

Top 10

Transformative
Analytics
Scenarios in
Manufacturing



Welcome to Industry 4.0.

Like most industries today, manufacturing is transforming at a staggering pace.

The rise of globalization, evolving customer demands, growing digital commerce, and tremendous advances in technology have come together to create a fourth industrial revolution, or Industry 4.0.

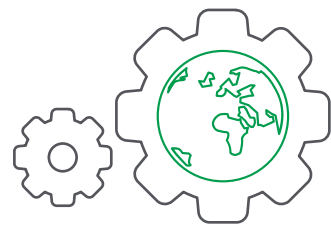
What's different? Internet of Things sensor data is changing operations on the factory floor, where manufacturers are leveraging analytical insights to create smart

factories. And cyber-physical systems are communicating and cooperating with one another – and with people – in real time.

These technologies present big opportunities for manufacturers looking to improve efficiencies and flexibility while lowering costs. And every corner of the manufacturing industry can benefit – including subsectors like automotive, high tech, chemicals, and mill products.

What's Driving Industry 4.0?

Three major market forces are driving manufacturing transformation today:



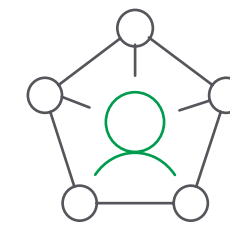
Integrated Operations

Insights from IoT data give manufacturers the power to optimize everything from equipment effectiveness and product lifecycles to inventory traceability and supplier collaboration.



The Agile Supply Chain

To compete in a world of globalization and continuous product innovation, manufacturers need agile supply chains that can quickly respond to market demands and ensure inventory availability.



The Connected Consumer

Today's consumers are more empowered than ever. To win their attention, manufacturers must understand their behavior, develop the right products, and find new and compelling ways to engage.

The Role of Analytics in Manufacturing

Whether your goal is to ensure inventory availability, increase equipment efficiency, or perform market analysis, data is mission-critical. Operational insights give you the power to:



Understand the cost and efficiency of every component in your product lifecycle



Develop systems that gauge the need for repairs and provide early alerts



Gain real-time visibility into how manufacturing lines operate, on a macro and micro scale



Use predictive insights for smarter forecasting



Streamline your product flow and replenishment procedures

With greater visibility into your data – and insights right where decisions are made – you can harness all the benefits of the smart factory.

By the end of 2020, **one third of manufacturing supply chains** will use analytics-driven cognitive capabilities, **increasing cost-efficiency by 10%.***

By 2020, **60% of manufacturers will rely on digital platforms** that will support as much as **30% of their overall revenue.***

* “Top 10 Predictions for Global Manufacturing in 2018: IDC,” Industry Week, December 19, 2017.

Top 10 Transformative Analytics Scenarios in Manufacturing

Leading manufacturers around the globe rely on Qlik® to transform raw data into actionable insights – and transform their businesses for Industry 4.0. Many of them use one, several, or all of these 10 high-impact solutions:

