DASSAULT SYSTEMES

MEDIA BACKGROUNDER

3DEXPERIENCE®

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FAST FACTS

Activity	**Dassault Systèmes, the 3DEXPERIENCE Company, is a catalyst for human progress. It provides business and people with collaborative 3D virtual environments to imagine sustainable innovations. By creating virtual experience twins of the real world with its 3DEXPERIENCE platform and applications, its customers push the boundaries of innovation, learning and production.**
Founded	1981
2019 revenues	4.02 billion euros
Workforce	20,000
Headquarters	10, rue Marcel Dassault – 78140 Vélizy-Villacoublay, France
Leadership	Charles Edelstenne, Founder and Chairman of the Board Bernard Charlès, Vice Chairman of the Board, President and Chief Executive Officer
Stock symbol	Euronext Paris: #13065, DSY.PA
Industries	Aerospace and Defense Construction, Cities and Territories Home and Lifestyle Consumer Packaged Goods and Retail Energy and Materials Business Services High-tech Industrial Equipment Life Sciences Marine and Offshore Transportation and Mobility
Brands	3DEXCITE 3DVIA BIOVIA CATIA CENTRIC PLM DELMIA ENOVIA EXALEAD GEOVIA MEDIDATA NETVIBES SIMULIA SOLIDWORKS
Customers	More than 270,000 in 140 countries
Website	www.3ds.com

DASSAULT SYSTEMES: VIRTUAL PIONEER

In the Beginning…

Dassault Systèmes was established in 1981 through the spin-off of a small team of engineers from Dassault Aviation, led by Charles Edelstenne. The engineers were developing software to design wind tunnel models and therefore reduce the cycle time for wind tunnel testing, using surfacing modeling in three dimensions ("3D"). The independent company entered into a distribution agreement with IBM to sell this software under the CATIA (computer-aided three-dimensional interactive application) brand to the automotive and aviation industries.

Over the next three decades, the company developed new versions of its software architecture that introduced capabilities built upon the original concept of 3D modeling for product design. These significantly transformed the way products are designed, produced and supported, and created a number of industry "firsts."

Initially, the growing adoption of 3D design by industrial customers for all components of complex products triggered the company's vision of transforming the 3D part of the design process into a systematic integrated product design to realize full digital mock-ups ("DMU") of any product. Its software solutions helped customers reduce the number of physical prototypes and realize substantial savings in product development cycle times. It also made global engineering possible as engineers were able to virtually share their ongoing work. For example, the Boeing 777 was the first commercial aircraft entirely designed using Dassault Systèmes 3D DMU technology.

Going Beyond PLM

Next, the company developed a robust 3D Product Lifecycle Management ("PLM") solution to support the entire product lifecycle, from virtual design to virtual manufacturing, which often involves the use of rapidly changing technologies and frequent new product introductions or enhancements. These solutions address complex engineering needs in product design, simulation and manufacturing and must also meet sophisticated process requirements in the areas of change management, industrial collaboration and cross-enterprise work.

In 2012, building upon its work in 3D, DMU, and PLM, and in meeting trends, challenges and client needs in different industry verticals, the company unveiled its 3DEXPERIENCE business and technological platform, to support clients in their processes to deliver rewarding experiences to end-users.

In parallel to this technological development, the company sought other avenues for growth. These included expansion into North America and Asia, diversification into industries such as energy and life sciences, and development of a proprietary sales and marketing network. The company also made strategic acquisitions that expanded its software applications portfolio to digital manufacturing, realistic simulation, product data management and enterprise business process collaboration.

Today, Dassault Systèmes is a global corporation with 4.02 billion euros in revenue. It provides over 270,000 customers in more than 140 countries with virtual universes to imagine sustainable innovations.

WHY 3DEXPERIENCE?

The Experience Economy

Businesses today must look beyond the aesthetics of a product or the practicalities of a service. Consumer engagement and loyalty count far more than features and benefits alone. Consumers expect to interact with or even influence suppliers – not just be sold to. As a result, the world has shifted from a "product" economy to an "experience" economy, where a product's real value comes from how it is used. Products are no longer enough for today's consumers who value experience over all else.

Dassault Systèmes recognized that, in order to help its customers simulate the consumer experience, it must have a complete understanding of the most critical business needs of the industries in which its customers operate—that is to say, their "business experience." By fusing people, ideas and data to capture insights and expertise, its customers could create their own positive business experiences, positive experiences for the end-consumer and, in turn, add value to their business.

The key to making consumer experience the true focus of innovation is to capture insights and expertise from across a business's entire ecosystem. Shaping the right consumer experience requires not only the involvement of, but the collaboration between, all the roles within a company. Only by connecting people, ideas and data can a business drive consumer loyalty, engagement and value.

3DEXPERIENCE Universes

The result is "3DEXPERIENCE," the core concept of Dassault Systèmes. The 3DEXPERIENCE platform is a virtual experience platform that enables companies to collectively access and apply knowledge and know-how at hyper speed, and try infinite possibilities for innovation. It represents both a system of operations for companies to run their businesses, and a business model for them to change relationships and roles across their value network. Companies can digitally connect upstream thinking to design, engineering, manufacturing, sales, marketing, and ownership. Industry can transform how it invents, learns, produces and trades, to create value and differentiating customer experiences.

The 3DEXPERIENCE platform integrates 3D modeling, social collaboration, simulation, and information intelligence technologies and services. These digital capabilities, packaged as "industry solution experiences," are tailored according to the complex business processes of 11 different industries in three key economic sectors, through a strategic combination of the company's 13 brands.

The 3DEXPERIENCE platform folds into the company's overall commitment to sustainability, and its recognition of sustainability's role as a driver of innovation in the 21st century. By virtually experiencing the usage of a product in the real world – including its impact on the environment and on people – companies can create new products and services that address major global challenges, as well as empower their workforce with new skills needed to sustain growth in a world of increasingly discerning consumers. Companies may therefore integrate sustainable innovation best practices into all aspects of their product development process: 3D modeling for eco-design, simulation and production for lean and green manufacture, information intelligence for environmental data management, and social collaboration for managing fast-evolving demands.

