



Ext JS & Icube

Taking Dairy Digitization

to the Next Level

CUSTOMER SUCCESS STORY

Icube, a Swiss company located in the beautiful district of Gruyère in Switzerland, develops optimized solutions for industrial digitization and automation.

Icube provides solutions for a variety of industrial solutions such as smart pharma, brewery digitization, dairy digitization, and other solutions which involve manufacturing automation. They also operate as Ext JS integrators for custom development. Icube's dairy digitization system supports cheese producers in optimizing and automating the entire production process — from administrative tasks and record digitization to monitoring and analyzing cheese manufacturing.

Icube's dairy automation systems help local cheese manufacturers implement efficient processes that reduce costs and improve productivity. One of the biggest challenges dairy manufacturers face today is efficient automation across different segments of production. For cheese manufacturing plants, this involves automation right from the point when milk is received at the factory, weighing, pouring, sample analysis for quality, down to the actual manufacturing process of various cheese varieties. Icube's variety of dairy applications such as 'MilkPay', 'EVA', and 'Fabricube' improve operational efficiencies by providing solutions for digitally automating all aspects of cheese production.



"Being able to evolve quickly was very important to us. We are growing fast and require a solid technology which would enable us to implement new features and customize them pretty quickly. Ext JS delivers exactly that, plus it provides us the scalability that has made MilkPay so successful."

Gaylord Falque, **Product Development Manager, Icube.**

MilkPay allows cheese manufacturers to manage milk purchases, calculate payments, and ensure a fully transparent and efficient payment system to milk suppliers.

Icube's EVA application, built with ExtJS, is a production monitoring and data collection application, which is connected to industrial machines to automatically collect manufacturing data based on specific events such as temperature, valve opening, end of cycle reached etc.

This application allows production processes to be improved through data analysis and industrial processes to be alerted in case of anomalies to ensure the overall regularity of production. Icube's MilkPay application, designed with Ext JS, allows cheese manufacturers to manage milk purchases, calculate final payments based on various parameters, and ensure a fully transparent and efficient payment system to milk suppliers.

Suppliers deliver milk to cheese factories about two times a day and are paid based on the quantity and quality of milk they deliver as well as on the type of cheese (e.g., Gruyère, raclette, Emmental etc.) that is being manufactured.

The process of milk payment isn't as simple as we might expect. In fact, the payment process is quite complex since it involves numerous factors that determine the quality of the milk delivered and subsequently the taxes levied. For example, based on the type of grass that the cow consumes, the trace elements of chemicals in the milk reported by the lab, and the type of cheese being manufactured, different tax amounts can be imposed.


The MilkPay application automates all the aspects of the payment process so that milk producers can be paid fairly and instantly with a simple click of a button.

MilkPay handles the digital payments of over 90 cheese factories spread over several areas around Switzerland, with tens of milk vendors at each factory.

When milk producers deliver milk to the cheese plant, the milk is automatically measured and weighed, and data is directly populated in MilkPay. External labs analyze the quality of milk delivered, such as the amount of milk protein, fat content, water content, trace chemicals present, and other key indicators. The sophisticated interface of MilkPay allows the data to be directly populated into the application and used to determine the actual payments for the milk manufacturers.

"Our other production monitoring systems and IoT sensors are tightly integrated to the MilkPay app, so information is available in real time," says Gaylord Falque, Product Development Manager, Icube.

Handling large data volumes with the different interfaces is one of the many challenges dairy automation processes face. *"Without the intelligent and efficient payment system of MilkPay, the cheese manufacturers would need numerous different Excel sheets to calculate milk payments, and the criteria to calculate and issue payments would be way too complicated to accomplish manually. Ext JS really helps us simplify the entire digitization process,"* says Falque.

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MilkPay Pricing Interface Based on Cheese Type and Quantity delivered

A Sophisticated Digital Platform Built with Ext JS

Using the Ext JS framework and easy-to-use UI components, Icube was able to successfully design a highly intuitive payment platform.

"We use Ext JS for our frontend development, and our backend is developed in Java using Play framework," says Falque. The data grid is the backbone of the application, coupled with several data-visualization components such as line charts, pie charts, progress bars, and other advanced charting for visualizing the quantity of milk delivered by each vendor over time, the price point based on the cheese variety, quotas, and other key parameters.

"We use tables, exporter, forms, and several other Ext JS components such as drop down menus, buttons, tree views, and more," said Falque. For example, cheese producers can easily select the milk producer from the simple drop down menu and alter the quantity manually in case of errors. Ext JS really simplifies report creation within the platform—enabling users to export all the data into individual reports and invoices. Payments are highly automated, and cheese manufacturers have the capability to pay individual milk vendors or a set of selected vendors, or they can process payments for all via a simple button click. Additionally, users have the option to issue payments via email or through paper checks.

Customized Payment Experience Using a Highly Scalable and Flexible Framework

Icube's MilkPay platform is desktop, web, and mobile compliant, allowing milk producers to completely manage transactions via a tablet or phone.

The customized interface using Ext JS allows users to issue invoices and payments, include delivery notes, calculate deductions for quality, display quotas from milk producers, and inform them about their delivery data through several different modules integrated in one simple application.

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Summary Overview of MilkPay's Delivery Portal built with Ext JS

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Customized Component Capabilities

One of the added benefits that makes Ext JS a perfect solution for MilkPay is the ability to customize and expand the component capabilities.

"With Ext JS, we were able to easily enhance the components to add functionality to several existing components to suit our specific requirements," said Falque. For instance, Ext JS provided the capability to customize the copy/paste action in the data grid to limit the operation for editable cells only. Another example was enhanced functionality to auto validate and verify the checksum and format for the supplier bank account numbers when entered and displayed.

Milk Assignments for a selected timeframe



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Since the Industrial Revolution, dairy companies have adapted to incorporating large-scale production methods to commercialize dairy distribution and consumption.

In recent years, technological advances have taken dairy automation *"from cows to cloud!"* From using radio frequency identification tags and sensors to track cows on site and using sophisticated automation techniques to perfecting milk production and beyond, the innovation surrounding the dairy industry is rapidly advancing.

Choosing a high performing, secure, and scalable front-end framework is key to designing highly efficient industrial automation platforms. Millions of developers worldwide trust Ext JS to provide the tools to develop mission critical and highly efficient applications.

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