1
Research & Development >

2
Process Efficiency Analysis >

3
Procurement Analysis >

4
Production & Quality Visibility >

5
Machine Utilization & Efficiency Analysis >

6
Inventory Management & Analysis >

7
Sales & Marketing Analysis >

8
Market Potential Analysis & Demand Forecasting >

9
End-to-End Supply Chain Visibility >

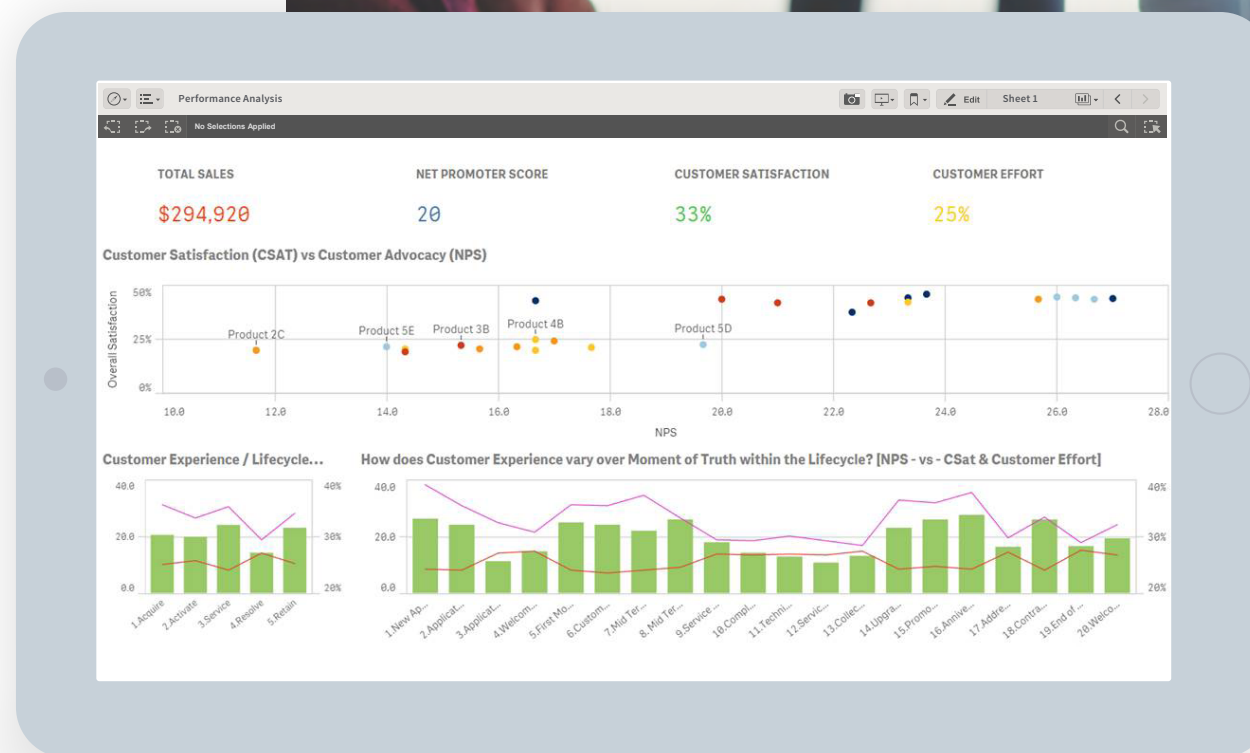
10
Warehouse Optimization & Analysis >

1 Research & Development

Developing innovative products that appeal to consumers is a crucial goal for every manufacturer. Analytics can help you design and develop the most appealing products possible, driving target costing and ensuring lifecycle profitability.

With Qlik, you can support innovation and design with insights from engineering, customer satisfaction, component reliability, quality evaluation, and prototyping analysis.

Use customer feedback and satisfaction levels to drive product direction and revenue.

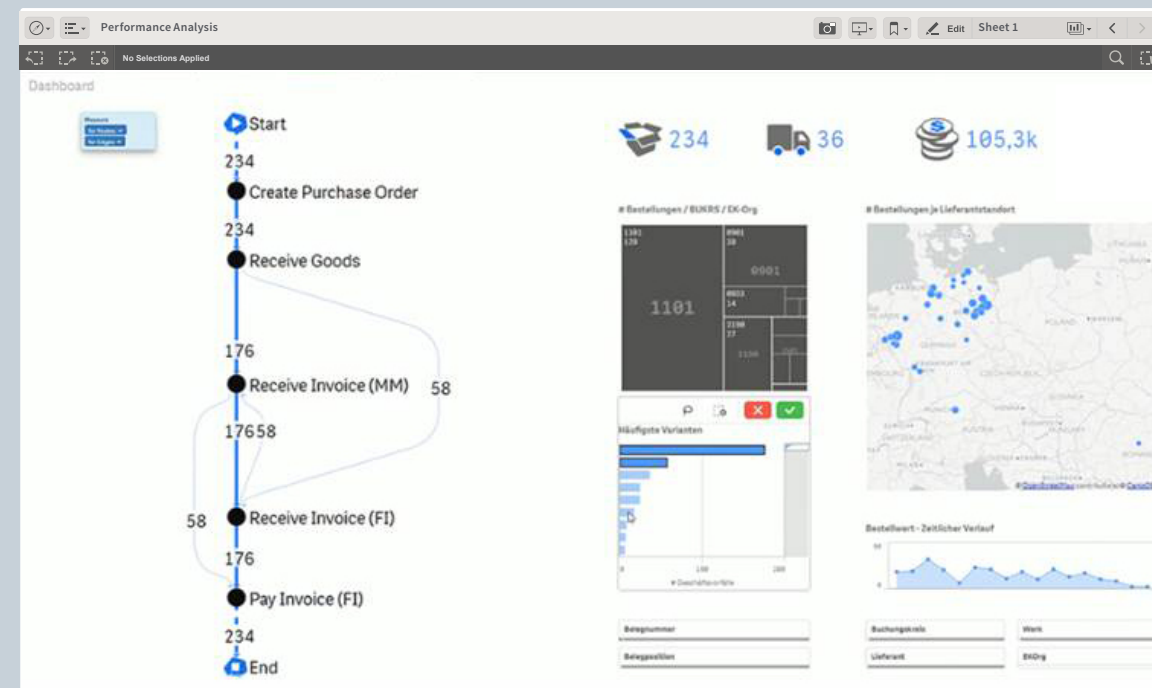


2 Process Efficiency Analysis

Streamlining processes should extend far beyond the factory floor. By analyzing your full ecosystem of processes, whether optimizing costs in product design or ensuring productivity on the shop floor, you can more easily spot – and resolve – inefficiencies.

Qlik gives you a clear picture of all your operations, with insights into sourcing and procurement, asset availability, work order cycle times, and schedule adherence so you can trim fat, improve quality, and eliminate waste.

Analyze processes to identify opportunities for improving quality and reducing costs.