3DEXPERIENCE from Things to Life

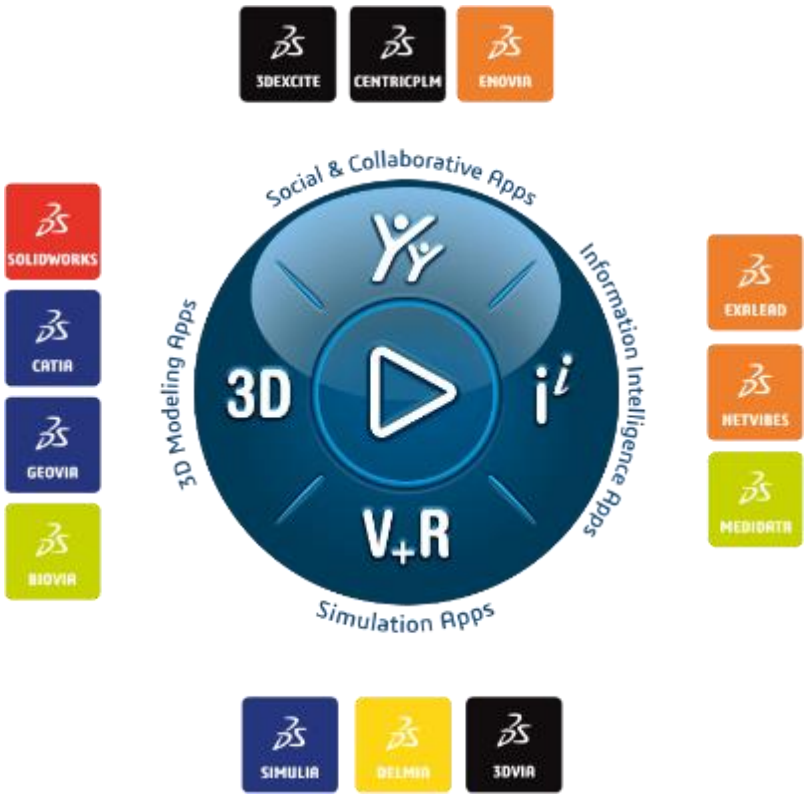
On February 6, 2020, the company unveiled its strategic direction for the coming decades, extending its ambition "from Things to Life." This ambition focuses on transforming how people are cured and helping them live a better life by making the virtual twin experience of the human body possible. Virtual twin experiences with the 3DEXPERIENCE platform open up new possibilities for life sciences and healthcare by enabling research, medical, surgical and other health-related disciplines to understand, model, search, test and treat a human body as precisely, safely and effectively as other industrial disciplines already can with cars, buildings or airplanes.

To support its ambition to foster human-centric innovation, Dassault Systèmes is focused on developing its leadership in the Life sciences and Healthcare sector alongside two other strategic sectors of the economy: Infrastructure and Cities, and Manufacturing industries. These sectors share similar development processes and sustainability needs in their efforts to improve quality of life, whether through more affordable and precise therapies, optimized infrastructures, or better use of the environment.

CORE APPLICATIONS

3DEXPERIENCE platform

Dassault Systèmes has developed the largest business experience platform in the world that focuses on the following core concepts:



3D modeling: 3D and systems engineering used in a wide spectrum of domains including smart/connected products, urban systems, natural resources, and biological systems. Brands include:

- CATIA: the company's pioneer brand; addresses the complete product development process, from early product concept specification through product in service.
- SOLIDWORKS: 3D design, data management, simulation, technical documentation, and electrical design.
- GEOVIA: models and simulates the planet to improve predictability, efficiency, safety and sustainability of natural resources.
- BIOVIA: scientific innovation lifecycle management software for chemistry and biology.

Simulation ("Virtual+Real"): realistic simulation of products, production and usage, including complex product behaviors, factory and production systems execution, and consumer usages in everyday life. Brands include:

- SIMULIA: a scalable suite of unified analysis products that allows all users, regardless of their simulation expertise or domain focus, to collaborate and seamlessly share simulation data and approved methods without loss of information fidelity.
- DELMIA: drives manufacturing innovation by planning, simulating and executing global production processes.
- 3DVIA: offers consumers, retailers and manufacturers innovative 3D space planning solutions.

Information intelligence: indexing and dashboarding that allows customers to tackle big data challenges and search, sort, filter, navigate and understand data. Brands include:

- EXALEAD: allows companies to access, explore, and analyze their most relevant information, delivering data discovery applications that make sense of large volumes of digital assets.
- NETVIBES: helps enterprises monitor and manage everything on real-time, personalized dashboards designed to enable better, faster decision-making.
- MEDIDATA: clinical expertise and cloud solutions that help pharmaceutical, biotech, medical device and diagnostics companies, and academic researchers develop and market smarter therapies.

Connectivity: social and structured collaboration. Brands include:

- ENOVIA: brings together people, processes, content and systems involved in product creation, development, introduction and maintenance.
- 3DEXCITE: high-end visualization software, marketing solutions and computer-generated imagery services that translates engineering data into usable data for marketing professionals.
- CENTRICPLM: merchandise planning, product development, sourcing, business planning, quality and collection management for fashion, apparel, luxury and retail sectors.

HomeByMe

Dassault Systèmes' HomeByMe application is an online interior design application for consumers, interior designers and retailers. It provides an immersive and interactive user experience to transform home furnishing and interior decoration projects, to visualize this transformation in a realistic 3D environment, and to connect consumers to home professionals.

More than 2.3 million consumers use this free application to view and experiment with personalized furniture, flooring, walls, layouts and designs online virtually, before engaging in real-world purchases, projects or renovations. HomeByMe also connects a user's design environment to a greater community of businesses and home professionals including furniture providers, realtors, architects, interior designers and builders. Professional subscriptions enable these businesses to offer their customers a game-changing level of speed, responsiveness, ease of use and visual impact with 360° virtual reality and augmented reality.

HomeByMe for Kitchen Retailers is a digital 3D kitchen planning solution that helps retailers to support a virtual omnichannel buying experience, to accelerate the sales process, and to increase revenues. Their customers can digitally create, visualize and personalize their kitchens, backed by a comprehensive range of management tools, branded experiences and design recommendations.

3DS Outscale

Dassault Systèmes is one of the fastest growing cloud companies in the world. With its 3DS Outscale technology, it provides enterprise-class cloud computing infrastructure services (IaaS) to customers through ten data centers in Europe, North America and Asia. 3DS Outscale enables companies to support the most complex IT projects with an automated and scalable cloud, while mastering their operational aspects.

3DS Outscale has multiple certifications:

- France's ANSSI Security Label for SecNumCloud certification of all its Public Sector Cloud offerings, reflecting the highest level of commitment and adherence to security regulations.
- ISO 27001:2013 security certification for 3DS Public Sector Cloud, recognizing information security management compliance.
- ISO 27018 certification in connection with P11 Cloud private data protection.
- Health Data Hosting certification with ASIP Santé.

KEY STRATEGIC SECTORS

Dassault Systèmes' 3DEXPERIENCE platform and industry solution experiences are used by customers in three strategic sectors comprising 11 industries. These address end-to-end critical product issues, including product quality, time-to-market, supply chain collaboration, regulatory compliance, intellectual property protection and manufacturing efficiency.

