

# SIBUR

SIBUR uses Vertica to build a universal data platform designed to make data analytics more accessible.

## Overview

SIBUR is one of the largest integrated petrochemical companies in Russia. It obtains and processes hydrocarbons to produce plastics, rubber, and other high-value-added products. The company employs over 26,000 people and, in 2018, company revenue amounted to \$9.1 bn dollars, with EBITDA of \$3.3 bn dollars.

SIBUR has always focused on improving operating efficiency, minimizing risks, and maximizing equipment performance. The introduction of a data management program and data-driven approach in 2018 required both technological and cultural changes in data processing.

## Challenge

SIBUR is a large company with a vast and diverse IT landscape. SIBUR's IT systems can be divided into several categories: manufacturing systems that generate data flows from equipment, accounting systems, and systems that

emerge as part of digitization projects, including mobile apps, Internet of Things platforms, etc.

"We are tasked with end-to-end data analysis. We have to make data accessible to our digital products and provide an ecosystem and capacities for predictive analytics products. Our biggest problem is the sheer number of systems that contain duplicate data, which translates into low confidence in the data used by the company. The task of gathering and analyzing data is both complex and labor intensive, and it takes a long time to create new tools for data analytics. Moreover, some business needs simply cannot be satisfied," says Artem Danilov, Head of Infrastructure and Technologies at OOO SIBUR. Therefore, it is important to unify data and provide it to users in an accessible format to enable them to make quick, knowledge-intensive decisions based on data, instead of professional experience, as part of the digitization of the business.

The chosen strategy involves the development of self-service data analytics tools. Using the new technologies, employees of various business divisions should be able to quickly and effectively analyze data without any in-depth technical knowledge.

**"Vertica helps us do things that were simply impossible in the recent past."**

### ARTEM DANILOV

Head of Infrastructure and Technologies  
OOO SIBUR



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## At a Glance

- **Industry**  
Manufacturing
- **Location**  
Moscow, Russia
- **Challenge**  
To consolidate multiple data sources on a single digital platform and provide easy access to business user and digital product data
- **Products and Services**  
Vertica Analytics Platform
- **Results**
  - + Introducing a data-focused culture to the company
  - + Giving employees access to self-service analytics
  - + Creating a unified source for accurate data
  - + Providing data to the company's digital products



“We must teach users to not only generate reports, but to conduct serious research, including ABC analysis, regression analysis, etc.,” continues Danilov. “The company has a lot of data that is both complex and interesting, so we’d like people in various departments to be able to perform this kind of analysis.” With simple access to manufacturing databases and a user-friendly interface, a motivated specialist will always be able to solve problems of any level of complexity.

### Solution

Vertica is a new solution for SIBUR. Before Vertica, the company did not use analytical databases or any modern data analytics systems. At the same time, almost the entire Corporate Data Management team had some experience working with Vertica from their previous jobs and were well-acquainted with this solution. “When it became clear to us that we had to make data accessible to business users who did not possess extensive technical

knowledge, Vertica emerged as an obvious choice,” emphasizes Danilov.

Many SIBUR divisions build their digital platforms using mostly open-source products, and they are dedicated to open-source as a principle. When choosing a platform, experts evaluate its suitability for the company, as well as its capabilities, limitations, and cost. Of course, cost is one of many key factors, but if a commercial solution demonstrates an indisputable edge over its open source counterparts, it has a real chance of success. In this case, the following criteria were used: the company needed a DBMS that would store large amounts of heterogeneous data and enable quick analysis, while also offering a user-friendly interface for accessing this data.

Despite their past experience and positive impressions from working with the platform, SIBUR conducted a comprehensive comparison of Vertica with other platforms, both

open-source and commercial. In the end, some platforms were rejected due to their user-unfriendly interfaces, some for financial reasons, and some due to the insufficient capabilities of the product. When it came to user analytics, Vertica had virtually no competition.

### Storing the Company’s Digital Footprint

In order to properly plan and define the architecture of the future data platform, the company first had to define the goal. The objective was to make analytics accessible, i.e., usable on a large scale by the entire company, and this set very specific requirements for the platform. When selecting platform components, the company considered various configurations (including those that did not offer a data store) and picked the most suitable options.

“Vertica functions like a nice construction set: it is perfectly compatible with other products that we acquire as part of our digitization process. We are trying to make our platform a universal data store for the company’s digital footprint,” says Danilov.

