DASAN CONSULTANTS

Case Study

Photo courtesy of Dasan Consultants

Challenge

Korean civil engineering company Dasan Consultants wanted to grow its global business and become more competitive in an increasingly dynamic industry. To keep up with client and government expectations, it needed to embrace a 3D modeling design method for delivering fit-for-purpose designs that reduce unnecessary costs while guaranteeing quality, reliability and sustainability.

Solution

The Dassault Systèmes **3D**EXPERIENCE platform on the cloud and its Civil Infrastructure Engineering industry solution experience build the foundation for Dasan Consultants' new BIM design method with a centralized database to manage data and intellectual property, securely share information with all stakeholders and work with civil engineering companies worldwide.

Benefits

Engineers can instantly connect, communicate, and work productively from anywhere, as long as they have an internet connection. They can share their work in real time, collaborate on new ideas easily, access accurate data and engage all stakeholders to make truly informed decisions on complex projects.

"Through the **3D**EXPERIENCE platform, we hope to build a foundation for sustainable growth by putting customer value and quality first."

- Lee, Hae-Kyoung, CEO and Chairman, Dasan Consultants

TECH REVOLUTIONIZES CIVIL ENGINEERING

Smart construction technologies are being developed at pace in South Korea. It's all part of the government's plan to have a smart construction system in place by 2025 and for it to become automated by 2030. The initiative will see civil engineering and construction companies embrace cutting-edge technology such as cloud computing, building information modeling (BIM), the internet of things (IoT), big data, drones and robots to transform the way they handle construction projects.

Korean civil engineering company Dasan Consultants specializes in delivering planning, design and construction management services to the global transportation, land development, water resources, environment, energy and plant sectors. It prides itself on delivering the best engineering services and contributing to a better global society, and wanted to establish itself as a leader in the market by embracing a 3D modeling design method in line with the government's technology roadmap.

"Over the past few years, the civil engineering field has evolved extensively as cutting-edge technologies have been introduced under the influence of the fourth industrial revolution," said Lee, Hae-Kyoung, CEO and chairman at Dasan Consultants. "The extended use of BIM software has allowed us to obtain more accurate and quality results in the field of design and construction management. Cutting-edge technology plays a significant role in adding value to our clients by creating higher quality products."

Dasan Consultants is committed to improving its competitive edge by nurturing its people, developing new technologies and transforming its operations. In doing this, it aims to maximize value for its clients and deliver outstanding engineering services that propel the company to the highest ranks within the global engineering industry. The company believes that its decision to transition its design and engineering processes to the **3D**EXPERIENCE® platform from Dassault Systèmes is fundamental to delivering on this vision.

THE CLOUD FITS

In many ways, the **3D**EXPERIENCE platform on the cloud was a perfect fit for Dasan Consultants. The company had already been using Dassault Systèmes' design application CATIA to handle its design processes but wanted to build on its capabilities by adding collaboration tools too. Because of the nature of Dasan Consultants' operation, with workers spread across representative offices and domestic and overseas construction sites, a cloud implementation could maximize its ability, providing centralized data management, secure remote data access and the ability to collaborate on complex projects in real time—all without the need to invest in hardware.

"We decided to implement the **3D**EXPERIENCE platform on the cloud to solve the problem we had with our existing design method," said Bang, In-Mook, vice president at Dasan Consultants. "Unlike on-premise platforms, the cloud takes care of difficulties that small and medium-sized businesses face in terms of the outlay usually involved for deploying the servers and maintaining them. Our cloud-based installation lets users instantly connect, communicate, and work efficiently and productively from anywhere, as long as they have access to a PC with an internet connection." Lee said.

With the **3D**EXPERIENCE platform on the cloud, Dasan Consultants has the technology and tools in place to centralize its data management and approach new engineering projects with agility. It now has the capabilities to simulate comprehensive designs. 3D visualization ensures all stakeholders fully understand each project and, at the same time, engineers can develop a realistic plan to minimize waste as the project progresses.

ENHANCED 3D COLLABORATION

Dasan Consultants estimates that more than 90% of the civil engineering industry still designs in 2D. But it believes this method is outdated and causes a great deal of mistakes when exchanging information as well as wasting the government's civil engineering budget by creating errors.

"Since 2D drawings cannot be viewed in three dimensions, this often results in design errors, incoherence, interference and miscalculation between drawings," Bang said. "Therefore, changes in designs at any stage of the process often lengthen the construction period and drain budgets."

"Our cloud-based installation lets users instantly connect, communicate, work efficiently and productively from anywhere."