These strategic sectors and industries are:

Manufacturing Industries – representing approximately 70% of revenues

Transportation and Mobility: the company's largest industry and one of the company's two original industries of focus with aerospace and defense.

Segments: car and light truck OEMs; motorcycles; trains; racing cars; trucks and buses; and suppliers.

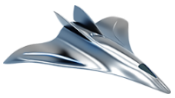
Customers include: AKKA Technologies, Alstom Trenitalia, Ashok Leyland, Blutec, BMW, Dana Holding Corporation, DS Automobiles, Eurostar, Faraday Future, FCA, Ford, GLM, Group PSA, Honda, Hyundai, Jaguar Land Rover, Kreisel Electric, Michelin, Pininfarina, Qoros, PSA Retail, Renault, Rimac Automobili, Scania Group, Stadler Rail, Tata Technologies, Tesla, Toyota, VE Commercial Vehicles, Visteon.

Industrial Equipment:

Segments: industrial robots, machine tools, 3D printers; specialized manufacturing machinery; heavy mobile machinery and equipment; building equipment; power and fluidic equipment; fabricated metal and plastic products; tire manufacturers.

Customers include: AGCO, Asia Agricultural Machinery, Bobst Group, Bosch, Bridgestone EMEA, Caterpillar, Chongqing Yinhe, Claas, Cummins, Doosan Infracore, DT HiLoad, Kärcher, Karl W. Schmidt & Associates, Konstrukta Industry, Maschio Gaspardo, Müller, Valmet, Westrock.

Aerospace and Defense:



Segments: Airlines, airports, space, defense, propulsion, suppliers and airframe OEMs.
Customers include: Aeros, Airbus Group, Bell Helicopter, Boeing, Boom Supersonic, BRM Aero, CASC, Cessna, Comac, Dassault Aviation, Elixir Aircraft, Eviation, FAA, GE Aviation Hamble, Joby Aviation, KLM, Lockheed Martin, MBDA, Northrop Grumman, Pratt & Whitney, Safran Group, Solar Impulse, Strata, Turkish Aerospace.

Home and Lifestyle:

Segments: furniture and home goods; sports and leisure goods; fashion and luxury goods; specialist retailers.
Customers include: Adidas, Arc International, Arvind, Benetton Group, Bernardaud, Boyner Group, El Corte Inglès, Eterna, Fossil Group, Gap, Geberit, Guess, IXINA, Mammut Sports Group, Nowy Styl, Patek Philippe, S. Oliver, The Rockport Group, VF Corporation.

Consumer Packaged Goods and Retail:

Segments: Food and beverage; household products; beauty and personal care; packaging suppliers; general retailers.
Customers include: Amcor, Barilla, BAT Mexico, Coca-Cola, Danone, General Mills France, Heinz, L'Occitane, L'Oréal, Monoprix, Procter & Gamble, SIG, Tetra Pak, VISKASE.

High-tech:

Segments: consumer electronics; security, control and instrumentation; telecommunications, computing, and network; contract manufacturing services; technology suppliers; semiconductors.
Customers include: AB Sciex, Bosch, Dong Yang, Ericsson, Fujitsu Network Communications, HP, Hisense, Hurom, LG, Microsoft Devices, Nikon, Panasonic, Parrot, Pegatron, ST, V-Zug.

Marine and Offshore:

Segments: naval shipyards; commercial shipyards; offshore; yachts and workboats.
Customers include: Bureau Veritas, DCNS, Damen Shipyards, Deltamarin, DSME, Ecoceane, ExxonMobil, Heesen Yachts, Hyundai Heavy Industries, Isonaval, McDermott, Meyer Werft, ORACLE TEAM USA.

Life Sciences and Healthcare – representing approximately 20% of revenues

Life Sciences:

Segments: medical devices; pharmaceuticals and biotechnology; patient care.
Customers include: Akzo Nobel, AO Foundation, Bayer, FEops, GE Healthcare, GN ReSound, Ion Beam Applications, Ipsen, Johnson & Johnson, Medtronic, Novo Nordisk, Olympus Technologies Singapore, Osstem Implant, Otto Bock Healthcare Products, Pfizer, Sanofi, Shanghai Microport Orthopedics, Stryker.

Infrastructure and Cities – representing approximately 10% of revenues

Energy and Materials:

Segments: mining; metals and minerals; oil and gas; power; chemicals.
Customers include: Areva, BASF, Chevron, CHIDI, Cofely Ineo, Daewoo, Dow, Eaton, European Spallation Source, I&C Energo, NIAEP, POSCO, Samsung Heavy Industries, Schaeffler Technologies, Vestas Wind Systems.

Business Services:

Segments: banking and financial markets; insurance; logistics solutions.
Customers include: BNP Paribas, Consip, DHL Express, Eovi Mcd Mutuelle, Jens Paulus Design, La Poste, Lewis Global Communications, PwC, Rightmove, SEEK, VTT Technical Research Centre of Finland.

Construction, Cities and Territories:

Segments: buildings, cities, infrastructure.
Customers include: AEM, Agnico Eagle, AngloAmerican, Arup, Bouygues Construction, CadMakers Virtual Construction, Cerrejon, Cokal, De Beers, Dundee Precious Metals, Hardstone Construction, Kengo Kuma, Lafarge, LMN Architects, National Research Foundation of Singapore, Palabora Copper, Rio Tinto, Saint Gobain, Sanska, Dr. Sauer & Partners, Shanghai Foundation Engineering Group, SHoP Architects & SHoP Construction, SMEDI, Technip, Zahner.

GLOBAL PRESENCE

Dassault Systèmes is headquartered in Vélizy-Villacoublay, France, located in the Paris area. Its principal sites are located in China, Germany, Japan, South Korea, the U.K. and the U.S. In total, it operates 100 subsidiaries worldwide. In 2019, its activities in Europe represented 41 percent of total revenues, those in North America 32 percent and those in Asia 27 percent.

RESEARCH AND DEVELOPMENT

The company's research and development is conducted in close cooperation with users and customers in their respective industries to develop a deeper understanding of the unique business processes of these industries and their future product directions and requirements. Important areas of focus are:

- Modeling technologies (3D, systems engineering, natural resources and biosystems);
- 'Virtual+Real' technologies (product, production and usage realistic simulation);
- Intelligent information technologies (indexing and dashboarding);
- Connectivity technologies (social and structured collaboration);
- Breakthrough user experiences;
- Expanding the reach of its solution with native cloud and mobility solutions.

The team is composed of 7,517 engineers, representing approximately 39 percent of the company's total headcount, at research facilities located in Europe, the Americas and Asia-Pacific.

