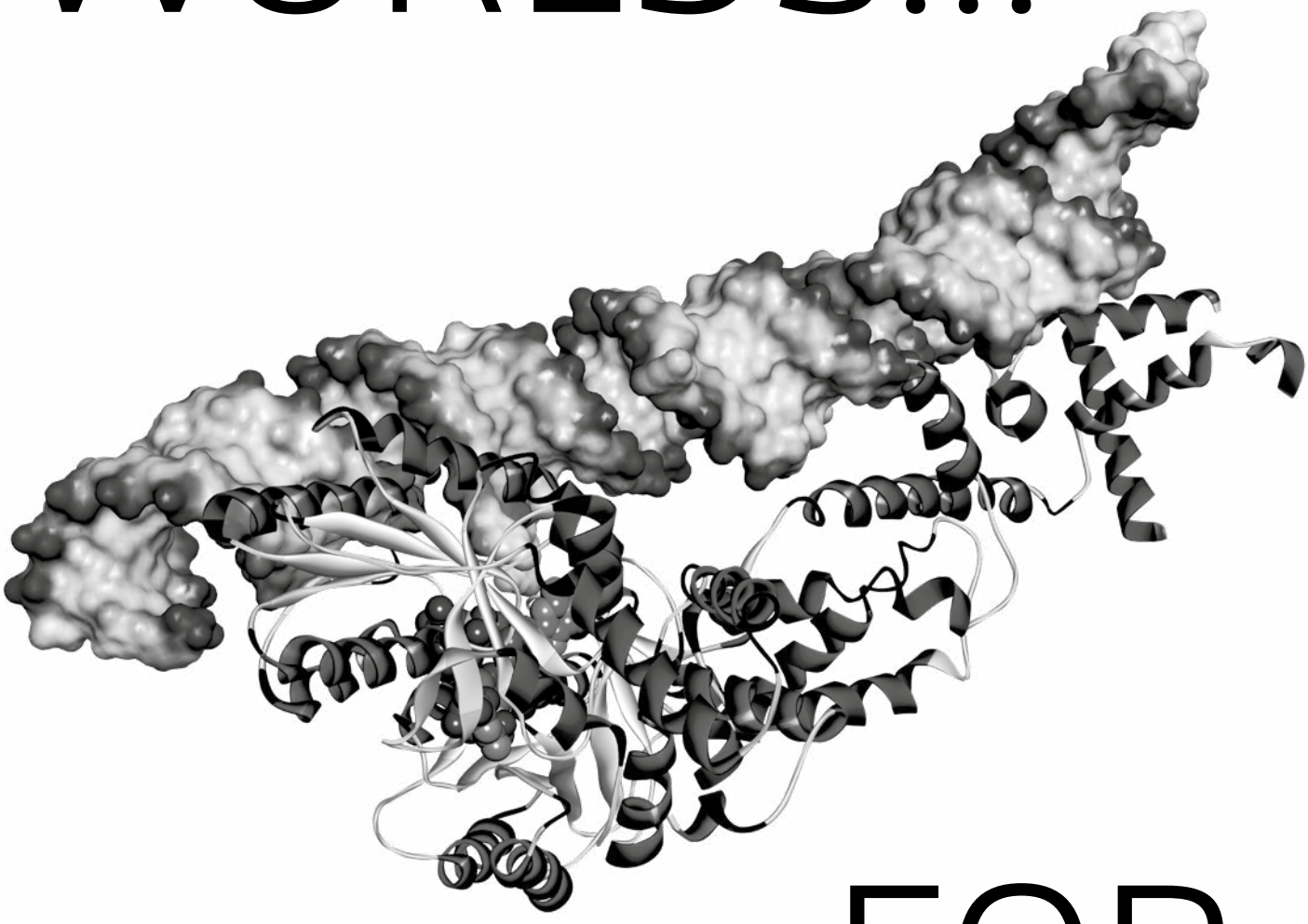
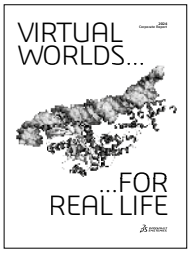
VIRTUAL WORLDS...

2024
Corporate Report



...FOR REAL LIFE

DASSAULT SYSTEMES



The image features a 3D structural representation of a protein-DNA complex. The protein is made of alpha-helices, beta-sheets, and loop regions. The DNA molecule is displayed as a charge surface rendering, indicating the negatively charged phosphate backbone and neutral grooves. Such virtual twins illuminate the precise, atomic-resolution intermolecular interactions that regulate transcriptional control, DNA binding specificity, and drug-target interactions.

Credit: Dassault Systèmes

VIRTUAL WORLDS FOR REAL LIFE

At Dassault Systèmes, we believe in the power of the virtual world to transform real life. This simple idea drives our mission to make cutting-edge innovations accessible to consumers looking to experience unique products, patients seeking personalized healthcare or citizens inspired to shape their city for a better tomorrow. Virtual technology empowers any individual to push the boundaries of what's possible, challenging the status quo with imagination, guided by scientific principles. When creativity is amplified through collaboration, the results are extraordinary. By connecting sharp minds, creative thinkers and passionate problem-solvers, there's immense potential to unlock collective intelligence to bring powerful new ideas to life.

We call the spaces where this transformation happens 3D UNIV+RSES: a revolutionary approach deeply tied to Dassault Systèmes' legacy of innovation, particularly through our pioneering virtual twins. 3D UNIV+RSES merge Virtual + Real, empowering users to explore, experiment, generate, learn from, re-generate, sense and navigate in a single platform. This forms the foundation of our Gen7 strategy, where virtual twins enable the creation of anything to generate hypotheses, validate use case scenarios, leverage intellectual property, make better choices and take advantage of the burgeoning opportunities opened by generative AI at every stage of the product and service lifecycle. We're opening doors to unprecedented opportunities and radically reshaping how innovation takes place, from the smallest component to the largest systems.

The architects of tomorrow will be those who combine knowledge and know-how, who draw inspiration from nature and who focus on sustainable creation rather than consumption, contributing as much to the planet as they take from it. They will bring durable, meaningful solutions to the physical world by using digital tools to develop and test their ideas virtually. The impact of these ideas will extend beyond immediate needs, laying the groundwork for long-term growth and a healthier planet. From incremental advancements in everyday life to groundbreaking solutions for complex global challenges, these innovations carry immense potential for our collective future.

At Dassault Systèmes, we're actively building this future alongside our trusted partners. Together, we're building a more collaborative, innovative and empathetic world, powered by the **3D**EXPERIENCE platform. This vision is forging the Generative Economy – a model where virtual assets rooted in intellectual property are the key currency. Consumers, patients and citizens alike stand to benefit, as barriers continue to be broken down and innovation flourishes. This economy will redefine the limits of what's achievable, opening new frontiers and making the real world better for all.

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In the **VIRTUAL WORLD,**
people can effortlessly share knowledge and know-how, unleashing their imaginations to transform how we design, create and consume...

... enhancing **REAL LIFE**
by creating consumer-driven products and services, while also shaping a Generative Economy that balances sustainability and experience.

Industry must balance environmental responsibility with creating innovative experiences for businesses, consumers, citizens and patients. Companies must focus on the present while shaping the future, tapping into their hard-earned knowledge and expertise. Our 3D UNIV+RSES strategy is all about connecting the real and virtual to make the whole greater than the sum of its parts. Using our solutions and services, our customers have already adopted virtualization for rapid innovation, operational efficiency and regulatory & sustainability compliance. And because our virtual twins integrate science (representation) and data science (observation) with AI-powered modeling and simulation, our customers can precisely and sustainably reinvent their creation and production processes to transform the real world and improve life for humankind.

Dassault Systèmes' Vision, Strategy and Performance

Bernard Charlès
Executive Chairman

Pascal Daloz
Chief Executive Officer

At the beginning of 2024, we revealed the "Generative Economy" as our new horizon for 2040 – resulting from the convergence of the Experience Economy and the Circular Economy. To foster more sustainable experiences and lifestyles, our aim is to help our customers go beyond the mechanistic thinking that dominated industry and the economy during the last century. Tomorrow's game-changers will be those who take inspiration from the living world to generate rather than consume, giving back to the planet as much as we take from it – what we call the "eco-bill" – as they develop innovative solutions to improve the lives of consumers, patients and citizens.

This vision proved relevant in 2024, resonating strongly with our customers. Last year saw a series of major strategic partnerships, recognizing and endorsing the strengths of our **3D**EXPERIENCE platform in the three sectors we serve: Manufacturing Industries, Life Sciences & Healthcare and Infrastructure & Cities.

"Tomorrow's game-changers will be those who take inspiration from the living world to generate rather than consume, giving back to the planet as much as we take from it – what we call the 'eco-bill' – as they develop innovative solutions to improve the lives of consumers, patients and citizens."

Our **3D**EXPERIENCE platform is now employed by top-tier players that include Airbus, Bayer, BIAD, BMW, CSADI, Jaguar Land Rover, Lockheed Martin, Mahindra & Mahindra, Renault Group, Sanofi, Volkswagen and Volvo. They are leveraging its scientific value, AI capabilities and cloud-enabled flexibility to transform their organizations, business models and product portfolios. With our Industry Solutions Experiences, Processes and Roles, they can elevate their value proposition, as well as the knowledge and know-how of their teams.

Similarly, 19 of the world's 20 largest pharmaceutical companies have selected our MEDIDATA platform to optimize data use, allowing them to fast-track the development of groundbreaking treatments.

Meanwhile, players in the Infrastructure & Cities sector have chosen Dassault Systèmes solutions to pursue disruptive approaches, especially in construction and energy.

As a result, and in constant currencies, our software revenue in 2024 grew by 6%, fueled by a 14% increase in 3DEXPERIENCE revenue. At the same time, we strengthened our

investment capabilities and profitability, achieving a non-IFRS operating margin of 31.9% and non-IFRS diluted earnings per share (EPS) up 9% compared to 2023.

Today, the world's most advanced players in the Manufacturing Industries and Infrastructure & Cities sectors – making airplanes, vehicles, machinery, robots or high-tech and Medtech equipment – use our virtual twins to deliver the quality, performance and safety of their products and services, and to comply with standards and regulations.

Dassault Systèmes has developed the same approach in the Life Sciences & Healthcare sector, pioneering development of virtual twins of the living world, from cells to organs to patients.

These achievements are part of our vision for the Generative Economy – and they paved the way for the introduction of our 3D UNIV+RSES strategy at the beginning of 2025.

For our customers, this strategic move will bring significant benefits comparable to those ushered in with the **3D**EXPERIENCE platform in 2012. This approach is a continuation of the industrial transformations powered by Dassault Systèmes for the past forty years and more. Because this is what Dassault Systèmes does – create representations of the world that offer customers new ways of designing and manufacturing: 3D design, digital mock-up (DMU), product data management (PDM), product lifecycle management (PLM), virtual twin experience and virtual twins of the living world.

3D UNIV+RSES are the seventh generation of representations of the world introduced by Dassault Systèmes. They will sit at the heart of the Generative Economy – an economy that revolves around knowledge, where an organization's virtual assets of knowledge and know-how form its primary competitive advantage – serving as a powerful currency.

"3D UNIV+RSES are the seventh generation of representations of the world introduced by Dassault Systèmes and will sit at the heart of the Generative Economy – an economy that revolves around knowledge, where an organization's virtual assets of knowledge and know-how form its primary competitive advantage, serving as a powerful currency."

With our 3D UNIV+RSES strategy, Dassault Systèmes pledges to become the most trusted partner for generating and protecting the intellectual property of all our customers.

From now on, thanks to 3D UNIV+RSES, customers can create the virtual twin of everything for everyone. These new, highly secure spaces for representing the world will enable customers to fully leverage their extensive 3D design, virtual twin and PLM data assets. By combining modeling, simulation, real-world data and AI-generated content, 3D UNIV+RSES make it possible to tap into the vast capabilities of virtual-plus-real (V+R) experiences.

3D UNIV+RSES offer the most powerful environments for training our industrial AI engines as well as for protecting our customers' intellectual property. Developed with the **3D**EXPERIENCE platform, 3D UNIV+RSES embed generative AI technologies at the core of intellectual property lifecycle management (IPLM). In lockstep with the widespread adoption of AI, this disruptive innovation will enable customers in all sectors to fully take advantage of AI at every stage in their product and services lifecycle, making them more sustainable and ultimately improving the lives of consumers, patients and citizens.

The rollout of 3D UNIV+RSES expands Dassault Systèmes' portfolio with two new categories of solutions: Virtual Companions and Virtual Twin Experiences.

This rich array of AI-powered solutions will help customers develop both individual and collective learning possibilities and innovate to drive progress.

We thank all our employees for their hard work and creative thinking and we thank our customers for their ongoing trust. We are ready to work hand-in-hand with them to elevate their knowledge and know-how, and build the workforce of the future.

Welcome to the "new New World!"

Shaping the future of 3D UNIV+RSES

Bernard Charlès
Executive Chairman

Pascal Daloz
Chief Executive Officer

Elisa Prisner
Executive Vice-President, Industry, Marketing, Sustainability – Corporate Strategy & Platform Transformation

Patrick Johnson
Executive Vice-President, Corporate Research & Sciences

Florence Hu-Aubigny
Executive Vice-President, Research & Development

Philippe Laufer
Executive Vice-President, 3DS Global Brands

Florence Verzelen
Executive Vice-President, Europe, Middle East & Africa

Rouven Bergmann
Executive Vice-President, Chief Financial Officer

Laurence Barthès
Executive Vice-President, Chief People & Information Officer

Samson Khaou
Executive Vice-President, Asia-Pacific

Victoire de Margerie
Vice-President, Corporate Equity, Marketing & Communications

Erik Swedberg
Executive Vice-President, Americas

Grégory Abate
General Secretary

SUSTAINABILITY

Philippine de T'Serclaes,
Chief Sustainability Officer

Dassault Systèmes is steadfastly dedicated to realizing our ambition to promote excellence in our commitment to sustainability. This commitment extends not only through our internal initiatives but also in active engagement with customers and partners. We aspire to be a trusted ally in facilitating the sustainable transformation of our clients, working collaboratively towards shared environmental and social goals.

In 2023, our new climate objectives were approved by the Science-Based Targets initiative (SBTi).

- –35% by 2027 on scopes 1 and 2 emissions (vs. 2019 baseline in absolute value).
- –20% by 2027 on travel and commuting emissions posts of scope 2 (vs. 2019 baseline in absolute value).
- 50% of our suppliers by emissions covering PG & Services and capital goods get SBTi approved by 2025 (scope 3).

Scope 1 emissions are direct emissions from sources owned or controlled by a company; scope 2 emissions are indirect emissions from purchased electricity, steam, heat, and cooling; scope 3 emissions are all other emissions associated with a company's activities.

