

DASSAULT SYSTEMES

MEDIA BACKGROUNDER



3DEXPERIENCE®

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FAST FACTS

Activity	Dassault Systèmes, the 3DEXPERIENCE Company, provides business and people with virtual universes to imagine sustainable innovations. Its collaborative solutions transform the way products are designed, produced, and supported, fostering social innovation and expanding possibilities for the virtual world to improve the real world.	
Founded	1981	
2015 revenues	2.8 billion euros	
Workforce	13,900	
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 Architecture, Engineering and Construction Consumer Goods and Retail Consumer Packaged Goods and Retail Energy, Process and Utilities Financial and Business Services	High-tech Industrial Equipment Life Sciences Marine and Offshore Natural Resources Transportation and Mobility
Brands	3DEXCITE 3DVIA BIOVIA CATIA DELMIA ENOVIA	EXALEAD GEOVIA NETVIBES SIMULIA SOLIDWORKS
Customers	More than 210,000 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 2.8 billion euros in revenue. It provides over 210,000 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, we are shifting 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. This business experience platform offers end-to-end and integrated scientific, engineering, manufacturing and business capabilities and services in virtual universes to help create value and differentiating consumer experiences. Its customers employ 3D modeling, social collaboration, simulation, and information intelligence technologies and services across all company disciplines—from engineering to sales—to virtually experience the usage of a product in the real world. These digital capabilities, packaged as “industry solution experiences,” are tailored according to the complex business processes of 12 different industries through a strategic combination of the company's 11 brands.

The growing portfolio of over 60 industry solution experiences also folds into the company's overall commitment to sustainability. These are designed to help companies face ecological and technological challenges such as managing fast evolving demands, mass volume production, and higher product complexity. 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 to tackle sustainability challenges.

CORE APPLICATIONS

With 3DEXPERIENCE, 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.

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.

INDUSTRIES

Dassault Systèmes' 3DEXPERIENCE platform and industry solution experiences are used by customers in 12 industries to 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 industries are:

Transportation and Mobility: the company's largest industry, representing 32 percent of 2015 total company revenues, and one of the company's two original industries of focus.

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

Customers include: AKKA Technologies, Ashok Leyland, BMW, Dana Holding Corporation, Faraday Future, Group PSA, Honda, Hyundai, Jaguar Land Rover, Michelin, Pininfarina, Qoros, Renault, Scania Group, Stadler Rail, Tata Technologies, Tesla, Toyota, Visteon.

Industrial Equipment: the company's second largest industry, accounting for 15 percent of company revenues in 2015.

Segments: industrial manufacturing machinery, heavy mobile machinery and equipment, installed equipment, industrial equipment products, fabricated metal products, tire manufacturers.

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

Aerospace and Defense: the company's third largest industry in terms of revenue with 14 percent in 2015 and one of its two original industries of focus.

Segments: Airlines, space, defense, propulsion, suppliers and airframe OEMs.

Customers include: Aeros, Airbus Group, Bell Helicopter, Boeing, Cessna, Comac, Dassault Aviation, Elixir Aircraft, FAA, Joby Aviation, KLM, MBDA, Northrop Grumman, Pratt & Whitney, Safran Group, Solar Impulse, Strata.

Life Sciences: Hiroshi Amano, co-winner of the 2014 Nobel Prize in physics for inventing the blue LED has used BIOVIA technology to investigate, via simulation, the properties of semiconductors and novel light emitting materials.

Segments: medical devices, pharmaceuticals and biotechnology and 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, Otto Bock Healthcare Products, Pfizer, Sanofi, Shanghai Microport Orthopedics, Stryker.

Consumer Goods and Retail: with over 25,000 users worldwide, the company ranks first in the PLM market based on revenue and market share.

Segments: furniture, home and garden, leisure goods, fashion, hard- and soft-goods retailers.