As a science-based company, in 2019, it invested €738 million in R&D to drive product innovations and enhancements. Its patent portfolio is comprised of more than 600 protected inventions, including 48 new inventions in 2019. Patents have been granted in one or more countries for more than half these inventions, and patents for the others are pending.

SALES ORGANIZATION

Dassault Systèmes has 270,000 customers in 140 countries. Its customer base ranges from business decision-makers at highly recognized consumer brand corporations to the maker movement, small suppliers, industrial manufacturers, educational institutions and government departments. To reach these customers, Dassault Systèmes developed a network of sales and development partners, system integrators, educational institutions and research enterprises.

Its three sales and distribution channels are as follows:

- Direct sales to large companies and government entities through its "business transformation" channel represented 60 percent of 2019 revenues.
- Indirect sales to small and mid-sized companies through its "value solutions" channel—its global network of value-added resellers with industry specialization—represented 20 percent of 2019 revenues.
- Volume unit sales through its indirect "professional solutions" channel—a network of value-added resellers and distributors worldwide providing sales, local training, services and support to customers—represented 20 percent of the company's 2019 revenues.

EXTERNAL GROWTH

Dassault Systèmes' external growth opportunities focus on expanding its applications portfolio, broadening its industry coverage and diversification, deepening its regional market penetration, expanding its universe of users, and offering Software as a Service and mobile applications. In 2019, the company completed the following acquisitions:

- **MEDIDATA**, a leader of the digital transformation of the life sciences industry for clinical development, commercial, and real-world data intelligence, to offer the first end-to-end scientific and business platform for research and discovery, development, clinical testing, manufacturing and commercialization of new therapies and health technologies.
- **IQMS,** a leading manufacturing ERP software company, to extend the 3DEXPERIENCE platform to small and midsized manufacturing companies seeking to digitally transform their business operations**.**
- **ARGOSIM**, pioneer in systems specification simulation, to strengthen the simulation and modeling portfolio for embedded systems.
- **ELECWORKS**, the suite of CAD software developed by Trace Software, to better respond to challenges in electrical product design.
- **BIOSERENITY** (acquired a non-controlling interest), a firm specializing in the development of connected medical devices and remote-monitoring solutions for patients with cardiac, neurological and sleep disorders.
- **DISTENE**, the developer of market-leading meshing software.

SOCIETAL & ENVIRONMENTAL RESPONSIBILITY

Dassault Systèmes has embarked on many initiatives to put its technology and knowledge at the service of research, education, culture, and artistic creation, as well as to drive its commitment to sustainability.

3DEXPERIENCE Lab

The 3DEXPERIENCE Lab, its open innovation laboratory and startup accelerator program, shapes a new framework of open innovation to foster entrepreneurship and strengthen society's future of creation. It has yielded successful projects aligned with the United Nations' Sustainable Development Goals, including large-scale additive construction using robots, 3D printing of personalized organs for simulation of surgery, and unmanned long-range solar drones. The 3DEXPERIENCE Lab is also located in North America, where it houses a digital fabrication space designed and set up in collaboration with Massachusetts Institute of Technology's Center for Bits and Atoms, and in India. Since the lab's creation in 2015, it has grown to include more than 25 incubator, accelerator, educational, entrepreneurial, technology and fab lab partners worldwide, 1,200 mentors, and collaborations with multinational companies on co-accelerating promising projects in specific industries.

La Fondation Dassault Systèmes

La Fondation Dassault Systèmes is dedicated to transforming the future of education and research through 3D technology and virtual universes. The foundation provides grants, digital content and skillsets in virtual technologies to education and research initiatives at academic institutions, research institutes, museums, associations, cultural centers and other general interest organizations throughout the European Union, the United States and India. In 2019, *La Fondation* supported 35 projects across these regions.

Workforce of the future

Dassault Systèmes partners with institutions worldwide to develop enhanced teaching methods that help transform science, technology, engineering and mathematics (STEM) education, and to define and implement policies and initiatives that contribute to preparing the workforce of the future. It is one of the founders of key academic associations such as the Global & European Engineering Deans Councils, the International Federation of Engineering Education Societies, and the Cartagena Network of Engineering. It also organizes and supports more than 40 competitions for science and technology students worldwide, to get young generations interested in the domains, anticipate and meet skills requirements, and boost their employability. An estimated 8.6 million students use the company's technology in an educational context. Partners include Arts et Métiers Paris Tech and Re-Engineering Australia Foundation.

Dassault Systèmes has also invented a pedagogical approach, the Peer Learning Experience. This gathers teachers from various universities to co-develop comprehensive multi-disciplinary and flexible curricula, which then become available, free of charge, for any new school joining the 3DEXPERIENCE for Academia community. The company has also put in place a Certification Program, which aims at certifying students trained on the company's solutions to help maximize employment and career perspectives.

Commitment to Sustainability

By implementing a strategy to optimize and transform its activities aimed at reducing its environmental footprint, Dassault Systèmes aims to be a net-positive company—one whose positive impact from the implementation of its solutions is greater than the negative footprint of its activities. The company is consistently included in the annual Global 100 Index of the world's most sustainable corporations, recognized as the gold standard in corporate sustainability analysis, and in 2019, was ranked second in Fortune's Future 50 Sustainability All Stars. Its 3DEXPERIENCE platform enables industry to think differently in terms of collaboration, intelligence and inventing disruptive solutions that can positively impact society, from its 3DEXPERIENCity "smart city" initiatives with the cities of Singapore and Rennes, smart driverless vehicles and record-breaking solar-powered aviation to hydropower plants and wind turbines.

Industry of the Future initiatives

Dassault Systèmes is at the heart of the world's industrial policies and programs. All the technologies allowing the redefinition of production models such as cobotics, additive manufacturing and augmented reality are available on the 3DEXPERIENCE platform. These technologies allow gains in raw materials and resources, such as the use of additive manufacturing to reduce the weight of aerospace parts by 80 percent. Dassault Systèmes participates in approximately 50 manufacturing programs globally including ones in France, the United States, Japan and China.

CORPORATE LEADERSHIP

Charles Edelstenne, Founder and Chairman of the Board of Directors
Charles Edelstenne is the founder of Dassault Systèmes and its current chairman of the board. Prior to this, he was manager then president and chief executive officer of the company until 2002. Qualified as a chartered accountant, he began his career in 1960 at Dassault Aviation as head of the financial studies department, and later became general secretary then vice-chairman responsible for economic and financial affairs.

Bernard Charlès, Vice Chairman of the Board of Directors and Chief Executive Officer
Bernard Charlès was appointed president and chief executive officer of Dassault Systèmes in 1995. He joined the company in 1983 to develop new design technologies and served as director of new technology, research and development and strategy from 1986 to 1988 and as president of strategy, research and development from 1988 to 1995. He holds the rank of Knight and Officer in the French Legion of Honor and is a member of the French Academy of Technology. He is a graduate of the Ecole Normale Supérieure engineering school in Cachan and has a PhD in mechanical engineering majoring in automation engineering and information science.

