

Forbes
INSIGHTS

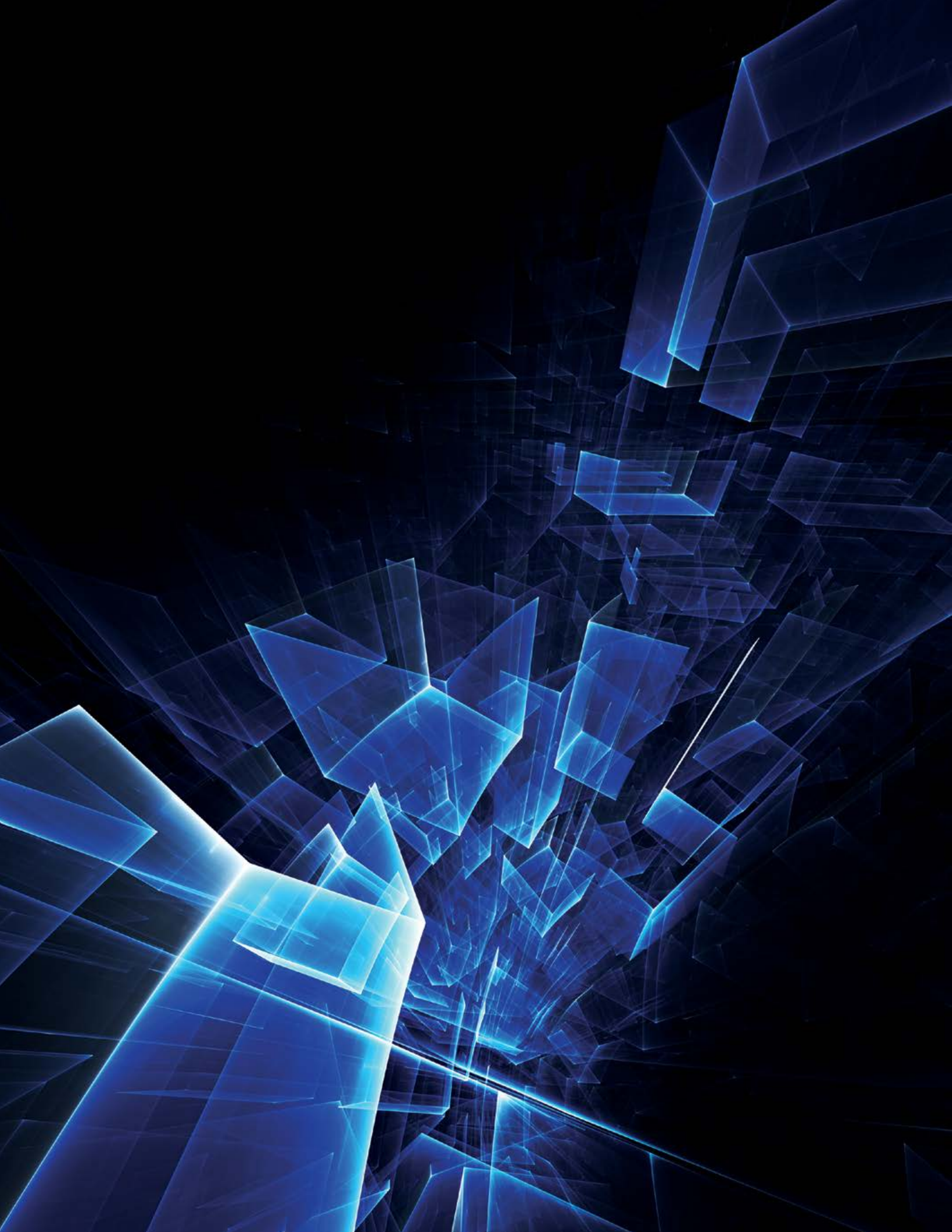
THE MOBILE INDUSTRIAL REVOLUTION

ANTICIPATING THE IMPACT AND OPPORTUNITIES
OF 5G NETWORKS ON BUSINESS



IN ASSOCIATION WITH:







CONTENTS



Executive Summary 2

Methodology 2

Key Findings..... 4

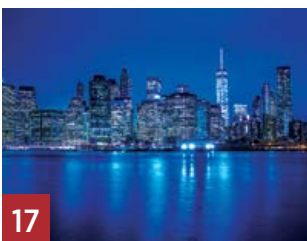
The Mobile Revolution.....7



How Business Is Using Wireless..... 8

Case Study: When Mobile Really Mattered..... 11

Business Needs Better Networks..... 13



Revolution, Not Evolution 15

Case Study: The Smart City That Never Sleeps..... 17

Preparing for Another Disruption 18



Getting From Here to There..... 21

Managing for Change 22

Conclusion 24

Acknowledgments..... 24

EXECUTIVE SUMMARY

Global business leaders say that mobile and wireless are critical to the way they do business, but they worry that their needs are outpacing existing access networks. In order to evolve and succeed in the future, these executives say their companies will require revolutionary increases in the speed, capacity and connectivity of mobile devices—and they're looking to 5G networks to provide it.



The introduction of **5G networks** in the next five to 10 years is expected to create huge opportunities to build enterprise value in a range of industries, profoundly affecting business operations, P&L economics, asset valuations and revenue models. Forward-looking organizations are already anticipating the impact of this technology, and are creating long-term plans to realize value, gain shareholder buy-in and deliver innovation.

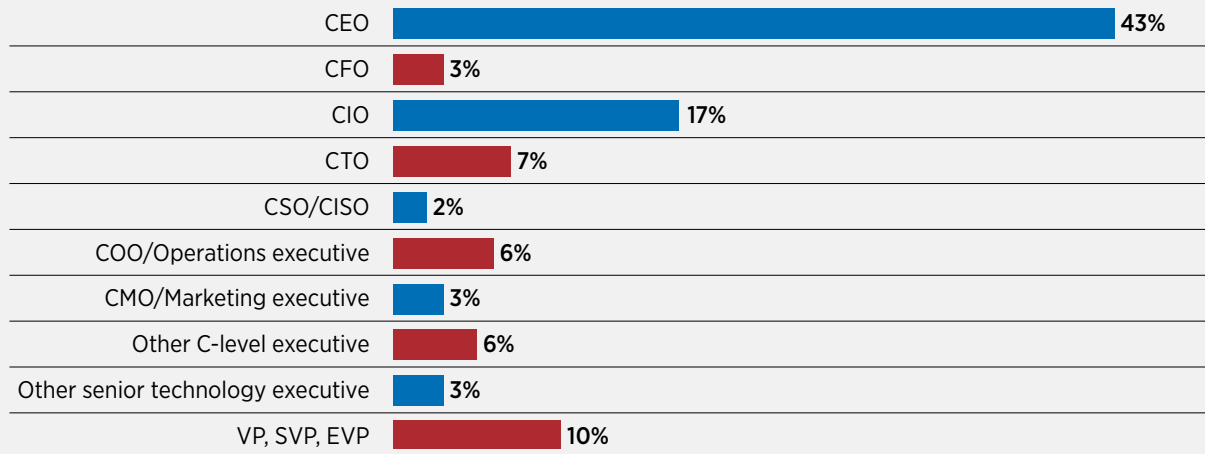
To gain more insight into this crucial development, Forbes Insights conducted a global survey of more than 1,000 senior executives.

