

A hand holding a pencil points towards a donut chart on a document. The document also features a bar chart and a pie chart. In the background, a laptop keyboard is visible.

Building an

innovative data platform

for Autodesk

Donut Chart



Pie Chart



Globant >

AUTODESK

Introduction

With more than 100 products in its software portfolio, Autodesk provides solutions for infrastructure, construction, and building design. Autodesk's software, such as AutoCAD, is used by over 100 million people around the world and the company is constantly working on new innovative tools to meet the demands of the construction industry.

Technology, and in particular construction management software, is playing an ever greater

role in improving how construction companies handle highly complex processes, from the initial design, to the building and ongoing maintenance of properties. Working together with Autodesk, we sought to use the latest in machine learning and artificial intelligence to provide construction companies insights, such as automatically predicting potential health and safety issues. Such data-based insights are so powerful, that they are changing how companies are designing and constructing buildings.



How ACS helps the construction process

A typical construction project has four main stages: design, plan, build and operate. At each of these stages, everyone from the architects to site managers rely on different applications working together. The information stored in such applications has enormous value because it enables stakeholders to see and visualize the evolution of the project and make crucial decisions. Unfortunately, in many cases, the applications are not interconnected, information is siloed, and it becomes easy for people and teams to overlook crucial data. ACS sought to solve these common problems.

In order to provide managers with information in a simple and effective way, Globant and Autodesk had to centralize and democratize data access across the typical different teams that work on a construction project. It was also important to offer customers the latest in augmented analytics and business intelligence, enabled by machine learning algorithms. ACS was designed to suit the needs of different project stakeholders - providing both the high level information for executives and managers who need to visualize the big picture of the construction process, as well as more detailed reports and documentation for architects and people working on the field.

ACS provides products to conduct real-time data classification with telemetric dashboards that use highly trained machine learning models. Such insights enable architects to monitor progress in real time.

Autodesk, Amazon Web Services, and Globant

Executives at Autodesk approached Globant to design, create, and maintain a new enterprise data platform used inside the Autodesk Construction Cloud (ACS).

Together we decided to build a new robust and secure cloud-based platform on Amazon Web Services (AWS). Globant has been working with [AWS for over ten years](#) and we are an advanced consulting partner.

Crucially it makes information available through various communication channels, keeping field and office staff on the same page, and helps them make key decisions in their respective roles.

Given the potential of artificial intelligence to optimize the construction process, Globant worked with Autodesk to create a further tool, Construction IQ, which uses machine-learning to analyze the information stored in the ACS project environment, to classify and measure risk. This tool has the ability to understand natural language and typical jargon used in construction environments, in order to highlight and predict problems related to safety and quality. Harnessing the full potential of a machine-learning tool not only requires detecting important insights but also sharing them with stakeholders.

