

## Cloud Analytics: Supply Chain's Critical Link

By Stijn Van Impe



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Manufacturers' adoption of cloud analytics has been sharply invigorated by the pandemic's disruption of supply chains around the world. Never was it more obvious how vulnerable commerce is to a sustained spate of uncertainty, shortages, gluts, and broken links in a globalized system.

Now, the march is on for manufacturers to fine-tune their supply chains dynamically, in real-time, by exploiting cloud elasticity to utilize valuable, massive data sets.

This was always the promise of the digital transformation – that intelligent, integrated supply chain solutions, free of manual input or human error (the cause of nearly a quarter of all downtime in manufacturing), would enable manufacturers to create efficient planning and production programs, better manage inventory, ship and track material, and manage personnel.

Today's reality is even more promising, thanks to cloud analytics, which offers the scalability needed for high-compute workloads. Today, virtually any kind of file can be a target of analytics, which means the rivers of incoming data are often heavily unstructured and massive, such that traditional analytics simply can't crunch them effectively. Gartner [predicts](#) that by 2022, public cloud services will be essential for 90% of data and analytics innovation. An IDC [survey](#) of CEOs found that 70% want their organizations to be more data-driven but see significant room for improvement as only 27% reported being completely data-driven.

When IDC asked 100 CEOs in a 2019 study about their plans for the next five years, 80% identified using data in advanced decision models for intelligent operations as a strategic area of investment.

Due to this scalability, cloud analytics can help manufacturers find and serve new markets, develop new revenue streams, and improve customer service, and open opportunities to optimize supply chains on a global scale. But the shift to performing data analytics in the cloud comes with challenges:

- The shortage of individuals with data analytics skills is one challenge. It takes a broad and varied skillset to derive information from fast-flowing data streams and use artificial intelligence and machine learning capabilities to extract additional value.
- Data security is a vital consideration for manufacturers' data and IT leaders, rightfully focused on protecting their data assets. The shift to cloud is intended in part to permit exponentially greater access to data by multiple parties, internal and external, in the long supply chain. Not only are the insights derived from analytics competitively sensitive, but the potential exposure of customer information is a genuine concern.



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- Making the actual journey is also a challenge – starting with planning the implementation, executing it, managing it, and then ultimately optimizing it in an ongoing fashion – all without any interruption in service. Instead of the traditional “lift and shift” approach of retooling applications and systems to rehost them on the cloud, manufacturers are rearchitecting applications to live natively in the cloud and maximize cost efficiency.

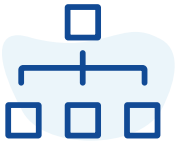
To meet these challenges, manufacturers are increasingly relying on experienced partners to provide their expertise in data security, cloud migration, and analytics at each stage of their cloud migration. Throughout the journey, they can develop their own in-house knowledge and capabilities for optimizing their cloud analytics going forward.

Through this effort, partners can deliver breakthroughs like these as a result of advanced cloud analytics:

**Value/Revenue** – A major airport gathered extensive data surrounding its routine weekly flights to certain locations and combined that with the buying habits of the typical passengers on those flights at airport shops during flight delays. The data revealed that passengers to London, for example, seek different products than passengers to Rio de Janeiro, while a flight to Japan might suggest a different set of buying habits. Cloud analytics detected patterns that revealed what products to promote to appeal to passengers and when. The result? A 20% sales uplift for airport shop sales.

**Sustainability** – A commercial fishing organization wanted to address consumer perceptions around the sustainability of its fishing practices in reserved areas and the protection of vulnerable species. A cloud analytics proof of concept enabled the company to track the fishing boats using GPS and speed data and identify where the boats stopped to catch fish. Overlaying that data with marine reserve maps documented whether the catch was made in a reserve or non-reserve area. Certifying the catch in this way, and recording the certification on blockchain so that it can follow the catch throughout the entire supply chain, allowed the company to demonstrate its sustainable practices without exposing prime fishing areas to competitors. Customers could be provided with a QR code that would allow them to see precisely where the fish was caught, thus demonstrating the viability of capitalizing on integrated supply chain analytics and blockchain to drive sustainability.

**Productivity** – Traditionally, factory processes are optimized according to the experience and wisdom of their operators. Today, as manufacturing companies expand via acquisition, they find themselves with factories that are running entirely different systems, perhaps in different countries, using innovative machinery tagged with sensors that measure inputs, flow, temperature, milling processes, etc., to produce extensive information. Using cloud analytics and artificial intelligence, they can now create true digital twin copies of live operations to benchmark and compare factories, identifying productivity improvements, testing new processes, creating solutions, and preventing outages.



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Other areas of opportunity also exist – efficiency and security, for example. The pandemic confronted manufacturers with fractured, unreliable transportation systems for receiving their raw material and shipping their goods, as airlines, railways, and trucking companies struggled to align capacity with uncertain demand. That experience has led many to invest in cloud-based analytics that use historical data to predict the least expensive/most reliable transporter. As for security, shipments of high-value merchandise are prime targets for thievery and counterfeiting. Pharmaceutical manufacturers, for example, are fighting back with sensors on shipments that provide them with extensive data that, when algorithms are applied and results analyzed on the cloud, will identify patterns: types of shipments, particular trucking companies, targeted routes, predominant methods, etc.

The world is ever more digital, complicated, and subject to disruptions like pandemics, hostilities, natural disasters – unpredictable and uncontrolled events that demand rapid and highly informed adjustments from manufacturers and their supply chains to adjust to protect their supply chains. They need answers in hours, minutes – even seconds, not weeks or months. That is now eminently possible because of advances in cloud analytics. By collecting vast amounts of data along the chain, creating algorithms to make the data useful, data scientists can envision ways to add business value and fulfill critical missions.



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