Dominique Florack, President
Dominique Florack has been instrumental in building the technology cornerstones of Dassault Systèmes' solutions since joining the company in 1986 to head up product data management. During this time, the company's catalogue has expanded from 23 to 400 products and he has played a key part in designing new development technology, new architecture, and new mathematical models. He also helped execute several key acquisitions (SIMULIA, MatrixOne, EXALEAD and NETVIBES) and develop a new brand – 3DVIA – to support the company's diversification strategy into the consumer area and social innovation. He is a graduate of the Centre d'Etudes Supérieures de Techniques Industrielles and earned his Ph.D. in mechanical design and artificial intelligence from Ecole Centrale de Paris.

Pascal Daloz, Chief Financial Officer and Chief Operating Officer
Pascal Daloz has more than 17 years of experience in executive positions at Dassault Systèmes, including as Executive Vice President, Brands and Corporate Development prior to his current position, where he was responsible for overall brand strategy by creating a unique portfolio of applications, inspiring users' experiences and vibrant user communities. Mr. Daloz began his career in 1992 as a technology consultant and as a sell-side technology analyst at Credit Suisse. He has contributed to several books on innovation and in 2010 was awarded the Hermès de l'Innovation prize for human relations in the workplace. He is a graduate of the École des Mines de Paris.

Laurence Barthès, Executive Vice President, Chief People and Information Officer
Florence Hu-Aubigny, Executive Vice President, Research & Development
Samson Khaou, Executive Vice President, Asia-Pacific
Philippe Laufer, Executive Vice President, Global Brands
Victoire de Margerie, Vice President Corporate Equity and Communications
Elisa Prisner, Vice President Business Platform Experience
Olivier Ribet, Executive Vice President, EMEAR
Erik Swedberg, Managing Director, North America
Thibault de Tersant, Senior Executive Vice President, General Secretary
Florence Verzelen, Executive Vice President, Industry, Marketing, Global Affairs, Workforce of the Future

COMPANY MILESTONES

1981 Creation of Dassault Systèmes; launch of flagship brand CATIA and signature of global marketing, sales and support agreement with IBM focused on automotive and aerospace

1984 Launch of V2 software, integrating 2D and 3D capabilities

1986 Launch of V3 software for 3D design

1992 Creation of U.S. subsidiary

1994 Launch of V4 architecture for full digital mock-up ("DMU") of a product; expansion of industry focus to fabrication and assembly, consumer goods, high-tech, shipbuilding and energy

Creation of Japanese subsidiary

1996 Initial public offering on Euronext Paris and on NASDAQ (the company voluntarily delisted from NASDAQ in 2008)

1997 Acquisition of SOLIDWORKS, targeting the 2D to 3D migration market opportunity; creation of its professional sales and marketing channel to support SOLIDWORKS

1998 Acquisition of IBM's product manager software and creation of the ENOVIA brand to manage CATIA product data

1999 Launch of V5 architecture software for the PLM market; acquisition of SmarTeam, product data management for small- and mid-sized companies (SMB)

2000 Creation of the DELMIA brand for digital manufacturing

2005 Acquisition of Abaqus and creation of the SIMULIA brand to focus on realistic simulation; creation of its PLM Value Solutions sales channel focused on SMB

2006 Acquisition of MatrixOne, global provider of collaborative PDM software and services; expansion of its industry focus from seven to 11 industries

2007 Creation of the 3DVIA brand to imagine, communicate and experience in 3D; acquisition of ICEM, provider of styling and high-quality surface modeling and rendering solutions to the automotive industry

2008 Launch of its V6 architecture for next-generation PLM using collaborative intelligence; acquisition of Engineous software for process automation, integration, optimization

2010 Acquisition of IBM PLM for full control of its distribution sales channels; signature of a global alliance agreement with IBM in professional services, cloud computing, middleware, flexible financing and hardware

Acquisition of Exalead, provider of search platforms and search-based applications for consumer and business users

2011 Acquisition of Intercim, provider of manufacturing and production management software for advanced and highly regulated industries

Sales operations transition from IBM completed; 100% of total revenues derived from its three sales channels

2012 Expansion of company strategy to 3DEXPERIENCE based on its V6 architecture and introduction of first Industry Solution Experiences

Expansion of industry focus to natural resources sector with acquisition of Gemcom in the mining sector; creation of a new brand, GEOVIA, dedicated to modelling the planet

Acquisitions of Netvibes intelligent dashboarding capabilities and SquareClock cloud-based 3D space planning solutions

2013 Acquisition of Apriso; extending manufacturing offerings to manufacturing operations management

2014 Acquisition of Realtime Technology AG ("RTT") providing professional high-end 3D visualization software, marketing solutions and computer generated imagery service; creation of 3DXCITE brand to extend offering to marketing professionals

Acquisition of Accelrys, provider of scientific innovation lifecycle management software for chemistry, biology and material; creation of a new brand, BIOVIA

Acquisition of Quintiq, provider of supply chain management and optimization spanning production, logistics and workforce planning applications for new reach into global business operations planning in metals, mining, oil and gas, rail, delivery and freight

2015 Change in legal status of the parent company from that of a French public limited company (Société Anonyme) to that of a European company (Societas Europaea, SE) reflecting the international dimension of the Company and its growing presence in Europe

Creation of *La Fondation Dassault Systèmes* to empower innovative and transformative projects in education, research and scientific knowledge in the European Union

Launch of the 3DEXPERIENCE Lab, its open innovation laboratory and startup accelerator program to nurture disruptive projects and transform society

2016 Acquisition of CST, technology leader in electromagnetic simulation

Acquisition of Ortems, focused on production planning and scheduling

Acquisition of 3D PLM Software Solutions Ltd., its joint venture in India with Geometric Ltd.

2017 Signature of partnership with Boeing for the use of the 3DEXPERIENCE platform for manufacturing operations management and product lifecycle management.

