

MODEL THE SUSTAINABLE PLANET WITH GEOVIA





GEOVIA: MODEL THE SUSTAINABLE PLANET





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GEOVIA AT ITS CORE

Value Proposal	Domains & Disciplines	Users	Industries
SUSTAINABLE RESOURCES Discover, define, reveal, and reuse natural resources	GEOSCIENCES Model, simulate and monitor the natural world Discipline: Geology	GEOSCIENTISTS	INFRASTRUCTURE, ENERGY & MATERIALS
SUSTAINABLE ENVIRONMENT Conserve and improve the environment we live in	EARTH ENGINEERING Sustainably design and manage industrial projects that impact the Earth Disciplines: Earth Design Earth Resources Management	EARTH ENGINEERS	CITES & PUBLIC SERVICES
SUSTAINABLE LIFESTYLES Reveal urban ecosystems for inclusive governance	URBAN ENVIRONMENT Plan, simulate and monitor the urban and supporting landscapes Disciplines: Urban Planning	URBAN PLANNERS & CITIZENS	ARCHITECTURE, ENGINEERING & CONSTRUCTION

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GEOVIA TRANSFORMATION JOURNEY



1985

GEMCOM Software International was founded in 1985 and became a leader in the mining software industry, accumulating more than 25 years of expertise when Dassault Systèmes acquired it in 2012.

S GEOVIA

2012

Dassault Systèmes acquired privately held GEMCOM Software International and launched the GEOVIA brand with an initial focus on the natural resources market. GEOVIA remains one of the Geology and Mine Planning software market leaders, with an estimated 17,000 users worldwide.

1997-2006

GEMCOM Software International purchased various mining software companies and strengthened its position as a market leader in the Geology and Mine Planning software industry. Surpac, GEMS, Whittle and Minex are among the first generation of mining software widely used worldwide.



2023

Driven by the promise of modeling the sustainable planet, GEOVIA continues its transformation journey by releasing its first solutions in the **3D**EXPERIENCE platform.







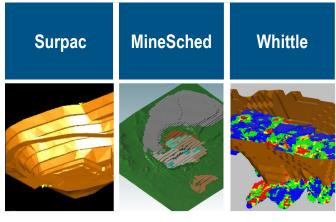




FROM DESKTOP TO THE 3DEXPERIENCE PLATFORM

GEOVIA is advancing its transformation and redefining its portfolio on **3D**EXPERIENCE by building a similar range of capabilities found in its flagship solutions: Surpac, MineSched and Whittle.

GEOVIA Flagship solutions include:



Integrated geology and resource modeling with mine planning and production Tactical mine planning Strategic mine planning and scheduling **3D**EXPERIENCE GEOVIA's unique collaborative solutions include capabilities in the disciplines of:

Geology	Earth Design	Earth Resources Management	Urban Planning
Model, simulate and monitor the natural world	Maximize mining production capacity and optimize Net Present Value	Production management and continuous optimization to deliver higher predictability and better efficiencies and	Plan, simulate and monitor the urban landscape and supporting territories

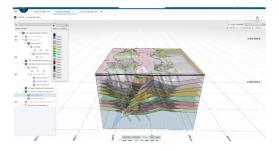
peak financial performance

SUPPORTING THE MINING INDUSTRY IN THE SHIFT TOWARDS A NET-ZERO ECONOMY

The shift towards a net-zero economy places a significant reliance on the metals & mining sector, elevating its role as a key driver in the energy transition



GEOVIA is advancing its transformation by redefining its portfolio on the **3D**EXPERIENCE while serving 70% of the top 40 global mining companies*





Scan or click on the code for



WHY THE 3DEXPERIENCE PLATFORM?