STRATEGIC OPERATIONAL ELEMENTS. Our strategic approach is carried out through four key operational components: brands, geos, industries and sectors. Our brands are the architects of excellent user experiences, building active communities and developing apps to continually evolve the **3D**EXPERIENCE platform. Our 11 geos are customer-centric, leading the growth and execution of our business strategy. Our industry teams create unique Industry Solution Experiences, Processes and Roles to provide targeted value to businesses. These Industries are further categorized into three distinct sectors:

Philippe Laufer

Patrick Johnson

Tarek Sherif

Florence Verzelen

MANUFACTURING INDUSTRIES

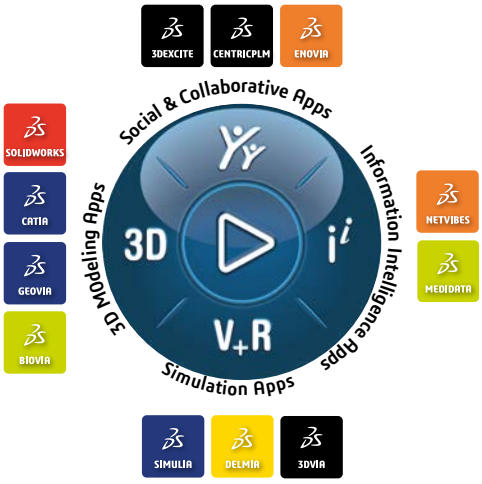
The Manufacturing Industries sector is fueling innovation and people's lives, creating sustainable products through circularity, resilient systems and cutting-edge technologies, shaping a better future.

LIFE SCIENCES & HEALTHCARE

The Life Sciences & Healthcare sector is undergoing a massive transformation by virtualizing its entire ecosystem – from research to production to clinical trials to patient experience.

INFRASTRUCTURE & CITIES

The Infrastructure & Cities sector is helping clients to unleash productivity and reinvent our environment for a sustainable planet.



3DEXCITE: Tom Acland
3DVIA: Annabel Chaussat
BIOVIA: Jason Benedict
CATIA: Olivier Sappin
CENTRIC PLM: Chris Groves
DELMIA: Guillaume Vendroux
ENOVIA: Stéphane Declée
GEOVIA: Mauro DelleMonache
MEDIDATA: Anthony Costello
NETVIBES: Morgan Zimmermann
OUTSCALE: Philippe Miltin
SIMULIA: Michelle Ash
SOLIDWORKS: Manish Kumar

Central Europe
Sabine Scheunert

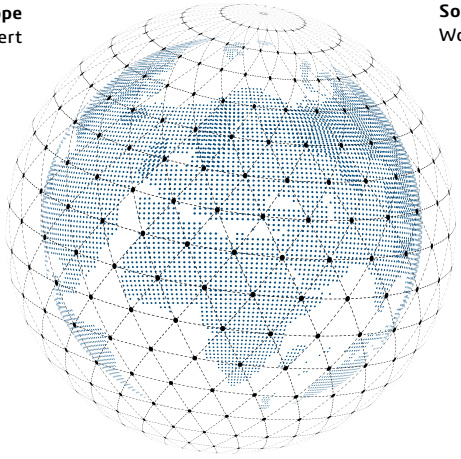
Northern Europe
Marc Overton

Western Europe
Stéphane Degraeve

Southern Europe
Umberto Arcangeli

North America
Erik Swedberg

Latin America
Alejandro Chocolat



South Korea
Woonsung Jung

Japan
Philippe Godbout

China
Ying Zhang

Southeast Asia-Pacific
Samson Khaou (acting)

India
Deepak NG

TRANSPORTATION & MOBILITY
Laurence Montanari

AEROSPACE & DEFENSE
David Ziegler

MARINE & OFFSHORE
François-Xavier Dumez

INDUSTRIAL EQUIPMENT
Philippe Bartissol

HIGH-TECH
Stéphane Sireau

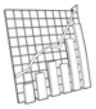
HOME & LIFESTYLE
Benoit Dauchin

CONSUMER PACKAGED GOODS – RETAIL
Benoit Dauchin

LIFE SCIENCES & HEALTHCARE
Claire Biot

INFRASTRUCTURE, ENERGY & MATERIALS
Corinne Bulota

ARCHITECTURE, ENGINEERING & CONSTRUCTION
Rémi Dornier



BUSINESS SERVICES
Taherah Kuhl

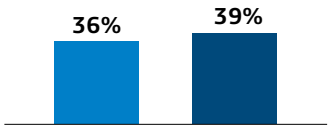
CITIES & PUBLIC SERVICES
Josephine Ong

Reaffirming our leadership in 2024

Drawing on the **3DEXPERIENCE** platform's competitive success…

€1.1 bn

3DEXPERIENCE revenue (+14% Y/Y[1])



Share of **3DEXPERIENCE** eligible software revenue[2]

(1) Growth rates in constant currencies.

(2) Eligible software revenue excludes SOLIDWORKS, MEDIDATA, CENTRIC PLM and recent acquisitions.

Business leaders are adopting the 3DEXPERIENCE platform to drive innovation

Selection of **3DEXPERIENCE** deals signed in 2024 across key industries[3]

CORE INDUSTRIES		
	**Transportation & Mobility**	Volkswagen – BMW – Mahindra & Mahindra
	**Aerospace & Defense**	Airbus – Lockheed Martin
DIVERSIFICATION		
	**Life Sciences & Healthcare**	B. Braun
	**High-Tech**	Nokia
	**Home & Lifestyle**	ASICS – EssilorLuxottica
	**Infrastructure, Energy & Materials**	EDF – Sizewell C
	**Architecture, Engineering & Construction**	Red Eléctrica – BIAD
	**Marine & Offshore**	Naval Group – Damen Shipyards

(3) Only public references are mentioned.

… while strengthening our profitability.

2024 key financial data

(Y/Y growth in constant currencies)

€2.1 bn
Subscription revenue

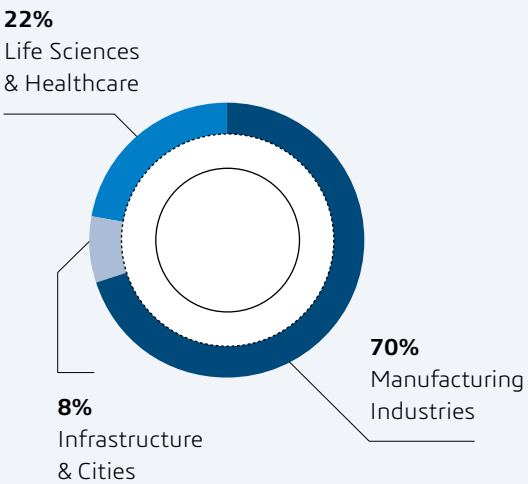
+10%
Subscription growth
(+20% excluding MEDIDATA)

€6.2 bn
total revenue
+5%

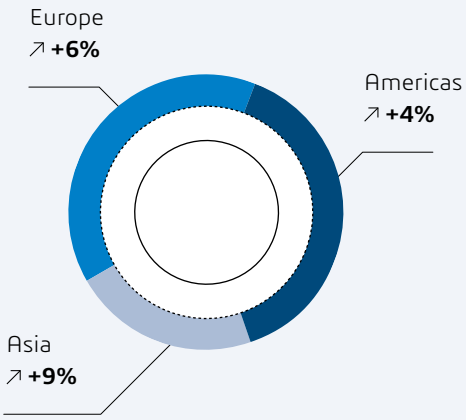
31.9%
Operating margin

+9%
EPS growth (€1.28)

Strategic sectors(4)



Software revenue by region



(4) Share of non-IFRS software revenue in 2024, rounded data

Rouven Bergmann
Executive Vice-President,
Chief Financial Officer

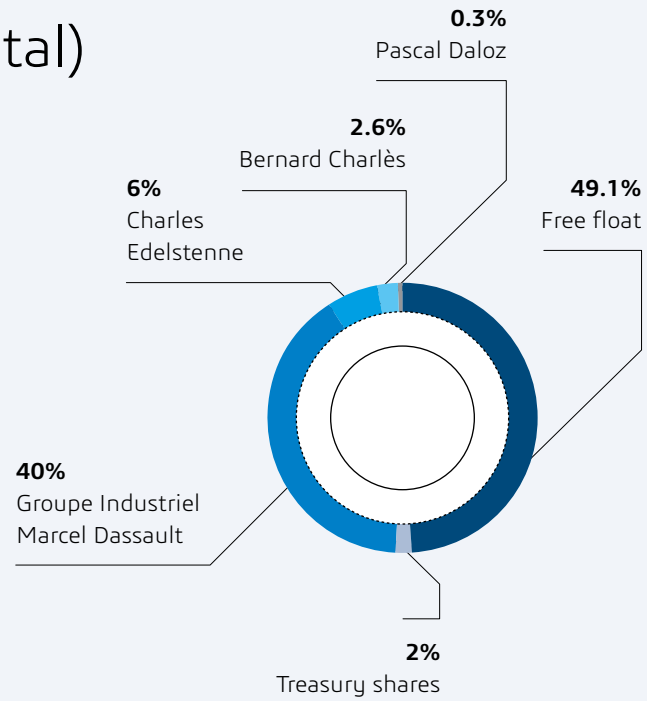
What are the key highlights from 2024?

2024 confirmed our strong customer relationships, evidenced by a number of large breakthrough competitive wins in our core sectors. This reflects the confidence from our clients ready to engage in the long-term, with industry leaders adopting **3DEXPERIENCE** as a knowledge platform across the entire enterprise and value network.
I also would like to highlight the operational strength of our business with a healthy EPS growth of 9% thanks to productivity gains.

What are your expectations for 2025?

For the full year, we expect total revenue growth between 6% and 8%, with EPS up 7% to 10%. We see the combination of the **3DEXPERIENCE** platform and Gen7, Dassault Systèmes' AI-powered 3D UNIV+RSES introduced in February 2025, as a strategic choice for our clients to be future-ready. We will have the opportunity to provide more details about this new horizon at our Capitals Market Day on June 6, 2025, at our headquarters in Paris.

Shareholder composition (controlled capital)



Dassault Systèmes stock data (as of 12/31/2024)	**Market capitalization**	**Share price 12/31/2024**
Listed on Euronext Paris and traded on the American OTC market Member of CAC 40	€44.9 B / $46.1 B	€33.5 (ADR: $34.4)

Committed to creating shareholder value
(Year ended Dec. 31)

	2020	2021	2022	2023	2024
Dividend per share(1)	€0.11	€0.17	€0.21	€0.23	€0.26(2)
Dividend per share growth	–20.0%	54.5%	23.5%	9.5%	13%

(1) Figures before 2021 have been restated in order to reflect the five-for-one share split on Dassault Systèmes' share effected on July 7, 2021.
(2) To be proposed for approval at the General Meeting of Shareholders scheduled for May 22, 2025.

2025-2026 KEY EVENTS

22 May 2025 Annual Shareholders Meeting
6 June 2025 Capital Markets Day
24 July 2025 Second quarter earnings
23 October 2025 Third quarter earnings
11 February 2026 Fourth quarter earnings

SHAREHOLDERS CONTACT

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https://investor.3ds.com/

Virtual Worlds…

Victoire de Margerie,
Vice-President Corporate Equity, Marketing & Communications at Dassault Systèmes, shares how the new tagline "Virtual Worlds for Real Life" embodies the company's forty-year legacy of sustainable innovation.

Can you explain the meaning behind Dassault Systèmes' new tagline, Virtual Worlds for Real Life?

Victoire de Margerie: The tagline encapsulates our commitment to sharing the power of virtual worlds to create tangible, positive impacts in the real world. It's not just about simulation or digital innovation for its own sake – it's about applying advanced technology to solve real challenges facing business, improve the lives of individuals as consumers, citizens and patients and contribute to broad societal progress. This alignment with human purpose is central to everything we do.

What inspired the decision to adopt such a mission-driven message?

V. de Margerie: We're proud of our heritage as a science-based company and our trailblazing role in virtual technology. Many people are still discovering the transformative potential of virtual worlds beyond traditional applications in entertainment or games. Virtual worlds can fuel innovation that truly matters, helping businesses create smarter products, empowering communities to put human needs at the center of decision-making and addressing urgent global challenges like sustainability and health. The tagline is a reflection of our belief that innovation is most impactful when it serves humanity.

Where can people see demonstrations of this new tagline?

V. de Margerie: Everywhere we are, we're sharing the story of Virtual Worlds for Real Life! You can read more about our vision on our website, see the concept in action in our social media stories or talk to our employees about it at events around the world.

