# Real-time insights provide competitive edge

To get true value out of data, organizations must find ways to use it quickly and effectively
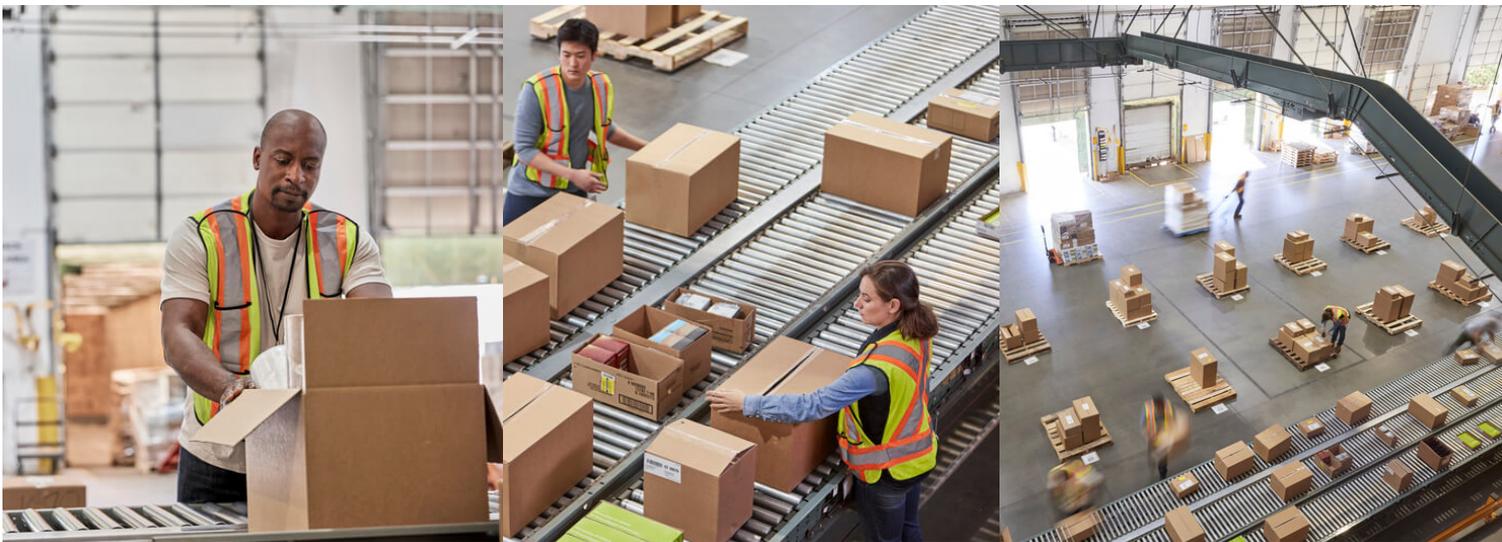
Lessons for leaders

• Acting quickly on data helps to define its value.

• Cloud-native must work with on-prem seamlessly to maximize business efficiency.

• All data has value: Define what works for your business.

Data is everywhere, and smart businesses are constantly finding new ways of using that data to drive results. In an ever-competitive landscape, the old phrase **firstest with the mostest** applies more than ever. Businesses that can quickly derive data insights—and act on them—gain an advantage over competitors. Being able to analyze and act on this often complex and ephemeral data can be the difference between success and failure in the marketplace. This is especially true when gathering data from the edge, where data is created from customers, patients, and factories.

Glyn Bowden, chief technologist for the AI and data practice with Advisory and Professional Services, says "Edge computing becomes reality when billions of IoT devices in the wild are no longer required to connect to central data repositories. Instead, they are able to operate independently, with local machine learning models observing their behavior and dictating how to operate."

For example, in a smart factory, components traveling down a conveyor belt might be expected to have a certain color or shape. Connected cameras capture images that can show incorrect positioning or wrong shape, orientation, or color, foreshadowing issues in product quality. If product issues are caught only in subsequent quality checks, multiple systems may be assembled incorrectly. Real-time monitoring will prevent not only the first bad build but stop others from being produced.