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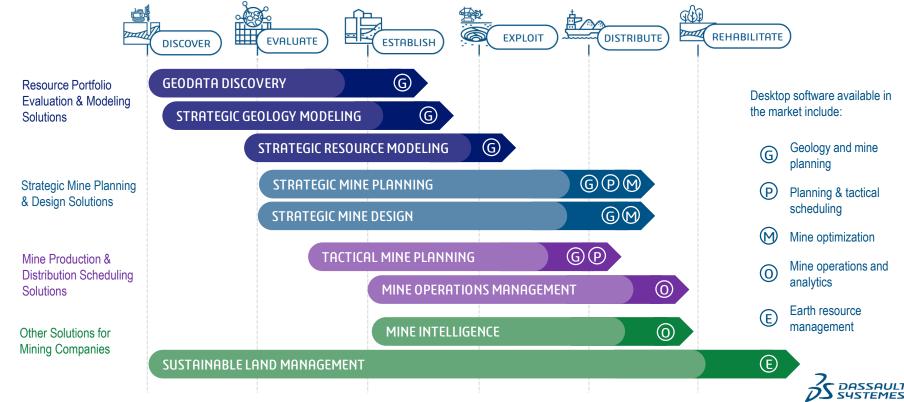


GEOVIA SOLUTIONS BY INDUSTRY: INFRASTRUCTURE, ENERGY & MATERIALS



GEOVIA SOLUTIONS FOR THE IE&M INDUSTRY

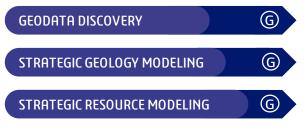
Industry Process Experiences optimize efficiency, compliance, and collaboration across the mining value chain while integrating with the most popular desktop software available in the market



RESOURCE PORTFOLIO EVALUATION & MODELING



Assess and manage the Earth's mineral resources sustainably through accurate resource definition, permitting better-informed exploitation decisions







GEODATA DISCOVERY

Discover and reveal your exploration geoscience data assets to improve geoscience and engineering downstream processes

HIGHLIGHTS

- Import and manage geoscience data in a cohesive environment
- Federate and apply semantics to enrich the data used throughout downstream processes
- Control permissions and access to data and visualize it in a single environment that can be shared to the right stakeholders at the right time
- Plan campaigns to collect additional data to enrich the understanding of the Earth's properties and automate the collection and management of this understanding for rapid analyses.



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STRATEGIC GEOLOGY MODELING

Rapidly generate 3D geological models of the subsurface environment with the ability to test multiple hypotheses

HIGHLIGHTS

- Automate and accelerate the data consumption and geological modeling process
- Generate consistent, 3D geological models based on geoscientific best practice
- Ingest and use datasets that have been submitted through machine learning process for borehole interpretation
- Facilitate data interrogation and scenarios analysis in order to test geological hypothesis.

PROCESS OVERVIEW









STRATEGIC RESOURCE MODELING

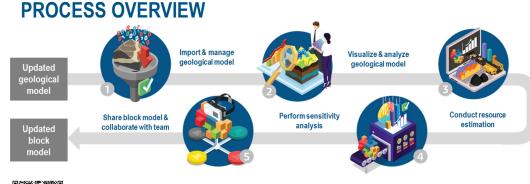
Create and validate resource models from geological data to reduce risks associated with economic evaluation

HIGHLIGHTS

- Automate and accelerate the data consumption and resource modeling process
- Generate consistent, 3D resource models based on geoscientific best practice
- Facilitate data consumption, modeling and interrogation to test geological hypothesis
- Conduct a resource evaluation and risks assessment, based on sensitivity analysis

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STRATEGIC MINE PLANNING & DESIGN



Maximize mine profitability with a safe and sustainable design strategy





Scan or click on the code for more details



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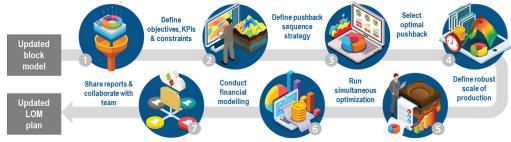
STRATEGIC MINE PLANNING

Create the most economically feasible and robust strategic mine plans for surface and underground mining

HIGHLIGHTS

- Available for open pit, underground and caving operations
- Automate the simulation, optimization and evaluation of strategic planning scenarios
- Enable strategic decision-making through developing a robust business and operational plan
- De-risk mining operations by simulating and incorporating the expected market volatility
- Maximize shareholder value while sustainably optimizing operational constraints.

