been transformed, and humans and our apps or technologies are really caught in between these two dimensions." Matthew Claudel, research Fellow at the MIT SENSEable City Lab.

The **3D**EXPERIENCity project is a holistic urban model, explains Ingeborg ROCKER, GEOVIA **3D**EXPERIENCity Vice President, take out us. It means that looking at all the systems that constitutes the city in their totality, most importantly in the relationship to one another. Infrastructure systems such as energy, water, traffic, health care, education, communication, and any other systems, you can think of that affect human life.

The digital model allows us to add statistical data in real time in order to assess policy or important actions. For example, it could be a dynamic map of noise levels as it happens or the impact of road/building work on the diffusion of dust particles or other pollution.

ACTION

Understanding isn't everything. Monitoring in real time gives the possibility to fine tune urban projects. The interconnections between people and systems bring into play parameters that are unique to each city, its culture, its heritage, its evolution, etc.
"Studies of the interaction between people and systems have revealed patterns that are anything but standard. If we analyze the patterns and interactions between people and systems – such as transport and waste management – we can develop cities that are still robust while also being highly efficient and sustainable – but in new terms." Ingeborg Rocker.

This is because adaptability and flexibility are integral to digital's strength. We no longer think of a universal model in which there is no differentiation between one city and another. So, the geographic realities (presence of waterways, nearby

mountains, etc.), the specific exchanges, or even the history are all characteristics that can be reinvested in the collective imagination of the city and what it becomes, without risk of losing its identity. **3D**EXPERIENCity has been used successfully in this way in emblematic cities in the Americas, Europe, or Asia while respecting each particularity.

PREDICTION

This is the last aspect but by no means least. Experimenting, understanding, and acting allow us to predict the urban plans of tomorrow more precisely. The installation of architectural projects, the extension of housing projects, the construction of a tramway, or plans on different scales (apartment, building or neighborhood) can now be brought together on the same single platform. This then helps elected representatives and citizens discuss and rule on the shared future of the city. What a difference from *The Geographer* by Johannes Vermeer; the act of creation will no longer be individual and solitary.

Realistic 3D view of the city of Rennes with the noise levels of each district superimposed

COLLECTIVE INTELLIGENCE

To think of the destiny of a city in its entirety is no longer an illusion. Rennes, Lyon, Paris, as well as Mexico City, and Singapore are already digital cities thanks to **3D**EXPERIENCity solutions. Presided over by associations of municipalities or city councils, plans are shared for consultations and exchanged with citizens. The usual participants in the city: architects, sociologists, urban planners, builders, philosophers, etc., are all associated. From now on, the social aspect is fully implicated in the destiny of future world megalopolises. Here the experience of the city takes on its full meaning for all its stakeholders.

FROM MOBILITY TO LIBERTY

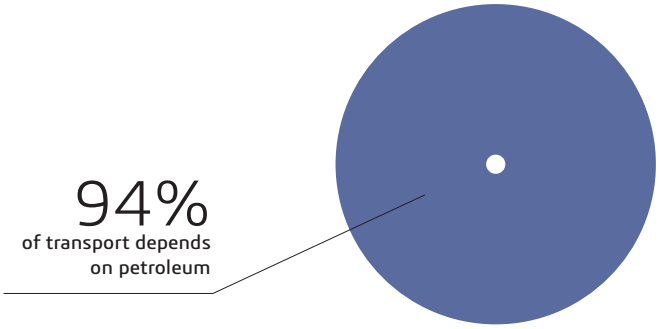
In the second half of the 20th century, the number of private cars owned rose three times faster than the growth in population. This growth underscores the immense challenges facing 21st century mobility and the importance of discovering sustainable solutions for moving people and goods.

Towards sustainable mobility

On a world scale, the car holds the top spot as a means of motorized transport. The key challenges the automotive industry faces today are to limit the unpleasant aspects linked to the multiplication of private vehicles while reducing their impact on the environment and preserving mobility.

For a long time, cities have been developed and modeled by the constraints of mobility. But, with the ever-growing number of private vehicles, the road networks are reaching a saturation point. Part of the solution will probably come from rationalizing usage. For example, the generalization of car sharing could have significant effects. In France, the number of passengers per car averages 1.2; increasing this to 2.0 would make a huge difference in the number of cars on the road. Automation is a keystone for traffic management, and it plays an important role in the solution. Autonomous cars could increase traffic flow by a factor of five in city centers. It's a great incentive for startups and car manufacturers to roll out the most innovative technological solutions to turn the dream of a driverless car into reality.
Another major challenge for the sector is conceiving cleaner and more energy-efficient vehicles using biofuels, hydrogen, or electricity. The list is long, but certain solutions have already been put in place. However, each solution brings its own complications. The lack of autonomy and the reorganization of the networks necessary are but two of these complications. These difficulties, however, may be swept aside by the new lifestyle habits of tomorrow, which will allow the city and its inhabitants to regain control of the car.

"In France, the number of passengers per car averages 1.2; increasing this to 2.0 would make a huge difference on the number of cars on the road."



EXPERT VIEWPOINT

Bruno MARZLOFF

SOCIOLOGIST, PROSPECTIVIST, AND CHRONOS DIRECTOR

How do you imagine sustainable mobility?

Bruno MARZLOFF: Optimizing the means of transport is essential, either by integrating some or by improving occupancy rates, but that won't be enough. The key will be rebalancing sustained and chosen mobility. Making mobility sustainable is to go beyond intelligent mobility by taking on the vicious circle of demand, which runs faster than supply, and by generally reducing the perverse effects of practical mobility. The work will be considerable because the thrombosis of journeys that clog up the system is the heritage of the commute-work-sleep style of organization. At rush hour in the Ile-de-France (Greater Paris) network, the number of cars on the roads is 240% of the network's carrying capacity, compared to a 40% rate during the rest of the day!

What solutions need to be put in place to get out of this dead end?

B. M.: We need to organize work and daily activities. When the supply reaches saturation, we need to act on the demand. But we need to be careful; to be qualified as sustainable, mobility must also remain accessible, even for those with impaired mobility. To do this, the autonomy and control of these daily practices and uses that we know about (thanks to mobile terminals and computer systems) should spread to mobility. The traveler/commuter should become the master of his/her movements and thus enter into a virtuous circle of personal and collective benefit.

Among the services already being offered, car sharing has already achieved a great deal of success.

B. M.: Car sharing is the one technique that has brought the most trust and satisfaction, according to a study that we recently carried out. It's very reassuring for the future of humanity to see this willingness to pass time with a stranger. Industries and operators weren't able to do this; users invented it. They made the choice of collective mobility, which helps to relieve the cost of transport and to reduce pollution and energy consumption.

"The exciting history of digital mobility is being written even as we speak."

Aside from collective mobility, are there other causes for optimism?

B. M.: Giving people the opportunity to choose from what we call multi-modality is essential. The next step is to articulate more clearly how cars, collective transport, bicycles, public, and private services reinforce one another in a greater system of physical continuity and ticketing. The stakes are to offer the individual a door-to-door service that is more interesting than his/her own personal car. And, to add de-mobility to the range of choices, encouraging the willingness to leave the journey to another moment or even to forget it all together. Today, the digital options through e-commerce, home-based work, and soon, health care at a distance, will also play on mobility. The exciting history of digital mobility is being written even as we speak.

Delivering mobility

To give a new scope to mobility, engineers and car manufacturers need technological solutions that allow them to optimize the production of a new generation of vehicles and transform the way in which we use them. The CATIA brand offers an advanced concept solution for systems engineering in which the electrical systems and the electronics for all types of vehicles can be modeled in parallel. The digital mock up shows us exactly what the future model will be – and even how it will behave – even before it is produced. The 3DEXCITE brand is geared toward marketing and communication professionals, giving them a similar power. The brand effectively gives a realistic impression of a product, of a future vehicle. 3DEXCITE transforms a digital mock-up into a photorealistic reality, making hints of personalization possible, and allowing real-time testing to make acceptance of new concepts easier.

Tesla Model S

ACCELERATING THE DEVELOPMENT OF SUSTAINABLE VEHICLES

The lack of accelerating power and insufficient autonomy are the two main criticisms that drivers have about electric cars. This led to the challenge that the founders of Tesla Motors set themselves: to show that an electric car can be as efficient as a combustion engine, maybe even more so. For a number of years, the US automobile manufacturer has been developing electric cars that are free from the usual difficulties linked to this type of vehicle by relying on innovation, particularly on electronic systems and motor batteries. Thanks to the Tesla Supercharger, for example, drivers in certain cities can access a free, ultra-rapid recharging network for their vehicle that delivers a half charge in just 20 minutes.

But Tesla Motors isn't just an automobile manufacturer. It defines itself as a design and technology company that is dedicated to energetic innovation. In order to push the boundaries, Tesla Motors uses the **3D**EXPERIENCE platform. This allows a greater opportunity to increase cooperation at the heart of the company, whether that's the conception, the engineering, the production, or even the service stage. Thanks to the interconnected 3D tools, a common language for the different users is already in place. This makes communication between teams in different places easier by optimizing the exchanges, which bring Tesla Motors' innovations onto the market at a speed never before seen.