Acquisition of Exa Corporation, for highly dynamic fluid flow analysis

Acquisition of AITAC, whose software application is used to automate the creation of drawings

Acquisition of majority stake in Outscale, provider of enterprise-class cloud computing infrastructure services

2018 Launch of the 3DEXPERIENCE Marketplace, the company's online ecosystem where business innovators can collaborate and transact with other industrials and service providers

Majority acquisition in Centric Software, a privately-owned, U.S.-based industry market leader driving digital transformation with software innovation in fashion, apparel, luxury and retail

Acquisition of COSMOlogic, a Germany-based leader in thermodynamics for exact modeling of solubility and computational chemistry

Acquisition of No Magic, a U.S.-based company focused on model-based systems engineering, architecture modeling for software, system of systems and enterprise business processes modeling

Dassault Systèmes is listed on the CAC 40, the premier benchmark stock market index in France

2019 Acquisition of Medidata, whose clinical expertise and cloud-based solutions power the development and commercialization of smarter therapies for pharmaceutical companies and biotechs, contract research organizations (CROs), and medical centers and sites

Acquisition of IQMS, a U.S.-based leading manufacturing ERP software company

Acquisition of Argosim, pioneer in systems specification simulation

Acquisiton of Elecworks, the suite of CAD software developed by Trace Software

Acquisition of a non-controlling interest in BioSerenity, a firm specializing in the development of connected medical devices and remote-monitoring solutions for patients with cardiac, neurological and sleep disorders

Acquisition of Distene, the developer of market-leading meshing software

Launch of 3DEXPERIENCE WORKS, a new portfolio of applications aimed at small and midsized companies and SOLIDWORKS customers

In France, 3DS OUTSCALE obtained the ANSSI Security Label for SecNumCloud certification of all its Public Sector Cloud offerings. This is a first for a provider of Cloud infrastructure services (IaaS) and reflects the highest level of commitment and adherence to security regulations.

ANNEX I: FROM THINGS TO LIFE

Dassault Systèmes provides business and people with 3DEXPERIENCE universes to imagine sustainable innovations capable of harmonizing product, nature and life.

In the last two centuries, the world has been built like a house of cards on a finite measure of knowledge and raw materials, with an economy split into silos. This has driven huge progress in healthcare, education and living standards — but to the detriment of the environment, our local contribution and a certain way of life. This isn't sustainable.

Instead, we should think about progress in terms of balance and impact. As we create value, what are we taking from our planet? Harmonizing product, nature and life lies at the heart of the industry of the 21st century — the primary driver of innovation in all sectors of the economy and progress in all domains of society.

When we formulated our company purpose in 2012 and defined ourselves as the 3DEXPERIENCE Company, we anticipated that the world would shift from a product economy to an experience economy, that values the usage over the product.

The experience economy is not just about "user experience". It is about the overall balance and impact of any service we provide to society. This means seeing industry as a value creation process for people, rather than the "means of production". The industry of the 21st century is a network of creation, production and exchange of experiences.

In 2012 we also dared to imagine that the 3DEXPERIENCE platform would become the most powerful vehicle for sustainable innovation.

The platform phenomenon redefines the industry: it's no longer the producer that underpins the industrial value chain but each and every one of us as a worker, a consumer and a citizen — you and I. Far more than simply a powerhouse of technology, virtual platforms provide a holistic approach to innovation and an inspiration for new offerings. A new world where we're all both frugal consumers, people who want quality of life and people who want to contribute.

The 3DEXPERIENCE platform clearly met the challenge. We demonstrated that it takes a special kind of compass to understand the past and navigate the future.

As it is adopted by new categories of innovators, the 3DEXPERIENCE platform has become the catalyst and enabler of the Industry Renaissance, today's global transformation that brings new ways of inventing, learning, producing and trading. Again, it's not so much the technology that matters. The value of the 3DEXPERIENCE platform lies in its ability to empower the workforce of the future with knowledge and know-how. Indeed, experience is the ultimate of knowledge.

The new book is the experience! Virtual worlds revolutionize our relationship with knowledge, just like the printing press did in fifteenth-century Europe: virtual worlds are our library and our workshop. Tomorrow's game-changers will not be those with the most automated production systems, but those with the best-developed legacy of knowledge and know-how, whose business environments involve suppliers as full-fledged partners in value creation.

Welcome to the century of imagination.

We stand at the threshold of a new world, where industry will need to create new landscapes in terms of what we offer, decide between use case scenarios and transform the art of how we produce. We'll only be able to tackle these challenges by balancing all the dimensions of what it means to be human: at once an industrial being, a social being and a living being. The ability to imagine, the passion to learn, the willingness to dare, and the art of how we make it happen will be crucial. In this brave new paradigm, virtual will be the vital link between the imagination, the useful and the sustainable.

It goes without saying this isn't conveyed through exponential computing capability. Having access to data about the past doesn't mean we're able to envisage the future. Big data isn't worth a thing unless we have a virtual model that gives it meaning: the project experience goes far beyond mere usefulness to embrace quality and art. Modeling and simulation are other words for imagination –a collective undertaking that is converged around representations of the world and a shared project. This is what we call the IFWE spirit. Virtual worlds extend and improve the real world because they are spaces where we can represent and experiment with our imagination.

Why "virtual" rather than digital? Well, precisely because the value of what we do lies in the potential it offers for imagining the future. "Virtual" is about what's possible – the potentiality. In that sense, the virtual is the very essence of human nature: we are virtual beings. We are beings of possibility.

Dassault Systèmes' ultimate purpose and primary resource are one and the same – the human being. Experience is human.

"Experience is Human": this big idea leads us to extend our focus from things to life.

There was a before and an after 1989, the year we created the first virtual twin of the Boeing 777. There was a before and an after February 9, 2012, when we shifted the center of gravity of the industry from product to experience. There will be a before and an after the virtual twin experience of the human body.

Since 1981, we have been instrumental in sustainable innovation for products. In parallel, our ambition to harmonize product, nature and life has led us to develop a new understanding of life and nature. Today, we're capable of applying the knowledge and know-how we acquired in the non-organic world to the organic – living – world. From things to life.

Imagine being able to understand, model, search, test, and treat a human body as precisely, safely and effectively as we already can today for a plane, a car or a building. We can transform how people are cured and help them live a better life.

The virtual twin experience, a new way of representing of the world.

What is the difference between things and life? Life is not made of parts: the human body is one piece and hyper connected. Life doesn't do standardization: it's personalized design, production and usage. And life isn't "used" but lived. Life is an experience.

So to improve life, we have to invent new ways of representing reality. We have to invent the virtual twin experience of life.

A virtual twin experience of the human body with the 3DEXPERIENCE platform integrates modeling, simulation, information intelligence and collaboration. It brings together biosciences, material sciences and information sciences to project the data from an object into a complete living virtual model that can be fully configured and simulated. By combining art, science and technology, it makes it possible to understand the invisible to

represent the visible. Industry, researchers, physicians and even patients can visualize, test, understand and predict what cannot be seen – from the way drugs affect a disease to surgical outcomes – before a patient is treated.

“Experience is human” is at the core of who we are, what we do, and with whom we do it.