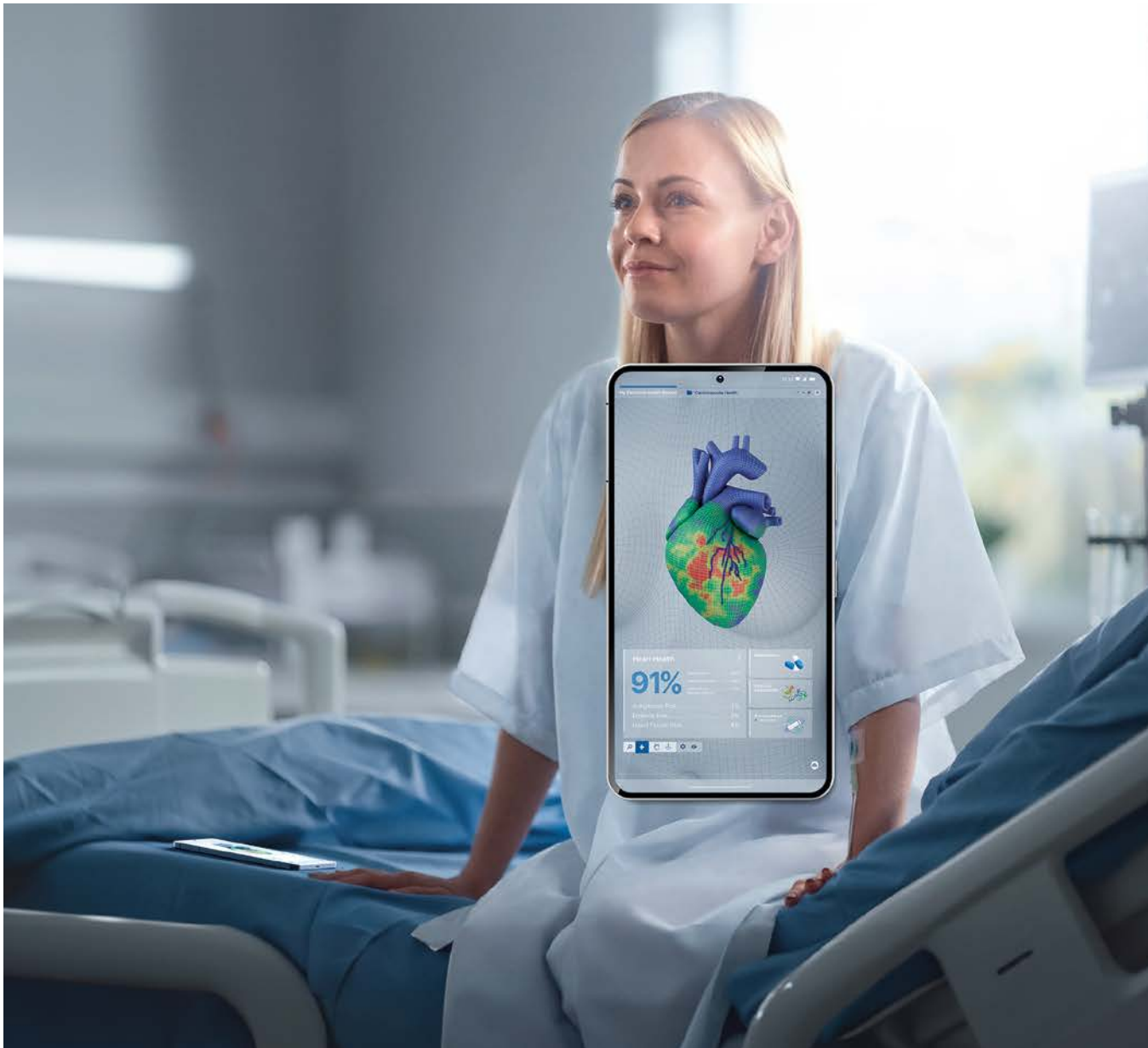
We've also undertaken a few larger initiatives to launch our tagline and allow people to experience the meaning behind it. In the spring of 2024, we took over London's Piccadilly Circus screens to offer millions of people the chance to witness examples of virtual twins as scientifically accurate organs, rescue roadsters, robotic arms and astronauts. We wanted to capture their imagination by showing 3D sequences based on real examples of how designers, architects, engineers and innovators from across industries are using virtual twin technology to create, test, iterate and operate their products and processes. In other words, to show people tangible proof of how the virtual world impacts real life.

More recently, we've debuted an advertising campaign in select major international airports. Through inspiring visuals, we're illustrating the seamless connection between the virtual and real worlds, emphasizing the value virtual twins hold to drive innovation across a range of domains. These ads reflect our ambition of driving human progress through technology, and highlight that this technology is accessible and impactful for everyone – individuals, businesses and society at large. We're proud to showcase how we're the company behind the companies touching every aspect of daily life to meet global challenges.

... for Real Life

In the **VIRTUAL WORLD,**
we uncover the invisible and imagine new possibilities for understanding and caring for the human body...

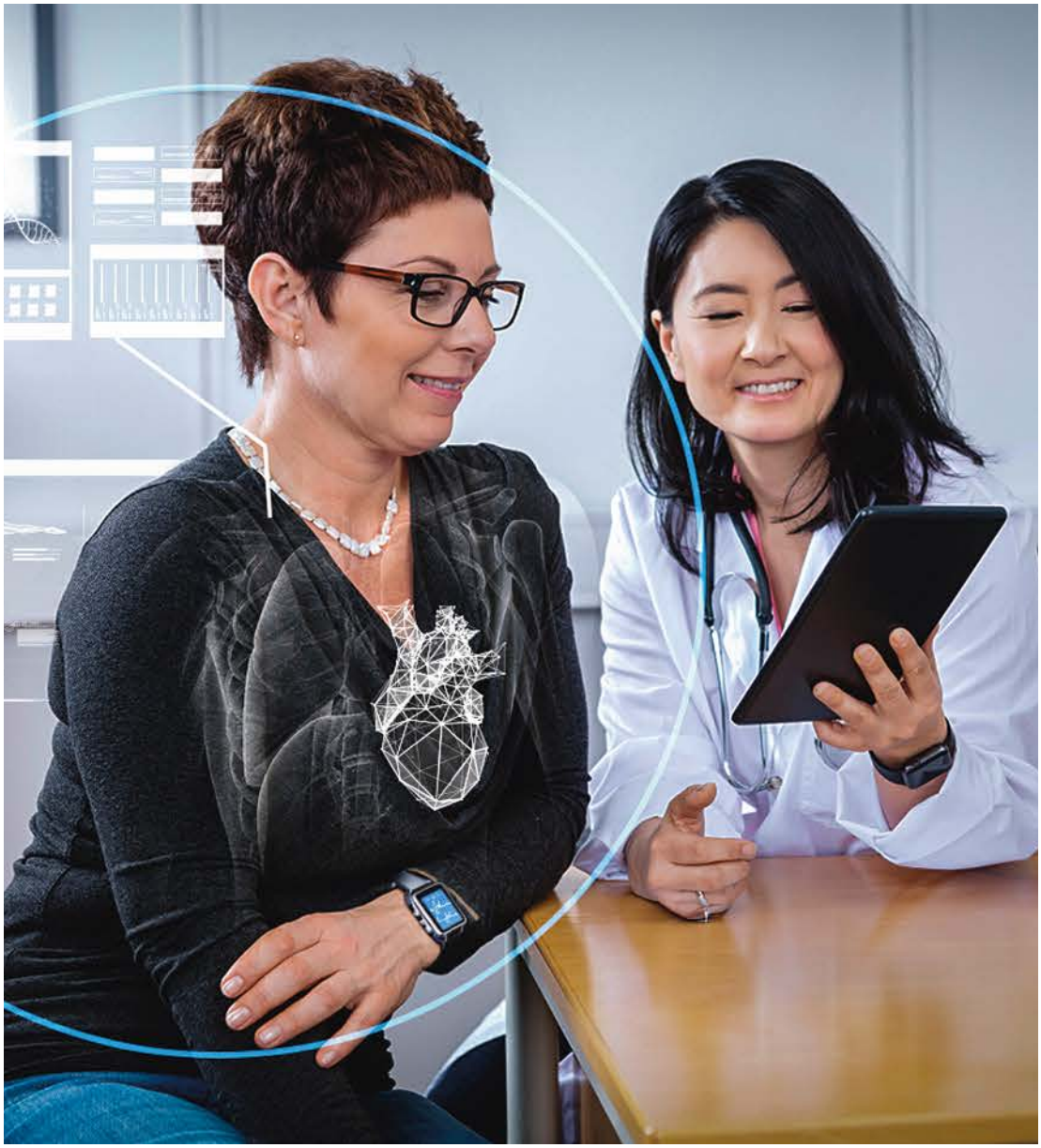
... enhancing **REAL LIFE**
with groundbreaking medical devices and pharmaceuticals, shifting the Life Sciences & Healthcare industry's focus to prevention over treatment.



Helping people live longer, healthier lives has always been the Life Sciences & Healthcare sector's mission. Today, researchers are harnessing the potential of the virtual world to accelerate new horizons to understand the human body and develop a scalable approach to achieve precision medicine in the real world. By simulating complex biological processes, virtual environments allow medical professionals to delve deeper into how the body reacts in various scenarios, paving the way for targeted pharmaceuticals, innovative medical devices and safer, broader and more effective clinical trials. Harnessing the combined power of AI and data science, virtual worlds enhance understanding of the human body to lead to more accurate and personalized medical diagnoses and tailored treatments. The integration of virtual technology in healthcare is not just a leap forward: it's a revolution with tangible impacts for the real world in how we approach medical challenges and strive for better health for all.

Global healthcare systems turn to virtual twins to address challenges

Leveraging virtual twin experiences enables the transformation of globally overstretched healthcare systems, delivering on the promise of new virtualization and data opportunities to address myriad challenges faced by the healthcare industry.



The global healthcare industry has reached a tipping point. Overwhelmed by the complexities of diverse regulations, aging populations and increasing demands for more precise and personalized treatments, it has become financially unsustainable. Others offer band-aid AI solutions that simply mask the problems. Dassault Systèmes takes a different approach, explained in our white paper *Virtual Twin Experiences in Healthcare: Next Generation Precision Medicine*. Here, we outline a systematic transformation from today's massively fragmented, data-driven systems to scalable, knowledge-based virtual twin experiences as the optimal way to meet healthcare's challenges.

Key points

1. Virtual twins help navigate massive data complexity by integrating science with machine learning and AI to analyze vast data sets, identify key relationships and automate routine tasks. This enhances decision-making, reduces human error and improves patient outcomes.

2. The use of virtual twins can offer:

- **Patient experiences that offer a detailed, dynamic representation of the human body and individual health conditions.** By integrating data from biosciences, material sciences and information sciences, virtual twins provide a comprehensive understanding of human anatomy and physiology, enabling precise diagnostics and patient-centric, personalized treatment planning.
- **Hospital structure and operations optimized by simulating design, layout and operating conditions as well as staff and patient workflows.** Improvements to the entire patient journey can be envisioned and changes to overall operational efficiency can be safely evaluated.
- **Entire healthcare systems represented at a functional level.** Policymakers can visualize critical processes such as resource allocation, public health strategy optimization and evidence-based policymaking.

3. The **3DEXPERIENCE** and MEDIDATA platforms provide secure foundations for healthcare solutions powered by virtual twin experiences. Real-world data can be used to simulate patient populations, systemic treatment effects and long-term outcomes. Researchers can perform complete *in silico* clinical trials or construct synthetic control arms that not only accelerate the development of new innovations but also reduce the uncertainty and scale of physical trials, improve success rates and lower overall costs.

Future outlook

Virtual twin experiences will redefine healthcare practices as they have transformed all other industries that have successfully navigated digital transformations.

Patient-centric, multidisciplinary care is enabled, while enhanced diagnostic and treatment accuracy translates to operational efficiency gains. Generative machine learning methods combine proven multiscale/multiphysics simulation of complex systems with curated databases of patient experience to create trustworthy medical processes that are scalable and efficient, ensuring better patient journeys and outcomes. Healthcare becomes more predictive, preventive and patient-enabled.

Read the full white paper:
Virtual Twin Experiences in Healthcare: Next Generation Precision Medicine

Uncovering the mysteries of protein folding

As a member of the OpenFold consortium, Dassault Systèmes is working with other biotechnology leaders to accelerate AI-powered research and development, helping scientists, researchers and bioengineers to discover new drugs and better understand disease. The following text is an excerpt from a February 2024 blog post by Tien Luu, PhD Senior Portfolio Manager and Principal Scientific Specialist within Dassault Systèmes' BIOVIA.

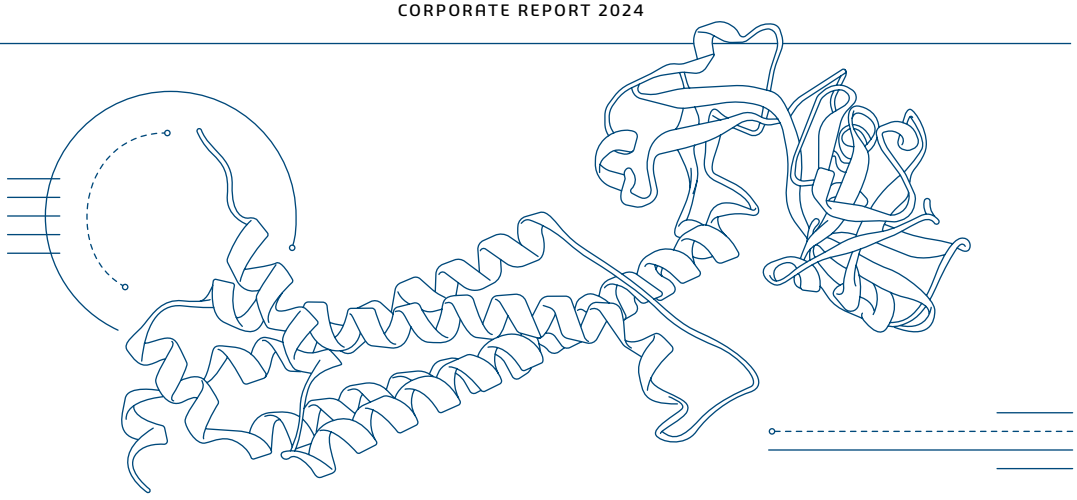
Exciting and *inspiring* – those are the best words to describe the **OpenFold consortium** meetings and discussions. In the drug discovery world, AlphaFold2 is now almost synonymous with solving one of the most elusive problems in computational biology and chemistry: protein folding. AlphaFold2, as the name implies, is built upon its predecessor AlphaFold's success at the 2021 14th Critical Assessment of Structure Prediction (CASP14) where it trounced the competition by accurately predicting the unknown structures of proteins from their amino acid sequence.

In 2024, Demis Hassabis and John Jumper of Google DeepMind were among the Nobel Prize laureates in Chemistry, honored for developing AlphaFold2 – an AI system that uses a deep neural network architecture trained on an extensive dataset of known protein structures to predict complex folding patterns with remarkable accuracy. DeepMind has published the comprehensive details of AlphaFold's methodology and findings, making its cutting-edge algorithms publicly available. But that move may be seen in a different light when you learn about OpenFold.

AI for All: OpenFold's Role in Drug Discovery

OpenFold was founded in February 2022 by the AlQuraishi lab at Columbia University, Arzeda, Cyrus Biotechnology, Outpace Bio and Genentech's Prescient Design. OpenFold is modeled after pre-competitive technology industry consortia, embodying the ethos of open science, encouraging transparency, sharing knowledge and accelerating scientific breakthroughs. Its first release in June 2022 included not just the inference code and model parameters reproducing and improving upon AlphaFold2's speed and accuracy, but also the full training code that could allow a full set of derivative models to be trained for specialized uses in drug discovery of biologics, small molecules and other modalities.

As stated on its web pages, OpenFold "is a nonprofit AI research and development consortium developing free and open-source software tools for biology and drug discovery." It aims to democratize the power of biological AI and lead a community-driven effort to make advanced protein structure prediction tools available to researchers and scientists in academia, biotech and pharmaceutical companies across the globe. Without a doubt, its inception played a part in encouraging DeepMind to share the details of their discovery and has ushered in an exciting new era of transparent and collaborative research. DeepMind has continued their development of AlphaFold models. In May 2024, they released AlphaFold3, expanding beyond protein structure prediction to model complexes involving DNA, RNA, ligands, and more with significantly improved accuracy. AlphaFold3 may help crack long-standing challenges such as accurately predicting protein-ligand structures and potentially replacing current industry standard docking methods. This work was done with Isomorphic Labs, a commercial venture stemming from the original



AlphaFold DeepMind team, who are reimagining the "entire drug discovery process from first principles with an AI-first approach." Since then, OpenFold has been working towards replicating AlphaFold 3's capabilities – such as modeling interactions involving proteins, DNA, RNA, and small molecules – using publicly available data. Recently, it was announced that it will be fine-tuned using proprietary data from biopharma leaders AbbVie and Johnson & Johnson in a confidentiality-preserving and secure federated environment powered by Apheris. OpenFold3 is expected to be released in the spring of 2025 and hopefully incentivize the continued sharing of knowledge to promote advancements in bioinformatics, drug discovery and structural biology that wouldn't be imaginable five years ago.