Innovation
at the service of adventure

Solar Impulse 2 above Abu Dabi

The challenge that Bertrand Piccard and André Borschberg set themselves was to travel around the world aboard a plane powered by the sun alone, proving the potential of renewable energy. To arrive at their goal they needed to refine their knowledge of the equipment needed and push the limits of existing technology.

Everything in this airplane, baptized *Solar Impulse*, is new, from the system of propulsion to the structure itself, to the production methods used to create it. The brand solutions of CATIA and SIMULIA from Dassault Systèmes allowed the two adventurers and their team to conceive of a digital version of their airplane. They were, therefore, able to clarify the overall design of their vessel, which has a wingspan of 72 meters (236 feet), larger than that of a Boeing 747. They were also able to check the optimal configuration of the 3.8 cubic meter (134 cubic foot) cockpit, which has neither air conditioning nor heating but which does have a corner for a toilet.

Beyond supporting the basic conception of the plane, CATIA and SIMULIA also helped the Solar Impulse team to isolate any difficulties in the assembly, even before construction. They also helped with simulation and experimentation, using virtual 3D modeling, bringing life to this extraordinary airplane and freeing it from the need for physical prototypes, which would have been too costly and taken too long to produce.

Having finished the technological adventure, Bertrand Piccard and André Borschberg are now living the great human adventure, which began in March 2015 and is scheduled to complete the around-the-world journey in July!

THE CLOUD AT THE SERVICE OF MOBILITY

The engineering group AKKA Technologies, which specializes in challenges of mobility, has developed a technical platform based on the company's Link & Go 2 project, a forerunner of the intelligent vehicles that will drive in cities of the future. To enable the team of 40 people, located in eight sites across the world, to share data and methodologies in real time and in total security, AKKA Technologies trusted Dassault Systèmes and its cloud solutions. The set of processes – including project management, mechanical conception, engineering systems, and modeling of dynamic components – all took place in an intuitive, virtual manner at the heart of a unique platform. This made collaboration, capitalizing on experiences, and conforming with regulations easier without the need for a physical prototype.

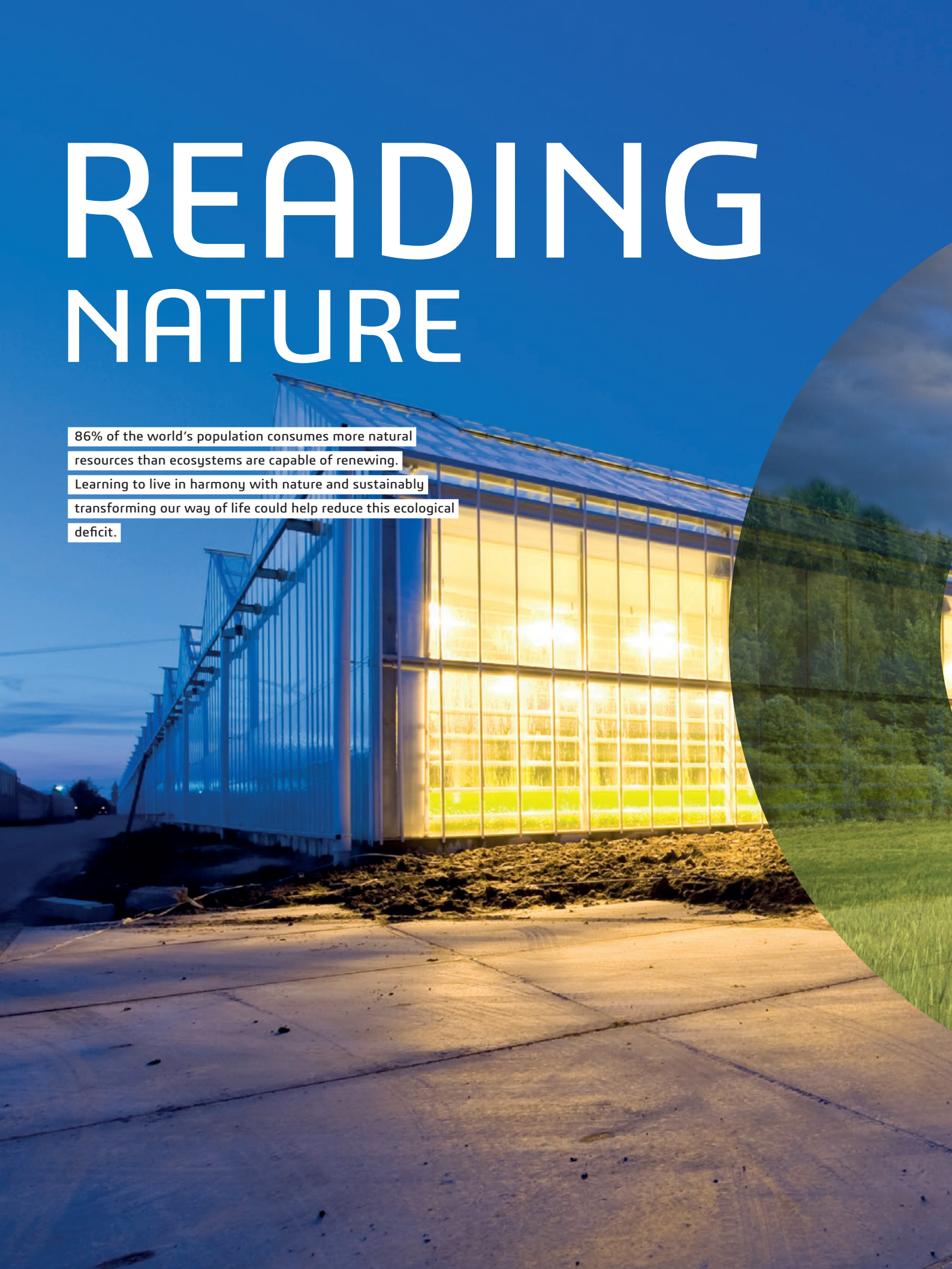
Link & Go 2

"It's not with today's solutions that we will take on tomorrow's issues. It's with different solutions. It's by collective intelligence that we will take on these issues."

Philippe OBRY
CHIEF INNOVATION OFFICER,
AKKA Technologies

READING NATURE

86% of the world's population consumes more natural resources than ecosystems are capable of renewing. Learning to live in harmony with nature and sustainably transforming our way of life could help reduce this ecological deficit.



Throughout our evolution, we have developed the habit of consuming even more and, today, our planet is sending us a distress signal. Due to necessity, the idea of sustainable development is making its way into public opinion. By decoding the messages being sent by nature, hope is growing that the preservation of our environment is within reach.

A page turns

1.5
Earths
are necessary to satisfy the appetence of the world's population

"In the future, innovative eco-technology will allow us to consume natural resources more efficiently with less waste."

Unraveling the secrets of how flora and fauna work isn't easy. Many of the numerous scientific disciplines (geology, biology, or even botany) have varied uses despite working together in the field. Their field of investigation is incomparably vast and occasionally out of reach but, with the help of new technology, for example, it is becoming possible to delicately grasp the mechanisms of solar eruptions.

Beyond this growing will to increase the volume of pure knowledge, understanding nature more should make individuals and the whole of humanity increasingly sensitive to its necessary preservation. Once again, digital solutions have their role to play. Public opinion is only ready to accept the idea of a low carbon economy if the transformation brings little sacrifice and is more respectful of the environment.

In the future, innovative eco-technology will allow us to consume natural resources more efficiently with less waste. Innovations like wireless sensors are already able to check the humidity of the soil before triggering the watering mechanism at the right moment.

This type of clean-tech is at the center of a new economic model called circular. Its goal is to ensure the development of our societies while strictly limiting consumption and waste in raw materials and energy; guaranteeing future generations a harmonious and dignified life, directly linked to the natural ecosystems.

EXPERT VIEWPOINT

Janine BENYUS

NATURAL SCIENCES AUTHOR, INNOVATION CONSULTANT, AND CO-FOUNDER BIOMIMICRY 3.8

When designers start a project, they typically seek inspiration by asking: Has any inventor in the world already solved this? In the future, they will ask a more intriguing question: Has any organism in the world already solved this?

Janine BENYUS: When I first wrote about biomimicry in the mid-1990s the practice of looking to nature for inspiration existed primarily in academia, with funding from a few governmental agencies. Today, biomimicry in academia is thriving, with the number of research papers doubling every 2-3 years (compared to a background rate of 13 years for other scientific papers). But, more importantly, biomimicry as a design methodology has moved to corporate innovation departments and independent design and architecture studios. The number of biomimetic products is doubling annually, and their impact on the economy – as measured by the Da Vinci Index – is growing rapidly as well.

Using nature's time-tested design solutions will become even more important as biomimicry-enabling technologies improve. For instance, we now have additive manufacturing (3D printing) instead of subtractive manufacturing. This enables us to do as nature does, which is build to shape.

The opportunity now is to use nature's structural blueprints and optimization algorithms to generate strong, lightweight, evolved designs.