Customers include: Adidas, Arc International, Arvind, Benetton Group, Boyner Group, El Corte Inglés, Eterna, Gap, Guess, IXINA, LF Group, Mammot Sports Group, Patek Philippe, S. Oliver, VF Corporation.

Consumer Packaged Goods and Retail: the company is focused on the "idea to consumer" concept—the integrated 3D social experience from packaging to shelf placement.

Segments: Food and beverage, tobacco, household products, beauty and personal care, packaging, general and specialty 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.

Energy, Process, Utilities: the company is helping this industry digitally transform to improve safety, efficiency, profitability and sustainability.

Segments: oil & gas, power, process, chemical, utilities.

Customers include: Areva, BASF, CHIDI, Cofely Ineo, Daewoo, Dow, Eaton, European Spallation Source, NIAEP, POSCO, Samsung Heavy Industries, Schaeffler Technologies, Vestas Wind Systems.

High-tech: over 32,000 customers use the company's solutions to invent, design, engineer, deliver and operate complex and rich experiences made of hardware and software.

Segments: consumer electronics, security, control and instrumentation, computing and communication equipment, contract manufacturing services, technology suppliers, semiconductors.

Customers include: AB Sciex, Bosch, Dong Yang, Ericsson, Fujitsu Network Communications, HP, Hisense, LG, Microsoft Devices, Nikon, Panasonic, Parrot, Pegatron, ST, V-Zug.

Marine and Offshore:

Segments: navy, commercial ships, offshore, yachts and workboats, specialists and suppliers.

Customers include: Bureau Veritas, DCNS, Deltamarin, DSME, Ecoceane, Heesen Yachts, Hyundai Heavy Industries, Isonaval, Meyer Werft, ORACLE TEAM USA.

Financial and Business Services:

Segments: banking and financial markets, insurance, telecommunications, transportation systems management, media and entertainment, education, public administration, professional services.

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.

Architecture, Engineering and Construction: the company is nurturing "the industrialization of construction" whereby modern construction is streamlined and groundbreaking architectural designs are possible.

Segments: owners, operators, planners, architecture, engineering, building product manufacturers, general contractors, subcontractors, regulatory compliance.

Customers include: Arup, CadMakers Virtual Construction, Hardstone Construction, LMN Architects, National Research Foundation of Singapore, Saint Gobain, Sanska, Dr. Sauer & Partners, Shanghai Foundation Engineering Group, SHoP Architects & SHoP Construction, SMEDI, Zahner.

Natural Resources: represents the company's most recent industry diversification.

Segments: Mining, oil and gas, water and agriculture and forestry

Customers include: AEM, Agnico Eagle, AngloAmerican, Cerrejon, Cokal, De Beers, Dundee Precious Metals, Lafarge, Palabora Copper, Rio Tinto, Technip.

GLOBAL PRESENCE

Dassault Systèmes is headquartered in Vélizy-Villacoublay, France, located in the Paris area. Its principal sites are located in France, the U.S., Canada and Japan. In total, it operates 118 subsidiaries worldwide, including in Australia, Belgium, Brazil, China, Germany, India, Israel, Italy, South Korea, Spain and the U.K. In 2015, its activities in Europe represented 44 percent of total revenues, those in North America 31 percent and those in Asia 25 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 5,853 engineers, representing approximately 42 percent of the company's total headcount, at research facilities located primarily in France, the U.S. and Germany, as well as in Australia, Canada, India, Malaysia, the Netherlands, Poland and the U.K.

In 2015, the company invested €492.5 million in R&D to drive product innovations and enhancements. Its patent portfolio is comprised of 429 protected inventions, including 50 new inventions in 2015. 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 210,000 customers and 10 million individual users 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 59 percent of 2015 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 21 percent of 2015 revenues.

- Volume unit sales through its indirect “professional” 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 2015 revenues.