Embracing a New Era: OpenFold's Journey to the 3DEXPERIENCE platform

Dassault Systèmes, through its BIOVIA brand, became an industry consortium member of OpenFold in November 2022. Our impetus is to deliver valuable software solutions with the best methodologies for pharmaceutical and agricultural product design, helping our users solve real-world problems in drug discovery, disease understanding and bioengineering. We are now enriching our drug design experiences by amplifying the power of long-established and validated physics-based modeling and simulation methods with cutting-edge AI methods. In February 2024, the OpenFold (monomer) and the AlphaFold (multimer) models were made available to BIOVIA Discovery Studio Simulation users on the **3D**EXPERIENCE platform as an alternative to the traditional homology modeling algorithm MODELER. Subsequent advances later in 2024 incorporated other Nobel-Prize winning AI models for generative biologics design, allowing our users to combine the power of AI with traditional molecular modeling and simulation for complete drug discovery workflows.

BIOVIA empowers science-driven innovators to accelerate breakthroughs from research to commercialization. We do this by unifying in-silico and wet-lab experimentation across biology, chemistry, and materials science through virtual twin experiences, generative AI, and standardized data and processes on a common platform. With OpenFold Consortium and our other partners, we bring cutting-edge science into our open ecosystem, helping researchers design and develop novel therapies faster.

Learn more about BIOVIA

MEDIDATA launches new solutions to speed oncology and vaccine trials

New offerings combine technologies and learnings from thousands of previous trials to streamline study management for Phase II and Phase III studies, reinforcing FDA guidance for patient-centered study design and execution.

In October 2024, **MEDIDATA** introduced two new bundled offerings to meet the growing demands of oncology and vaccine research. MEDIDATA Oncology Solutions and MEDIDATA Vaccine Solutions reinforce the US Food Drug Administration's guidance for patient-centered endpoints, adaptive trial designs and trial diversity. By unifying key trial components such as real-time patient-reported outcomes and imaging management, these bundled solutions will aid sponsors by reducing trial complexity, accelerating decision-making and improving assessments of treatment efficacy and safety.

"Oncology and vaccine trials face significant challenges in recruiting diverse patients, ensuring rapid execution, and maintaining and monitoring patient safety," said Joseph Schmidt, chief operating officer, MEDIDATA.

"By making these new bundled capabilities readily available to customers, we can deliver a solution built on MEDIDATA's vast experience and expertise in these two important therapeutic areas. These bundles are designed to help customers navigate the complicated stages of these studies while advancing life-saving treatments."

With more than 25 years of oncology and vaccine experience and the largest global trial datasets, MEDIDATA has managed approximately 9,000 oncology studies and 750 trials in vaccines. In 2024, it was recorded that 86% of oncology drug approvals went through MEDIDATA. The brand was also on the frontlines of COVID-19, supporting hundreds of trials, including the development of one of the most effective mRNA vaccines used to fight the virus.

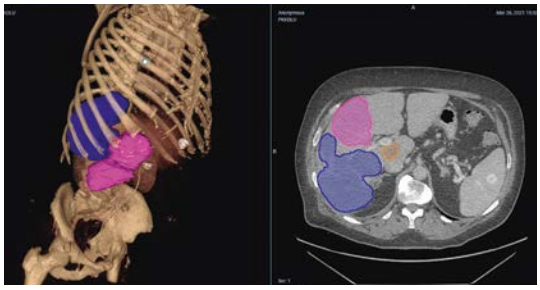
Advancing radiology through artificial intelligence for better patient care

At the 10th International Virtual Human Twin Experience Symposium, Professor Laure Fournier, an expert radiologist at Assistance Publique – Hôpitaux de Paris and Université Paris Cité, shared insights into the groundbreaking integration of AI in imaging workflows.

The **Twinonco** project funded by the French government as part of France 2030 and spearheaded by Professor Laure Fournier's institution and Dassault Systèmes focuses on two primary goals: enhancing reproducibility and saving time for medical experts. Professor Fournier explained how innovative AI-driven tools are expected to reshape traditional workflows by automating and standardizing key processes. A powerful example is the use of AI to detect and delineate metastatic lesions on medical images, transforming 2D slices into comprehensive 3D visualizations. These 3D models may provide detailed insights into disease progression, offering data that manual analysis often cannot match.

The integration of AI addresses critical challenges faced by radiologists, such as processing vast volumes of imaging data. For instance, analyzing stacks of hundreds of CT slices to identify and assess lesions is time-intensive and prone to variability. AI-powered tools can streamline this by automatically identifying lesions across multiple slices, consolidating them into 3D entities then translating the findings into actionable reports. This improvement should save time and enable to focus on higher-value tasks, such as personalized patient communication.

Professor Fournier noted three illustrative case studies to emphasize how AI tools can improve clinical decision-making. First, in cases of mixed responses to immunotherapy, where both response and stability of lesions are observed, AI can aid in defining global patient benefit and potential treatment success. Second, AI can help detect subtle oligoprogressions, where a small number of lesions



progress against a backdrop of general improvement. Such precision is crucial to targeting these anomalies early as they may be treated locally. Lastly, with complex disease presentations involving multiple progressing lesions across organs, AI can provide a quantifiable overview of tumor burden, vital for evaluating treatment effectiveness.

Looking ahead, Professor Fournier discussed evolutionary changes AI could bring to cancer care. A data-driven global view of a patient's disease will enable to monitor disease progress more precisely, moving beyond subjective assessments. AI tools will foster a shift from population-based treatment decisions to strategies tailored to the unique characteristics of patients. By analyzing historical data and outcomes from similar cases, clinicians can customize care to complex, atypical responses.

Watch Professor Fournier's keynote

Snapshots of innovation

In Silico Clinical Trial Project

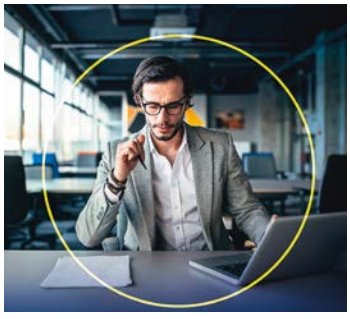
In 2019, the US FDA and Dassault Systèmes launched the *in silico* Clinical Trial Enrichment Project to explore the potential for virtual twins of patients to evaluate safety and effectiveness of new medical devices. Upon project completion in 2024, the group published a detailed Playbook for industry to follow on regulatory use of *in silico* Clinical Trials. This guide enables exploration of the game-changing potential of in-silico clinical trials in regulatory processes.

MEDIDATA's Clinical Data Studio

MEDIDATA Clinical Data Studio is a unified experience that unlocks the true power of clinical research data. This groundbreaking technology gives stakeholders greater control over the quality of data and the ability to deliver safer trials to patients faster.

MEDIDATA Rave Lite: Supporting growth in early-and-late stage clinical trials

MEDIDATA Rave Lite is an extension of MEDIDATA's gold-standard clinical research software, MEDIDATA Rave EDC, but is designed explicitly for Phase I and Phase IV studies. Regardless of company size, therapeutic focus or pipeline, Rave Lite provides efficient electronic clinical data capture (EDC), management and analysis solutions with a tailored pricing model.



Challenges and opportunities in implementing generative AI

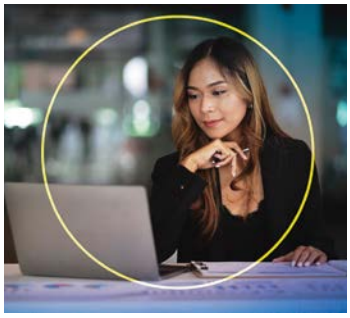
Generative AI is still in its early stages of adoption, but its potential impact on the Life Sciences & Healthcare sector is undeniable. As generative AI matures, its role in revolutionizing clinical research and healthcare will only grow. The organizations that proactively navigate its complexities today will be best positioned to lead tomorrow.

Clinical trials to advance cancer research

A 15-year relationship between MEDIDATA and the US National Cancer Institute (NCI), part of the National Institutes of Health, has been extended. This renewed commitment for an additional five years consolidates their joint efforts and underscores their mutual dedication to advancing cancer research.

Transforming neurological trials

Neuroscience solutions leader Cogstate has entered into a partnership with MEDIDATA to reshape clinical trials and outcome measurement for central nervous system (CNS) diseases across neurodegenerative, psychiatric, motor and rare neurodevelopmental disorders. This relationship will deliver higher quality data collection with increased efficiency and accuracy.



Clinical research Patient Payments

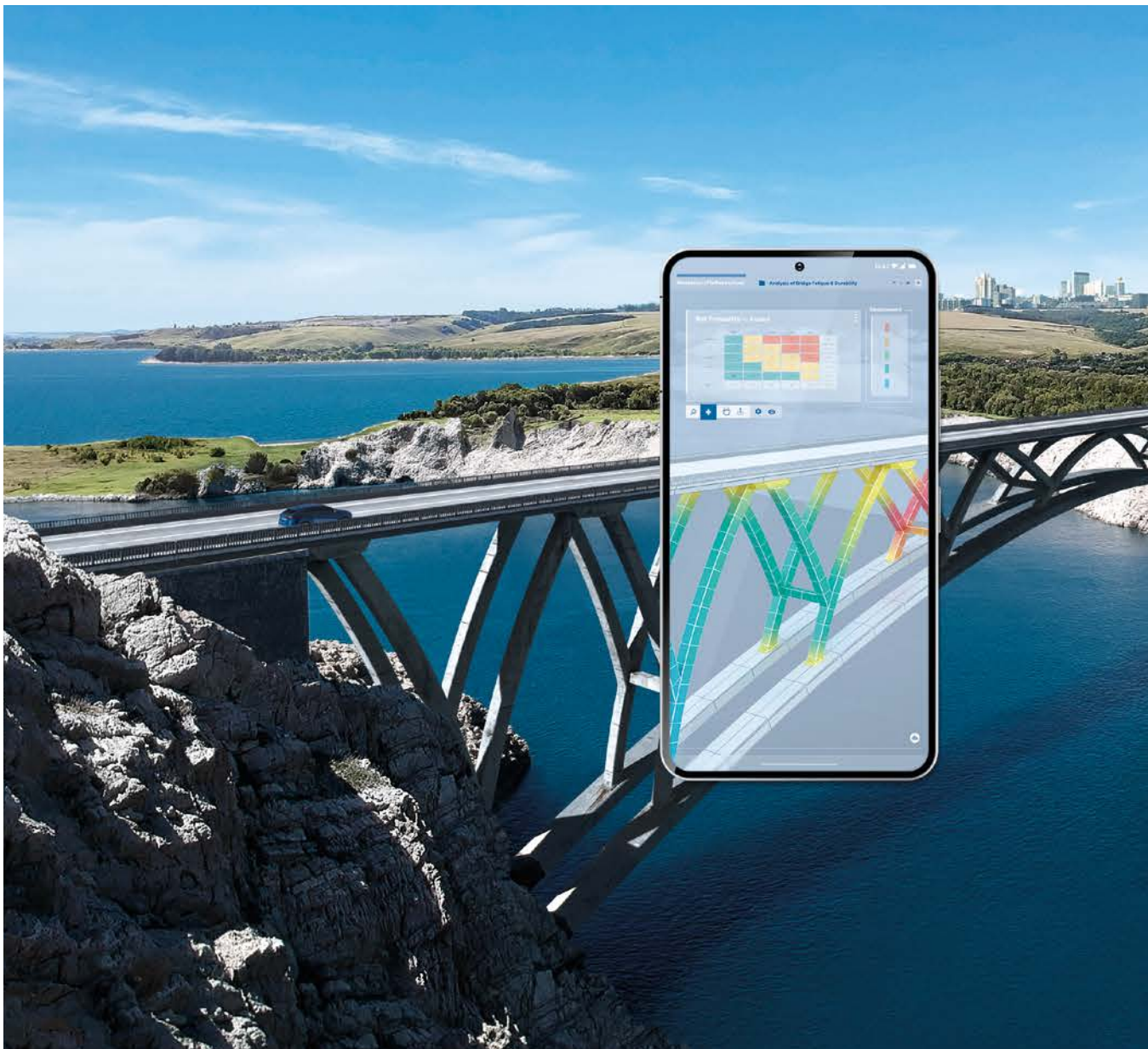
MEDIDATA Patient Payments streamlines trial-related stipends and reimbursements for clinical research patients. Automating the payment lifecycle addresses the long-standing challenge of compensating participants for their time, effort and study-related expenses, while solving for growing concerns around the financial toxicity of clinical trial encounters.

Project-based approaches to learning

Trier University of Applied Sciences students created a 3D-printed model for Barmherzige Brüder Hospital medical students and junior residents to practice manual surgical procedures, including craniotomies, burr holes, biopsies and computer assisted techniques.

In the **VIRTUAL WORLD,**
we can harness the knowledge gained from traditional practices. There, we endlessly simulate, test and optimize new approaches of developing sustainable environments for future generations...

... enhancing **REAL LIFE**
by implementing scalable, innovative approaches for smarter, greener solutions to challenges such as energy production, rapid urbanization and climate change.



Virtualization is not about digitizing what already exists; it's about modeling what's possible. It's a new way to explore and collaborate to make better choices to improve the lives of every citizen on Earth.
The Infrastructure & Cities sector is embracing virtual twins to address challenges ranging from finding and mining new materials to powering cities with renewable energy to reimagining infrastructure. Combining operational and environmental data in a unified platform lets stakeholders manage data complexity, visualize project goals, ensure compliance with health & safety regulations, predict maintenance and track infrastructure performance. Success can include mitigating construction risks, safely meeting global demand for better power grids and optimizing supply chain logistics. It's through solutions like virtual twins that we'll revolutionize approaches to the built world to create better living for all.

Reinventing today, improving tomorrow

Our flagship marketing program for the Infrastructure & Cities sector, The Infrastructors, initiates conversations with leaders in public and private entities about how virtual twins can help tackle their greatest challenges. The series imagines what the next generation of innovators – children today – would like to ask the decision-makers currently shaping their future.

Reinvent how you operate today to deliver a better tomorrow. This is the message of five young experts, The Infrastructors, addressing Infrastructure & Cities organizations grappling with transformational challenges triggered by rapid urbanization, continuous economic development, a growing skills gap and the urgent need for climate resilience. Meeting these challenges requires creative and scalable approaches to create sustainable urban environments for future generations.