As a species, we humans are beginning to recognize the critical necessity of following nature's example. Adapting to changing conditions, being resource efficient, using non-toxic chemistry – these are just a few of nature's ubiquitous design guidelines. In biomimicry, we call them Life's Principles, and we look to more than 30 million other species on earth to collect their biological intelligence.

We're training biomimicry professionals as fast as we can to meet the growing demand for biointelligence. However, for the practice of biomimicry to truly reach scale and help reconcile industrial progress with environmental responsibility, we need to embed this information into our knowledge-based tools.

"As a species, we humans are beginning to recognize the critical necessity of following nature's example."

Then we can enable every designer, anywhere in the world, to learn from nature's elegant and optimal solutions at the moment of creation. Learn/ideate/create. That's at the heart of the biomimicry, and it's a process that allows us to design conditions that are conducive – not harmful – to life. Because ultimately, the most important lesson we have to learn from nature is how to thrive as a creative contributor, a fellow solution-seeker on this planet.

Connecting mankind to nature

In order to read from the big book that is nature, researchers need technical solutions that allow them to experiment with the complexity of ecosystems. This enables ecosystem interaction and transformation in the way in which we assess our place in the big picture. GEOVIA and BIOVIA give 3D-modeling solutions and simulations for macro- and micro-ecosystems as well as showing how they react to human activities. The Globe solution offers an accurate reconstitution in real time of the entire planet. The 3D multi-scale visualization lets us experiment and analyze the conditions specific to a certain place at a certain time. SOLIDWORKS, known for its conception tools, integrates environmental imperatives and their impact at the conception level, into industrial production and the complete life cycle of a product. A set of complete solutions that show the ambitions of Dassault Systèmes: offering useful solutions to the development of a circular economy.

GLOBE, LIFE-SIZED NATURE

Globe's mission is to understand the world in all its complexity and at the scale of our earth. This complexity results from all the elements that need to be taken into consideration: the atmosphere (the air that surrounds us), the lithosphere (the Earth's crust), the hydrosphere (the water on Earth), and the subsoil. By associating a real-time representation with a simulation of the elements, the virtual model offered by Globe allows us to better understand territories and landscapes, but also to consciously act to preserve our resources.

"GEOVIA provided a safe network-based platform with additional security. We can control access to data with read and write permissions, which is a big advantage on the geology side."

Éric RAMSAY
SENIOR MINE GEOLOGIST,
AGNICO EAGLE

EXPLOITING THE RICHNESS OF THE SUBSOIL

Agnico Eagle is the owner and manager of several mineral mines, worldwide.
To maintain productivity, while preserving its natural resources, the company relies on the solutions offered by GEOVIA. These technologies allow the testing and conception of mines as well as planning production in conjunction with geological modeling. The time needed to evaluate and the cost of construction are greatly reduced while maintaining rigorous environmental and security demands.

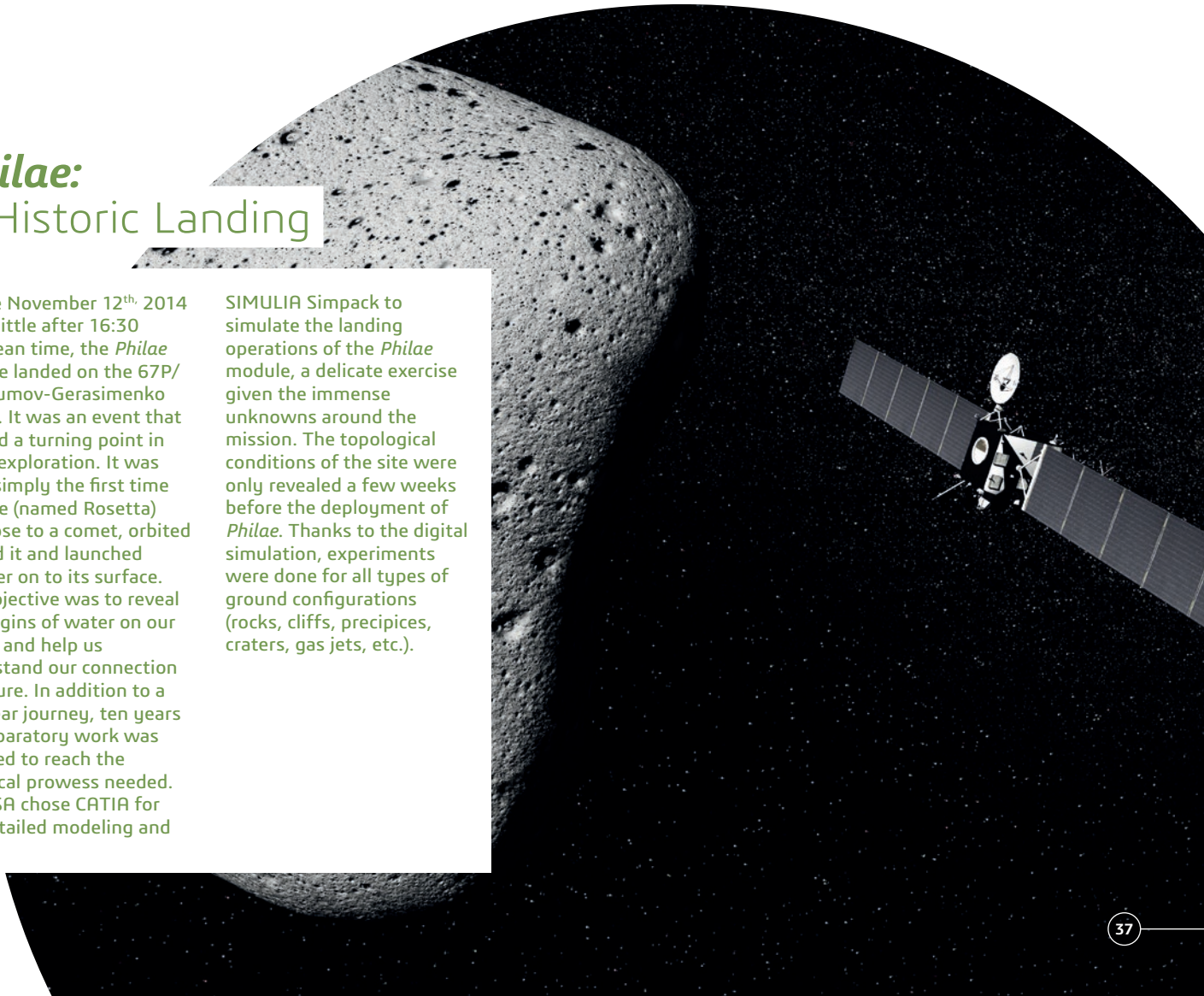
MANAGING ENVIRONMENTAL PRINTS

The Sustainability and Health Initiative consortium for NetPositive Enterprise, better known by the acronym SHINE, brings together laboratories and industries (Johnson & Johnson, Owens Corning, Abbott, Eaton, etc.) from around the world as well as figureheads in sustainable development. Their ambition is to transform corporate strategy by managing their environmental 'prints,' whether that be positive (handprints) or negative (footprints). Comparing these prints means being able to label a company "NetPositive" or not.

Dassault Systèmes is an active member of this consortium and is working to develop a new counting standard and a method of managing the handprints.

Philae: A Historic Landing

On the November 12th, 2014 just a little after 16:30 European time, the *Philae* module landed on the 67P/Churyumov-Gerasimenko comet. It was an event that marked a turning point in space exploration. It was quite simply the first time a probe (named Rosetta) got close to a comet, orbited around it and launched a lander on to its surface. The objective was to reveal the origins of water on our planet and help us understand our connection to nature. In addition to a ten-year journey, ten years of preparatory work was required to reach the technical prowess needed. The ESA chose CATIA for the detailed modeling and SIMULIA Simpack to simulate the landing operations of the *Philae* module, a delicate exercise given the immense unknowns around the mission. The topological conditions of the site were only revealed a few weeks before the deployment of *Philae*. Thanks to the digital simulation, experiments were done for all types of ground configurations (rocks, cliffs, precipices, craters, gas jets, etc.).



ENRICHING SOCIETY

Connected glasses, intelligent watches, e-textiles but also smart cities or smart grids, connected vehicles or, intelligent houses – digital is leaving the virtual world to become integrated in our physical environment and increase its perspectives.

A new form of intelligence

Connected objects are becoming more and more numerous, taking up a greater place in our lives. Little by little, they are integrating into a virtual network of real products and systems based on a new form of intelligence. An ambient intelligence that is likely to change our daily life for the better and even revolutionize production processes.

A watch that does more than tell the time, scales that do more than show your weight, light bulbs that do more than light up a room. Today, thanks to the Internet of Things (IoT), networks penetrate the real world via dedicated "things" that exchange data with our digital systems. These connected objects, very often wearable, are destined to simplify and embellish our lives.
But the IoT is only a step toward a veritable Internet of the future, carried by digital systems that are almost invisible and blended into the fabric of our daily lives. A form of ambient intelligence is about to come to light in a more global context. It will allow us to integrate an ever-growing number of connected units ("things," but also houses, offices, cars, etc.) capable of feeling their environment, communicating information, and "thinking" in order to make decisions and react, notably through the cloud and distributed intelligence.