EXTERNAL GROWTH

Dassault Systèmes’ external growth opportunities reflect the potential size of the 3DEXPERIENCE market, estimated at \$32 billion. Its strategy focuses 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. The company has completed a number of acquisitions in recent years that focus on broadening its capabilities in manufacturing, simulation and high-end visualization. Some of these acquisitions include:

- **Accelrys**, provider of scientific innovation lifecycle management software for chemistry, biology and material. This diversified the company’s activity into virtual biospheres and materials and led to the creation of a new brand, BIOVIA.
- **Apriso**, provider of manufacturing operations management software solutions across multiple industries. This broadened the company’s DELMIA manufacturing offerings to manufacturing operations management.
- **Gemcom**, provider of mining software solutions. This expanded the company’s industry offerings to natural resources and led to the creation of a new brand, GEOVIA.
- **Modelon GmbH**, expert in “ready to experience” content for systems modeling and simulation, which are strategic for the transportation and mobility industry.
- **Quintiq**, provider of supply chain management and optimization spanning production, logistics and workforce planning applications. This provided a new reach into global business operations planning in metals, mining, oil and gas, rail, delivery and freight.
- **Realtime Technology AG**, provider of professional high-end visualization software, marketing solutions and computer-generated imagery services to the automotive, aerospace and consumer goods industries. This extended the company’s offerings to address marketing professionals in its core industries and led to the creation of a new brand, 3DEXCITE.

ACADEMIC PARTNERSHIPS

Dassault Systèmes partners with institutions worldwide to develop enhanced teaching methods that help transform science, technology, engineering and mathematics (STEM) education and contribute to the well-being of future generations. These institutions range from renowned engineering universities to scholastic publishers.

Over five million engineering students use the company’s technology in an educational context at 40,000 academic institutions including the Hoehere Technische Bundeslehranstalt, Iowa State University, the University of Michigan, the Royal Melbourne Institute of technology, Georgia Tech, Purdue University, Dartmouth College, the MARA University of Technology and the Technical University of Malacca. Dassault Systèmes created the “3DS Academy” academic community and the “3DS Academy Member” label program to identify such institutions and their advanced methods to students’ prospective employers.

The company also supported the creation and opening of the Ilumens simulation center in partnership with the Paris Descartes University and Foundation. This center allows medical students to learn gestures and procedures on virtual dummies rather than on patients with the help of real-time 3D teaching simulations. Programs on childbirth (www.borntobealive.fr) and cardiac arrest (www.stayingalive.fr) have been developed for use worldwide.

Other collaborations have expanded the use of schoolbooks with online 3D and have established teaching programs in humanoid robotics and cyber-physical practices. Partners include Hachette, Aldebaran Robotics and Quanser.

SOCIETAL & ENVIRONMENTAL RESPONSIBILITY

Dassault Systèmes has embarked on other 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.

La Fondation Dassault Systèmes

In 2015, Dassault Systèmes established La Fondation Dassault Systèmes, its foundation dedicated to transforming the future of education and research through 3D technology and virtual universes. The foundation will provide 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. This support will provide greater access to 3D content, technology and simulation applications and help create new learning experiences and encourage greater interest in STEM disciplines among students.

3DEXPERIENCE Lab

In parallel, the company launched the 3DEXPERIENCE Lab, its open innovation laboratory and startup accelerator program that merges collective intelligence with a cross-collaborative approach to foster entrepreneurship and innovation. Dassault Systèmes will help selected startups that are developing physical products capable of improving life, cities and lifestyles, covering ideation, the Internet of Things, and fab lab movements. During a one to two year program, these selected startups will have access to the 3DEXPERIENCE platform, technical skills and mentoring to create digital experiences to optimize and validate their product and processes. In addition, Dassault Systèmes' worldwide ecosystem will help accelerate the startups' product launches and international presence.

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 was ranked second in the 2016 Global 100 Index of the world's most sustainable corporations, recognized as the gold standard in corporate sustainability analysis. Many of the 2016 Global 100 companies are Dassault Systèmes customers. Its 3DEXPERIENCE platform enables industry to think differently in terms of collaboration, intelligence and inventing disruptive solutions that can positively impact society, from its 3DEXPERIENCECity "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.