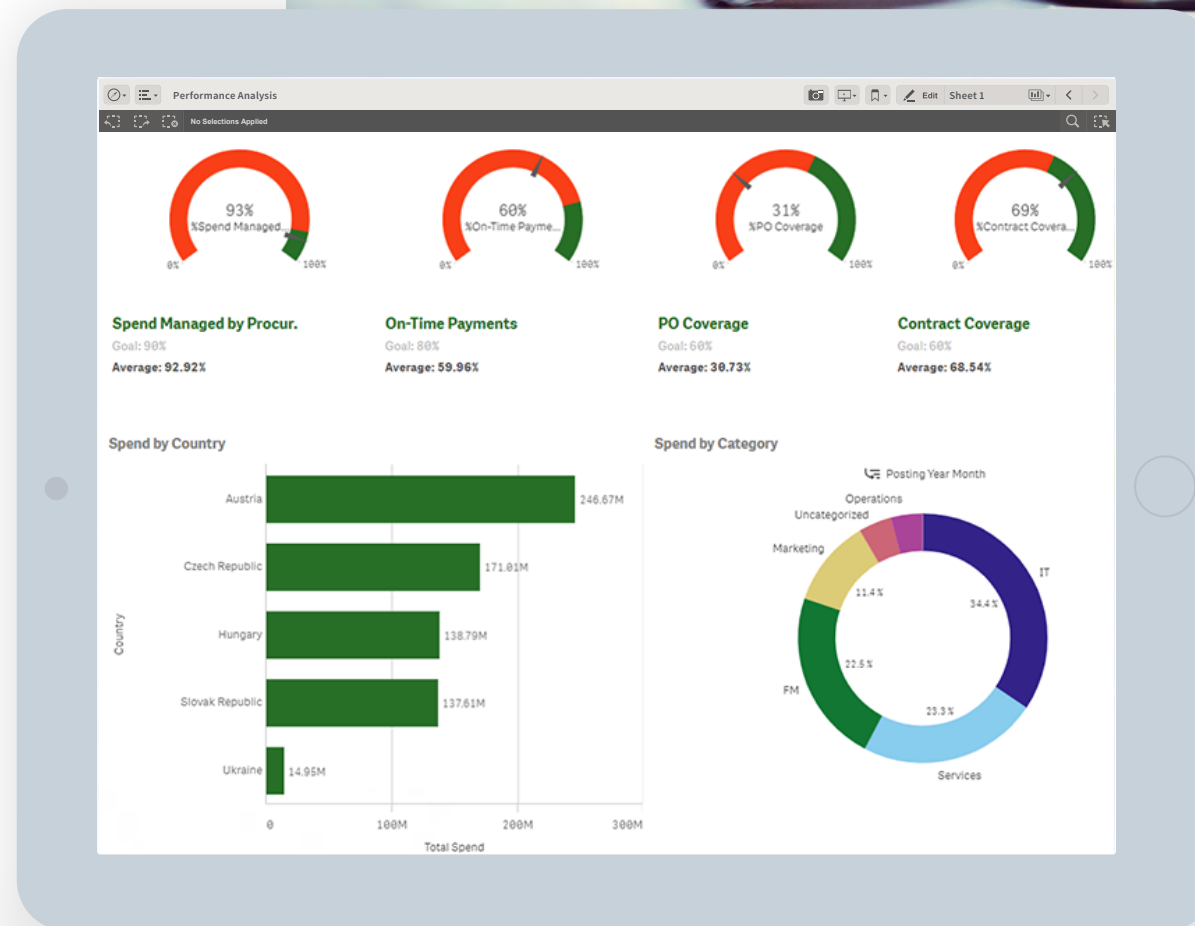
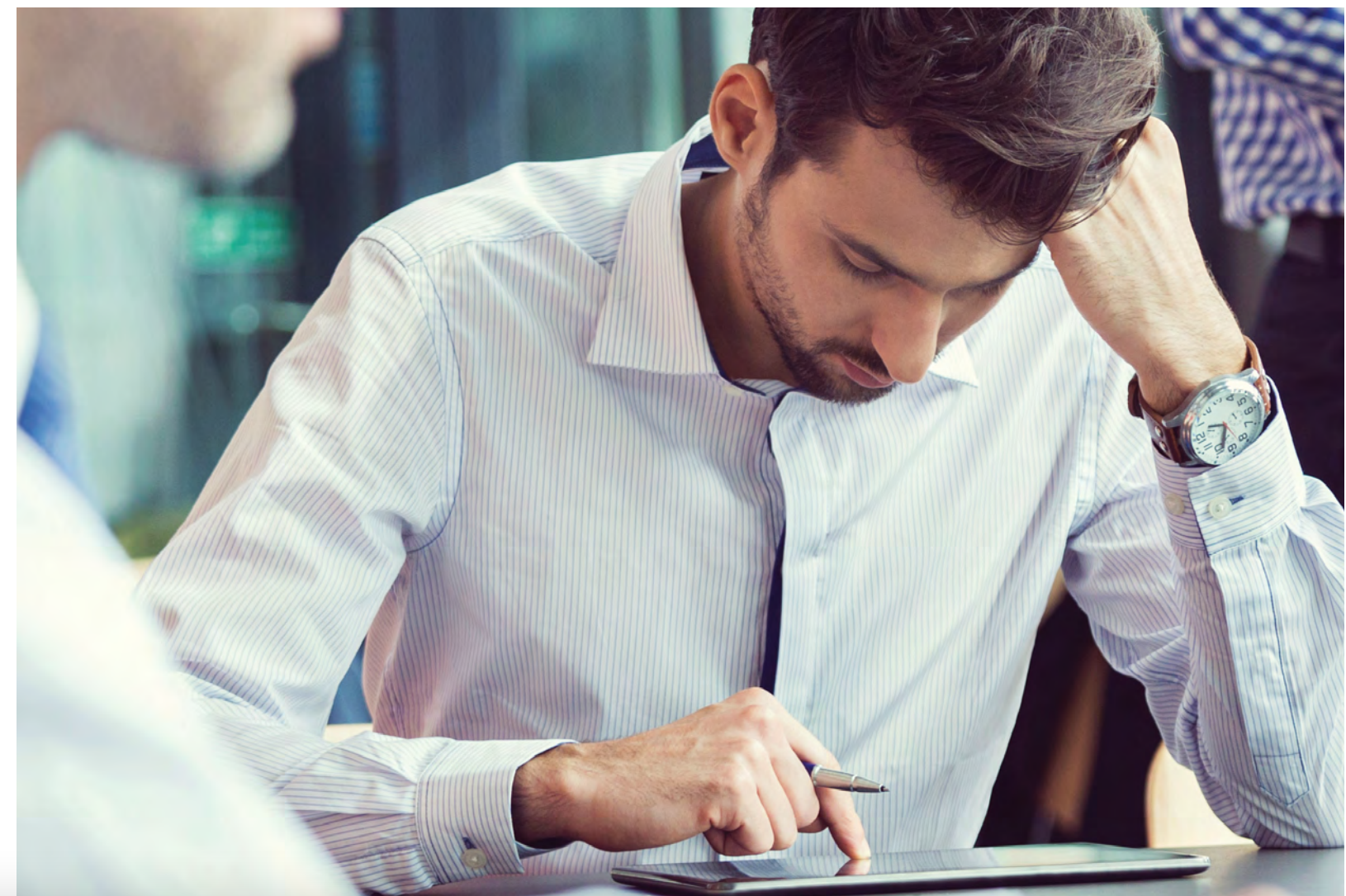