METHODOLOGY

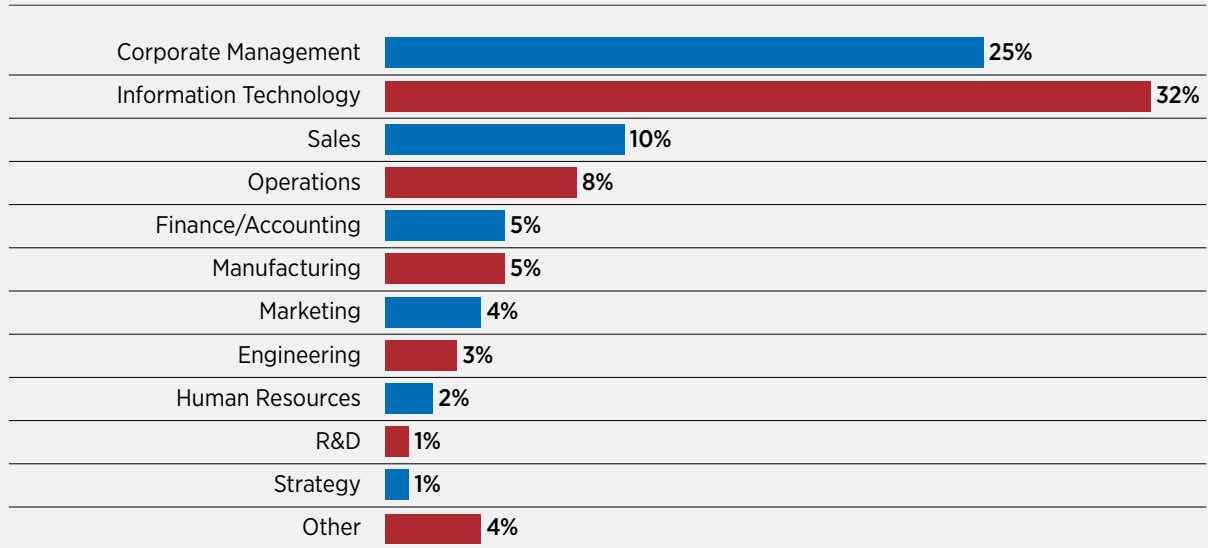
This report is based on a survey of 1,147 executives conducted in October/November 2015 by Forbes Insights.