- Bang, In-Mook, Vice President, Dasan Consultants

It's why the company made the decision to use BIM to manage the Yangpyung-Icheon Expressway construction project.

"Recently, our company successfully completed the design for Yangpyung-Icheon Expressway using the **3D**EXPERIENCE platform, said Kim, Bong-Seok, director at Dasan Consultants. "This was the first time we used our new BIM design approach in a project. Our client recognized the excellent quality of the civil engineering design, enabled by the **3D**EXPERIENCE platform, and it meant that we were able to win the next project as well."

Using CATIA, Dasan Consultants can set up design templates that help to speed up design, reduce rework and retain knowledge. The company is also taking advantage of ENOVIA

to transform the way it handles large-scale constructions – projects that usually involve many stakeholders who need to collaborate, exchange data and make decisions on the fly. Now, designers can use 3D models to accurately convey their ideas and gain feedback from clients, who are able to visualize designs before making decisions. In parallel, the related experience and deliverables such as library, catalogs and templates are automatically stored in the **3D**EXPERIENCE platform as intellectual property.

"The **3D**EXPERIENCE platform allows designers to share their work in real time," Kim said. "The collaboration time between designers has been vastly reduced, enabling them to share demonstrations and feedback with clients instantly. Using 3D models, every stakeholder in a project, including our clients, designers and internal stakeholders, has a better understanding of what's going on at every stage, making work processes much faster."

Enhanced collaboration is helping the company to harness its own internal knowledge too and speed up construction time. It is using ENOVIA on the platform to gather and share information on past projects to reuse designs and project templates, develop best practices and help its newest designers and engineers get up to speed.

QUALITY WITHIN BUDGET

With all data now managed centrally within the **3D**EXPERIENCE platform, Dasan Consultants can easily handle the vast streams of information each civil engineering project generates.

"Real-time visibility has significantly improved, and our working environment and speed is better than before," Kim said. "Enhanced project visibility has resulted in improved performance and a faster return on investment."

The company is reducing costs and helping engineers to design within budget using the BIM design method to create a virtual 3D representation with all associated data."Due to the nature of civil engineering designs, we often see working budget overspend," Kim explained. "But enhanced project visibility with ENOVIA has enabled us to minimize design errors and ultimately improve productivity and reduce overall construction times, helping to keep costs down. Not only that, I must also highlight the significant improvements to our engineering quality we are now able to achieve."

DEVELOPING TOGETHER

Dasan Consultants worked closely with Dassault Systèmes and its business partner Rich & Time to make the technology platform implementation a success. Rich & Time provided comprehensive training on how to use the new platform and supported Dasan Consultants to enhance its consulting service. It now hopes to build on these relationships to bring further innovation to the civil engineering industry.

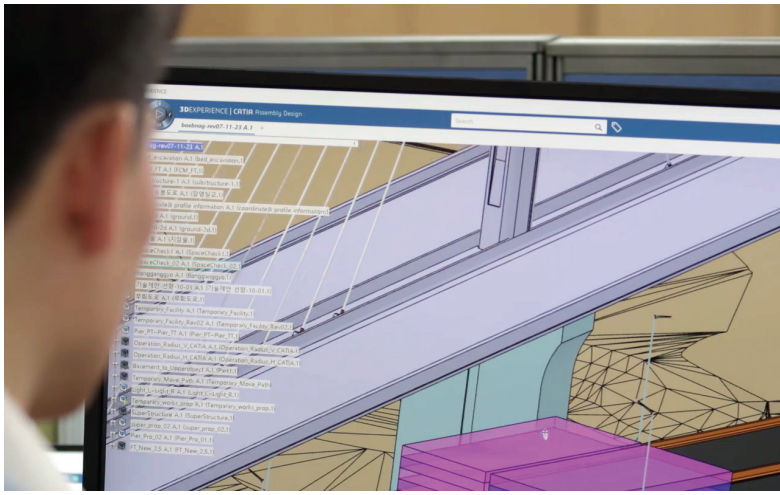
"Dassault Systèmes sells software to leading companies around the world and we appreciate their interest in Korea's civil engineering market," Bang said. "I hope that we can make further developments by listening to the ongoing needs of domestic civil engineers. Rich & Time, our deployment partner, also offered an endless amount of technological support throughout the implementation, as well as helping us with adaptations and training to use CATIA and the **3D**EXPERIENCE platform."