3 Procurement Analysis

When you're working to drive efficiency, it's critical to ensure both precision and quality in procurement. But several factors make that a challenging task – including varying costs from multiple suppliers, a lack of visibility into pricing packages, and a lack of conformity to parts specifications.

Qlik gives you a number of analytical tools for improving procurement: bill of materials analysis, parts and component permutation evaluation, cost trending and optimization, and supplier performance scorecards. With these insights, you can gain access to quality materials and components while maximizing profits.

Analyze spend by category, country, vendor, and business unit by measuring target KPIs against goals and trends.

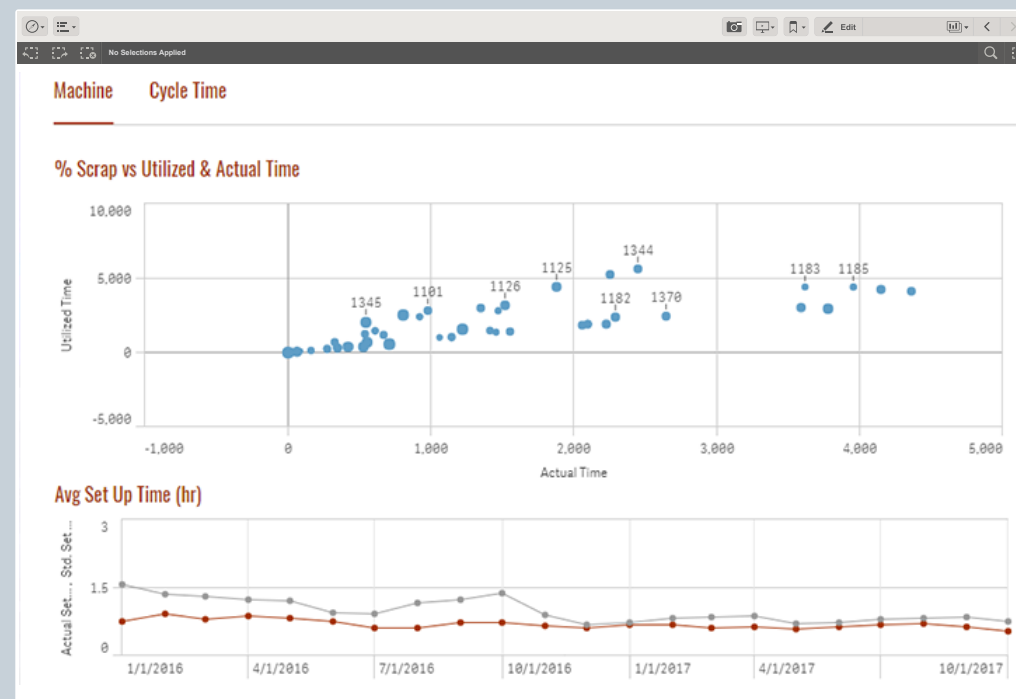


4 Production & Quality Visibility

Overseeing production and quality is crucial for any manufacturer. But it's no simple task to harness large volumes of data across multiple workstations to gain a comprehensive view of production.