PROCESS OVERVIEW FOR OPEN PIT OPERATIONS*



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* Strategic Mine Planning is also available for underground and caving operations

STRATEGIC MINE DESIGN

Design the safest and most efficient surface and underground mines and associated infrastructure that meet operational and environmental specifications

HIGHLIGHTS

- Automate and accelerate the data consumption and mine design process
- Generate consistent, 3D mine design models for underground and caving operations
- Incorporate critical design parameters to enable efficient and safe operations
- Facilitate data interrogation and scenarios analysis in order to test mining hypothesis

PROCESS OVERVIEW





Scan or click on the code for more details



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MINE PRODUCTION & DISTRIBUTION SCHEDULING



Monitor all mine activities in realtime to improve visibility, control and synchronization of mine production







TACTICAL MINE PLANNING

Create practical and executable tactical mine plans for surface and underground mining

HIGHLIGHTS

- Available for open pit, underground and caving
- Capitalize on the long-term life-of-mine plan to generate a tactical short-term plan
- Analyze critical operational constraints to enable efficient and safe operations
- De-risk end-to-end supply-chain planning by simulating and optimizing 'what-if' scenarios
- Propagate supply-chain deviations in real-time to support strategic decision making.

PROCESS OVERVIEW





Scan or click on the code for more details

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MINE OPERATIONS MANAGEMENT

Real-time monitoring for all mining activities, improving visibility, control and synchronization of mine production

HIGHLIGHTS

- Centralize and validate end-to-end production data to provide real-time visibility on strategic KPIs
- Manage production down to the shift level and propagate and track work orders in real-time
- Maximize equipment utilization through real-time performance monitoring and preventive maintenance
- Anticipate and mitigate deviations from plans through advanced variance and material balance analysis

PROCESS OVERVIEW



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OTHER SOLUTIONS FOR MINING COMPANIES



GEOVIA is driven by a vision to model a sustainable future where technology, knowledge and know how play a crucial role in promoting responsible natural resources management

MINE INTELLIGENCE

 SUSTAINABLE LAND MANAGEMENT



MINING INTELLIGENCE

Drive your business forward with advanced analytics for the mining industry

HIGHLIGHTS

Provide mining professionals with an inclusive, real-time vision of their data, with the significant bonus of being able to use their specialized knowledge and expertise — in exploration, geology, and production — to adopt and customize advanced-analytics programs that will use all their collected data to reveal fresh insights, make better informed decisions and measure new possibilities.

PROCESS OVERVIEW

- 1. Identify your issues
- 2. Collect, store, and integrate your data
- 3. Analyze your data/define your dashboards
- 4. Publish your data
- 5. Share your data







SUSTAINABLE LAND MANAGEMENT

A governing system for your virtual twin of sustainable data enabling users with digital continuity between immersive visualization, advanced analytics and governance

HIGHLIGHTS

- Measure & Track: key indicators for regulatory, social and environmental targets in a 360° view
- Live & Actionable Metrics: identify opportunities, increase performance and mitigate risks
- Drive Data-based Decisions: govern real-time data from secure and centralized single source of 'connected data'
- **Governance:** embedded throughout operational workflows for responsible and sustainable growth for all stakeholders

PROCESS OVERVIEW

- 1. Permit Governance
- 2. Environmental Stewardship
- 3. Social Value & Compliance



Click to watch the video



IE&M CUSTOMER STORIES: CEMENTOS ARGOS



CEMENTOS ARGOS

Colombia-based Cementos Argos is a multi-national leader in the cement and concrete markets. The company chose GEOVIA mining software to help meet its sustainability goals, grow the business and generate social value. Visit the page for more information.