The deployment of ambient intelligence also reinforces business efficiency by adding flexibility and modularity. In the factory of the future, machines will communicate between each other and will be able to interact with their human operator, logistics will be optimized via the cloud, production multiplied tenfold through additive manufacturing. People will be liberated from repetitive tasks, and instead will be able to contribute their cognitive skills to the service of quality and innovation. A new industrial revolution based on the concept of intelligent manufacturing and services with high-added value is in the making.

25
billion
connected objects
by 2020

"But the IoT is only a step toward a veritable Internet of the future, carried by digitalization that is almost invisible and blended into the fabric of our daily lives."

EXPERT VIEWPOINT

Éric CARREEL

CHAIRMAN AND FOUNDER OF WITHINGS, SCULPTEO, AND INVOXIA

As a digital pioneer in France, what strategy are you putting in place to continue to develop the sector?

Éric CARREEL: We are trying to anticipate the way innovations are going, to use our common sense, and to always ask ourselves what will bring the best service to the client. My associates are engineers, and we gather teams together that are curious above all, because innovation is a desire, a passion that is shared and a call to action.

What, in your experience, are the main drivers of innovation?

É. C.: With Inventel, in 1998, we were dreaming of a universe of services developed around ADSL. We were the first to think of a box to bring intelligence into households. In 2007, when Steve Jobs presented the iPhone, I had a revelation because this device would bring intelligence into the hand of the user. And this intelligence could only continue to progress by adopting the objects that surround us. This is how Withings was born. We imaged products from our everyday life that would benefit from this ever-expanding intelligence. For example, a scale that can communicate with a coaching site and which can remember my weight and show me my progress on a truly contextualized screen. But another stage is already becoming apparent, that of interconnection between devices.

And what is happening with Inoxia?

É. C.: We are moving back to the world of the telephone with the objective of offering professional people a user experience similar to that offered to the general public by Apple with a functional, easy-to-use mobile, as comfortable to use as an office phone and just as efficient as a conference telephone. Elsewhere we have thought about a landline telephone for the mobile telephone era: a device that takes on board different technologies that will allow it to communicate more easily and to fit into natural areas of exchange, like the kitchen.

"Innovation is a desire, a passion that is shared and which calls to action."

What are the next steps?

É. C.: 3D printing is a marvelous tool. Sculpteo's industry clients no longer use it just for prototypes, but for short production runs as well. By providing immediate information on the use and the success of a device or a service, connected objects also change the game. Production cycles are accelerated. We update our connected devices regularly. 3D printing is a way of spreading this method of updating a design easily and quickly in the real world. We are moving toward a fusion of hardware, software, and services, with shape-shifting objects that need to adapt to uses that are in perpetual evolution.

Transforming the digital

To enrich society, engineers must have technical solutions at hand that enable them to design the innovations of tomorrow more efficiently and at a reasonable cost, to see a cross section of industrial processes, and to transform the ways in which we interact with our environment. CATIA, expert in advanced design and systems, enables us to imagine the innovative objects of tomorrow: their systems, but also their behavior and the way they work. ENOVIA brings together all the participants in a project by mutualizing all contributions.
Using DELMIA, businesses from all sectors can transition to digital manufacturing and plan output, production lines, and workstations, as well as logistics and resources, to ensure more efficient production and guarantee adequate work conditions.
With QUINTIQ, Dassault Systèmes is pushing back the limits of logistics by mastering flux and rendering it dynamically modifiable. A new revolution is already within reach.

FOSTERING THE DIGITAL FACTORY WITH A GERMAN INNOVATION CLUSTER AND MIELE

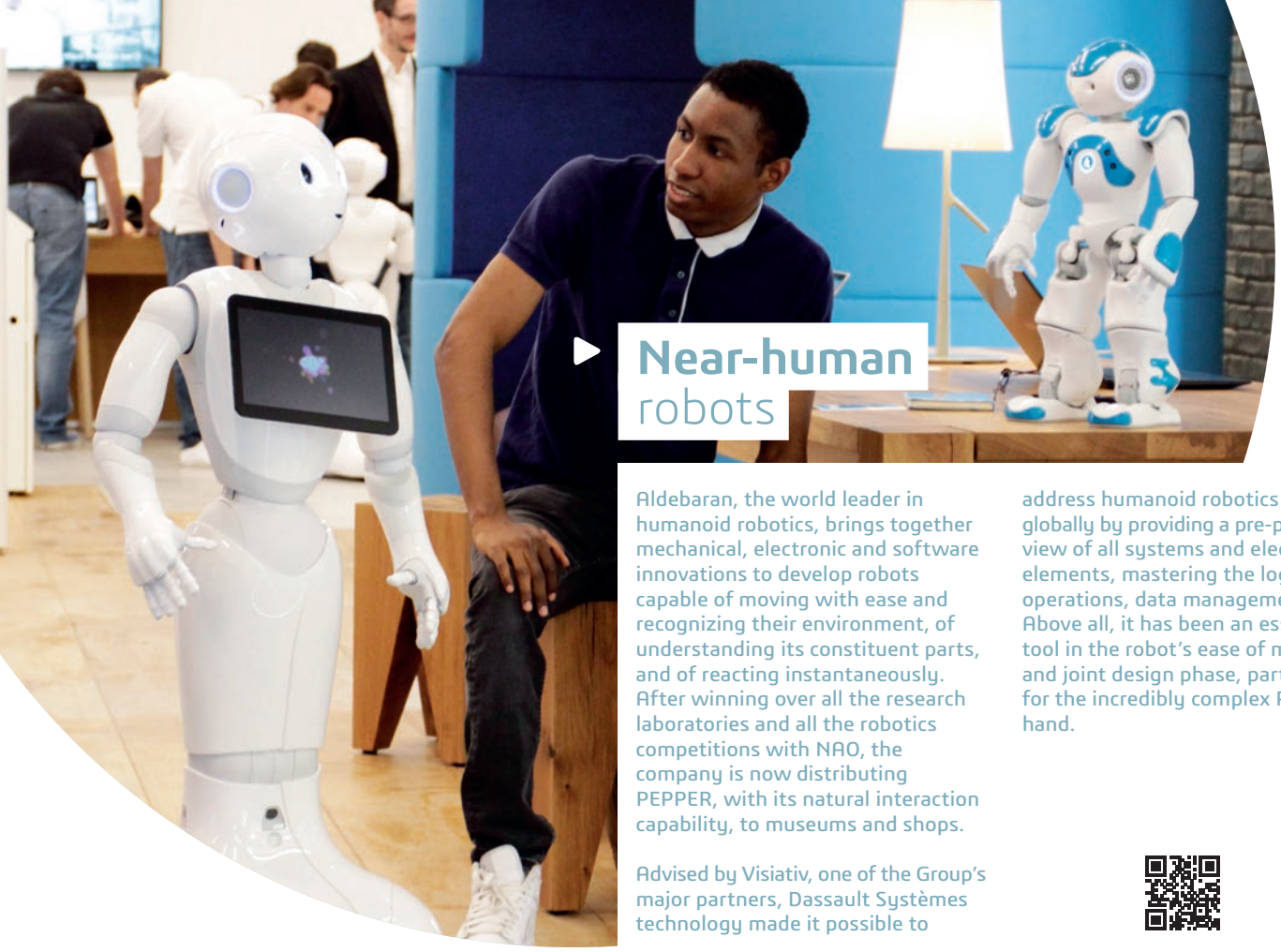
The German innovation cluster "it's OWL" offers a platform to lead high-performance innovation aimed at developing intelligent technical systems. Dassault Systèmes, in partnership with innovative industries, which include leaders in their respective markets, is a key element in the cluster. "it's OWL" is also backed by Fraunhofer IPT, the most important applied research organization in Germany. The objective of the initiative is to help high-tech and industrial equipment companies like Miele and their ecosystems to reinforce their competiveness in global markets by systemizing the orchestration and the automation of their procedures for innovation and production. One of the work routes that has been retained is the exploitation of a common model based on an intelligent product, followed by rolling out a process model for global intelligent production systems, all while making the most of the cloud.

"The Internet of Things is a huge gamble and, at the same time, a real opportunity. We are happy to work with Dassault Systèmes and Fraunhofer IPT in the context of the "it's OWL" innovation cluster. This can help Miele maintain a balance between its own innovation and manufacturing procedures on one side, and intelligent products which provide desirable user experiences on the other."

Dr Sailer, Executive Engineering Officer for the Miele group.

IMPROVING PRODUCTIVITY

To accelerate international development, the agricultural machine manufacturer CLAAS needed to multiply its synergies and improve how the different development and production sites worked together across the world.
Dassault Systèmes' solutions let them concentrate on one unique source: all useful information, thus initiating exchanges and easing the reuse of concepts. The use of digital simulation before production reduced waste and adjustments in production.