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, Research & Development

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.

Thibault de Tersant, Senior Executive Vice President, Chief Financial Officer

Thibault de Tersant is responsible for finance, investor relations, legal affairs, sales business administration, information technology and internal controls for the company. He was elected to the board of the company in 1993, and currently holds directorship of various subsidiaries. He is also responsible for mergers and acquisitions, and has conducted more than 20 successful acquisitions totaling around €1.5 billion over the last ten years. He oversaw Dassault Systèmes' successful initial public offering on the Paris and NASDAQ stock exchanges in 1996, as well as a secondary offering in 1997. He is a graduate of the ESSEC Business School and of the Institut d'Etudes Politiques de Paris.

Bruno Latchague, Senior Executive Vice President, Global Field Operations (Americas), Industry Solutions and Indirect Channels

Bruno Latchague has led strategy and operations for the company's three sales channels and managed its business in North America. He joined the company in 1986 as manager of CATIA software infrastructure, where he was responsible for launching new applications for the brand. He later became executive vice president R&D, architecture and modeling technology and oversaw the development of the V5 architecture and its adoption by major automotive and aviation clients. He also participated in the acquisition of IBM PLM, which allowed the company to manage its entire distribution network.

Monica Menghini, Executive Vice President, Chief Strategy Officer

Monica Menghini joined Dassault Systèmes in 2009 as vice president, industry for the consumer goods, consumer packaged goods and retail sectors. Prior to this, she was global equity director, international accounts at Saatchi & Saatchi and later became CEO EMEA of Saatchi & Saatchi X, its shopper marketing network. She also has 13 years of experience as a “brand equity builder” at Procter & Gamble and as Marketing Director Western Europe at its fabric care global business unit. She holds a law degree from the University of Rome.

Pascal Daloz, Executive Vice President, Brands and Corporate Development

Pascal Daloz joined the company in 2001 as research and development director in charge of business development to develop its presence in PLM markets. He brings ten years of experience in strategy with investment banking and consulting firms, including four years at Credit Suisse First Boston Technology Group, where he served as a senior technology analyst, and five years at Arthur D. Little, where he was a senior consultant and member of Arthur D. Little's technology innovation management team.

Sylvain Laurent, Executive Vice President, Global Field Operations (Asia-Oceania), Worldwide Business Transformation

Sylvain Laurent manages the direct sales channel and services organization, working with all of the company's customers and partners. His main focus is to support customers during define and implementation phases. He joined Dassault Systèmes in 2008 as head of BT sales in Europe after more than 25 years of experience in the PLM domain at Siemens PLM Software, IBM PLM and his own PLM consulting and system integration company.

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

Laurent Blanchard joined Dassault Systèmes in 2014 and is in charge of developing the Europe, Middle East, Africa and Russia (EMEAR) markets and the global ecosystem of consulting and system integrators partners. Prior to this, he was vice president of Cisco's Enterprise Business Group and held high-level positions at Compaq Europe and HP France. He is a graduate of ENSEM in Nancy, France and authored the book *Optimisme durable* about how new technologies shape the future for the better.

Laurence Barthès, Executive Vice President, Chief People and Information Officer

In her current position since 2009, Laurence Barthès is responsible for people, processes and tools, including all human resource functions worldwide. Under her leadership, the rollout of the 3DSwYm platform across the company in 2008 empowered employees worldwide – regardless of role or mission – to contribute actively to the innovation process. She joined the company in 1987 in customer support and satisfaction and has held roles of progressively increasing responsibility in quality and production engineering.