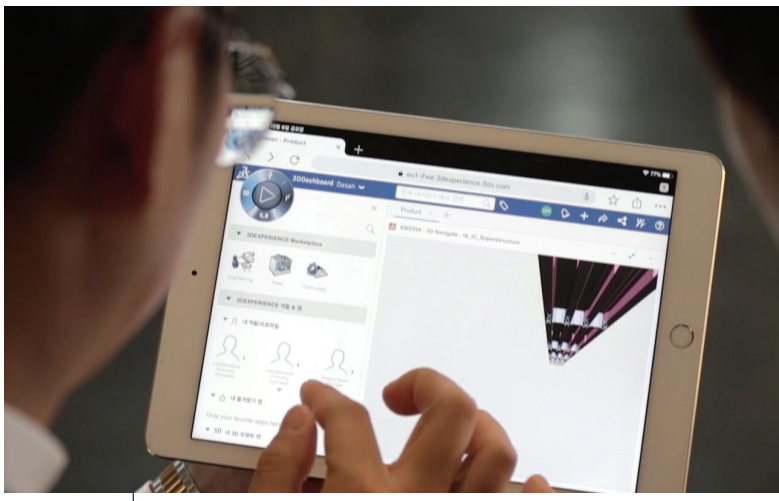
More about the solution

Civil Infrastructure Engineering helps civil engineers to accelerate and standardize the design and engineering process of transportation infrastructure, utilities and hydropower projects. The integrated online platform enables collaborative engineering supporting digital prototyping and real-time simulations on the virtual twin.

Benefits

- Saving time and optimizing resources by knowledge driven automation
- Improve design efficiency with design automation, enterprise templates and component libraries
- Minimize rework and waste
- Maximize stakeholder engagement with real time design review and collaboration
- Maximize value of design assets for owner





Top image: 3D model of Yangpyung-Icheon Expressway

Bottom image: The **3D**EXPERIENCE platform on cloud improves collaboration between all stakeholders - from anywhere and on any device.

Focus on Dasan Consultants

Dasan Consultants is a multidisciplinary engineering and consulting firm with Korean origins and a global footprint. The company provides planning, design, construction supervision and construction management services for facilities and infrastructure in the transportation, land, water, environment, energy and plant sectors. Its aim is to create the best engineering services that meet the precise needs of its clients and contribute to a better global society.

Products: Engineering services for transport, water and environment, urban development, energy and plant, and social development

Employees: 408 (April, 2020)

Headquarters: Gyeongsangbuk-do, Korea

For more information: www.dasan93.co.kr

Focus on Rich & Time

Rich & Time is a Korean IT SME that provides services in consulting, software sales and maintenance and O&M process simulation to various industries including manufacturing, finance and public agencies. As a partner of Dassault Systèmes, it supplies the **3D**EXPERIENCE platform, CATIA, DELMIA, SIMULIA, BIOVIA, product data management (PDM) and product lifecycle management (PLM) solutions.

For more information: http://www.rntime.com/

RICH & TIME Co., Ltd.

FUTURE GROWTH

Reputed as Korea's best civil engineering company, Dasan Consultants hopes to widen its global reach and build on its sustainability developments by continuing to invest in R&D on projects covering the road, transportation, LNG storage tanks and environmental plant sectors to name but a few. The company is now branching out into overseas markets by establishing new local subsidiaries, sharing its technologies with overseas governments and stakeholders, and engaging in social activities that help communities.

"Dasan Consultant's goal is to become a truly global company by actively pioneering overseas markets based on our outstanding competitiveness in the field of construction engineering in Korea," Lee said. "Through the **3D**EXPERIENCE platform, we hope to build a foundation for sustainable growth by putting client value and quality first.

Our **3D**EXPERIENCE® platform powers our brand applications, serving 11 industries, and provides a rich portfolio of industry solution experiences.

Dassault Systèmes, the **3D**EXPERIENCE Company, is a catalyst for human progress. We provide business and people with collaborative virtual environments to imagine sustainable innovations. By creating 'virtual experience twins' of the real world with our **3D**EXPERIENCE platform and applications, our customers push the boundaries of innovation, learning and production.

Dassault Systèmes' 20,000 employees are bringing value to more than 270,000 customers of all sizes, in all industries, in more than 140 countries. For more information, visit **www.3ds.com**.

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

Americas
Dassault Systèmes
175 Wyman Street
Waltham, Massachusetts
02451-1223
USA

Europe/Middle East/Africa
Dassault Systèmes
10, rue Marcel Dassault
CS 40501
78946 Vélizy-Villacoublay Cedex
France

Asia-Pacific
Dassault Systèmes K.K.
ThinkPark Tower
2-1-1 Osaki, Shinagawa-ku,
Tokyo 141-6020
Japan