Near-human robots

Aldebaran, the world leader in humanoid robotics, brings together mechanical, electronic and software innovations to develop robots capable of moving with ease and recognizing their environment, of understanding its constituent parts, and of reacting instantaneously. After winning over all the research laboratories and all the robotics competitions with NAO, the company is now distributing PEPPER, with its natural interaction capability, to museums and shops.

Advised by Visiativ, one of the Group's major partners, Dassault Systèmes technology made it possible to address humanoid robotics problems globally by providing a pre-production view of all systems and electronic elements, mastering the logistical operations, data management, etc. Above all, it has been an essential tool in the robot's ease of movement and joint design phase, particularly for the incredibly complex PEPPER hand.

AND FOR TOMORROW?

Cohort study by the ENS Design department, Cachan

LIVING IN THE MEDIA

The perspectives on offer from new digital technology are numerous. For example, why not consider the possibility of projecting a human body into virtual content?
The dream of Netflux, an on-demand experience-ordering service, is just that. They offer their clients a total immersion into media via a perfect 3D body capture. This will give everybody the opportunity to project a digital version of themselves into the very heart of a film or TV series. No more imposed scenarios. The time will have come where we can live in media in our image, to play the role of our choice, and to give greater depth to the stories in which we are involved. The experience could also be augmented using data taken from other applications and the social network, supplying a service in direct contact with our interests, leisure activities, or tastes. For example, you would only be allowed to view your favorite television series after you'd done 30 minutes of jogging.
3D digitalization of the human body therefore opens new paths for entertainment and also new supports for education. The Netflux technology could also be a more efficient way to learn, enabling students to live a real experience of the Middle Ages, for example. The final innovative use of these new types of media formats: the possibility to realize one's fantasies. Paraplegics could, for example, recover the use of their legs or the elderly the verve of their youth.

Study realized by Blandine Berthe, Solène Gastebois and Frédéric Valentin for the "media of experiences on demand in 2054" group, ENS Cachan, in partnership with Dassault Systèmes

REVOLUTIONIZING LIFE SCIENCE

In 2013, more than 30 million euros were invested in Europe for the development of new pharmaceutical products, even though the overall scientific progress wasn't remarkable. This statistic pushes us to reconsider how we assess life sciences to transform the health sector.

Faced with illnesses that only show their complexity through experiments, researchers are increasingly at a disadvantage. The current models produce a large amount of raw data that is difficult to interpret and exploit. Therapies seem to have reached their limits. Digital technology, however, could make it possible to imagine a new kind of medicine that is more open, collaborative, and participative.

Disrupting the established models

Exploiting individual data, creating ever-more realistic models, resorting more and more to simulation, the digital life science revolution is happening, right down to the organization of research itself. A new model is emerging based on a worldwide pooling of knowledge and experimentation. This pooling is destined to optimize the development of new therapeutic strategies. In this way, using open source R&D, 830 scientists from a multitude of specialities have joined forces and made significant progress in the fight against tuberculosis in just four months. However, in order to generalize this principle, it will be necessary to agree on common norms and protocols and to have easy and rapid access to databases.

In the meantime, researchers are benefiting from modern digital solutions and the enormous quantity of data, which they are able to interpret in order to make life models and refine their understanding of the underlying mechanisms. From the entire body right down to the individual cells, today researchers are able to simulate life and precisely how it works *in silico* and to predict the effects of a treatment without having to revert to *in vivo* tests.

We can look forward to less costly, targeted and personalized treatments using the most efficient molecules. At the same time, tiny intelligent objects, for the most part wearable, enable us to improve and modernize prevention and medical monitoring for patients, even at distance. This gives us educational ways to involve patients to help them to better follow prescribed treatments, helping to address the challenges of an aging population and its need for regular medical assistance.

Digital technology could enable the pharmaceutical industry to save

30%

on its investments

"Digital innovation leads to a less costly, targeted, and personalized treatment using the most efficient molecule."

EXPERT VIEWPOINT

Max CARNECCHIA

BIOVIA CEO

Our ambition at BIOVIA is to bring essential solutions in the modeling of the biosphere to science and industry, based on a systematic approach to the company, generalizing cooperation, modeling, simulations, and a pertinent management of the qualities of each laboratory, BIOVIA is putting innovation within reach of almost all areas of industry.

Our wish is to offer a comprehensive technology that not only allows monitoring of the lifespan of projects (from production to recycling), but also offers the possibility of working at a molecular level to better understand matter in its essence. Whether that's a chemical or biological entity, or new materials, its characteristics and its interaction should today be modeled *in silico,* just as it was tested in a laboratory in the recent past. Because in a world of experiences the innovations that touch the molecular level are those that have the power to transform and which promise an exponential added-value to the consumers. Furthermore, it is necessary to realize that the classic work methods have reached their limits. To reveal digital's true potential and drive sustainable growth, the compartmentalization of systems used by research, development, and production must disappear. The era of individualism has to give way to a new era, that of collaborative innovation.

"In a world of experiences, the innovations that touch the molecular level are those that have the power to transform and that promise an exponential added-value to the consumers."

We also apply this principle to our development strategy at BIOVIA. A partnership with our clients based on standards, while at the same time being very open, allows us to construct solutions that answer their specific scientific needs while reducing the time of the production cycle.

These solutions help put a suitable and verifiable product on the market more rapidly and at the most efficient cost. It's a philosophy that is the basis of our business, which brings together biology, chemistry, and material science.

A new light

In order to revolutionize life sciences, researchers and doctors must have the technological solutions at their disposal that enable them to see their disciplines in a new light. Solutions that have already proved themselves in the industrial sector (data management, security, etc.) are now ready to be integrated into the health sector. Solutions that open new fields of possibilities (personalized medicine, painless tests, high-tech apparatus) by allowing multi-scaled 3D simulations and modeling of the live human body.
Dassault Systèmes' expertise in the realm of the biosphere and matter is concentrated in the BIOVIA brand, which is as much interested in biology as it is in chemistry.
SIMULIA's specialty is simulation. After concentrating on inert matter, the brand is developing toward a deepening knowledge of the human body and its components (skeleton, muscles, tendons, skin, organs, etc.) as well as their interactions.

AO Foundation

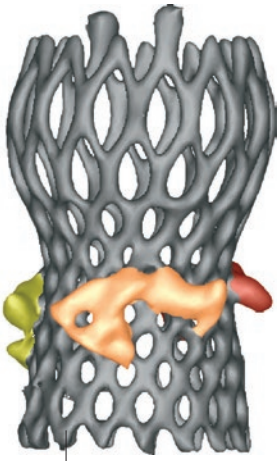
DATABASES AT THE HEART OF THE TRANSFORMATION

The main objective of the AO Foundation is to optimize the way in which orthopedic surgeons carry out their research and interventions. Today, EXALEAD helps these ambitions by bringing together the databases used by 12,000 surgeons spread over several health centers. This intelligent solution provides them with quick and easy access to the relevant information on their speciality.

SIMULATION BRINGS EFFICIENCY

By using SIMULA 's technology, FEops, an expert in process modeling and cardiovascular devices, multiplied the capabilities of its own software. Now surgeons have a solution to preview operations before the interventions. The designers of cardiovascular devices can now predict how vital devices, such as stents (small metal structures that open blocked arteries) will act during and after the operation, thus saving time and money while improving the quality of care.

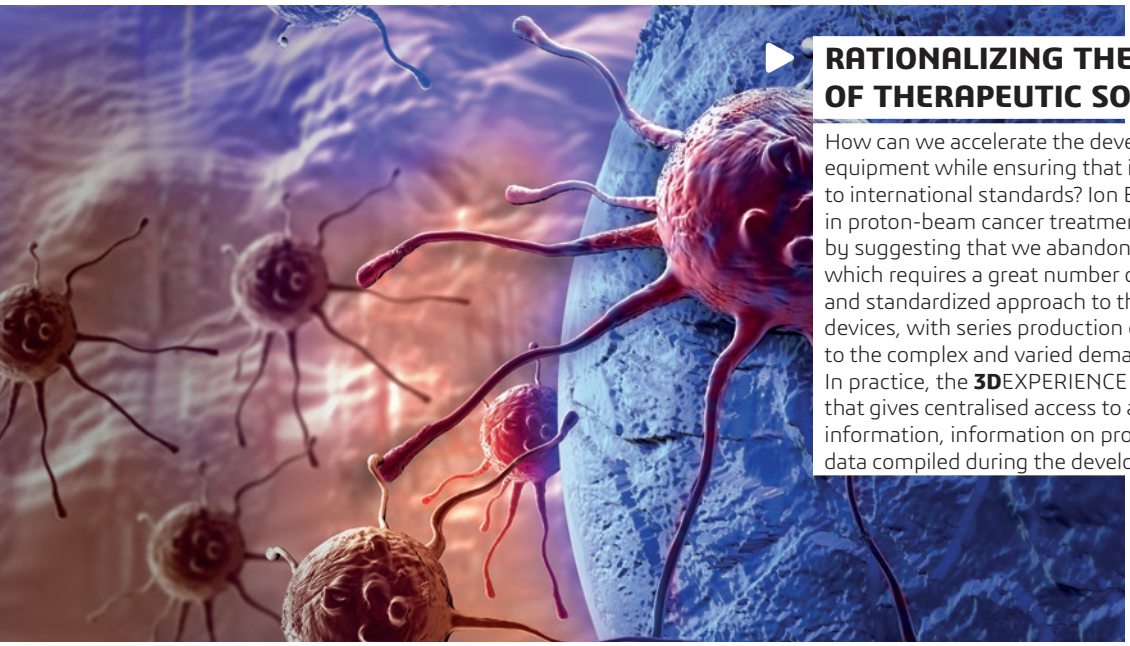
FEOPS
insights for excellence



Simulation of an expanding stent

"With simulation you can bring together so much precise information using only simplified bench tests."