Cementos Argos uses GEOVIA solutions to evolve and implement geology and mining techniques and procedures to model their deposits, and strategically plan their operations, which has helped them to meet production goals, and increase savings in **more than 10%** on the cost per tonne put into crushing.



Scan or click on the code for more details For Cementos Argos it's essential to operate in a sustainable manner because we are convinced that this is the right way to generate social value, be profitable and reduce the environmental impact, both from the environmental and community components. Dassault Systèmes has been our strategic partner as we continue to grow together in a sustainable and responsible way in the cement industry.



Javier BUITRAGO Mining Projects Manager Cementos Argos



GEOVIA SOLUTIONS BY INDUSTRY: CITIES & PUBLIC SERVICES



URBAN TRANSFORMATION



Leverage 3D virtual twins to design urban transformations and simulate their impact

URBAN REFERENTIAL MANAGEMENT

URBAN PLAN ELABORATION

URBAN PROJECT COORDINATION



Scan or click on the code for more details



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URBAN REFERENTIAL MANAGEMENT

Build, maintain and share geospatial data referential

HIGHLIGHTS

- Manage a common data referential for the whole city ecosystem
- Ensure geospatial data sharing across organizations
- Rely on 3D virtual twins to support effective collaboration, decision-making, communication towards stakeholders.

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URBAN PLAN ELABORATION

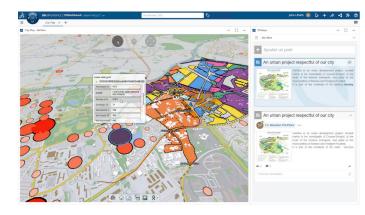
Perform collaborative and integrated urban planning to foster sustainable development

HIGHLIGHTS

- Enable cities to deliver strategic plans by performing precise analysis of the territory, in a holistic approach, linking different urban data systems
- Allow planning teams to share competencies and elaborate cross-discipline strategies.

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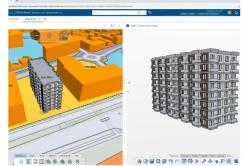
URBAN PROJECT COORDINATION

A project coordinator that relies on the virtual twin ensures better strategic decisions for urban design

HIGHLIGHTS

- Provide an end-to-end solution for built environment project feasibility, implementation and coordination
- Share a data referential to coordinate construction projects with all stakeholders
- Make key decisions at early stages based on virtual twin experiences





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C&PS CUSTOMER STORIES: ECCUS



ECCUS

ECCUS' mission is to transfer industrial and storage facilities to underground spaces to free up land for nature or other human activities. The Swiss startup adopted the **3D**EXPERIENCE platform on cloud to support its vertically integrated product development cycle having all disciplines in one place.

With GEOVIA's Geology Modeler, ECCUS can create the model of the customer site, including terrain and GIS data, and easily determine where to place their product, ECO-Caverne[™], on a client site within a matter of hours.



Scan or click on the code for more details Our business is structured to scale up massively, so we also needed a system that would be manageable with a staff of three or 250 without necessitating any change of system down the road.



Andrew BOURGET Founder and CEO ECCUS







INTEGRATED BUILT ENVIRONMENT



Share trusted knowledge across projects and assets

BUILT ENVIRONMENT IN CONTEXT



Scan or click on the code for more details



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BUILT ENVIRONMENT IN CONTEXT

Bridges the gap between Geographic Information System (GIS) and Building Information Modeling (BIM) by leveraging the multi-scale referential of your asset