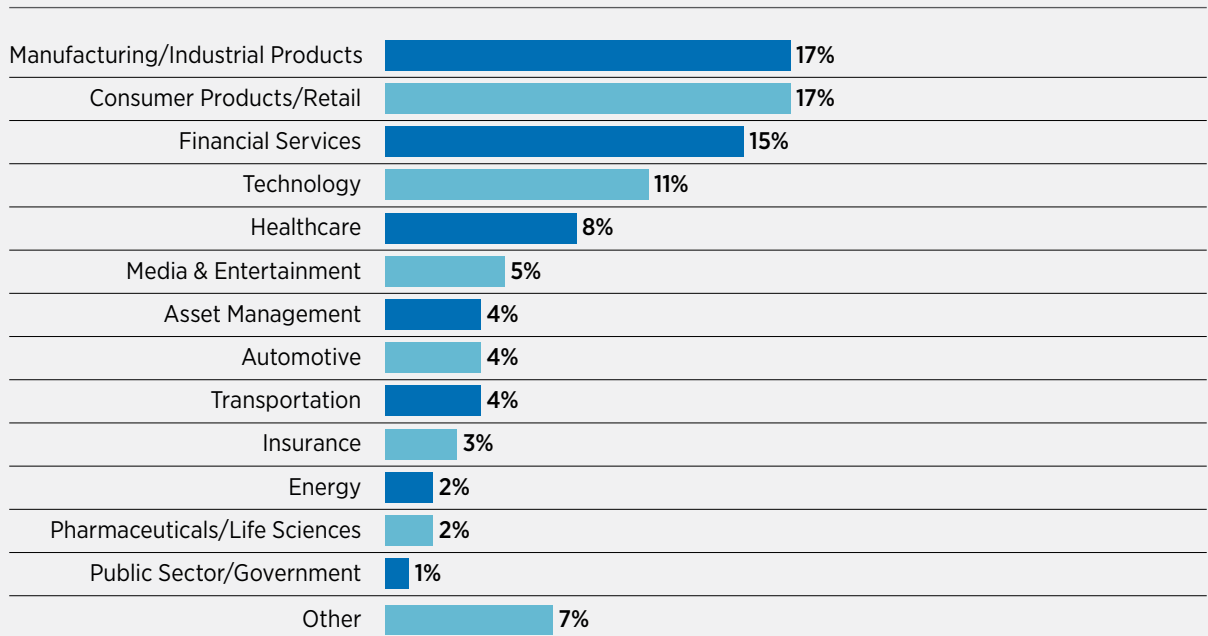
TITLE



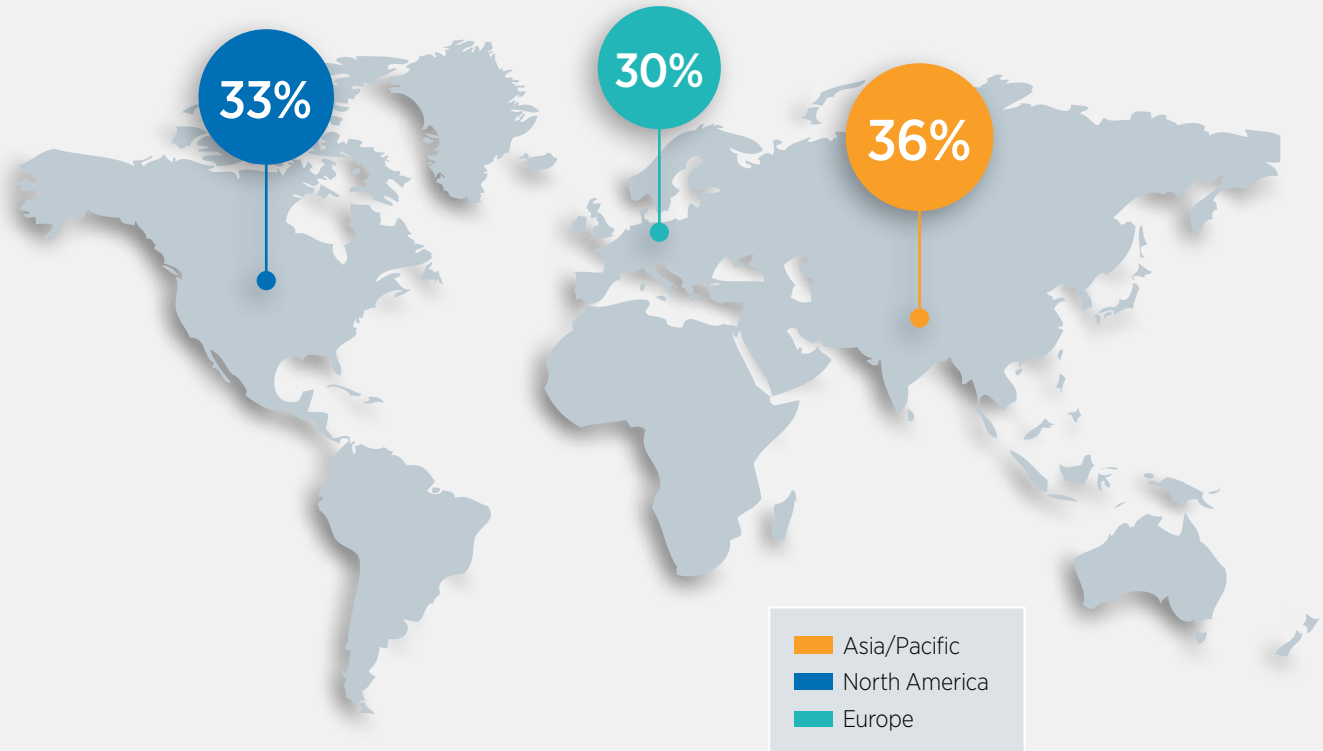
FUNCTION



INDUSTRY

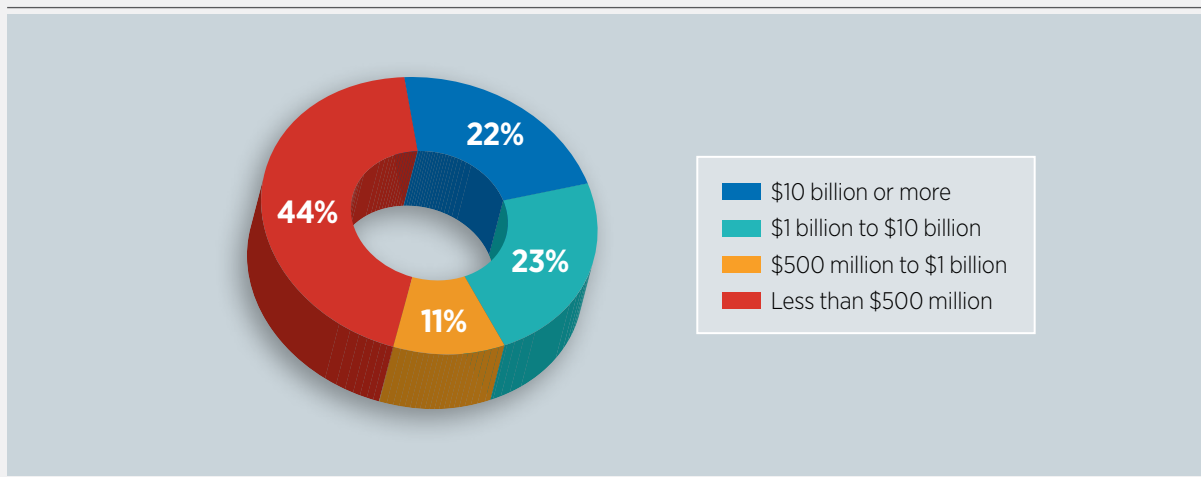


GEOGRAPHY



Note: Does not add to 100% due to rounding.

ANNUAL REVENUES



KEY FINDINGS

CAPABILITY GAP

More than one-third of all executives say that their current systems already can't support the evolving needs of their business, including more than half (55%) of executives at organizations with revenues in excess of \$10 billion. The problem is most pressing in the Asia/Pacific region, where 38% of all executives agree they've outgrown their networks, followed closely by Europe (36%) and North America (34%).

NETWORK REQUIREMENTS

A majority of executives (67%) say they need mobile networks that provide ultra-high throughput. Nearly as many say they require massive numbers of connections (64%), or ultra-low latency (59%). What they need is 5G networks.

NEED FOR EDUCATION

Overall, more than a third (36%) of all executives polled in the Forbes Insights survey say they know "very little" or "nothing" about the technologies and issues around 5G wireless; 38% say they "understand the fundamentals," and only 27% say they are "very familiar." Executives based in Europe tend to be far better informed than their colleagues, with only 24% saying they know little or nothing, compared with 42% in Asia/Pacific and 40% in North America. Unsurprisingly, leaders in the technology industry are much better informed than their colleagues in other verticals.

PREPARING FOR DISRUPTION

Executives at just 26% of all companies say they are "extensively" exploring or planning how they might use 5G, while 15% say they are not planning at all. The companies sitting on the sidelines tend to be smaller and earn less revenue: 28% of executives at companies with revenues below \$500 million say they aren't making plans—five times as many as the 3% of executives who aren't planning for 5G at \$10 billion-plus organizations.

BENEFITS OF 5G

More than 80% of all executives believe that 5G technologies will have positive effects on multiple areas of their business. The areas where they're most bullish about the benefits of 5G: customer experience, service/product quality and worker productivity.