Matthieu DE BEULE, Ph.D.,
Co-founder of FEops (Belgium)



RATIONALIZING THE DEVELOPMENT OF THERAPEUTIC SOLUTIONS

How can we accelerate the development of innovative medical equipment while ensuring that it remains safe and conforms to international standards? Ion Beam Applications, a pioneer in proton-beam cancer treatment, has answered this question by suggesting that we abandon manufacturing on demand, which requires a great number of man-hours, to start a collaborative and standardized approach to the development of their medical devices, with series production of a range of machines adapted to the complex and varied demands of their clients.
In practice, the **3D**EXPERIENCE platform provides a solution that gives centralised access to all kinds of useful data: regulatory information, information on product specifications as well as internal data compiled during the development process.

AND FOR TOMORROW?

Cohort study by the Design department of ENS Cachan

Study realized by Kim BOLDT, Laura FORCISI, Estelle SKRODZIKI and Marie-Eva VIDAL
of the design department at ENS Cachan
in partnership with Dassault Systèmes

EXPERIMENTING WITH A CHANGE OF IDENTITY

Virtual modeling of the body from medical databases makes it possible to make detailed observations or even to carry out in-depth transformations. In a study of people who question their gender, the Change Study & Care Society is testing a virtualization tool directed toward people who would like to experience what it would be like to be in their future body. Even when the desire to change one's identity is strong, the idea of reassignment raises questions and apprehension. The Trans ID device offers a realistic and immersive experience in several phases. To help candidates in making a decision, they are given augmented-reality contact lenses, enabling them to visualize their new body.

Virtual model composition software provides an image that can be shared with friends and family. Finally, during the reassignment process, the candidate is able to project this new image onto their home mirror to become familiar with this new identity, thus ensuring a gentle transition for the patients, along with those closest to them.

The experience of changing one's image is just the first step in the process, and visualizing a virtual model of the body is a new research tool for examining the different aspects in the construction of identity.

The digital life of a beating heart

The heart is not only the most essential but also the most complex of our organs. The use of digital technologies by Dassault Systèmes helps us to better understand how it works and how to improve the treatment of patients.

Cardiovascular illnesses are the leading cause of death in the world with

31%

of deaths

80%

of heart attacks or premature strokes are avoidable (Source: OMS)

Imagine that doctors and surgeons had access to a technology of simulation as realistic and powerful as those used for decades in the automotive or aerospace industries. Imagine that it becomes possible to conceive and test products and medical devices at a fraction of the cost and in the total security of the virtual world. Imagine that we could be able to simulate life, to reproduce the extraordinarily complex working of an organ as vital as a heart.

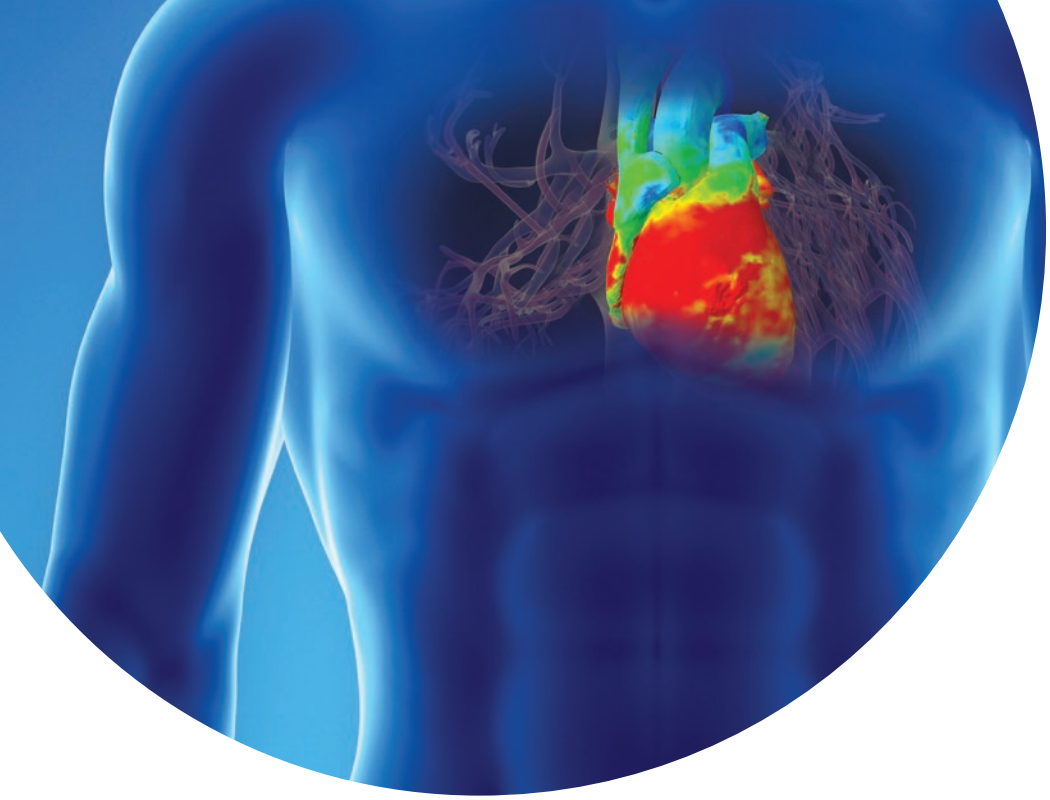
SIMULATION AT THE HEART OF LIFE

The lack of models still limits the field of possibilities. The Living Heart Project enlists researchers, teachers, medical device developers, regulatory bodies and heart experts who have the common goal of developing and validating very precise digital models of the human heart. These models will be the basis of a new type of *in silico* medicine. They will also be used in the framework of training, as well as in the conception of medical devices and tests, to convert the innovations that come from research into products and services adapted to the market. They will also aid clinical diagnosis, pre-operation planning and the treatment of heart diseases.

"Over the years, Dassault Systèmes has taken part in numerous simulation projects, from the 3D conception of cars that contributed to helping avoid serious injuries, to studies led by eminent researchers to study the impact of contact sports on the brain.
The collaboration of experts from different disciplines in the Living Heart Project guaranteed that a durable and long-term project came out of this work", emphasized Scott Berkey, CEO of SIMULIA.

"The future of health will undoubtedly pass via the use of modeling and 3D simulation to guide our choices in terms of treatment, the training of doctors, and even educating patients on their role in managing their own health."

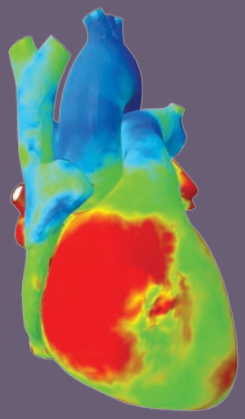
Kumaran KOLANDAIVELU, teacher and doctor at Harvard Medical School and director of the clinical research center at the Massachusetts Institute of Technology.



"This project is truly transformational, as much for Dassault Systèmes as for society in general. Our objective is to make the world better through the products that we imagine. Here, the use of digital technology really helps us to improve our lives," confirms Steven Levine, director of the Living Heart Project.

FABULOUS MACHINERY

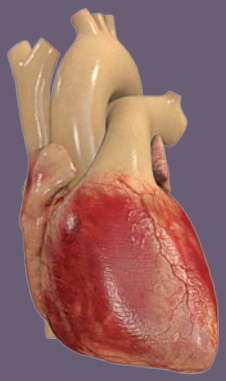
Controlled with precision by the interaction of electrical fields and mechanics, the heart consists of four chambers and four valves that work together to ensure the workings of a pump. While there exist a number of models to study either the electrical response or the mechanical response of the individual chambers, the electromagnetic response integrated into the whole heart remains little known.
By using **3D**EXPERIENCE, the experts were able to compile the results of the most cutting-edge research (orientation of fibers, detailed behavior, electrical conductivity, etc.) to give life to a robust and integrated simulation with a realistic rendering of a human heart.
This led to the realization of several tools: an immersive and interactive cavern that plunges you into the depths of a beating heart, a tablet with 3D glasses to manipulate a heart, or the entire human body floating in front of you.
To accomplish the follow-up steps of the Living Heart Project, a five-year collaborative research agreement was signed with the US Food and Drug Administration. The objective being to develop test models for the insertion, placement, and working of pacemaker probes and other cardiovascular devices.