HIGHLIGHTS

- Aggregate all your GIS 2D and 3D information, from terrain to urban planning, to a single City referential
- Extract site information for design in context, leveraging GIS data in the BIM environment
- Add BIM models to the City Referential, providing a single entry point to all asset information in its context
- Explore BIM models in context, understand the impact of the asset in the surrounding elements and raise issues based on the findings
- Navigate directly to all the BIM detailed information from the City Referential
- Create BIM model simplification templates and launch batch simplifications to improve navigation performance for complex BIM models in the large scale referential

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GEOVIA SOLUTIONS BY DISCIPLINE: GEOLOGY

GEOLOGY APPLICATIONS

Discover and Model the surface and sub-surface geological environment

SUMMARY

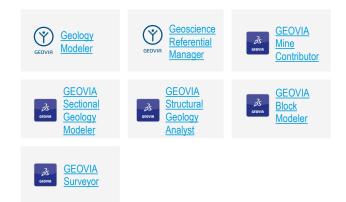
GEOVIA Geology solutions decreases mining and civil project risks by utilizing all available geoscientific data to create unified, robust geomodels at all stages of mine or civil project development leading to better investment decisions, predictable operations, and improved profitability. GEOVIA Geology solutions provides all the needed capabilities needed to discover and model the surface and sub-surface geological environment.

BENEFITS

- Leverage the tools to build, manage, share, and explore the virtual twin of the geological environment in order to improve planning, communication and decision making
- Improve confidence in model and estimation of resources
- Generate robust models for all stages of mine or civil project development
- Improve staffs productivity and agility
- Remove individual or silo risk points via 3DEXPERIENCE platform (collaborative environment) for integrated
- Conform to international reporting standards and to define "best practices" rules

HIGHLIGHT ROLES

Click on the GEOVIA icons for more details





GEOVIA SOLUTIONS BY DISCIPLINE: EARTH ENGINEERING

EARTH ENGINEERING APPLICATIONS

Sustainably plan, design and manage industrial projects that impact the Earth

SUMMARY

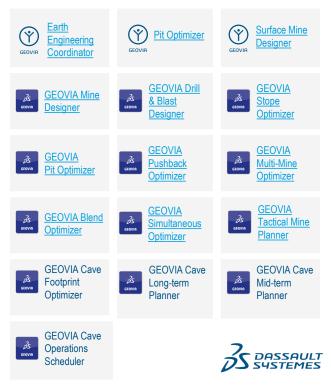
GEOVIA Earth Engineering solutions allows the strategic evaluation and design of new or existing mines and projects before investments are made. GEOVIA provides the capabilities to maximize profitability and gain greater confidence in the decisions you make. From a tactical perspective, GEOVIA Earth Engineering solutions bridges the gap between strategic, medium and short term planning by providing solutions to plan, design, manage and optimize mining operations.

BENEFITS

- · Determine strategies for improved cash flow and earlier capital payback.
- Reduce risk for large capital projects by evaluating multiple scenarios.
- Complete integration from Pre-Feasibility to Production Planning.
- Detect Constraints and Sensitivities under changing conditions.
- Develop robust mine plans with higher NPV in less time.
- Optimize all aspects from the Mine to the Plant.
- Leverage the tools to build, manage, share and explore the virtual twin of an urban environment, for improved planning, communications and decision making
- Collaborative outcome-based management of aligned activities linked to corporate objectives
- Remove individual or silo risk points via 3DEXPERIENCE platform (collaborative environment) for the Virtual Twin Experience of the mine
- · Link to execution systems that can adopt to disruptions

HIGHLIGHT ROLES

Click on the GEOVIA icons for more details



GEOVIA SOLUTIONS BY DISCIPLINE: URBAN ENVIRONMENT



URBAN PLANNING APPLICATIONS

Plan, simulate and monitor the urban landscape and supporting territories

SUMMARY

GEOVIA Urban Planning solutions enables users to create and collaborate over a virtual twin of the territory, breaking context silos while maintaining clarity on content access and responsibilities. From data set qualification and curation, to interactive collaboration in context, to simple navigations and reviews, GEOVIA solutions provides the full range of capabilities that support varied user profiles in the organization.