Artificial intelligence (AI) algorithms, in conjunction with automation systems, would pause the production line and recommend or even automatically implement corrective actions, even without human intervention. If it turns out that the anomaly was due to process drift, the model could be adjusted accordingly. Similarly, models could be refined for individual machines based on a variety of situational factors, such as factory lighting, temperature, device height from the floor, equipment model, and so on.

Bowden calls all this **inference at the edge**, which applies mathematical logic and rules to existing knowledge to take action—for example, fix that machine or lower the heat in a particular room. While AI and machine learning (ML) combined with analytics solutions help enable this, Bowden notes that setup and ongoing management can be complex and difficult. For that reason, he recommends engaging the help of experts or a professional services organization.

"If you're technically able to make 10,000 decisions a second but your business can't react in real time because you're not properly set up for it, there's not much point in doing it," Bowden says. "By bringing in outside help, you're able to turn over that work to experts who will set you up correctly, manage it all cost-effectively, and ensure everything is done as securely as possible."

Maximize the value of your connections

Bowden adds that the edge can be considered **distributed technologies at a massive scale**, encompassing an infinite number of devices that create data—or, more simply, anything outside the data center.

Beyond the nuts and bolts, "the real value of interconnectedness is in the data, and that needs to be shared and visible across the whole organization where appropriate," Bowden says. "So that's the challenge: not just generating more and more data but drawing value and driving visibility of that value."

And these days, everything is interconnected, be it the factory floor, self-driving cars, or retail purchases. Every action generates data, and real-time analytics enable rapid business reactions. Being **data first** requires knowing where the data is and architecting your enterprise to deal with it—that is, being able to learn from data in situ or knowing where it needs to be moved to garner the greatest possible impact on your business.

Building that enterprise requires detailed knowledge of not just how and where data is being acquired but what data is of the greatest value. Looking to generate the best possible outcome from data analytics means using a computing platform that combines the **available anywhere** ubiquity of cloud-native deployment with the ability to place AI/ML that can act immediately on the data being acquired. It's no longer enough to simply have a solid Big Data analytics strategy. Enabling that strategy to function anywhere in your enterprise and in as close to real time as possible is the only way to maintain your business's competitive edge.

Include all available data in your planning

While the **why** of getting real-time analytics from your data collection is obvious, the **how** can be a bit more daunting. It's likely that your data acquisition is accelerating at the edge as your ability to harvest data from connected devices increases, but it is also true that you are likely to still have incredibly valuable data in centralized locations, such as the data center or cloud. This means your intelligent data analytics platform needs to be capable of handling data regardless of where it exists. The platform must be able to integrate data collection at the edge with the data across your locations, implementing a hybrid infrastructure that is location agnostic. Your AI and analytics pipelines and workflow need to integrate natively with both cloud and on-site operations, allowing for orchestration and automation tasks that enable capabilities across your enterprise and don't require tedious and time-consuming manual manipulation of data.

For many organizations, this turns the approach to data analytics on its head. Instead of gathering data to be analyzed centrally, you will be focusing on capabilities that can let you deliver reliable and consistent data for your analytics processes where data is gathered. A fully integrated analytics framework will give you business insights that allow you to react quickly and effectively.

Conclusion—Start small but think big

Many enterprises tend to focus on the more glamourous aspects of real-time data analytics. The example of self-driving cars and their ability to analyze data in real time to provide a safe driving experience is commonly cited. But reality is that the less visible analytics decisions are the ones most businesses need to address. The real-time factory floor automation decisions we have already addressed touch a huge number of products and processes. Financial fraud detection and real-time inventory management are additional high-profile use cases.

Dozens of small improvements enabled by real-time edge analytics in your enterprise can equate to big business gains, ranging from enhanced profitability to improved customer relations and more. Start small but think big so that AI projects not only solve today's problems but also scale into the future.

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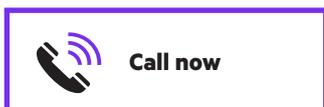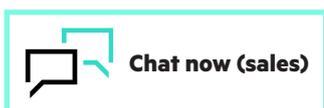
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