SIMULATING LIFE REALISTICALLY

In the past few decades, research has produced a good amount of information concerning the diverse aspects of the way the heart works. But this essential organ still conceals its mysteries. To understand the dynamics of the heart more deeply and more completely today, 3D modeling seems essential, all the more so as the stakes surrounding public health are colossal.

SIMULIA simulates a large variety of materials, procedures and types of load to simulate the human body, medical and surgical equipment, and the way in which the equipment is used. It already allows us to simulate the functions of implants or brain hemorrhages and to model tissues or the mechanics of the foot.



"We live a total revolution that will oblige us to marry digital science with life and earth sciences because we can no longer consider the earth as an object."

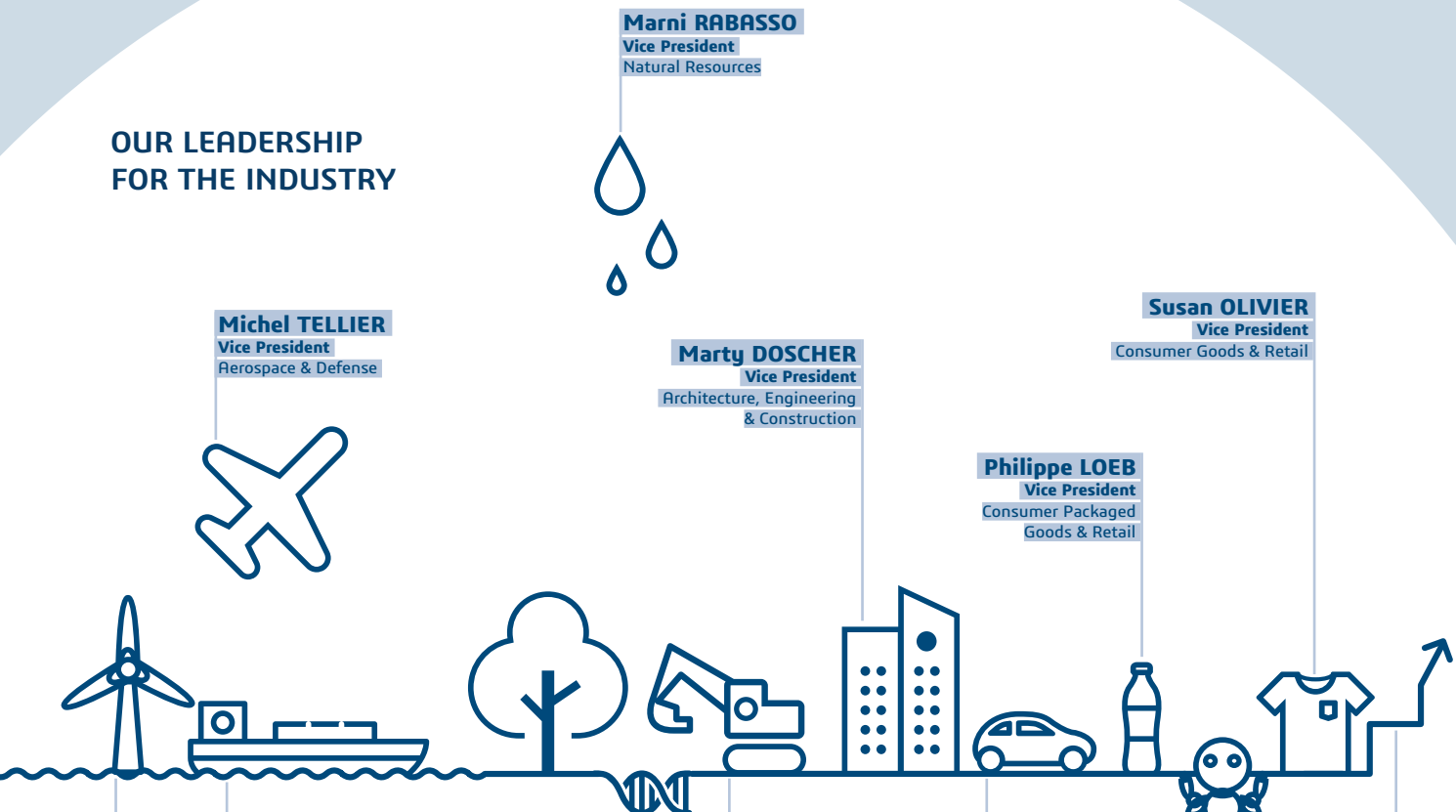
Michel SERRES

COLLABORATIVE INTELLIGENCE

AND MULTIPLE PERSPECTIVES

A cross organization that promotes emulation

OUR LEADERSHIP FOR THE INDUSTRY



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OUR ATTENTION TO USERS

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3DEXCITE
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CATIA
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PARIS, FRANCE

SOLIDWORKS
Gian Paolo BASSI
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GEOVIA
Raoul JACQUAND
VANCOUVER, CANADA

BIOVIA
Max CARNECCHIA
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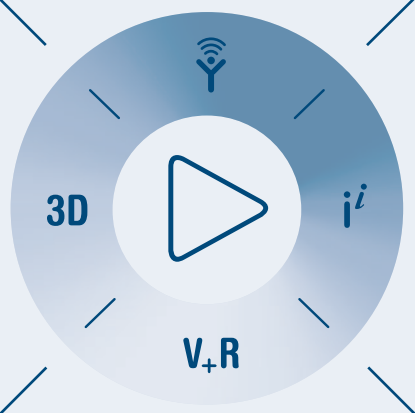


EXALEAD
Morgan ZIMMERMANN
PARIS, FRANCE

NETVIBES
Freddy MINI
SAN FRANCISCO, UNITED STATES

3DVIA
Vincent PICOU
PARIS, FRANCE

SIMULIA
Scott BERKEY
PROVIDENCE, UNITED STATES

DELMIA
Philippe CHARLÈS
DETROIT, UNITED STATES

OUR PRESENCE IN THE WORLD

Stephen CHADWICK
NORTHERN EUROPE

Andreas BARTH
CENTRAL EUROPE

Olivier LETEURTRE
WESTERN EUROPE

Scott BERKEY
NORTH AMERICA

Valeria GODOY
LATIN AMERICA

Guido PORRO
SOUTHERN EUROPE

Laurent VALROFF
RUSSIA

Youngbin CHO
KOREA

Seiji KAJIYA
JAPAN

Hao Feng WANG
CHINA

Chandan CHOWDHURY
INDIA

Samson KHAOU
SOUTHERN ASIA, PACIFIC

INTERVIEW

Laurence BARTHÈS

EXECUTIVE VICE-PRESIDENT
CHIEF PEOPLE AND INFORMATION OFFICER

Dassault Systèmes made some important acquisitions in 2014. What are growth trends for the coming 10 years?

Our dynamic is accelerating in terms of our acquisitions, as well as of our organic growth. We must now reinvent our ways of interacting and collaborating to sustain this strong growth and to attract and welcome new talent. Today we are over 13,000 employees from 116 different countries, with the aim of bringing this to 28,000 in 2021.

Are you confident in Dassault Systèmes' ability to find the talent of tomorrow?

Yes, I am, and we have all the qualities to do just that. The purpose of Dassault Systèmes – to harmonize product, nature, and life – gives very strong societal meaning to the activities of everyone involved. Our strategy, founded on experience, brings us close to the consumer.

Our unique dynamic of growth and development, along with our leadership position, not to mention the markets we serve (from life sciences to architecture though the fashion world, for example), meet the very diverse aspirations from talents wishing to join us.

Our responsibility to make this possible is, of course, to make what we do better known, but also, in the longer term, to help develop the interest of young people in scientific and technological careers.

With such a dynamic, what is your greatest challenge in terms of management?

One of the fundamental elements of our management systems is to act as a single entity that we call the "ONE company," which means one vision, values, a corporate agenda, and shared references, while adapting to the specificities and markets in our different geographical areas. In this context, I would say that our biggest challenge is the adoption of our culture by every single employee within the group, even more so because we are growing so rapidly.
By putting our values at the heart of our management system, we are able to rise to the challenge. Our values are part of our DNA; they are both fundamental and a motor for our growth. When we consider bringing in new talent through an acquisition, for example, the issues are not only on a technological level but also and above all on a human level. Sharing a common understanding of our values is for us an essential condition for every long-term commitment and enables us to foster the synergies and the complementarities of our teams in action.

"Our responsibility is to make what we do better known, but also, in the long term, to help develop the interest of young people in scientific and technological careers."