Philippe Forestier, Executive Vice President, Global Affairs and Communities

Part of the original team at Dassault Systèmes, Philippe Forestier is in charge of developing global networks of cross-audience influencers to reveal and promote the value of the 3DEXPERIENCE platform for social and sustainable innovation and pursue new business opportunities. He also serves as member of the board and vice president of the French Software Association (AFDEL), and as advisor to the French Ministry of Foreign Trade (CCEF). He has an engineering degree from the Ecole Nationale Supérieure de l'Aéronautique et de l'Espace.

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

ANNEX I: 3DEXPERIENCE City

By 2050, three billion additional people, or two-thirds of the world's population, are expected to be living in cities, which today produce 80% of global GDP, consume 75% of the world's natural resources and produce approximately 75% of the global greenhouse gases. Globalization, urbanization, and climate change present significant challenges to cities worldwide. In addition, with the increasing deployment of connected sensor technology, cities are rapidly growing beyond the capability of planners and city managers to administrate effectively. In parallel, urban residents and visitors, accustomed to the personalized experience of the web enabled by their smart devices, have ever-higher expectations for how technology will facilitate more engaging life, work and play experiences in the urban context.

Facing the complexity of today's urban challenges, traditional methods and techniques of urban planning and design appear outdated. Lessons can be learned from Industry where, for decades, designers and engineers have used collaborative 3D modeling, visualization and simulation to imagine, anticipate and test the behavior of complex systems in the virtual world before prototypes pass into production. Today the same software tools developed to address product complexity are providing the foundation for the virtual technology used to create urban environments and objects, such as buildings, utility networks, mobility systems and other infrastructures.

3DEXPERIENCE City provides a horizontal approach powered by the 3DEXPERIENCE platform that links all players in a collaborative working environment and enables access to a single data referential, which dynamically updates as new data becomes available. Consequently, data is exchanged and turned into information, in the literal sense of the word—it takes form. 3DEXPERIENCE City's horizontal architecture is an integrative environment directly linked to the dynamic data referential that powers the modeling, analytics, simulation and visualization of the city in its past, present and future states. A marketplace presents the vast offer of content, applications and services to cities, businesses and citizens.

3DEXPERIENCE City federates those disparate elements through its integrated platform. It links the stakeholders from all city domains in a collaborative working environment and enables access to a single data referential, which constantly updates as new data becomes accessible, and is linked to the 3DEXPERIENCE City marketplace offering, which includes content as well as applications, services and business opportunities.

“Virtual Singapore” integrates city data from sensors and systems in 3DEXPERIENCE City's collaborative environment to virtually represent and manage Singapore's data and processes. “Virtual Singapore” is championed by National Research Foundation (NRF), the Singapore Land Authority (SLA) and Infocomm Development Authority of Singapore (IDA), in collaboration with Dassault Systèmes.

The city of Rennes used 3DEXPERIENCE City to create its digital referential, the first of its kind in France. The 3DEXPERIENCE platform's design and simulation applications were used to model the city's buildings, architectural superstructures and infrastructure. The virtual model offers a meeting place for all the city's stakeholders – elected officials, residents, developers, planners, architects, entrepreneurs, energy suppliers, water utilities, waste treatment managers, transportation systems, and communications networks – to collaborate and innovate together as they plan and build the sustainable city of the future.

ANNEX II: 3D PRINTING

3D printing, also called additive manufacturing or additive layer manufacturing (ALM), is leading the transition from manufacturing parts by removing material from a mold or block to manufacturing by adding successive layers of plastic, metal, ceramic, or even organic material. It offers an alternative to production processes such as milling, melting, casting and precision forging and helps reduce waste and costs associated with the manufacturing of complex parts, without sacrificing strength or performance.

Manufacturing by adding layers has existed for 30 years in industry for product design and prototyping, and its use is gradually extending to large-scale production. It creates new opportunities in areas such as remote fabrication for support and maintenance, rapid prototyping for realizing new concepts and experiences and developing designs that were heretofore impossible to fabricate. The aerospace, automotive, architecture and construction, as well as life sciences industries are all using 3D printing. In life sciences, for example, this will enable ultra-personalization: each human is different, making 3D printing suited to prosthesis manufacturing, plaster casts, dental, bone and, soon, organic implants.

