WHAT THE

4TH INDUSTRIAL REVOLUTION

MEANS FOR YOUR BUSINESS

Smart cities, self-driving trucks, industrial robotics. How can organizations find a place for themselves in our new, data-centric reality?

Illustrations by Matt Chinworth

You might not know it, but you're living through an unprecedented transformation of how we work, live, and think.

It's an industrial revolution: You could think of it as the fourth in human history, but it's the first one taking place in ways we can't really see. That's because this revolution hinges on data, the vast amounts of it constantly being generated and collected, and the new applications for it.

It's also because we're in the early stages of this 4th industrial revolution. "There's an innovation, and then it leads to all these use cases that were derived from that single point of brilliance," says Adeel Omer, vice president of global marketing and brand messaging at Lumen. "It takes decades for the spark to turn into something glorious." The spark, this time around, is data. What will that spark turn into?

From fleets of self-driving delivery trucks to technology that can strip carbon out of emissions, the world that Omer pictures might sound fantastical, but it's more real than you might think. "It's science fiction for us, but it *will* happen." Omer points out that while electricity may have been harnessed at the turn of the 20th century, it took decades for it to become a commonplace fixture in households.

To guarantee success in the future, businesses and people need to prepare for the next stages of the fourth industrial revolution. But what exactly does that look like? And why should we be excited?



PUT DATA FIRST.

"The question for businesses is: what do we need to do to capitalize or differentiate ourselves?"

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> Almost everything that we do now creates data. Thanks to the ubiquity of smart and connected devices, there is information available that demonstrates how people behave, what they prefer, and what they expect. But that information needs to be interpreted.

"Businesses have to be able to acquire all that data—then analyze that data for insights, and be able to act on it." Acting on it could mean adjusting a point-of-sale system, redesigning a mobile app, changing the way a product is manufactured or shipped. Whatever that action is, Omer emphasizes that staying ahead of the curve requires a sharp focus on using data to perfect businesses practices. Customers' expectations of the businesses they encounter will only get more complex.

The COVID-19 pandemic provided a stunning proof point for the importance of using data to build robust digital experiences. "Businesses that didn't have a digital front door, that weren't mature digitally, lost out and had to shut down their doors, versus businesses that already did have digital capabilities to sell, to interact with customers, and so on." Omer thinks that lockdowns and quarantines hastened the 4th industrial revolution, since people were driven online. As such, it's more vital than ever for businesses to adapt to the new reality.



THINK ABOUT THE TOOLS AND SKILLS THE 4TH INDUSTRIAL REVOLUTION WILL **REQUIRE**.

Adapting to the new reality also means challenging conventional wisdom on today's technologies. "The centralized cloud model will need to extend to the distributed edge," Omer says, referring to applications that rely on large volumes of data delivered very quickly, like industrial robotics and gaming. "It's more efficient to act on data closer to the human or machine that generates it or needs it, so edge computing can be a remarkably cost-efficient, high-performance way of solving for really difficult and costly IT challenges."

Omer also points to the need for having the right experts in place to use that data. "Data is not something that's specific to the tech industry anymore," Omer points out. "You need data to be able to measure customer sentiment or to detect patterns in the market. Being able to hire people who can help you get to those insights is really important."

IT capabilities will be in higher demand than ever. Even the most comprehensive data sets and advanced analytics will still require people who know how to operate them and make decisions. Businesses should make those hires a priority.

That means future workers, too, should prepare for a new reality. It will, one day, be cost-efficient to automate certain jobs, Omer says, ideally jobs that are either dangerous or undesirable. "We can create a world where robots can do labor-intensive things, where they can drive trucks, where they can manufacture certain things." That means the scales will ultimately tip in favor of people with skill sets in software and data analytics.

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HOW YOUR BUSINESS WILL FIT INTO THAT SCIENCE FICTION WORLD.

What does it mean for data to be everywhere? Omer has an example literally within reach: "I'm having coffee out of a mug right now that has an app connected to it. When the coffee reaches the right temperature, it sends me a notification: 'Your coffee's the right temperature.' You open the app and it says, 'Your mug is up to date."

The implications of the 4th industrial revolution extend far beyond that handy mug. When most things have some level of connectivity, it means they can all talk to each other. Thanks to advances in edge computing, which brings data collection and data processing closer together, connectivity will reach a new level: Self-driving cars will be increasingly feasible because they'll be able to talk to traffic lights and other cars. More data means smarter AI and more effective deep learning systems that help drive continuous improvement-allowing manufacturing floor robots to avoid costly mistakes and improve product quality. Augmented and virtual reality technologies, relying on large amounts of data and instant processing, will become commonplace tools for collaboration and commerce as they drive immersive, engaging experiences everywhere from online to brick-and-mortar retail stores, to schools and institutions of higher learning around the world.

Microprocessors are becoming inexpensive enough to produce that Omer says this future is all but guaranteed. As a result, businesses need to plan what role they'll play in that ultra-connected, data-centric world.



4TH INDUSTRIAL REVOLUTION WILL **BE FOR EVERYONE.**

The 4th industrial revolution will clearly be a watershed moment for all of us, organizations and individuals alike. But it's bigger than just its business applications. Based on research sponsored by Lumen, nearly half of global IT professionals agree that the 4th industrial revolution will have a positive impact on addressing climate change and improving global nutrition.

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"We're dealing with such incredible challenges as a society," Omer says. "We've got a climate emergency. We're dealing with a pandemic. We've got to solve for societal challenges and inequities. I honestly believe that technology is going to help us work our way out of it."

Al-driven models of disease molecules and treatments, to simulations that will strengthen carbon capture technology, the data that will drive the 4th industrial revolution will also drive innovations that benefit all of us. And as technology gets more and more accessible and universal around the globe, Omer predicts that those benefits will uplift everyone.

"That, to me, is what's most exciting," Omer says. "The ability for this to impact real human problems that we're facing today that are only going to get more critical, and the fact that there's no barriers to how fast the fourth industrial revolution can spread."

Part two: Edge computing will change the way we think about data

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6 Keys to Success in the 4th Industrial Revolution



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