A giant ball of clean energy

Just as young kids need extra energy to fuel their growth, our planet will need a surge of sustainable power to support its own development. Some estimates show that by 2050, demand for electricity could be up to 150% higher than it was in 2022. There's no one-size-fits-all solution to the global clean energy transition. Different territories will adopt energy systems suited to local circumstances and capabilities.

Renewable energy sources will be key: we may need as much as a fourfold increase in the deployment of new energy technologies, such as solar and wind, to meet global net-zero commitments. By 2050, renewables could account for up to 85% of global electricity production. Virtual twins can help energy companies generate an end-to-end, multi-scale view of assets in their given environmental context and establish a common data environment for all power system stakeholders to ensure power production and delivery is reliable, reasonably priced and sustainable.

Achieving sustainable logistics

Kids love playing with toy trains and trucks, but logistics is serious business. If transport infrastructure is the circulatory system of the global economy, then logistics – and in particular, freight transportation – is the blood: it is the indispensable medium to carry goods around the world. Achieving effective logistics and supply chain operations management is possible with virtual twins. They can provide a fully integrated view of planning and scheduling requirements across all time horizons in a way that also accounts for a dynamic regulatory landscape. Virtual twins can also help with testing and validating rail operations. Their powerful, end-to-end simulation capabilities have tremendous power to precisely show how activities will function in reality, including day-to-day maintenance and operations, while also meeting quality and regulatory standards.

The skyline's the limit

Most kids born today will grow up to be city dwellers. Today over half of the world's population lives in cities. By 2050, that figure is estimated to be 68%. Our cities aren't just getting more populous and more complex; they're increasingly vulnerable to climate change effects. But they're also part of the problem: 75% of all greenhouse gas emissions derive from cities. Urban leaders, therefore, must make cities both resilient and sustainable, a balance that finds them increasingly turning to technology. Virtual modeling and simulation offer city leaders opportunities to leverage up-to-date data to test and iterate policies in the virtual world. This minimizes risk in the real world, ensuring budget and resource allocations go to projects that will make a lasting difference to citizens' lives.

Out with the old

Kids shouldn't have to worry about growing old – but they might need be concerned about the built environment surrounding them. That's because infrastructure across the world is aging or otherwise inadequate for society's needs. Simply put, global infrastructure needs an upgrade. Whether that means, maintaining old infrastructure or delivering new projects comes with a cost: current studies project as much as a $15 trillion gap between global infrastructure needs and spending through 2030. Many investors are put off by the risk and complexity of infrastructure projects. Digital technology can help de-risk these projects and make the financial case for infrastructure delivery.

Inside productization

There's a big difference between making a house with toy building blocks and a real-world construction project. Or is there? Traditional construction processes have long been highly fragmented, involving multiple stakeholders across the lifecycle of a typical project. Delivering projects at the best of times while navigating strategic challenges – from the global skills shortage to rising material and labor costs to ever-evolving ESG regulations – is a huge task. Digital transformation in construction is finally happening. At the vanguard of this revolution is productization, which aims to transform construction elements from static, bespoke objects into generative assets, allowing for more convenient, cost-effective and flexible approaches.

Meet The Infrastructors

Reducing wind turbine noise optimization through simulation and virtual prototyping

Noise restrictions applied to onshore wind turbines are an obstacle to realizing their full potential. LM Wind Power and Dassault Systèmes addressed the problem by developing a new noise simulation methodology using a virtual twin, resulting in development of quieter turbines.

Challenge

Stringent noise regulations are enforced by governments for wind turbines. Moreover, the conventional approach of physical testing is beset by drawbacks such as high costs, logistical challenges and a reliance on weather forecasts, leading to frequent delays.

Solution

The introduction of a virtual twin replicating the full-scale wind turbine provides a rapid and efficient avenue for executing design iterations and modifications. The simulation has been thoroughly validated through real-world field tests, demonstrating its remarkable accuracy. Utilizing SIMULIA PowerFLOW, the airflow and resulting noise emissions are meticulously studied, enabling the generation of a naturalized noise signal on realistic terrain. This functionality proves invaluable in supporting design studies for noise-suppression add-ons.

Benefits

- Optimized blade shapes
- Efficient design iterations
- Cost reduction in energy production
- Compliance with noise regulations

In essence, this innovative approach enhances the precision of wind turbine blade design and offers a range of benefits, including cost-effectiveness, compliance with regulations and an accelerated design lifecycle.

The significance of wind energy in mitigating greenhouse gas emissions cannot be overstated. However, the persistent challenge of noise, particularly the bothersome swishing sound associated with onshore wind turbines, poses a significant obstacle. Stringent noise regulations have been a limiting factor, constraining turbine operation, diminishing power output and inflating production costs. The adoption of larger rotor diameters in wind turbine designs has introduced its own set of challenges, coupled with increased prototyping costs. The presence of aerodynamic noise, influenced by factors such as rotational speed and the intricate design of turbine blades, further exacerbates community disturbances.

In response to these challenges, a collaborative effort between **LM Wind Power** and Dassault Systèmes is pioneering a simulation methodology to design optimal blade serrations specifically geared towards reducing trailing-edge noise in full-scale wind turbines. This innovative approach bypasses the need for resource-intensive and expensive wind tunnel and field tests.

Crucially, the efficacy of this solution has undergone extensive validation through rigorous field tests.

Read the full
LM Wind Power story

The smart wind turbines advancing green energy

Chinese green energy technology company Envision Energy is using the **3D**EXPERIENCE platform to centrally manage its wind turbines in one unified location. This creates a continuous flow of information throughout the process, speeding up development cycles, improving product performance, optimizing the supply chain and significantly cutting costs.

Wind may be one of the cleanest forms of energy, yet fluctuating weather conditions and wind speeds also make it one of the more challenging energy sources to guarantee a steady supply of power. Huge, expensive turbines must harvest the highest amount of energy possible from every gust of wind and stay operational for as long as possible to justify their investment. Historically, any outage tended to be costly and significantly impacted output. Then, **Envision Energy** came onto the scene with its smart wind turbines, designed to optimize energy yield with turbine blades that automatically adjust to the wind direction and speed, and built-in predictive maintenance capabilities to keep downtime to a minimum.

Envision Energy uses DELMIA Quintiq to build complex supply chain networks through digital models and harness powerful analytics and simulation capabilities to mitigate disruptions. Planners gain a clear view of the end-to-end supply chain to support decision-making and finalize sales and operations planning within a day, instead of five. In the same timeframe, they can also confirm supply availability for new sales and projects.

+9%

CUSTOMER SATISFACTION THANKS TO OPTIMIZED SUPPLY CHAIN MANAGEMENT WITH DELMIA QUINTIQ

By optimizing its supply chain network, Envision has achieved impressive business benefits, including increased efficiency, faster order completion and delivery rates and significantly reduced logistics, production and inventory costs. The sheer size of the parts Envision Energy manufactures typically means they are expensive to transport. Having better visibility of its complex supply chain network has helped the company plan ahead and choose more economic options.

Read the full Envision Energy story

"We manage over 16 million model objects, over 120 million attribute objects and close to 160 million index objects on the **3D**EXPERIENCE platform. Our query and execution rate is almost 10 times as efficient."

Liu Mingfei, director of IT, Envision Energy

Reinventing public transportation

Italian startup NExT is developing electric modular vehicles that can be docked with each other to create extra capacity. It adopted Dassault Systèmes' cloud-based solutions to make the design process faster and more efficient, using the Global Modular Architecture industry solution experience, taking a holistic approach to improve the way its teams work together.

The current model of public transport service delivery is fundamentally broken. That's the view of Tommaso Gecchelin, founder and chief technology officer at **NExT,** an Italian startup developing an advanced intelligent transport system based on swarms of modular electric vehicles.

"We often see buses running totally empty," Gecchelin said. "It's a normal scenario in every big city because public transportation vehicles are sized based on the maximum capacity but are unable to adapt to varying demand throughout the day."

NExT's vehicles solve this problem. During peak hours, they can start their journey with five or more pods that dynamically connect using a robotic system to create a single vehicle with no articulation. Depending on the number of pods, NExT's capacity can match an 18-meter bus or even a tram. During low-traffic hours, NExT can run in a lighter configuration with one, two or three pods, keeping the others parked and charging ahead of the next peak period.

NExT's zero-emission vehicles are a sustainable smart urban mobility solution. They use up to 60% less electricity than standard electric buses because they run only with the minimum necessary number of pods to accommodate demand.

"The operational pods use much less energy, not only due to being lighter but also because the space occupied by passengers that needs to be cooled or warmed depending on the season is only a fraction of a traditional fixed capacity bus," Gecchelin said. "Moreover, the possibility of reducing the length and volume of the bus allows for a general reduction of road traffic."

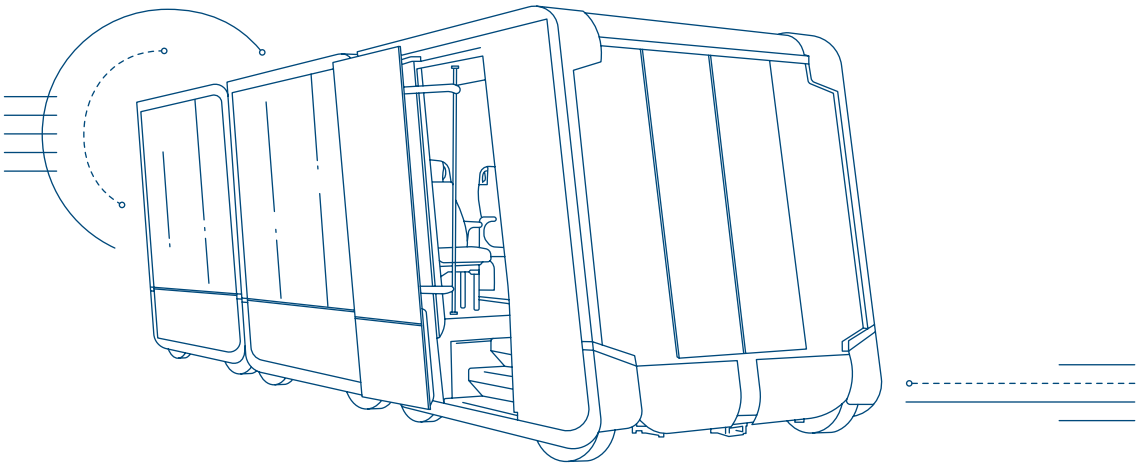
NExT requires industry leading tools to design, test and optimize a bus that is expected to transform urban mobility. That's why it is taking advantage of Dassault Systèmes' **3D**EXPERIENCE for Startups offer, which provides it with a best-of-breed portfolio of solutions, including CATIA for design.

Expanding smart cities and infrastructure with new capabilities

NExT has made significant developments with its smart mobility solutions. It has now designed and manufactured nine prototype vehicles, which are currently being tested in Dubai and in the company's

"As we look to transform the future of transport service delivery, we are looking forward to pushing the boundaries of innovation and maximizing the power of Dassault Systèmes solutions."

Tommaso Gecchelin, founder and chief technology officer, NExT



60%

REDUCTION OF ELECTRICITY CONSUMPTION FOR NEXT ELECTRIC MODULAR VEHICLES COMPARED TO STANDARD ELECTRIC BUSES

30

VEHICLES ROLLED OUT IN THE STREETS IN 2025, 100 EXPECTED IN 2026

headquarters of Padua. Mass production is expected to begin in 2025, with an initial 30 vehicles rolled out in the first year, and a further 100 vehicles hitting the streets in 2026.

This is just the beginning of the journey for this smart urban mobility project. While NExT's CEO expects the first rollout of buses to be used in a simple and easily implemented initiative such as the "variable capacity bus" scenario, he believes future applications will include an advanced on-demand shared taxi system.

"Dubai is the perfect city to use NExT in a taxi-like configuration," Gecchelin said. "It is made up of some very dense and crowded points of interest spread over a rather large territory dotted with thousands of hotels and private residences. As such, NExT will allow citizens to summon a vehicle at their location and set their destination. On the way, the modular vehicle will be able to dock others that are going to the same place. Once passengers have moved within NExT's modules headed to the same place, those left free will be able to detach to meet other customers in a system that allows door-to-door dynamics."

NExT could also be used in countless other applications, including retail and on-the-move services, healthcare, security, cargo transport and airport services. Once infrastructure allows, the transport solutions will be able to operate completely autonomously.

Read the full NExT story

Efficient modular design for urban high-rise building projects

Faced with a housing crisis in the United States, one bold startup is disrupting traditional construction codes. Inspired by aerospace and automotive methodologies, and using the **3D**EXPERIENCE platform, Assembly OSM combines mass production, customization and rapid execution to explore solutions to one of today's major challenges.

A fix for construction

According to reports from Freddie Mac, the US is almost four million houses short of the demand from potential homebuyers. The traditional approach to construction is no longer fit for purpose. And while a new wave of companies offering modular construction – where buildings are prefabricated in a factory – promises a solution in the form of cheaper and faster processes, Andrew Staniforth, chief executive officer at **Assembly OSM** believes the approach is still falling short.

Learning from industry pioneers

Assembly OSM draws inspiration from the way that leading automotive and aerospace firms operate. Buildings are designed by Assembly OSM as a 3D virtual twin, components are manufactured by the company's supply chain and products are assembled by Assembly OSM and "stacked" on the jobsite by the company's general contractor partners.

Going beyond productization

"While we are productizing the process, we are using CATIA to achieve more customization," Staniforth said. "With typical productization, you have a discrete set of options, but what we're doing is building a much more continuous spectrum of options that you can do parametrically."

"Overall, the **3D**EXPERIENCE platform solves some very specific problems for us and I would say it's foundational to the way we operate – in terms of the way we work with suppliers and the way we're managing products," Staniforth said. "It's very tightly integrated with our business model – in fact, I think it's almost inseparable from it. It has unlocked the resiliency and the customizability that typically has not been allowed in modular construction before."

Building responsibly

"The built environment is responsible for 40% of carbon emissions, so we really do believe that it's our responsibility to build better," Staniforth said. "The tools within the **3D**EXPERIENCE platform allow us to create a high-fidelity bill of materials for every building we create. We can then understand those materials and quantify their impact on the environment at a very early stage. We intend to scale quite quickly in different markets. That means the team will grow – and the **3D**EXPERIENCE platform will grow with us too."

Read the full Assembly OSM story

Powering the future marketplace for industrialized construction

Dassault Systèmes, along with Bouygues Construction, Piveteaubois, France Préfa Concept and IMT Mines Alès, is launching SmartFabrik, an ambitious new project to revolutionize the construction industry into a more industrialized, sustainable and competitive sector through the power of CATIA and the **3DEXPERIENCE** platform on the cloud.