With Qlik, you can gain visibility into your entire production lifecycle, connecting the dots to ensure quality products, on-time delivery, and streamlined efficiencies. By harnessing data from disparate systems, Qlik helps you analyze and optimize production, gain visibility into upstream and downstream workstations, and identify the root causes of quality concerns.

Monitor quality, performance, and availability by operation, product, shift type, and trends over time.

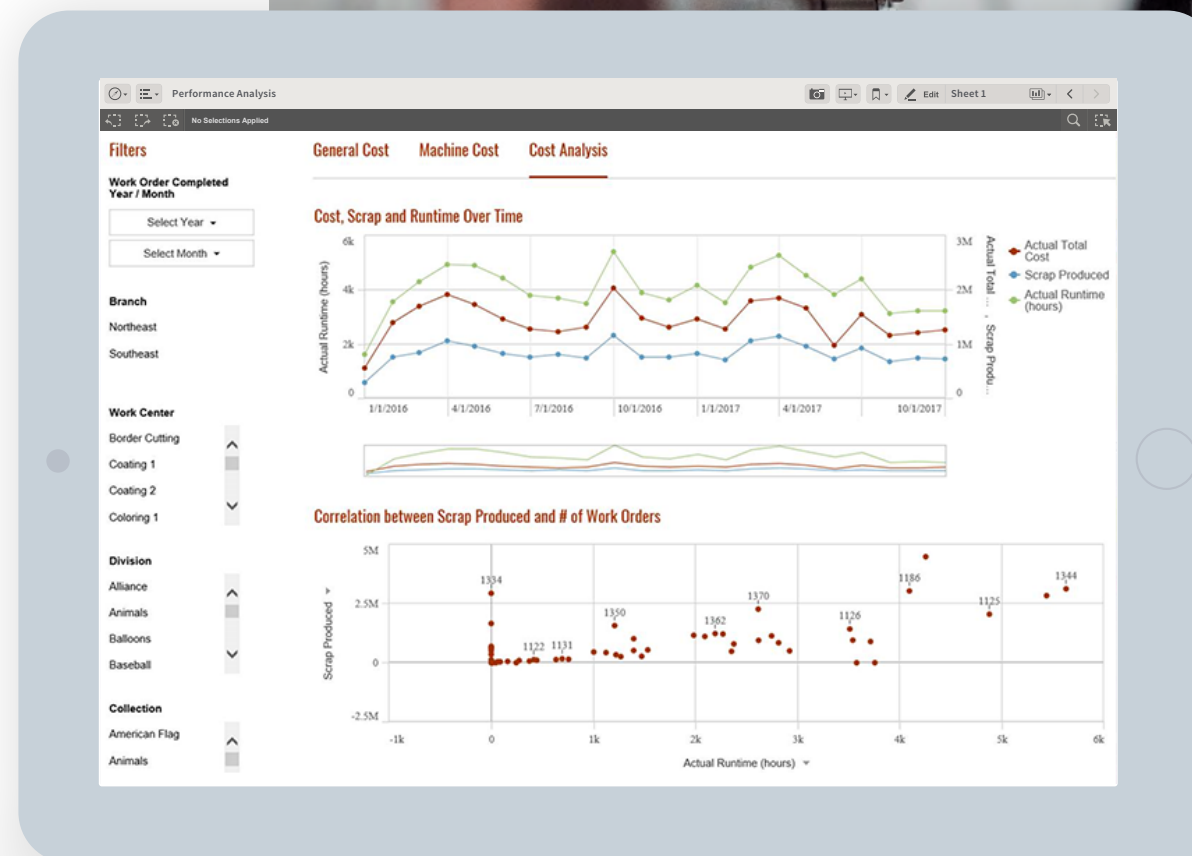


5 Machine Utilization & Efficiency Analysis

In a typical assembly line, a variety of machines perform a variety of specialized tasks. To monitor machine utilization and efficiency – automatically and in real time – you need a way to get a holistic view.

Qlik makes that possible by integrating data from multiple connected machines and enabling custom visualization dashboards. With this visibility, supervisors can regularly check machines, take corrective action, and optimize production schedules according to machine availability.

Compare machine utilization time vs. scrap rate to optimize output and efficiency.