The data store is already in use and continues to accumulate data. It is integrated with two major solutions—a SAP platform and a MES system, from which manufacturing data is received. Data coverage will be scaled up in the future: next steps include integration with CRM, HR, and purchasing systems. The data store is capable of eventually becoming a repository for all corporate data.

One of the following two approaches can be used to accomplish this: all data, including data of unassessed value, can be collected in a single data lake; alternatively, only data of obvious usefulness and applicability can be selectively uploaded to the data store. SIBUR believes that the right approach lies somewhere in the middle. The company prioritizes uploads of data that it is most likely to use and tries to integrate

new systems with the data store as soon as these systems are introduced.

"We will be sure to gather data from the Internet of Things and most corporate applications. Once all the main systems are online and a discussion arises about the benefit of connecting other systems, we will assess possible outcomes and make our decision. But there's still a long way to go," states Danilov.

The sensors that will be installed on equipment in 2019 will generate as much data as is currently being generated, i.e. the data flow will double in size and will grow ever faster in the future. A lot of this data will have to be processed in real time.

With the introduction of Vertica, the company faced three types of problems: technical, organizational, and strategic. The technical



problems had to do with this type of activity being new to the company. The data platform required a certain infrastructure, which took a long time to put in place.

The company did not initially realize how long and complex the project it was signing up for would be. This created organizational problems. This was also partly why the company had unrealistic expectations regarding how long it would take to get the platform ready. This made it difficult to re-establish trust between the two companies. In addition, there was a culture clash: the company used a classic project-based approach and the product-based approach was questioned by many.

Strategic problems stemmed from the fact that it was difficult to assess activities associated with the data platform in specific terms and translate them into indicators and metrics that top management was familiar with. "It is truly difficult to say how much money a platform launch will cost. Nevertheless, they trust us and look forward to seeing the effects of our initiatives, believing that we have become an integral part of the digital ecosystem. These strategic questions are still out there, but they take a lot of time and effort to answer," explains Danilov.

## Results

Whenever a company is trying to introduce something new, it must be done in a way that makes it as easy as possible for employees. New tools must be up-to-date and easy-to-use, and people must be engaged and not forced to use the new solutions. Vertica meets all of these conditions, which made it an ideal instrument with which to change the corporate culture.

## Data as an Asset

"In our company, we are trying to cultivate a new understanding of data as an asset. However, until data becomes a vital component of the



company's activities, employees start using it on a massive scale, and we have lots of impressive success stories to tell, it will be very difficult to prove that we have achieved this," admits Danilov.

Nevertheless, some examples of successful use of the platform are starting to emerge. For example analyzing customs statistics: which products are being imported by what organization and in what quantities. By pooling data gathered over many years, the company will be able to compare this data with its current activity and determine when certain items are bought from its competitor and when they are imported from other countries. This reveals potential customers that may respond to a more proactive marketing approach.

The second example is related to market monitoring. SIBUR's business involves the processing of a lot of raw material and fractions, so it is important to know what would be more profitable: to sell an existing product or to derive a new product from it. This is why it is important to collect as much information as possible about the market so as to make sound decisions. The platform use continues to grow, but the company primarily focuses on manufacturing processes, where it expects to see the most dramatic potential effects.

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In addition, Vertica plays a key role in training specialists at SIBUR's School of Data Analytics. Here, SIBUR's employees can test their hypotheses and learn to analyze data on their own. "When we get more people, we will see the result we originally expected when purchasing the Vertica platform: analysis will become standard. Vertica helps us do things that were simply impossible in the recent past," says Danilov.

#### **People Are the Real Influencers**

The question of the economic impact of IT platforms has always been difficult to answer as the effect is often cumulative: value is not generated by any specific tool, but rather by people beginning to work differently as a result of business process analyses, data digitization,

and new knowledge. Nevertheless, SIBUR has set a goal of increasing EBITDA by 10% as a result of digitization.

The metric that SIBUR's own data office considers key is the number of people that start using the new platform. "We project that, by the end of 2019, our platform will be regularly used by at least 5% of employees. If those happen to the "right" people, they will help set off a chain reaction: they will be the ones to introduce new users to the platform and bring new people to the School of Data Analytics. This is the popularization of analytics that foreign consulting firms have been talking about for a while now," concludes Danilov.