Launched in 2023 and supported by the French government department agency ADEME, **SmartFabrik** proposes a new approach to building and renovating. At the heart of the project lies the creation of a marketplace, a digital knowledge and know-how sharing platform purposed to industrialize building design and delivery. This marketplace offers "virtual bricks" – digital pre-designed, customizable and eco-engineered construction systems. Each virtual brick encapsulates code regulations, engineering rules and the specialized expertise of its creator, whether it's Bouygues Construction, Piveteaubois or France Préfa Concept. Each brick can be easily configured and assembled to create unique buildings while standardizing over 60% of components, leading to faster, more cost-efficient and environmentally friendly construction. A dedicated configurator allows project managers, developers, architects, engineers and contractors, to integrate virtual bricks into projects and automatically generate deliverables for each stage. The marketplace offers virtual brick developers accelerated engineering workflows, streamlined paths to manufacturing, IP protection, access to new markets and recurring revenue opportunities. For project managers, it means faster design cycles, reduced risks, lower costs and predictable, high-quality outcomes.

This initiative reinforces Dassault Systèmes' strategic role in digitizing and industrializing the construction sector. By enabling a shift from fragmented practices to a platform-based, collaborative and sustainable model, we're shaping the future of building – smarter, cleaner and faster.

Read the full SmartFabrik story

In the **VIRTUAL WORLD,**
manufacturers are empowered to endlessly test ideas to address their most complex challenges using precise, scalable and science-driven methods...

... enhancing **REAL LIFE**
by developing optimized production facilities and processes that prioritize worker safety and sustainability, designing human-focused products.

Virtual technology empowers modern manufacturers to uncover new possibilities for real-world impact in efficiency, precision and sustainability, reshaping how industries create, operate and scale. The Manufacturing Industries sector thrives on combining cutting-edge technology with innovative thinking. Virtual environments are fueling this revolution by allowing companies to design, simulate and test ideas for products and processes before physical implementation, heightening efficiency and reducing waste. This isn't just about technological advancement; it's a necessity for organizations to stay competitive in fast-evolving markets and to react to consumer wants and needs. From precise production and sustainable manufacturing, to planning modular facilities, to employing virtual twins that monitor processes in real time, the virtual world is helping manufacturing companies transform theoretical possibilities into impactful realities and helping to shape the Generative Economy.

Sustainable luxury cosmetics from field to skin

Clarins has always believed that nature holds the key to beauty. Now, Clarins is taking that philosophy further by combining locally grown botanicals with cutting-edge digital manufacturing. With Dassault Systèmes, Clarins modernizes its French facilities, merging tradition and innovation for smarter, more sustainable manufacturing.

Clarins' commitment to sustainability runs deep in the luxury cosmetic brand's DNA. Known for its luxury skincare and makeup, the French company sources 80% of its active ingredients from nature and has made transparency, quality, and innovation central to its ethos. Across its two estates – a newly established 115-hectare site near Nîmes and an open-air laboratory with a private farm in the French Alps – Clarins cultivates a rich variety of botanicals, including nopal, quince, almond, apricot, lavender, lemon thyme and cornflower. These plants are a primary source of high-quality, organic raw materials for Clarins' formulas.

Beyond ingredient sourcing, Clarins is also transforming the way its products are made. To align production with its commitment to quality and transparency, the company has embarked on a major digital transformation. At the heart of this shift is Dassault Systèmes' manufacturing execution system (MES), DELMIA Apriso, which is redefining how Clarins manufactures and delivers its luxury beauty products with greater efficiency and precision.

For years, Clarins has operated a single production facility in Pontoise, France. As demand for its products grows worldwide, Clarins recognized the need

80%
OF CLARINS' ACTIVE INGREDIENTS ARE SOURCED FROM NATURE

BY 2030, CLARINS AIMS TO PRODUCE OVER
30%
OF ITS PLANT-BASED INGREDIENTS FROM ITS OWN ESTATES

CLARINS' NEW SAINTE-SAVINE PLANT WILL MANUFACTURE
100 MILLION
PRODUCTS PER YEAR

to expand. The company's new Sainte-Savine plant, built from the ground up, represents a cutting-edge approach to manufacturing. Designed for flexibility and agility, this modular, scalable facility combines automation and advanced supply chain management to optimize every step of the production journey.

The new factory will initially produce 20 million products per year, scaling up to 100 million in the future – bringing it on par with Pontoise. To achieve this, Clarins' manufacturing execution system integrates production, packaging, logistics and quality management while tracking all operations in real time.

Instead of simply adding new technology on top of old ways of working, Clarins took the opportunity to simplify and improve its processes. When implementing DELMIA Apriso, the company redesigned its workflows for maximum efficiency.

Data-driven production monitoring

Automation is central to Sainte-Savine's plant design. Acting as the factory's central nervous system, DELMIA Apriso interfaces directly with all equipment and links automated guided vehicles (AGVs), production lines and quality control systems, keeping operations in sync.

AGVs handle everything throughout the plant, moving seamlessly as they navigate the shop floor and supply production lines without manual intervention. Wherever an AGV is at work, DELMIA Apriso is there too, providing complete oversight of quality and production while supporting Clarins to maintain its zero-defect standards.

By monitoring production speed, yield and equipment efficiency in real time, Clarins can quickly pinpoint bottlenecks, refine processes, and stay on track, producing the right quantities, using materials wisely and keeping waste to a minimum. This information also flows to the electronic batch record, tracking weight, batch numbers, and other key variables to ensure every stage of production is traceable, secure, and optimized for accuracy.

Operators now see all essential information on a single screen rather than having to switch between multiple applications. This unified approach saves time, reduces errors and makes tasks more straightforward. The feedback from teams is that there's no comparison between an old-generation screen and the DELMIA Apriso user experience.

The next chapter in sustainable beauty

Clarins' new Sainte-Savine facility is a model for the company's future. With a highly optimized layout and cutting-edge MES, it represents the company's vision for modern, efficient and sustainable manufacturing.

Following the successful rollout of DELMIA Apriso at Sainte-Savine, Clarins is now preparing to bring its Pontoise plant up to the same digital standard. Beyond that, the company is exploring other Dassault Systèmes solutions, including 3D design, to push its digital transformation even further.

Discover how Clarins boosts efficiency with 3DEXPERIENCE

Heightening efficiency with the **3D**EXPERIENCE platform

Japan's Kobelco Construction Machinery turned to the **3D**EXPERIENCE platform to streamline operations, enhance design processes, boost production efficiency and deliver improved customer experiences through innovation and accurate integration of feedback.

"Our market is evolving rapidly: we must differentiate ourselves by providing high quality, high performing and compliant solutions as well as maintenance and service capabilities. To succeed, we need to advance our digital transformation and be better equipped to utilize vast amounts of data. We can do this with Dassault Systèmes technology," said Yoshiaki Shishido, Kobelco Construction Machinery's general manager.

New opportunities for growth

To build on its strong legacy of heavy machinery innovation and continue to transform, **Kobelco Construction Machinery** is enhancing its collaboration with Dassault Systèmes – a partnership first established in 2000 when it deployed CATIA V5 for design and ENOVIA SmarTeam for product data management.

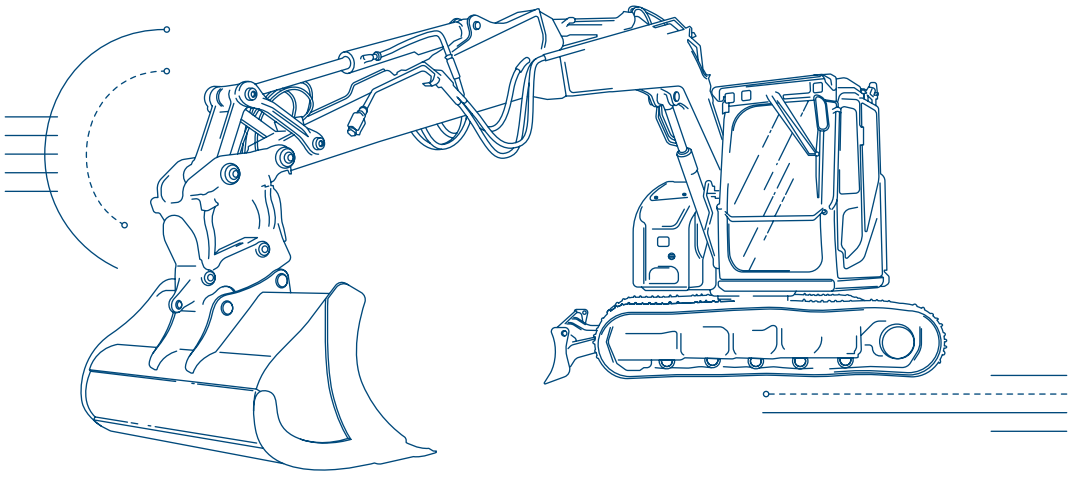
Kobelco's design teams are spread across factories in China, India and Japan. They've shortened product design and improved design cycle times by leveraging CATIA V5 for 3D modeling in new product development, but have been doing so through an in-house data integration between CATIA V5 and various highly customized legacy solutions. This created challenges with product design collaboration and lowered efficiency because, without a centralized system, each team must manage data independently. The in-house system requires overnight data sharing, a process that is not only cumbersome but also prone to issues like duplicated data and extended wait times for synchronization. This setup also prevented Kobelco from updating their systems and benefiting from the rapid evolution of IT.

Expediting the heavy machinery design process

Since all design data will be accessed from a single unified environment, Kobelco's various teams will no longer have to wait for data to be shared overnight between locations. They expect to speed up the collaboration between domestic and overseas design departments considerably.

Democratizing data

ENOVIA's product data management capabilities will allow 3D models to be used throughout the entire company and provide everyone access to a



single unified bill of materials. They also expected this to translate into time and cost savings. Currently, Kobelco spends €400 million (Y56 billion) a year on purchased parts. By having better data surrounding these parts, they'll be able to source from the right supplier at the right price and at the right time. They'll also be able to better negotiate prices, consolidate suppliers and minimize excess stock. They estimate that just a two per cent reduction would result in savings of €8 million (Y1.1 billion) per year.

Improving production processes

DELMIA's smart factory capabilities offer further value to Kobelco. DELMIA will help improve accuracy by eliminating the variation between the simulated workload and actual work time at each workstation. Kobelco expects each plant will be able to reduce takt time (the rate of production required to meet customer demand) from 15 to 12 minutes and increase production from 10,000 units per plant per year to 12,000 units per plant per year.

Kobelco is also looking to leverage virtual twins to enable problem-solving before machines are even built, as well as to ensure greater precision during manufacturing. They also plan to use virtual twins to simplify maintenance, allowing for faster repairs and reduced downtime. Ultimately, these capabilities will help Kobelco in their quest to maximize customer value and satisfaction, achieve lasting growth and become a leading global brand known for innovation.

Challenge

Kobelco Construction Machinery, a leading construction equipment manufacturer, wanted to develop more innovative products and services that match its customers' needs. However, it was held back by its highly customized legacy system that led to operational silos and duplicated work.

Solution

By leveraging the Dassault Systèmes' **3D**EXPERIENCE platform, including the Single Source for Speed and Integrated Heavy Machinery industry solution experiences, the Japanese company will be able to democratize the use of 3D models across its organization.

Benefits

Dassault Systèmes solutions enable Kobelco Construction Machinery to shorten product development, increase design accuracy and reduce takt time (the rate of production required to meet customer demand), leading to accelerated rates of production. With plans to implement a structured procurement process based on historical purchasing data, the company expects to save an estimated €14 million in unnecessary costs.

Read the full Kobelco Construction Machinery story

Taking air taxis from theory to reality

Joby Aviation's all-electric vertical take-off and landing air taxis will soon be shuttling passengers in Dubai. Joby engineered its entire operations from the ground up, leveraging Dassault Systèmes' **3D**EXPERIENCE platform.

Building the world's first all-electric vertical take-off and landing air taxi

In early 2023, Dubai's Road and Transport Authority (RTA) announced that Dubai will be the first city in the world to introduce an air taxi service – a move that it believes will transform urban mobility as we know it. As soon as 2025, passengers will be able to travel from Dubai International Airport to Palm Jumeirah in just 10 minutes, in an electric air taxi traveling at 200 miles per hour (322 kph). The same journey would take around 45 minutes in a car.

The company facilitating Dubai's ambitious plans? California-based **Joby Aviation.**

"We're building the world's first all-electric vertical take-off and landing (eVTOL) air taxi," said Eric Allison, Joby Aviation's chief product officer. " Our aircraft can take off vertically like a helicopter, and then fly like an airplane. It can hold four passengers and a commercially rated pilot. It will transform how we move around – integrating into mobility-as-a-service. You can open an app on your phone, select 'Joby' through our app or via one of our partners, and then get to where you want to go faster than any other way."

Joby engineered its entire operations from the ground up, by leveraging Dassault Systèmes' **3D**EXPERIENCE platform from the outset.

Meeting complex certification criteria

Building an electric vertical take-off and landing (eVTOL) aircraft certified for commercial flight is no mean feat. It has taken Joby 15 years of engineering,

"We want to be best-in-class in everything we do. So, we were looking for a best-in-class 3D solution with a long heritage of use in aviation. There was really only one choice."

Eric Allison, Chief Product Officer, Joby Aviation

prototyping and refinement as well as close collaboration with industry leaders such as NASA and Toyota. The company also works with the US Federal Aviation Administration (FAA) on how to bring this new technology – which is a set of new technologies – to the market in the most expedient and safest way possible, adhering to the regulator's high standards.

"To launch this service and to make it possible to move in this transformational way, we have to certify our aircraft," Allison said. But this isn't a simple process. "We have to certify electric motors. We have to certify the battery systems. We have to certify the fly-by-wire electronics that enable pilots to fly these amazing new machines. That's a lot of work. We have to work with the regulators to define the safety requirements for this new class of technologies. We have to define how we're going to meet those safety requirements. And then we have to work on all of the myriad of tests, all of the test plans, all of the things we have to do to show compliance with that set of rules that we've agreed with the regulators. We're deep into that process right now."

Joby couldn't achieve what it has to date without adopting the **3D**EXPERIENCE platform as a collaborative environment, through which it carries out a range of activities such as composite design, additive manufacturing, verification through simulation, data management and more. "Dassault Systèmes has been a fantastic partner," Allison said. "Our entire digital engineering is built around its **3D**EXPERIENCE platform, and we are doing all of our design work in CATIA. We are tracking all of our engineering data in ENOVIA."