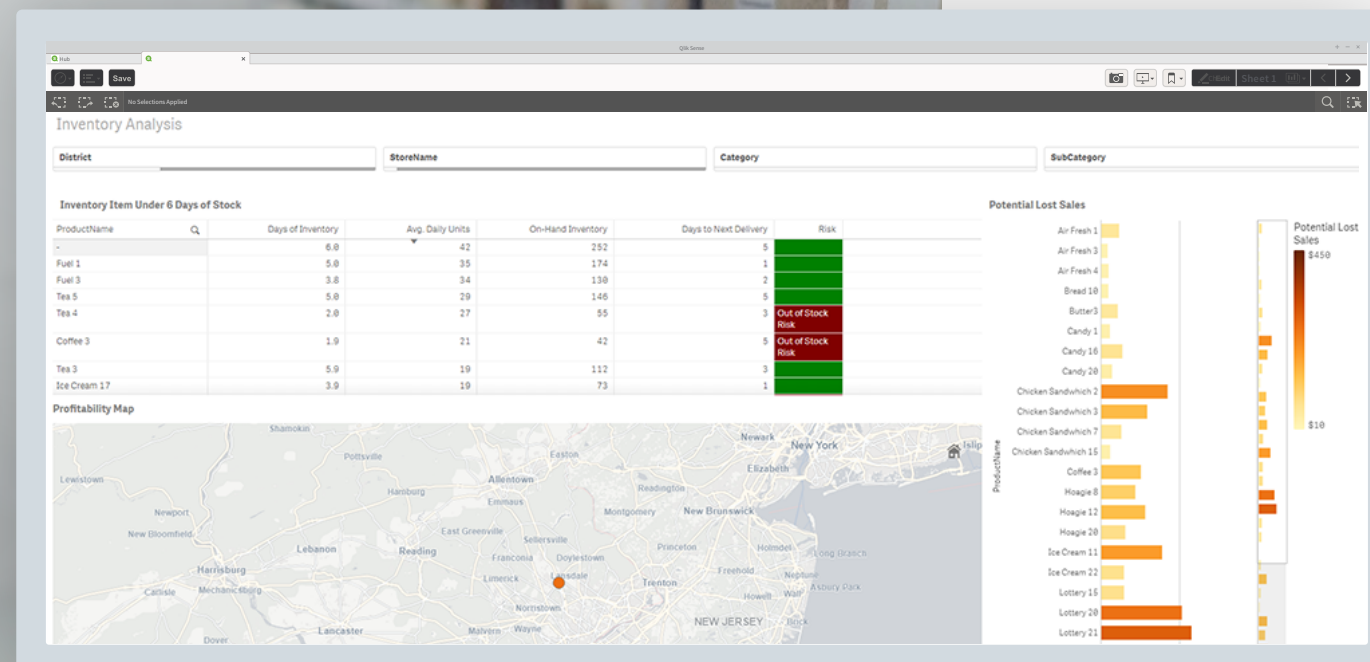


6 Inventory Management & Analysis

One of the most significant challenges for manufacturers is managing inventory. Running an excess reduces turnover and profitability, but stock-outs result in lost sales, backorders, and dissatisfied consumers. For makers of food or other perishables, the impacts are even greater.

With better visibility, you can take the guesswork out of inventory management. Qlik provides the dashboards and drill-down capabilities that enable you to make data-driven decisions about inventory levels, helping you avoid both excess supply and stock-outs.

Compare on-hand inventory levels with average turnover to identify potential out-of-stock risks and revenue impact.



7 Sales & Marketing Analysis

For any manufacturer, understanding customer preferences and sales networks is crucial. To make sales and marketing efforts more effective, you have to first determine relevant metrics – and then analyze that data to make sure your teams are performing to expectations.

Qlik provides insights into consumer behavior, availability of stock, optimal pricing for the greatest return, and sales network performance – so you can make sure that products are developed and sold according to market demand.

Compare opportunity pipeline vs. forecast by sales hierarchy, region, and product.