BENEFITS

- Best-in-class large-scale and hyper-realistic virtual twin of territory modeling and navigation, aggregating multi-disciplinary data
- Intuitive and interactive data visualization and exploration
- Integrated collaboration and project workflows to support social and formal collaborations in context

HIGHLIGHT ROLES

Click on the GEOVIA icons for more details





CUSTOMER STORIES: ZIJIN MINING



ZIJIN MINING

Zijin Mining Group is engaged in prospecting, exploration and mining of gold, copper and other mineral resources.

Zijin's team uses GEOVIA Surpac to solve complex ore body shapes enabling comparative studies and connection of the spatial morphology of geologic bodies (ore bodies) in three-dimensional space. GEOVIA Surpac provides the foundation for comprehensive mining information and is key for our digital transformation.



Yu BO Deputy General Manager ZIJIN MINING



Scan or click on the code for more details



MORE GEOVIA USER STORIES

Looking at the GEOVIA new tools coming out in the **3D**EXPERIENCE platform it's really great! I think the **3D**EXPERIENCE platform will provide a really good space for lots of different departments to collaborate.



Rebeca BARJA Senior Mining Engineer FIRST MAJESTIC SILVER

Watch it on LinkedIn

I've known Surpac since 2017. We use it for mine planning, block modeling as well as pit design. One thing I like about Surpac is that it's very easy to get on board, compared to other mining software, which requires a very steep learning curve.



Jay LI Senior Mining Engineer TETRA TECH CANADA

Watch it on LinkedIn



MORE GEOVIA USER STORIES

To see how cloud computing is being introduced as a solution it's revolutionary and is going to help mining companies in remote locations to model their full chain of production.



Ramon MENDONZA Principal Consultant ENTECH

Watch it on LinkedIn

I use GEOVIA products with my team to do production, mine planning, blast design, surveys, modeling, block modeling, production planning, all the facets of the mining cycle.



Gordana SLEPCEV COO LOMIKO METALS

Watch it on LinkedIn



MORE GEOVIA USER STORIES

The new components that Dassault Systèmes offers within their shared workspace really allows you to integrate more of the resources. So while I'm a geologist, not an engineer, you can easily learn to use a lot of the products aspects that are outside of your primary discipline. You have the ability to track the mining cycle.



Andy TENBRINK Senior Project Geologist RESPEC

Watch it on LinkedIn

Thanks to Dassault Systèmes' geologic mine software, Cementos Argos has been able to evolve and implement in the area of geology and mining, all the techniques and procedures that helped us model our deposits. Not only do we meet our production goals but we also have an increase in savings of more than 10% on the cost per tonne put into crushing.



Rogelio BARRIENTOS

Medium and Long Term Mine Planning Leader CEMENTOS ARGOS

Watch it on LinkedIn



GEOVIA CELEBRATES EARTH MONTH





Discover more on <u>GEOVIA.COM</u>





ABOUT DASSAULT SYSTÈMES



DASSAULT SYSTÈMES



A purpose-driven company

Combining Art, Science & Technology for a more sustainable world

20,000 passionate people

From 135 countries 180 sites One global R&D / 72 labs

15,000 partners

Software, Technology & Architecture Content & Online services Sales Consulting & System Integrators (C&SI) Education Research

Long-term driven

Majority shareholder control Revenue: €4,86 billions* Operating margin: 34,3%* *Figures as of FY 2021 / Non-IFRS

+300,000 customers

12 industries in 150 countries 29 million users Game-changing **3D**EXPERIENCE platform