A collaborative route to success

With the **3D**EXPERIENCE platform offering digital continuity from concept to flight, Joby takes a vertically integrated approach to designing and manufacturing its aircraft. "That means we have engineers working across different disciplines," Allison said. "We've got engineers working in composite structures. We have engineers working in small electronics. We have engineers working in motor design, battery design, and integrated vehicle design. We have to bring all of those disciplines together."

The **3D**EXPERIENCE platform enables Joby to do just that and then allows it to connect engineering to manufacturing so that it generates the required data to not only transmit to its manufacturing systems and build its amazing aircraft but also enable full traceability.

"This is really a big advantage for us, that we have a best-in-class system that we can use to track, manage and ultimately act on, manufacture and bring to market what started out as data and turns into the real world," Allison said. "To create world-class technology, you have to use world-class technology." With the **3D**EXPERIENCE platform, that's precisely what Joby has got.

Read the full Joby Aviation story

Driving progress for customers

HD Hyundai XiteSolution

Korean construction machinery company **HD Hyundai XiteSolution** needed to create more synergy between its subsidiaries with a common global product development management system. Dassault Systèmes' out-of-the-box capabilities helped them integrate their design, product lifecycle and bill of materials management capabilities in just six months.

Mahindra & Mahindra

Mahindra & Mahindra, a leader in automotive, farm and services businesses in India, is advancing its digital transformation by selecting Dassault Systèmes' **3D**EXPERIENCE platform on the cloud to accelerate its end-to-end new product development process, including for all future auto programs.

Monceau Automobiles

To convert classic Mercedes-Benz vehicles into 100% electric cars, Belgium's **Monceau Automobiles** leveraged the Efficient Multi-Energy Platform industry solution experience to gain 3D design precision and manage its complex repository of product data.

Pivotal

California startup **Pivotal** is opening the world to the possibilities of personal aviation with its light electric vertical take-off and landing (eVTOL) aircraft, Helix. The **3D**EXPERIENCE platform, including the Reinvent the Sky industry solutions experience, is supporting a vertical design-to-manufacturing approach and helping to bring Pivotal's first production aircraft to market.

ASICS

ASICS launched their experimental "ASICS Personalization Studio" at Dassault Systèmes' headquarters in Vélizy, demonstrating a science-based approach to aid physical recovery while improving performance.

CNBM Triumph Robotics

Shanghai-based robotic line builder **CNBM Triumph Robotics** adopted the Digital Equipment Continuity industry solution experience to streamline and standardize its way of working. With virtual commissioning, customers now experience the production lines through virtual twins, which support them with diagnostics, equipment upgrades and training.

Clarion Malaysia

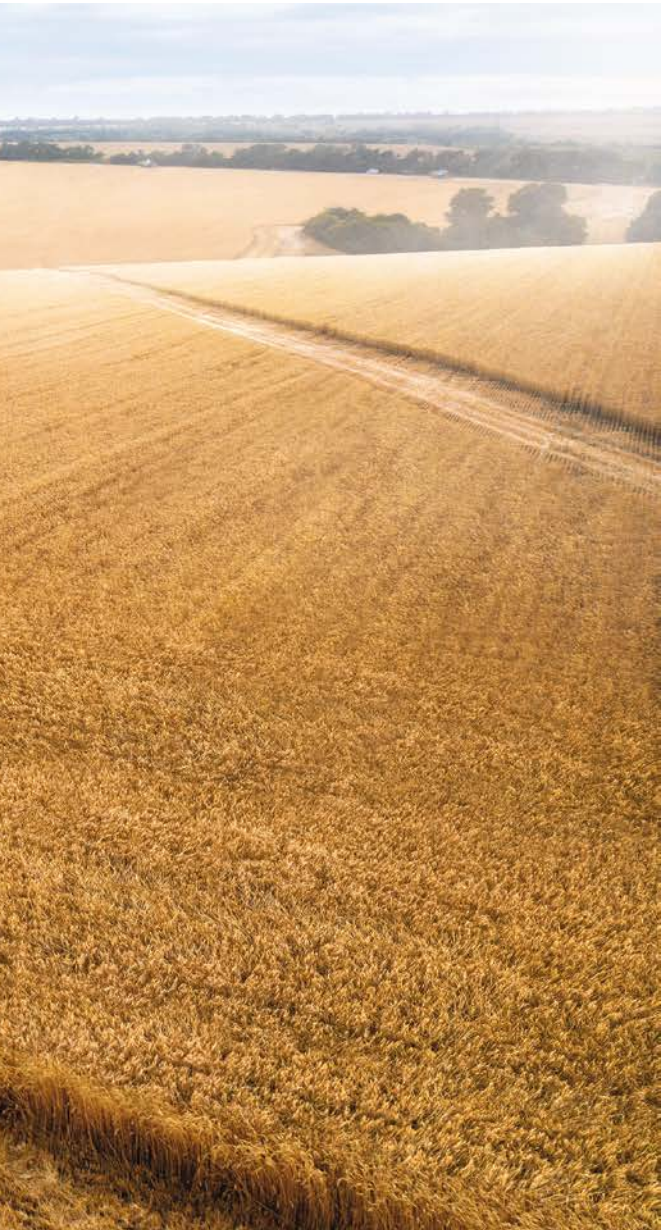
Clarion Malaysia needed to control the way its business operated, which would allow it to be more productive, efficient and responsive to market changes and customer demands. Clarion's path to success was the integration of DELMIAWorks ERP system and PLM with the Manufacturing bill of materials on the **3D**EXPERIENCE platform.

The University of Sheffield AMRC

The UK's **University of Sheffield Advanced Manufacturing Research Center** (AMRC) recently expanded its partnership with Dassault Systèmes to provide software, training and support to help deliver advanced insights to aircraft manufacturers while equipping the next generation of professionals with the skills needed to excel in the sector.

In the **VIRTUAL WORLD,**
any stakeholder with a dream to improve the planet can seize opportunities to develop innovative and sustainable solutions...

... enhancing **REAL LIFE**
by applying their creativity to tackle the world's most pressing physical and social challenges to promote equity and progress.



Climate change and social issues are growing concerns for students, nonprofits, companies and citizens. Dassault Systèmes is committed to tackling social inequalities and promoting circular economy practices through innovations like virtual twins. Addressing such challenges requires collaboration. We're focused on developing solutions in partnership with our customers, and we're proactively fostering dialogue internally and externally to cultivate impactful solutions. From sustainable packaging design that reduces plastic use while maintaining health standards to optimizing construction resources to digitizing clinical trials to lower emissions, we help industries and cities minimize environmental impact. We also support the circular economy by helping companies reduce waste, optimize inventories and refine production to conserve resources. We believe that only by working together can we shape a more sustainable future.

Empowering our clients to meet their sustainability commitments

Industry leaders(1) across the spectrum turn to Dassault Systèmes for support in pursuing climate change targets and transitioning to circular economy practices. Our portfolio of solutions help decarbonize products and operations, decrease material and energy consumption, cut costs and optimize impact in every sector.

Certified use cases for climate change mitigation

Manufacturing Industries

- Automotive OEMs leverage CATIA and SIMULIA to perform the necessary trade-offs between Quality, Cost, Time and Sustainability throughout the design and engineering phases. Information Life-cycle management, modeling-simulation help customers optimize the footprint of mass-material mixes of vehicles and reduce amount of energy consumption during usage thanks to weight- and aerodynamism-optimizations while still complying with safety regulations.
- When any new vehicle model launches, automakers carry out marketing campaigns that to date has required transporting the vehicles to filming locations. Working with a Korean car company, our 3DEXCITE team enabled our customer to digitize its marketing campaigns using computer-generated imagery, avoiding the need to organize a physical photoshoot and vehicle shipping.
- Packaging accounts for over 40% of global plastic use, making it is crucial to rethink design strategies to reduce plastic consumption. Through our SIMULIA brand, Dassault Systèmes partnered with an American consumer goods company to optimize its packaging design, to cut down the amount of plastic used by reducing the thickness of a bottle's packaging, increasing the percentage of post-consumer recycled plastic while maintaining the product's robustness and compliance with health standards.
- To mitigate the environmental impact of the world's food system, optimizing transportation and delivery is key, as the sector emits 19% of total emissions. Deploying a distribution planning management solution allowed DELMIA to help an American food delivery company reduce its fuel consumption by optimizing routes and reducing the number of miles driven.

Infrastructures & Cities

- Fiberglass is an essential material in the construction of wind turbine components – but it is partly made of plastic. To reduce consumption of this raw material, CATIA helped a leader in the industry to optimize the design of its wind turbine blades to reduce fiberglass waste. The company was able to model exact cut-outs during production, reducing its scrap rate.
- A Chinese architecture and construction company needed to reduce steel consumption during the construction of a building. They turned to CATIA to model the building, helping minimize design errors and avoiding tons of steel waste.
- When a port terminal operator needed to optimize terminal planning, DELMIA facilitated the optimization of container terminal scheduling, reducing both waiting times within the port and fuel consumption.

Life Sciences & Healthcare

- MEDIDATA enabled an American medical research company to digitize and dematerialize clinical trial processes, making it possible to avoid patient travel and physical shipping of each patient's results.

(1) All cases presented below have been anonymized.

Certified cases of leading the transition towards a circular economy

Manufacturing Industries

- Dassault Systèmes solutions facilitate eco-design of packaging. For example, our solutions helped three major food and beverage companies optimize the design of their packaging to reduce the amount of plastic used and increase the proportion of recycled materials. This was made possible by the use of SIMULIA during the design phase. The three companies succeeded in reducing the thickness of their packaging, integrating more recycled materials and increasing the recyclability of their products at end-of-life, while guaranteeing the necessary robustness and compliance with health standards.
- Circularity is a key issue for the automotive industry, and electric vehicles is one aspect to address this challenge. CATIA has helped three companies with eco-design to minimize waste during the product production phase, optimize product design to facilitate disassembly and repairability, and reduce the number of physical prototypes.

Infrastructures & Cities

- One of the main circularity levers in the steel and aluminum industries is the reduction of scrap during manufacturing operations. DELMIA has enabled these industries to optimize their production procedures and reduce their material waste. For example, a steel producer was able to combine orders of the same dimensions during cutting, reducing scrap by almost 39%.
- In construction, modularity is a significant factor to address circularity. Two architectural firms used CATIA to improve the circularity in infrastructure projects by facilitating and improving precision in the design of construction modules, as well as in the final assembly of the infrastructure, resulting in a reduction in resource consumption.

Dassault Systèmes convenes global CSOs for sustainability summit

During London Climate Action Week 2024, we organized the Chief Sustainability Officer Summit, bringing together innovative minds from across the business world to tackle the challenges of tomorrow. The event put a specific focus on the all-important issue of biodiversity in the sustainability mandate.

"Along with other CSOs and sustainability leaders, we were able to reflect on critical sustainability issues and to discuss concrete solutions for reconciling technology, the circular economy and biodiversity. What emerged from the day was a collective determination to go beyond words and transform our strategies into real, measurable action."

Philippine de T'Serclaes, Chief Sustainability Officer, Dassault Systèmes

An event structured into three pivotal parts, each offering rich and multifaceted perspectives

1. **Workshop:** A collection of experts shared challenges, experiences and strategies to address priority issues, and collaborated on practical, solution-focused actions.
2. **Fireside Chat:** Facilitated by Philippine de T'Serclaes, PlanetaryX's CEO, Nathanial Matthews, and McCormick's CSO, Michael Okoroafor, the panel explored how nature can inspire sustainable innovation.
3. **Debate:** Led by *New York Times* President, International, Stephen Dunbar-Johnson, this session challenged participants to question their assumptions, combining intellectual rigor with emotional depth.

Key insights from the CSO Summit

- **Technology & Biodiversity:** Technology is crucial for reducing environmental impact and regenerating ecosystems through resource mapping and optimization.
- **Circular Economy:** There is a need to move from a linear economy to a circular economy, where every stage of the product lifecycle is designed to minimize resource extraction and promote regeneration.
- **Cross-Sector Collaboration:** Lasting change is only possible when industries work together.
- **Data & Transparency:** Progress depends on greater data transparency. By collecting accurate, transparent data, we can measure the impact of our actions and set clear, achievable targets.

90+

ATTENDEES FROM MULTIPLE COUNTRIES, REPRESENTING DIVERSE SECTORS AND INDUSTRIES INCLUDING: MANUFACTURING, COSMETICS, FOOD & BEVERAGE, FINANCE, PHARMACEUTICAL, CHEMICALS, CONSTRUCTION, TECHNOLOGY AND CONSULTING

Discover a video snapshot of the CSO Summit

WIN INitiatives: empowering women's careers

We demonstrate our commitment to female employees through 3DS WIN (Women's INitiative). Driven by a dedicated team, including contributors from Human Resources and Internal Communications, this program unites a network for all employees passionate about fostering and inspiring growth and development of women at Dassault Systèmes.

STEM careers drive innovation and solve global challenges, yet women remain underrepresented in these fields. Dassault Systèmes is dedicated to closing this gap. Through initiatives like 3DS WIN, Girls' Day and programs to develop inclusive leadership skills for future managers, we support equal opportunities and inspire the next generation to create a more inclusive future in STEM.

Studies show that girls lose interest in STEM subjects as young as age 11, often due to societal stereotypes and a lack of role models. In higher education, women account for less than 35% of STEM students worldwide, with fields like computer science and engineering seeing even lower participation rates. Without targeted efforts, this gender gap risks widening further, limiting diverse

Disclaimer: The actions and programs described in this section relate to the year 2024 and are applicable only to the extent permissible under local and national regulations. They are reviewed annually and can be adjusted, when necessary, in line with developments in the legal framework around the world, for example in the United States.

perspectives shaping innovation and technological advancements. Dassault Systèmes proudly and actively promotes STEM both internally and externally to inspire young girls to envision themselves in these future-focused careers. We launched several new initiatives in 2024 to further our efforts in sharing our careers and inspiring young girls to explore opportunities in STEM.

Coding for the Future – Empowering Young Girls in STEM in Europe

The Coding for the Future program reached 175 girls across 8 cities in Europe with one mission: making tech careers less intimidating!

- In France, we welcomed 105 girls (ages 7-15) to our Vélizy Campus, where they explored coding and generative AI, then pitched their innovative projects to their parents.
- In Germany and Poland, 70 participants embraced the basics of coding through workshops conducted in Aachen, Berlin, Darmstadt, Kraków, Munich and Stuttgart. The event was a resounding success, with participants expressing their excitement about coding. Many were pleasantly surprised to discover how creative coding can be, allowing them to express their ideas and build unique projects. The positive feedback we received highlighted not only their newfound interest in technology but also the importance of providing opportunities to expose girls to STEM fields.

These events are more than workshops: they are moments of empowerment. By demystifying technology and showcasing the possibilities in STEM, we continue to inspire the next generation of talent.