This big idea shapes our strategy, evolving from Social Industry Experiences to Human Industry Experiences. “Human” means that our ultimate ambition and primary resource are one and the same – the human being. We build on imagination, knowledge and know-how to make a lasting contribution for the benefit of all. “Industry” means that we want to offer customers what they value the most - a sustainable outcome. “Experiences” mean that we aim to help businesses and people build and live in today’s new “New World”.

To achieve this strategy, Dassault Systèmes will focus on developing its leadership in Life Sciences & Healthcare alongside two other strategic sectors of the economy: Manufacturing Industries and Infrastructure & Cities.

These sectors share similar development processes and sustainability needs in their efforts to improve quality of life, whether through more affordable and precise therapies, optimized infrastructures, or better use of the environment.

Because experience is human, experience is about enjoying art, science and technology to imagine and create a better world for all.

And this world must be sustainable.

ANNEX II: INDUSTRY RENAISSANCE

Through virtual experiences, augmented reality and realistic simulation, digital technology revolutionizes our relationship with knowledge, just like the printing press did in the 15th century. The new book is the virtual experience that adds knowledge and know-how while eliminating the gap between experimentation and learning.

As a result, a real Industry Renaissance is emerging worldwide. Combining the real and the virtual leads to new ways of seeing the world, of inventing, learning, producing and doing business. It creates new ways for industries and technologies to interact. New categories of industrial companies are creating new categories of solutions for new categories of customers. Tesla has forever changed the automotive market, and Joby Aviation or Blue Origin the aerospace market. Value today is in the usage rather than the product. In today's experience-based economy, subject and object are inextricable. The industry of the 21st century is a network of creation, production and exchange of experiences.

What we are seeing, therefore, is not Industry 4.0 trying to digitalize 20th century industry, but the need to invent the industry of the 21st century. With its Internet+ and Made in China 2025 programs, China aims to transform the "workshop of the world" into a design studio. In South Korea, the Creative Economy program seeks to develop new markets through the convergence of science, technology and culture. In the U.S., investments are made in new industrial ecosystems that include local and federal government, businesses and education. Tomorrow's game-changers will not be those with the most automated production systems, but those who build a culture of knowledge and know-how to reveal and train the workforce of the future, able to solve the challenges of a planet lacking sustainable solutions. The sciences of life and matter are at the heart of this change, harmonizing product, nature and life. Biomimicry and biomaterials are set to transform the way we design things. Additive manufacturing makes the imaginary achievable.

We must no longer think of industry as a set of means of production, but as a process of value creation. The industrial sectors of the 21st century are much less concerned with flows of parts than with flows of usages and of virtual models, in an economy that eliminates friction and optimizes the life cycle using intelligent systems whose data is energy. This century will be a time of high-added value ecosystems in which the real and the virtual merge, each complementing and amplifying the other to produce goods and experiences. This becomes the very definition of an industry. Amazon is a full-fledged industry player, since it has created a unique consumer experience. The automotive industry no longer just makes cars but imagines new methods of transportation, working through innovative ecosystems that bring together cities, businesses and citizens. With the 3DEXPERIENCE platform, Singapore has integrated urban development, services, economic performance and healthcare.

This new economy of value creation is illustrated through marketplaces that bring together supply and demand, the global and the local. Digital experience platforms are the infrastructures of this industry renaissance. They transform retail, transportation and tourism, and are set to change industry. Within the 3DEXPERIENCE Marketplace, the largest virtual factory in the world, the model of a product can be posted and printed in 3D where it will be sold. Digital platforms, which combine bookwork with laboratory benchwork, transform learning through virtual experiences. Artificial intelligence will not replace thinking, but it will facilitate access to knowledge and know-how. France must and can believe in an industry of the future. Europe, with its diverse talents and cultures, has considerable assets to build regional and interconnected industrial ecosystems: scientific research, industry leaders, SMB network, interdisciplinary education centers and innovation platforms. Let us gather around an industrial vision faithful to our common humanistic culture, which focuses on man and uses, frugality and sustainable development.

-Bernard Charlès

ANNEX III: INVENTING A DESIRABLE FUTURE FOR CITIES

In big cities, everything – buildings, lifestyles, the environment, government, transportation networks, and its inhabitants – is structured into an ecosystem where resiliency and adaptability are essential to ensure sustainability. Observing nature can be a source of inspiration. We can even think of nature as a giant laboratory, studying its strategies to adapt to disruption.

Biomimicry involves understanding and emulating what nature does best in order to design innovative systems. The research teams at Dassault Systèmes use biomimicry as an innovation process to develop new approaches to urban planning through two problem-solving models: Physarum and Swarms.

The first approach is derived from observing physarum polycephalum, a single-cell organism made up of multiple nuclei that can reach a size of several dozen centimeters. This slime mold, although brainless, is capable of learning and can solve problems, such as finding the shortest path through a maze or establishing the most efficient network. Its protoplasmic membrane forms tubes to expand and explore all possible paths before sticking with the most efficient ones to reach sources of food. This behavior has become a source of inspiration for building models to solve the shortest path problem in a graph, and is particularly relevant in designing transportation systems.

The second model, Swarms, is a socioeconomic system for distributing agents in cities. The agent, representing a bee in a swarm, is an individual who builds on specific features of the urban fabric to optimize a budget allocated every month. The agent's aim is to maximize well-being by finding a balance between the amount of rent paid, home surface area, and time spent traveling to work, shopping areas and parks.

The two approaches were integrated into 3DEXPERIENCity. The main new feature is that the research teams are getting them to work together, integrating the outcomes from one model as a starting point for the other. Aggregating data in this way considerably increases the number of potential solutions. Scientific literature generally presents applications of models designed using limited data. As a result, their findings are less coherent with the reality of industrial or urban planning issues. For example, agent models are often used and are relevant for calculating distances based on swarm behavior in birds. But when they interact with the Physarum model, they can incorporate data from a realistic transportation network. Today, these research-based biomimetic approaches do much more than just demonstrate feasibility. They can be integrated to help urban authorities in cities that already have a digital twin – such as Rennes and Singapore, which have been using the 3DEXPERIENCE platform for several years – and, more broadly, applied to any cities with useable data.

A better citizen experience

Conserving its heritage is one of the many concerns of the municipality of Jaipur, the capital and largest city in the Indian state of Rajasthan. Founded under the Mughal Empire at the start of the 18th century, the pink city presents displays great architectural unity and holds UNESCO World Heritage status. In 2018, 1.8 million tourists visited this city of about 3.1 million residents. Jaipur has adopted the 3DEXPERIENCE platform to connect all administrators in a single digital repository in order to plan, analyze, simulate and optimize services and infrastructure to provide residents with a better citizen experience and improve their quality of life. Jaipur is one of 100 cities being used as development models in the Smart Cities Mission, an initiative launched by the Government of India.