The employees at the heart of 3DEXPERIENCE

3DEXPERIENCE LABS: DISRUPTIVE INNOVATION IS SOCIAL

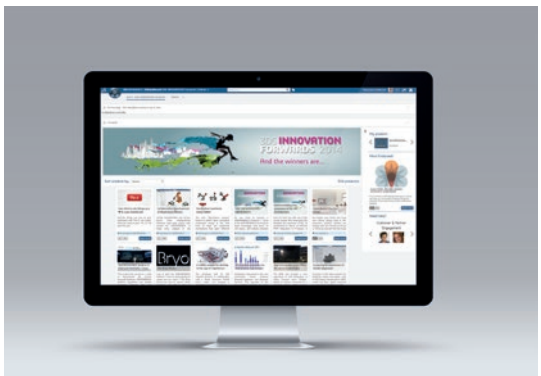
Placing innovation at the service of great societal transformation is Dassault Systèmes' purpose. The group is investing in developing and industrializing numerous promising projects in its **3D**EXPERIENCE LABS. A program that can truly help accelerate start-ups and provide businesses with room to explore, these Labs invest in the different issues facing the world of tomorrow.
For example, the Cup of IoT competition awarded first prize to the Ultrascope project. This first 3D-printable robotic observatory, created by open-source software, enabled NASA to gather all its observations and to create a celestial, collaborative asteroid chart. An excellent idea for making astronomy accessible to a greater number of people.
Ultrascope is a project of the Open Space Agency: Stefan KUEPPERS, the German developer; Jordan McRAE, the American engineer; and Jon RUSHTON, the French designer.

BRINGING NEW TALENT TO BUILD ON OUR EXPERTISE

In 2014, good external and organic growth (3,663 people) helped us to significantly enrich our expertise and the diversity of our profiles. More than 2,000 talents joined us through acquisitions:

- **Accelrys** (life sciences), based in the United States, contributed to the introduction of the BIOVIA brand
- **Quintiq** (logistics, planning and optimization operations), based in the Netherlands
- **RTT** (3D visualization), based in Germany, led to the creation of the 3DEXCITE brand
- **Simpack** (multi-body simulation), based in Germany, enriched the SIMULIA brand
- **Sobios** (research and development software, pharmaceutical sector), based in France, joined the BIOVIA brand

Ultrascope, the cup of IoT winner, by Stefan Kueppers, Jordan McRae, and Jon Rushton



PERMANENTLY SEARCHING FOR INNOVATION IN ALL ITS ASPECTS

This search for discipline and efficiency in all our operations, at every level of the company, enables us to make more room for initiative and innovation. Every year, the employees of Dassault Systèmes are asked to share their latest innovations on the **3D**EXPERIENCE platform as part of "3DS Innovation Forwards." The visibility given to these innovations promotes their re-appropriation in other contexts within the group. It's also an opportunity for talents to show themselves. All professions are involved, from R&D to marketing and communication, as well as sales. It's a marvelous way to measure the dynamic of our teams on five continents.

In 2014,

354

innovative projects were submitted

23

teams awarded

The "**3D**EXPERIENCE University" for developing, highlighting, and connecting talents

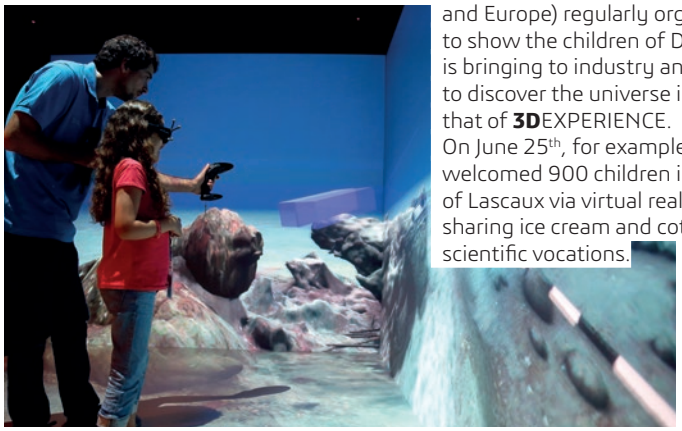
In order to continually stay a step ahead in its areas of expertise, Dassault Systèmes created the "**3D**EXPERIENCE University" in 2014, offering all employees in the group joint learning methods adapted to the role of each: E-learning, virtual classes, "on-the-job" activities, 3D immersive games, peer training and mentoring... all the means needed for made-to-measure learning.

This learning plan is enriched by the 3DSWYM dedicated community, a virtual space that gives every employee the opportunity to interact with experts on the contents of the modules, to take part and suggest new content, and to keep up to date on upcoming programs that can enrich their learning paths.

This environment is also an essential meeting point for every newcomer to Dassault Systèmes. Two "on-boarding" stages help the talent joining us to acquire all the elements of the group's strategy rapidly. Arrival day, "DAY 1," is dedicated to the discovery of **3D**EXPERIENCE challenges and ambitions, while "DAY 90" gives them the opportunity to gain a more detailed understanding of the strategy and to develop their network through workshops.

Immersion within the LIVES

3D testing on tablet and immersion in the seabed at LIVES



PREPARING FUTURE GENERATIONS: KIDS' DAY

Most of our sites around the world (Asia, the Americas and Europe) regularly organize a "Kids' Day." It's the occasion to show the children of Dassault Systèmes' employees what 3D is bringing to industry and to society at large, but above all to discover the universe in which their parents work each day, that of **3D**EXPERIENCE.
On June 25th, for example, the Dassault Systèmes' Paris campus welcomed 900 children interested in going through the cave of Lascaux via virtual reality or to meet the company's CEO while sharing ice cream and cotton candy – a nice way to inspire future scientific vocations.

A NEW STEP TOWARD A EUROPEAN COMPANY

Since its founding, Dassault Systèmes has been a French "Société Anonyme" (Limited Company). Today, Dassault Systèmes, SA is going through a large-scale transformation to become Dassault Systèmes, SE. SE stands for "Société Européenne" (European Company). This development, which reflects the company's foothold and increasing influence across the continent, enables it to benefit from standardized statutes recognized across the European economic area. It constitutes an important structuring step in the affirmation of an international identity for the Group, which already has a strong presence in the three large geographical areas (Europe, the Americas and, Asia/Pacific).

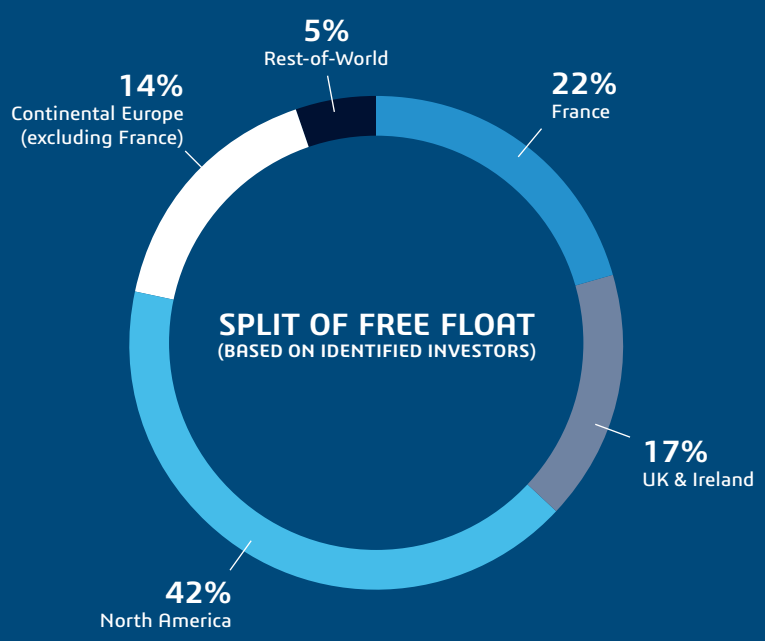
CLIENTS OF OUR 3DEXPERIENCE PLATFORM ACHIEVE GREATER EFFICIENCY

At the beginning of 2014, we rolled out the **3D**EXPERIENCE business platform to all employees of the group, before making it available to our clients.
This platform supports all of our operations. With our dynamic, unique, and accessible information source, everyone involved can now share the same understanding of the objectives and challenges ahead. It's also through this platform that Dassault Systèmes employees sharing the same interests and projects interact and work together, independently of their organization or their position.

Nearly
45%
of turnover acheived in Europe

50%
of Group employees work in 16 countries of the European Union

Shareholders information



STOCK DATA*

Listed on NYSE Euronext Paris and traded on the U.S. Over-The-Counter Market

Share price** 31/12/14

50.54 €
61 $

Market capitalization

13 Md €
15.7 Md $

STOCK PRICE PERFORMANCE COMPARISON

Dassault Systèmes + 11.4%

CAC 40 - 0.07%

Euronext 100 + 19%

AVERAGE DAILY VOLUME TRADED

on Euronext
210,873 shares

KEY 2015 SHAREHOLDERS' EVENTS

Thursday, April 23, 2015
Release of First Quarter Earnings

Thursday, May 28, 2015
Annual Shareholders' Meeting

Thursday, July 23, 2015
Release of Second Quarter Earnings

Thursday, October 22, 2015
Release of Third Quarter Earnings

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* To December 31, 2014
** A two-for-one stock split occurred on July 17, 2014

Additional information

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Dassault Systèmes

Digital version
of the annual report

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Design and production: LONSDALE

Registration document design and production: LABRADOR +33 (0)1 53 06 30 80

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