WIN Iberia

Fostering inclusion is a cornerstone of Dassault Systèmes' commitment. We recognize that creating an environment where everyone can thrive requires collaboration, passion and shared efforts. That's why we launched WIN Iberia: an extension of our global Women's INitiative Network. WIN Iberia was created to connect and empower colleagues across our locations in Barcelona, Madrid and Valencia by providing a platform to drive meaningful initiatives around inclusion. By hosting hybrid events like our recent launch in Madrid, we're bringing people together both in-person and online to share ideas, build relationships and create impactful change. And we're just getting started: WIN Iberia is designed to grow and evolve with employees' inputs, ensuring it reflects the needs and ambitions of our local team.

175

YOUNG GIRLS IN 8 CITIES IN EUROPE BENEFITED FROM OUR NEW INITIATIVE: CODING FOR THE FUTURE

Celebrating human mobility

The essence of innovation lies in its ability to enhance human experience. That was the central theme of the most recent Act in our "The Only Progress is Human" campaign that focused on inclusive mobility. Through this initiative, we reaffirmed our commitment to shaping a world where technology is a conduit for human progress, paving the way for a society that is accessible and inclusive to all.

"Everyone, regardless of their physical abilities, possesses the capability to achieve their goals. We're so proud of our employee, Kazuhiko Kanno, for his record-setting achievement. It represents more than just speed and endurance – it displays his incredible strength and skills. Initiatives like The Only Progress is Human showcase the capabilities of the human spirit as well as shed light on the role of virtual twin experiences in facilitating new mobility solutions for a more inclusive and accessible world."

Victoire de Margerie, Vice-President, Corporate Equity, Marketing & Communications, Dassault Systèmes

At the age of 22, Kanno Kazuhiko experienced a life-changing accident that severely injured his cervical vertebrae, resulting in quadriplegia. Despite this devastating injury, Kanno's story is one of perseverance and triumph. He's become an accomplished paracyclist, and on October 3, 2024, Kanno, also a dedicated Dassault Systèmes employee, set a new GUINNESS WORLD RECORDS™ for the farthest distance covered by handcycle in one hour: 28.331 km (17.6 miles).

To honor Kanno's achievement and celebrate the synergy between human resilience and innovative technologies, we hosted a **Mobility Night Ride**. 3,000 people came together in the heart of Paris for an 11 km (6.8 mile) cycling and roller-skating party that traveled along iconic sights to celebrate the power of technology as a tool for empowerment and demonstrate what a city can look like if barriers to mobility for inhabitants and visitors are removed. The Mobility Act represents the latest milestone in our mission to demonstrate that the only progress is human. This campaign underscores our passion to show how virtual twin experiences can drive sustainable innovations to address the world's greatest societal challenges. It reflects our unwavering commitment to advancing the human experience, emphasizing the dynamic connection between technology and the resilience of the human spirit. And it was even more special because we were able to honor one of our own employees! Kanno's journey is about more than personal triumph; it's also about raising awareness and advocating for systemic change in transportation and mobility solutions. Through his dedication, he has become a beacon of hope and a driving force for inclusivity, challenging us to rethink our approach and to design solutions that meet diverse needs.

Kanno's story also highlights also highlights the critical role of virtual twin technologies in developing both more inclusive technologies and more accessible urban environments. These are among the critical elements integral to shaping a future where mobility is a right for everyone, regardless of their physical ability. Kanno's presence at the event symbolized the essence of our campaign, that progress is not measured by technological advancements but by the positive impact on human life.

Initiatives like this allow us to demonstrate how virtual twins and the **3D**EXPERIENCE platform empower innovators to create products and services that improve people's and their communities' lives. We're proud to champion a world where technology and humanity progress go hand in hand, rooted in our belief that genuine progress is measured by the betterment of human life. And we're thrilled when we can show off the many talents of our employees around the world!

Discover more about our Act for Inclusive Mobility

In the **VIRTUAL WORLD,**
students, educators, researchers, nonprofits and others have unique opportunities to explore areas of interest and make new discoveries, expanding their minds through exposure to new ideas, skills and perspectives...

... enhancing **REAL LIFE**
by introducing the next generation to new ways of thinking and learning, and acquiring the skills necessary for the jobs of the future.

The way people think, design, produce and consume is rapidly changing. This shift impacts every industry and creates demand for a skilled, collaborative workforce to develop sustainable, innovative solutions. Because we deeply believe in the virtual world's potential to improve the real world, we offer programs to empower individuals through technology and education. Our **3D**EXPERIENCE Lab accelerates startups tackling global challenges. **3D**EXPERIENCE Edu promotes experiential learning for evolving skills. La Fondation Dassault Systèmes provides grants to inspire young people in STEM and fosters innovation in education, research and cultural heritage. Through each initiative, we partner with trusted organizations to offer technology and mentoring to help address global challenges with a science-based approach. These efforts showcase our commitment to empowering visionary thinkers and planting seeds for a sustainable, impactful future.

Preparing engineering students through experiential learning

Industry and academia face a persistent skills gap. **3DEXPERIENCE** Edu empowers educators with the tools to prepare students for real-world systems engineering challenges.

3DEXPERIENCE® Edu

Systems are becoming smarter, more connected and increasingly autonomous, resulting in products and ecosystems of unprecedented complexity – systems that call for enhanced development methodologies because they blend mechanics, electronics, software and sustainability requirements.

Modern engineering requires a systems thinking approach due to the increasing complexity and the global collaboration it requires. Employees need to have skills to tackle complex challenges in modern engineering along with training on how to collaboratively work on shared projects in virtual environments.

The future of engineering

Systems Engineering (SE) is the approach taken by most leading businesses for tackling these technical, economic and environmental complexities. SE acts as a framework that integrates various disciplines, ensuring cohesive functionality across all components. As SE becomes the norm for tackling modern challenges, it requires digital transformation. This is where Model-Based Systems Engineering (MBSE) comes in, using digital models instead of traditional documents to enhance collaboration, efficiency and clarity.

However, for both SE and MBSE, there's far more need today than there are qualified professionals – and it's a gap that continues to widen.

A new paradigm in classrooms

Consistent, open dialogue between industry and academia helps identify key skills shortages. When organizations work together to identify needs and then build a learning path, there's far-ranging benefits: businesses get the types of workers they need and employees are armed with specific marketable skills and mindsets.

Unfortunately, as SE and MBSE develop, not all faculty know how to teach about these approaches. The field involves a steep learning curve, requiring deep industry knowledge and advanced tools. This is where our **3DEXPERIENCE Edu** team comes in. Their "Education Experience" offer provides academics with innovative and practical teaching methods to fully integrate SE and MBSE lessons into their curriculum: ready-to-use content, templates and interactive courses for streamlined teaching and flexibility. Students are empowered by learning tools like CATIA and the **3DEXPERIENCE** platform that are used by a wide range of leading companies of all sizes, helping them on their path to become skilled systems engineers and valuable employees.

Explore 3DEXPERIENCE Edu

Limitless innovation on the **3D**EXPERIENCE platform

Bright young engineers working on innovative projects often are increasingly turning to the **3D**EXPERIENCE platform to realize and explore their ideas. The opportunities are limitless. Projects range from assistive technology enabling mobility-impaired dancers to express themselves artistically to sustainable propulsion systems powering marine vehicles.

WHEEL-E

Valentin Pierrat, a young industrial engineer, has successfully combined his passion for innovation, engineering skills and a strong desire to make positive impact in the world. While studying to obtain his master's degree in Industry 4.0 Engineering at France's *École supérieure d'ingénieurs Léonard-de-Vinci* (ESILV), Valentin embarked on an ambitious project after meeting a woman named Gladys during his internship at *Laboratoire d'Ingénierie des Systèmes de Versailles* (LISV).

Gladys, a passionate dancer, has been practicing her art for several years with her dance company Tatoo. Despite having lost her mobility as the result of an accident, Gladys was looking for a way to create new movements while avoiding chronic pains. It was thanks to this encounter that **WHEEL-E,** an electrical motorization solution, came to life. This is where the **3D**EXPERIENCE platform came into play. The advanced product modeling and simulation of the platform was a valuable tool, enabling Valentin to design the device, plan the development stages and facilitate collaboration with other project stakeholders. The **3D**EXPERIENCE platform was a valuable tool in turning the idea into reality.

Read more about WHEEL-E

Hydro Motion

The maritime industry, which still relies heavily on fossil fuels, faces increasing pressure to decarbonize. The 2024 TU Delft **Hydro Motion** Team believes a successful transition will entail multi-fuel solutions, with particular interest in the potential of hydrogen. Made up of 23 talented engineering students, the 2024 TU Delft Hydro Motion Team pushed the boundaries of maritime innovation. The team's objective: to be the first in the world to sail a fully hydrogen-powered foiling boat across the North Sea. By combining hydrogen fuel with innovative hydrofoiling technology, the Hydro Motion Team crafted a vessel capable of flying above the water at high speeds. Working with Dassault Systèmes' portfolio of design and engineering solutions within the **3D**EXPERIENCE platform, the engineering students gained the opportunity to refine their skills. Handling the entire design cycle from concept to completion within the cloud-based platform, the Team learned to anticipate risks. As the 2024 TU Delft Hydro Motion team prepared for its historical challenge across the North Sea, the students were well aware of the potential impact of their work to help prove that hydrogen can be a viable, sustainable fuel source for the maritime industry.

Read more about the Hydro Motion Team

The **3DEXPERIENCE** Lab at a glance

The **3DEXPERIENCE** Lab is Dassault Systèmes' innovation laboratory, supporting startups and disruptive innovations that create positive impact and tackle industrial global challenges.

The **3DEXPERIENCE** Lab's mission is to nurture and accelerate collaborative, community-driven projects. We fast-track innovations that disrupt the status quo to positively impact people and society. We achieve this by leveraging collective intelligence and empowering talented individuals who aspire to change the world, using Dassault Systèmes solutions.

Twice a year, the **3DEXPERIENCE** Lab organizes pitch sessions where five to six startups present their projects. A panel of Dassault Systèmes executives then selects the startups that will join the **3DEXPERIENCE** Lab accelerator program.

The accelerator program enables start-ups to gain access to:

- The **3DEXPERIENCE** platform and all Dassault Systèmes' software
- A group of mentors with a huge, deep and diverse expertise across our 12 industries and 12 product brands
- Dedicated marketing and communication support
- A FabLab with prototyping facilities

All of this for two years, completely free – no fees, no IP claims and zero equity taken.

Startups supported by the Lab

Pacify Medical

Pacify Medical (India) has developed a technology to spray skin tissue on large wounds, such as severe burns, promoting rapid healing and reducing treatment time. Collaboration with Dassault Systèmes helps optimize this development process.

Denovicon Therapeutics

This US-based startup revolutionizes drug discovery with its AI-powered drug discovery platform that's capable of evaluating billions of molecules rapidly. This reduces the time and costs associated with traditional methods, accelerating the development of treatments for diseases such as cancer and heart disease.

Mitico

Mitico (US) provides affordable carbon capture technology to help industries cut emissions. By simplifying and lowering costs, Mitico turns carbon neutrality into a financial opportunity. Their technology is designed to be simple, cost-effective and eco-friendly, enabling even hard-to-decarbonize industries to achieve carbon neutrality.

Strong by Form

Strong by Form (Germany) develops Woodflow, a technology that merges wood and composites to create durable and high-performance construction materials. This innovation aims to replace traditional materials like steel and concrete while enabling complex architectural designs.

Supporting positive impact projects

In pursuit of its mission to ensure a sustainable future for the world, La Fondation Dassault Systèmes supports many projects in the fields of education, research and heritage.

DASSAULT SYSTEMES
La Fondation

In today's world, water is both precious and feared

While more than 2 billion people are living under water stress and 3.6 billion face inadequate access to water, 42% of household wastewater is not treated properly, damaging ecosystems and human health. Water supply is also heavily impacted by the consequences of climate change and disasters around the world, from floods to heatwaves to wildfires; its proper and sustainable management is, however, central to help society adapt to climate change, build resilience, protect health and save lives. It also mitigates climate change itself by protecting ecosystems and reducing carbon emissions from water and sanitation transportation and treatment.

MORE THAN
2 billion
PEOPLE ARE LIVING
UNDER WATER STRESS

Water Research Lab

La Fondation Dassault Systèmes supports projects that seek to better understand water-related challenges and find sustainable solutions. One of them is the BMS College of Engineering Water Research Lab in Bangalore. Established in 2022 with the support of La Fondation Dassault Systèmes in India, the Water Research Lab conducts a number of research and consultancy projects that provide scientific, technological and sustainable solutions to challenges related to water resources management.
The Water Research Lab's ambition is to become a center of quality for higher education in this field, creating a learning curriculum for students and practicing engineers, to train them in water management using virtual reality, 3D and simulation technologies. One of their current projects involves the creation of interactive learning content on flood forecasting, risk mapping and mitigation. The goal is to enable future civil engineers to design hydraulic structures more efficiently and implement appropriate mitigation strategies to assist city planners in delineating flood-prone areas, by simulating dam breaches, for example.

Read more about the Water Research Lab

US | AIDFab Clarkson University

The Assistive and Intelligent Device Fabrication (AIDFab) facility at New York's Clarkson University, supported by La Fondation Dassault Systèmes, focuses on creating intelligent assistive devices to enable senior citizens to live safely and independently at home. Led by Professors Michael Bazzocchi and Marcias Martinez, the lab leverages robotics, intelligent systems and advanced manufacturing for this purpose. AIDFab cultivates a hands-on, interdisciplinary educational approach, uniting students from engineering and occupational therapy with community stakeholders to develop user-centered and technologically advanced solutions.

India | Sea Shore Temple

La Fondation Dassault Systèmes supported the Parametric Modeling of the Sea Shore Temple project leveraging 3D technology and virtual universes to transform the way we preserve heritage. The objective of this project is to capitalize on ancient wisdom about temple construction with modern cutting-edge 3D design and manufacturing methods to pave the way for future digitalization projects. By creating an immersive experience of the virtual twin of the temple, Indian artisans and students will learn how to efficiently and productively design, build and validate using the traditional knowledge passed through centuries and safeguard it for future generations.

Europe | Cordées de la réussite – Mission océan

A device of the French Ministry of National Education and Youth, the "Cordées de la réussite" helps fight against self-censorship and raise students' academic ambitions. In March 2024 as part of the Cordées de la réussite – Mission océan program, La Fondation Dassault Systèmes organized an inspiring day where more than 110 middle and high school students living in isolated rural areas and their teachers visited our Vélizy headquarters. They participated in workshops to explore the world of virtual twin technology and met with passionate volunteers to learn about the diversity of jobs within an international scientific company. The day opened up new career perspectives for these students.

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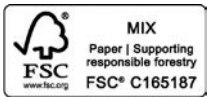

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