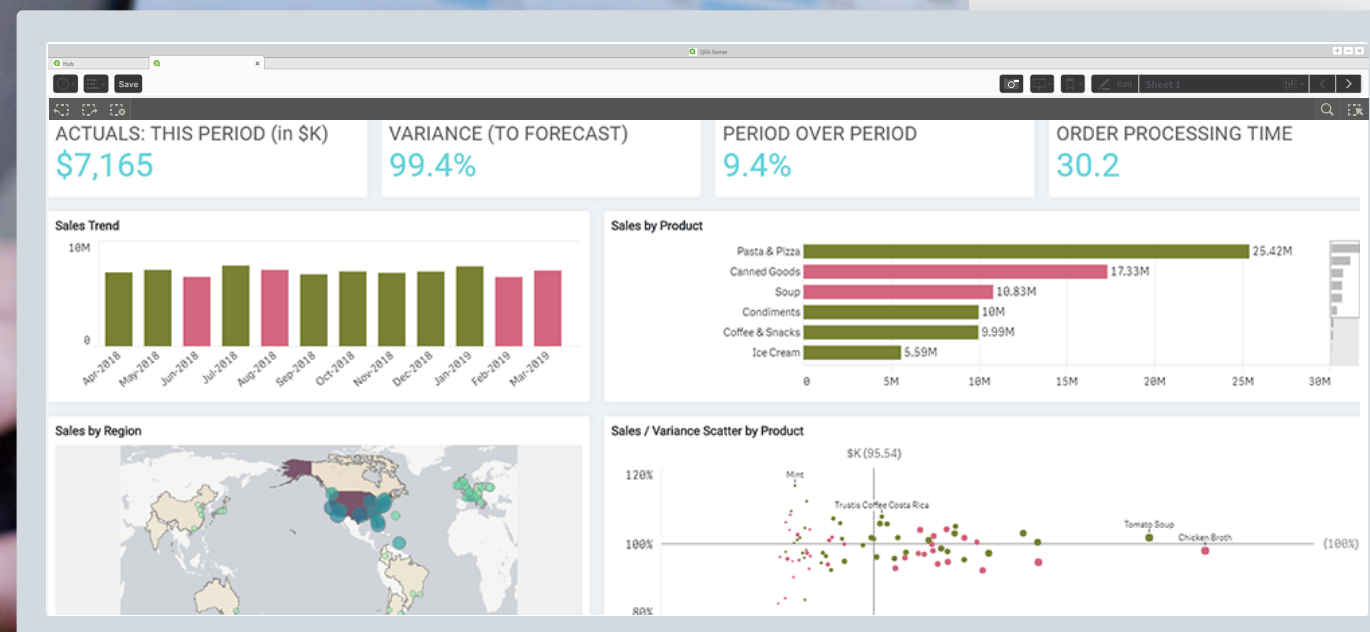


8 Market Potential Analysis & Demand Forecasting

To stay profitable, it's important to determine the market potential for any new product. And to calculate and forecast that market potential, you need to analyze the size of the market, market growth, competition, and other factors.

Qlik enables you to analyze your data to identify market opportunities – so you can identify growth drivers and barriers in relevant markets, quantify market potential for a given product, and invest resources where they'll have the greatest return.

Compare forecast vs. actuals – and forecast accuracy and bias by region, product, and demand planning hierarchy.

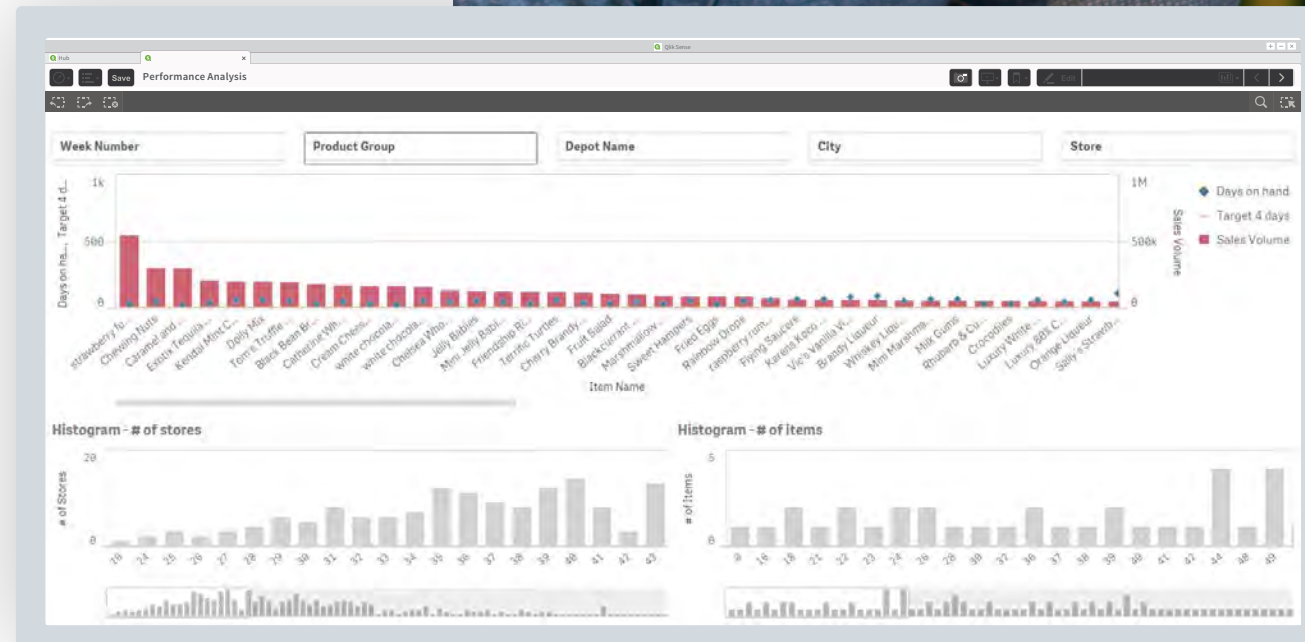


9 End-to-End Supply Chain Visibility

As manufacturing becomes more global and consumer demand becomes more volatile, supply chains get increasingly complex. To handle that complexity, you need complete visibility into your entire supply chain.

Qlik enables you to analyze your supply chain data from end to end to monitor global supply networks, align with third-party service providers, ensure traceability, reduce volatility, and control costs.

Optimize shipment modes, on-time delivery, and distribution routes.