3D printing offers a parallel with the information technology world: today's personal manufacturing era echoes the personal computing era which began 30 years ago. The revolution of 3D printing is in its accessibility, which will involve more people – from maker to craftsman – in new industrial sectors. For example, the spare-parts economy will be disrupted because, instead of storing parts, digital models to manufacture the part on-demand, where it is needed, will be stored. The DIYers (do-it-yourselfers), also called makers, will take advantage of these new possibilities at home, in co-working spaces or in fab labs, to make hard-to-find broken parts.

Dassault Systèmes' applications for additive manufacturing offer high flexibility in part design, production and testing. At the 2015 Paris Air Show, Dassault Systèmes and Safran Group announced the signing of a strategic partnership for producing aircraft engine parts using additive manufacturing. The partnership encompasses upstream material design as well as downstream testing and manufacturing processes, to provide digital continuity for all engineering parameters necessary for the additive manufacturing of an engine part: materials science, functional specifications, generative design, 3D printing optimization, multi-robotic production, and certification.

Simulate Before You Operate: BioModex

BioModex, a start-up specialized in surgical simulation founded by Sidarth Radjou and Thomas Marchand and which is also supported by the 3DEXPERIENCE Lab, offers surgeons the possibility to train on a replica of an organ before an operation. "The replica is produced using 3D printing," explains Marchand. "It is made from different types of plastic, which are combined to replicate the organs. They react to pressure, incision and separation, just like living tissue." BioModex uses cutting-edge additive manufacturing techniques that can produce the most complex parts of the human body with precision finer than a millimeter, in a single pass. The young company has even succeeded in producing the smallest joint in the human body, the ossicles in the middle ear! This feat is achieved by the ability to print an infinite color palette and levels of mechanical resistance (soft, hard, etc.) at the same time, without the need for additional processing. In comparison with a purely digital simulation, BioModex offers an unparalleled level of similarity with the physical actions performed during a surgical operation. Surgeons learn and repeat in order to perfect their technique. The physical model, which is created using a series of digital replication procedures, results in a safer surgical operation and offers an entirely new perspective to surgeons. 3D printing is becoming central to our understanding the human body.

ANNEX III: INDUSTRY OF THE FUTURE

Sustainability concerns, the modernization of factories and the need for greater collaboration in global supply chains are necessitating revolutionary changes in industry today. Industrial innovation goes well beyond the walls of a factory to integrate multiple digital concepts that are revolutionizing existing processes and creating a dynamic, holistic and more sustainable production model. Governments and companies in countries around the world, including in France, Germany, India, Japan and the U.S., are recognizing the potential in launching local industrial initiatives that will immerse industry in the digital age and boost the local economy. These programs seek to promote new ways of organizing manufacturing bases and to set up smart factories – new units that offer greater production flexibility and more efficient allocation of resources, paving the way for a new industrial revolution.

For over 30 years, Dassault Systèmes has been dedicated to developing technologies and solutions that help propel digital transformation in industries ranging from aerospace to life sciences and has defined the power that the virtual world holds in stimulating business in the real world. Dassault Systèmes is participating in approximately 50 manufacturing initiatives around the world dedicated to advancing world-class production technologies and processes due to its expertise in materials science (industrial processes), plant virtualization (combination of products/ processes/production resources), concurrent engineering and production optimization, a collaboration platform (manufacturing as a service) that boosts agility (restructuring of production lines) and diversity (introduction of new elements), as well as smart systems (mechatronics or system of systems).

The Factory of the Future According to Michelin

Michelin's 112,000 employees manufacture more than 184 million tires per year at 68 industrial sites in 17 countries. The tires are used to equip everything on wheels: passenger vehicles, heavy-duty trucks, two-wheelers, tractors, construction equipment, aircraft, motorcycles and cars for competition or collection.