Technology highlights

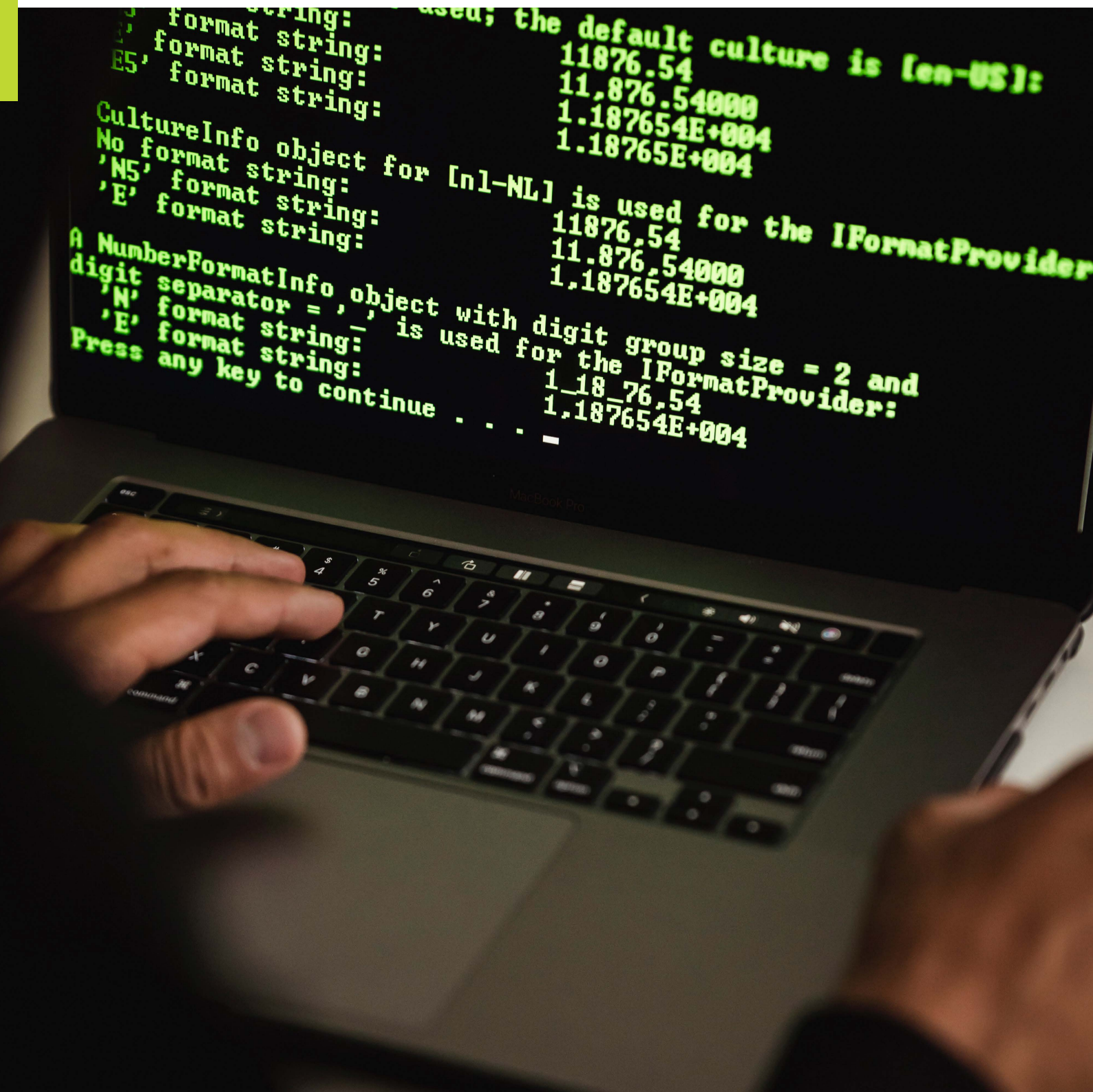
One of the key aspects that Globant's team of engineers had to take into consideration was the need for compliance with SOC2 and GDPR.

The team had to design new solutions to ensure compliance with stringent data protection regulations.

An interesting milestone was the automation of

all the infrastructure created in AWS, where the team used Terraform, Packer, and Ansible.

Finally, Globant's engineers set up continuous integration pipelines for the different pieces of code that they developed. They did this using tools provided by Autodesk such as Jenkins, Artifactory, and Codacy.



Conclusion

The cloud-based software tools that Autodesk and Globant created together are already helping to provide visibility and insights for some of the leading construction firms around the world. Creating such software is not easy - it required a highly specialized and experienced team of engineers. But by

working together, the product was brought to market in just 8 months. The ACS platform is enabling construction firms to benefit from the latest developments in artificial intelligence, generate real insights from data, save costs, and ultimately rapidly accelerate building schedules, all while improving safety.



AWS technologies used

In building the platform for Autodesk we used various AWS technologies and services, including: API Gateway, Athena, CloudWatch,

DMS, DynamoDB, EC2, EMR, Glue, Lambda, RDS, S3, SageMaker, SNS, and SQS.

Key technologies used

■ Data engineering

- Apache Spark
- Apache Hive
- Apache Oozie
- Apache Zeppelin

■ Web development

- Express
- React

■ DevOps technologies

- Terraform
- Packer
- Ansible
- Docker
- Jenkins
- Artifactory
- Codacy

■ Programming languages

- Python
- Node.js
- Go



AWS and Globant's partnership

Globant is an Amazon advanced consulting partner. Globant's data and analytics studio, as well as our cloud operations studio, bring together experts in data and cloud technologies. Our worldwide team supports all regions with more than 600 AWS certified

solution engineers, and we have supported more than 500 AWS projects.

Find out more about Globant's partnership with AWS and our dedicated [AWS services and capabilities](#).

About **Globant**

We are a digitally native company where innovation, design and engineering meet scale. We use the latest technologies in the digital and cognitive field to transform organizations in every aspect.

- We're over 14.300 enthusiastic & committed Globers, present in 16 countries working for companies like Google, Rockwell Automation, Electronic Arts and Santander, among others.
- We were named a Worldwide Leader in CX Improvement Services by IDC MarketScape report.
- We were also featured as a business case study at Harvard, MIT, and Stanford.
- We are a member of the Cybersecurity Tech Accord.

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