The 3DEXPERIENCE platform will provide all city administrators with access to the city's digital twin. Currently, most of the many municipal agencies work in silos. The platform will enable all departments to work closely together to optimize planning based on analyses and simulation studies in a 3D city context. Rapid urbanization

creates many negative biases for residents and tourists alike, such as poor air quality, chaotic traffic conditions, dangerous walking environments and inadequate waste management. In addition, intense real estate development does not reflect Jaipur's heritage and cultural philosophy.

How can Jaipur be a city desired for living and visiting? Today, many projects, such as the construction of a bridge, are rejected by citizens because it will reduce vegetation. City leaders therefore want to involve residents in planning and decision-making to properly manage conflicts and objections. A 3D model is undoubtedly the best way to communicate because it can provide tangible elements for analyzing citizens' opinions, increasing renewable energies, optimally positioning video surveillance cameras and improving mobility. For example, by assessing the amount of rainwater recovered from each building, authorities can anticipate whether the volume collected is sufficient to meet residents' daily needs, or whether they will need an additional supply of public water.

The 3DEXPERIENCE platform helps involve citizens and businesses to optimize services and ensure pleasant experiences. The cities of tomorrow will be both more sustainable and more socially responsible. The 3DEXPERIENCE platform holds great promise to help the leadership in Jaipur involve citizens and businesses to optimize services and ensure pleasant experiences. It offers an unparalleled means for helping cities like Jaipur be more sustainable and more socially responsible, and desirable for both residents and visitors

ANNEX IV: THE FUTURE OF RETAIL IS CUSTOMIZED

Since 2016, Dassault Systèmes' FashionLab incubator has been working with the Innovation Lab of ECCO to develop the first data-driven, customized shoe experience. Virtual technologies open up possibilities for extending personalization and customization to other sectors of commerce.

"Any customer can have a car painted any color that he wants, so long as it is black," Henry Ford famously said in 1908 when he launched the Model T, the world's first mass-produced car. For more than a century, personalization and mass production seemed incompatible. Everything has changed, and "mass customization" is no longer an oxymoron. In collaboration with Dassault Systèmes, Danish shoe manufacturer ECCO has created an exclusive data-driven shoe-customization service called QUANT-U (quantified you). The first consumer trials occurred simultaneously at Le Bon Marché in Paris and at the Isetan department store in Tokyo early in 2019, providing consumers a glimpse into the future of retail.

The shoes marketed by ECCO were presented as part of the *Geek mais Chic, le shopping du troisième millénaire* (Geek but Chic: Third millennia shopping) exhibition, an event dedicated to digital innovation and technological sensory experiments, organized in partnership with leading international brands in the luxury sector. QUANT-U was integrated with the 3DEXPERIENCE platform to create an automated, data-driven design customization service that is deployed on the cloud and capable of generating infinite 3D models.

Customization is based on the 3D printing of customized midsole inserts. The midsole is a key functional component of a shoe that determines its comfort and performance. Midsoles are printed in high quality silicone using a process that allows the material to perform exceptionally well, giving 3D comfort through optimization of cushioning, stability, fit and performance of footwear.

These soles are manufactured on demand, beginning with the real-time capturing of an individual's foot contours and walking data. A learning algorithm analyzes each foot's data to develop its digital twin using the 3DEXPERIENCE platform. Automatic learning and structural simulations generate a customized digital configuration. The structure and performance of each unique midsole is tested before it is approved and optimized for localized 3D printing, offering the consumer a unique experience of comfort and individualized performance. This experience continues from an in-store to digital experience through the QUANT-U consumer portal. Here consumers will soon have access to their bio-mechanical data and the ability to reorder customized footwear online, without the need to recapture their data.

ANNEX V: OPPORTUNITIES FOR THE AUTOMOTIVE INDUSTRY

Autonomous, connected electric cars that are shared or available on demand– mobility will undergo tremendous transformation over the next 10 years. Olivier Sappin, VP of Transportation & Mobility at Dassault Systèmes, offers some insight into the changes underway.

Let's be upfront. Do cars still have a future?
The question is definitely worth asking. I grew up in the French countryside where cars were, and still are, synonymous with the freedom to move about anywhere at any time. I'm a mechanical engineer. I drive a sports coupe and love cars. But I live in the suburbs of Paris, so I ride a bike to work. On some days, it's faster than driving to work. And on the weekend, public transportation is the best way to get to the center of Paris. When traveling abroad, I take planes and trains, which have the drawback of taking you from a place where you don't live to a place that's not your final destination. That's why cars, as long as they become autonomous and clean, could offer the best transportation system for the future.

Why do you refer to it as a transportation system?
Because the traditional industry silos are breaking down. Innovation in mobility is omnipresent in both four-wheel vehicles and other forms of transportation. For example, Joby is an electric vertical take-off and landing passenger aircraft designed for urban areas. EasyMile and Navya are autonomous shuttles. Airbus and Audi have partnered to develop Pop.Up, a flying car concept. Anything seems possible, and this is generating a huge wave of creativity. Traditional industry categories, like conventional consumer expectations, have become outdated.

What role do virtual worlds play in this transformation?
Collaborative platforms and virtual worlds help innovators transform their ideas into tangible concepts that can be manufactured by others. These ideas are being generated in a huge marketplace, also virtual, devoted to engineering and manufacturing. It's a place where innovators can meet the companies that will produce the vehicles they designed. The price of admission into the inner circle of carmakers has been very high for the past 100 years, due to the technical complexity and level of investment and capital required. But that hasn't always been the case. Innovators in the 19th century designed all sorts of contraptions, similar to today's startups. Now, platforms mean that the value chain is being redefined, and new players are emerging in Silicon Valley, China and Europe. Tesla symbolizes this transformation. Virtual prototyping changes everything. Aerodynamic engineering using digital technology is more accurate than physical testing performed in wind tunnels. And simulations at the nanometric scale predict exactly how materials will react.

How do autonomous vehicles fit in?
simulations combining vehicle behavior, sensor modeling and traffic impact are still being developed, but cycle time is already much shorter. Millions of alternatives can be tested during the design phase: driving on wet or dry roads, during the day or at night, with or without cyclists on the road, and so forth. Autonomous cars will be here soon and will be safer than cars with humans at the wheel. And computational power will be used to design the best components by applying new performance criteria.

Does that mean optimizing the design of the various components that make up a car?
We can halve a component's mass simply by optimizing its design, which increases energy efficiency and lowers production costs. These organic-looking parts, which are too complex to mold or process, can now be produced using additive manufacturing and 3D printing. This approach will completely disrupt the automotive value chain. Intellectual property will now lie in the digital design of the car, which can be built anywhere, and customized as never before. It sounds like science fiction, but it isn't. It's the future of car-making. And it's starting now.