In a globalized world where the speed of change continues to increase, our factories will have to evolve to rise to emerging challenges. Let us not forget that in 20 years, most production will still take place in factories that already exist today. All new solutions have to be integrated into our current factory facilities, which requires us to have a long-term vision for our industrial information systems. Another challenge is providing support for our range of solutions as it grows broader, while also improving our customer service quality, through the use of more responsive, flexible systems. Lastly, we have to maintain the same standards worldwide, no matter where production takes place. All while reducing our costs. The first driver we will leverage to meet these challenges is an upgrade to our planning, scheduling, and sequencing systems in order to streamline financial control. The second is to improve the flexibility and reliability of our factories, which will require major changes. The third is empowerment: we want our operators to be independent, responsible, versatile, multi-skilled, and capable of working in a team and making decisions together. To achieve this goal, we have to provide them with information system interfaces that are as user-friendly as possible, intuitive to use, and require as little training as possible. We count on the quality of Dassault Systèmes solutions in that regard.

ANNEX IV: VIRTUAL ADVANCES IN LIFE SCIENCES

BioIntelligence

The success rate of new drug development from its initial concept phase is less than one percent. Three major challenges are impacting this innovation: the decline in research and development productivity, the flood of data available and high regulatory expectations.

The BioIntelligence project was formed to accelerate and revise drug discovery and development processes using digital technology. Dassault Systèmes partnered with five life sciences industrialists (Ipsen, Pierre Fabre, Sanofi -Aventis, Servier, and Bayer CropScience), two SMEs specialized in bioinformatics (Sobios and Aureus Pharma) and three public research institutions (Inria1, Genopole, and Inserm2). The project developed a collaborative platform capable of understanding drug efficiency, simulating their action on tissues and cells, modeling their safety and predicting the results of different dosages on different groups of patients.

Cancer was one of the therapeutic areas selected during its launch. This particularly complex, multifactorial disease generates a great deal of information. To understand the disease, it's necessary to bring together a large number of actors from different disciplines: geneticists, toxicologists, immunologists, specialists in metabolism and energy balance, etc., and reach levels of cell abstraction and representation that combine all these scientific disciplines. Systemic modeling is particularly well suited to incorporating all these disciplines. From a collaborative project management standpoint, this involves bringing together researchers from different disciplines, who work together on a single scientific subject and gain a much more direct understanding of each other's disciplines. The virtual world acts as a scientific Esperanto that opens lines of communication between all these specialists. When the model is finally tested *in silico*, a new holistic understanding takes shape. This opens the door to more therapeutic innovation and gains in terms of development and productivity.

Living Heart

The "Living Heart" is a high-fidelity scientifically validated 3D simulator of a four-chamber human heart and the first product of its kind. Device manufacturers, researchers, and medical professionals will be able to perform virtual tests and visualize the heart's response in ways that are not possible with traditional physical testing. This model, which represents a baseline healthy heart, can be used to study congenital defects or heart disease by modifying the shape and tissue properties in an easy-to-use software editor. It includes well-defined anatomic details of the heart as well as proximal vasculature, such as the aortic arch, pulmonary artery, and superior vena cava (SVC). The dynamic response of the heart model is governed by realistic electrical, structural, and fluid (blood) flow physics. In addition, medical devices can be inserted into the simulator to study their influence on cardiac function, validate their efficacy, and predict reliability under a range of operating conditions.

The "Living Heart Project" leverages crowdsourcing of over 50 members to build its models while protecting the intellectual property of each member, who include the Food and Drug Administration (FDA), the Medical Device Innovation Consortium (MDIC), technology providers, cardiologists, medical device manufacturers and hospitals such as St. Jude Medical and Mayo Clinic. This unique approach has enabled the heart model to be independently tested and included in peer-reviewed scientific journals by project members, and helped Dassault Systèmes deliver the first iteration of the project's commercial product on an accelerated schedule.