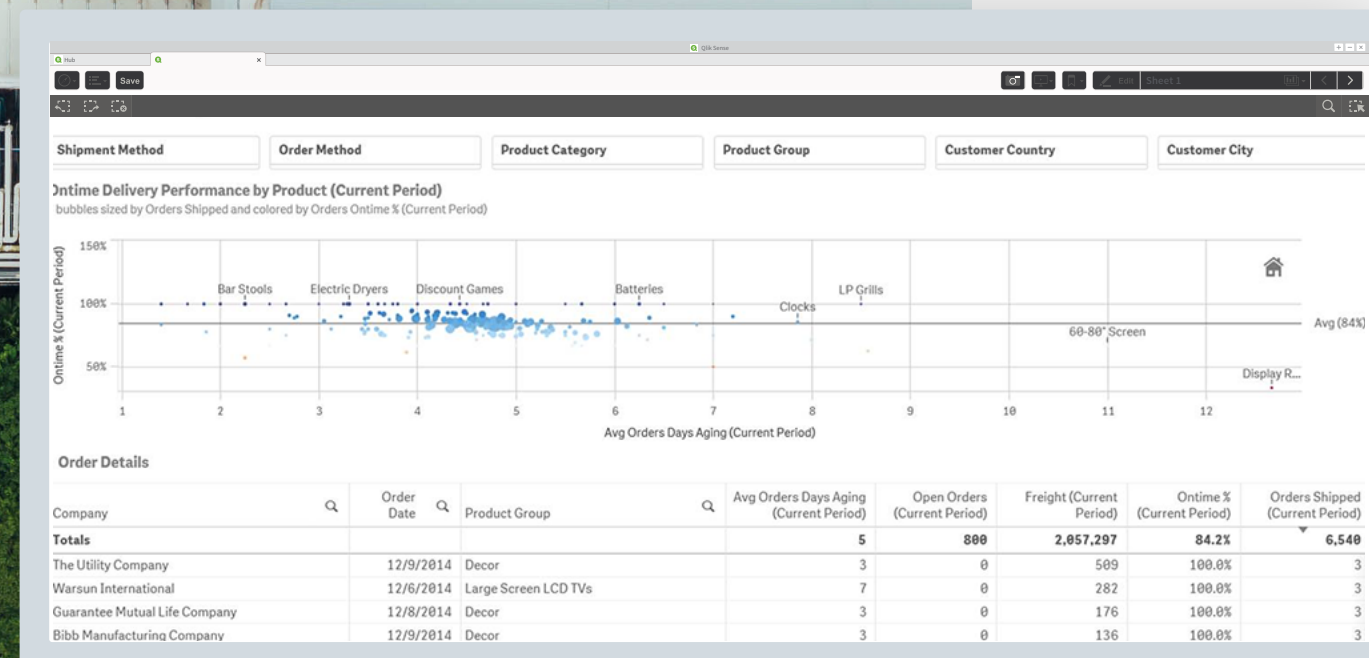


10 Warehouse Optimization & Analysis

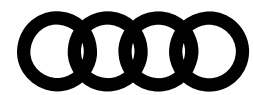
When space is at a premium, optimizing the warehouse is key. Space planning and optimization can help save time, space, and resources to improve flexibility and reduce costs.

Qlik helps you optimize your warehouses by analyzing flow, product placement, and storage and retrieval. With these insights, you can ensure that your facilities and teams are using space efficiently, handling materials well, and responding quickly to changing storage and handling requirements.

Optimize the use of warehouse space and the efficient movement of goods.



Manufacturing Analytics in Action



Cars consist of tens of thousands of components, so effective production logistics are crucial. Audi uses Qlik to **achieve 98.5% accuracy in the delivery of components for production**, getting the right materials to the conveyor belt in the right quantities, in the right order, at the right time.



As Siemens strives for high levels of customer satisfaction, they focus on precise planning and production control. With Qlik, the German manufacturer empowers users with self-service capabilities and ease of use, **equating to 75% less time spent accessing data.**



For Varian Medical Systems, analyzing data from multiple systems had become cumbersome and time-consuming. With Qlik, the company **analyzes more than 110 million log records from its radiation therapy machines**, combining multiple data sources, including IoT sensor data and machine events. The single source of truth has earned the trust of a broad, global user base.



As Andersen Windows works to increase sales, transforming the culture of the sales team has been key. With Qlik's differentiated reporting and on-demand data access, the company **views purchasing trends, identifies pipeline opportunities, and tracks sales performance against goals** – all of which increases sales efficiency.

The Transformative Power of Qlik

“Having control over our entire supply chain – and being able to analyze trends using an intelligent system – brings us more value than could ever be expressed in monetary terms.”

GEERTJAN WOLTJES, COO, QUOOKER

“The impact of Qlik has been far-reaching. Its simplicity of use and the valuable contribution it has made to business processes have made Qlik a strategic asset to our operations.”

CÉSAR PÉREZ, HEAD OF BUSINESS PROCESS OFFICE, SONY

In less than two months, we were able to realize complete ROI and reach new levels of analysis that would have required the hiring of four additional analysts.”

ALLAN DZIWOKI, VP OF BUSINESS SERVICES, MITSUBISHI ELECTRIC COOLING & HEATING

ABOUT QLIK®

Qlik is on a mission to create a data-literate world, where everyone can use data to solve their most challenging problems. Only Qlik's end-to-end data management and analytics platform brings together all of an organization's data from any source, enabling people at any skill level to use their curiosity to uncover new insights. Manufacturers across the globe use Qlik to see more deeply into customer behavior, reinvent business processes, discover new revenue streams, and balance risk and reward.

Discover how to lead with data – and transform your manufacturing business – [at qlik.com/manufacturing](https://qlik.com/manufacturing)