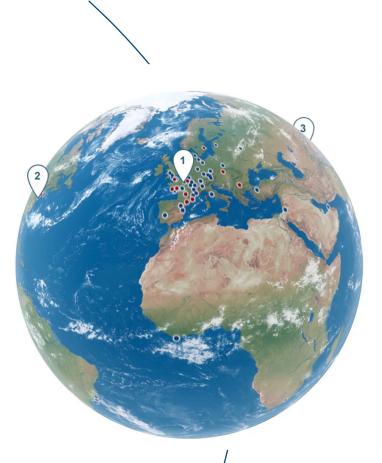
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OUR PRESENCE

HEADQUARTERS

- 1) Paris / WW & EMEAR
- 2 Boston / Americas
- 3) Shanghai / Asia & Oceania

- 72 R&D labs
- 180 3DS offices



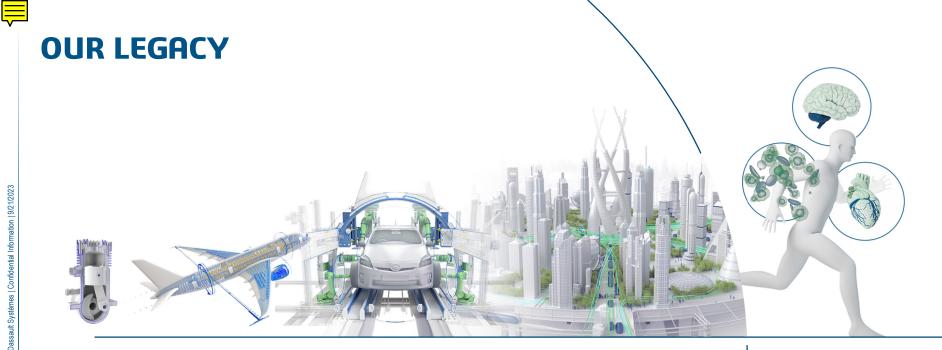


OUR BELIEF

Virtual worlds **extend** and **improve** the real world



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1981 3D Design

1989 **3D DMU** Digital Mock-up

1999 3D PLM **Product Lifecycle** Management



2012 **3D**EXPERIENCE[®] platform



2020 Virtual Twin Experience of Humans



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OUR PURPOSE

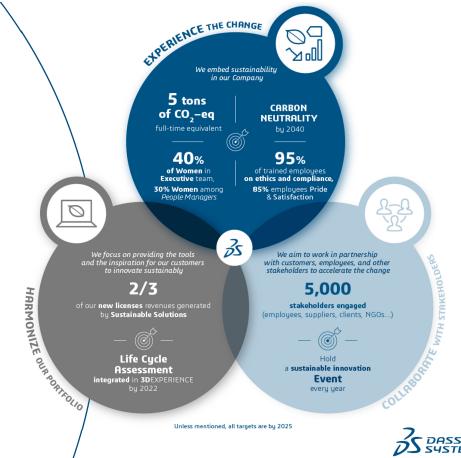
Dassault Systèmes provides business & people with **3D**EXPERIENCE[®] universes to imagine sustainable innovations capable of **harmonizing product**, **nature** and **life**.





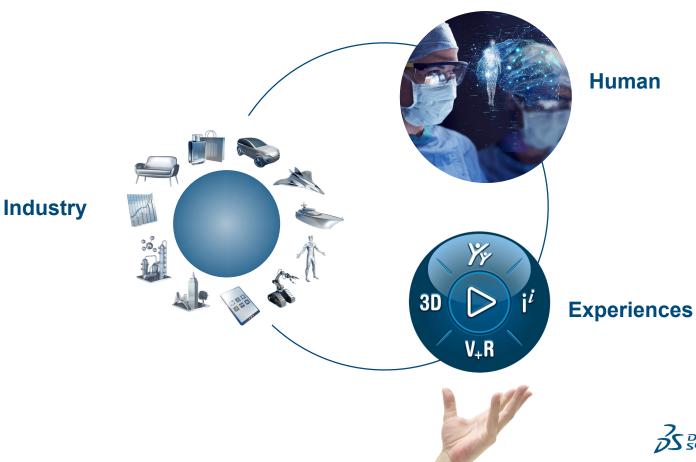
SUSTAINABILITY IS PART OF OUR DNA

Our Sustainability Compass guides us, while our governance processes maintain a high level of accountability within our organization on the topic of Sustainability.



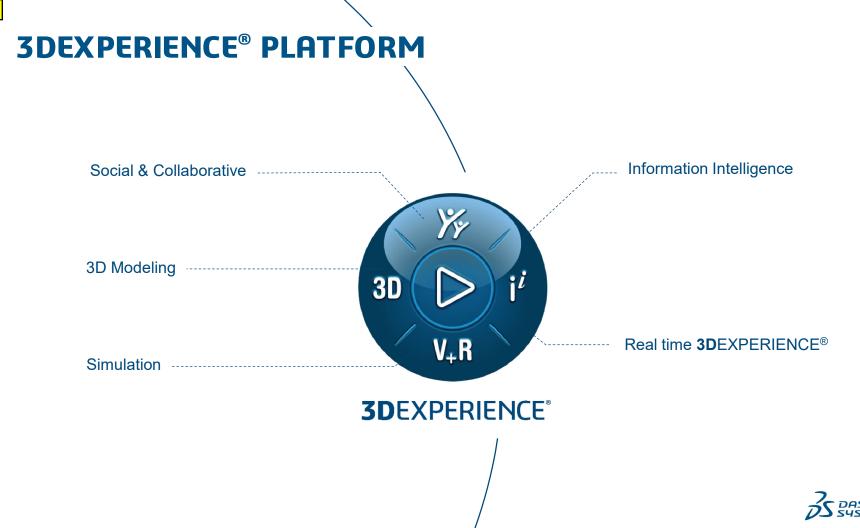
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OUR STRATEGY





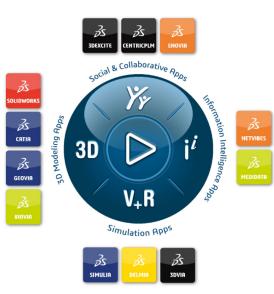




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3DEXPERIENCE® PLATFORM

powers our brand applications...



... for 12 industries





THE 3DEXPERIENCE® PLATFORM | A TWO-FOLD PLATFORM

as a System of Operations

Industry Solution Experiences



Industry Process Experiences

Roles & apps

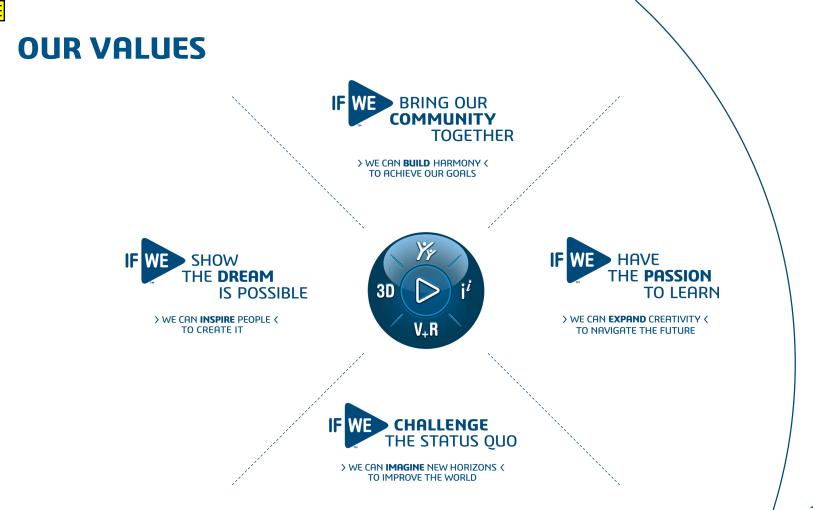






3DEXPERIENCE°





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Discover more on <u>3DS.COM</u>