THE MOBILE REVOLUTION

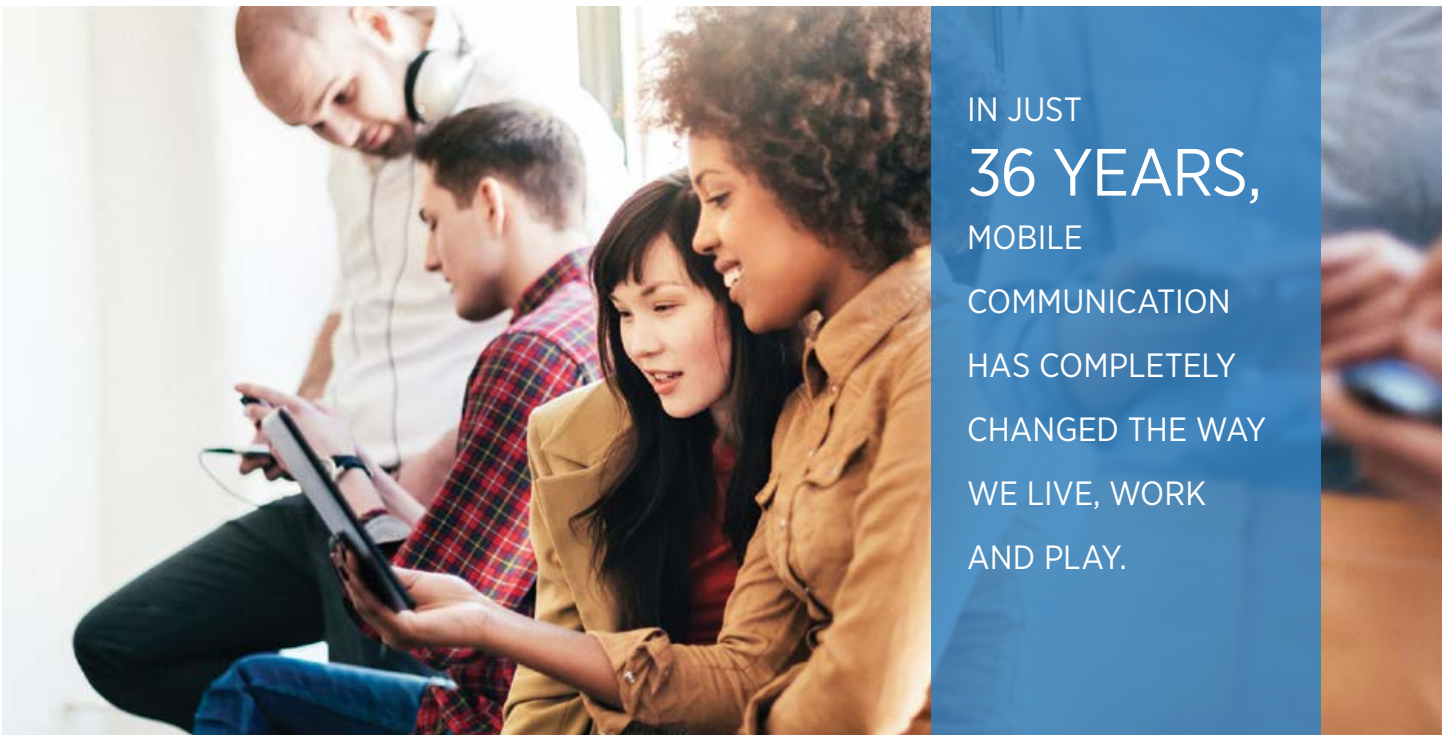
Who would have thought so much could change in the course of a single career? When the world's first automated cellular network launched in 1979, many of today's top chief executives had already started their climb up the corporate ladder. But they probably thought mobile phones were a novelty—if they thought about them at all.

Today they know different. Mobile networks have become fundamental tools for doing business, and wireless devices are omnipresent in our professional and personal lives. Smartphones, laptops and tablets are everywhere; we even wear wireless gadgets on our wrists or clip them on our clothes.

In just 36 years, mobile communication has completely changed the way we live, work and play. But the most amazing thing about this wireless revolution is that innovation is accelerating, not slowing down. When they come online in the next five to 10 years, 5G networks

will deliver ultra-low latency, super-high throughput and massive numbers of connections. They will usher in entirely new ways to do business, create new industries and drive unprecedented economic and societal growth.

Think of what those young future CEOs could have accomplished if they knew what was coming back in 1979. There's even greater potential to benefit today. In this document, exclusive new research conducted by Forbes Insights and sponsored by Huawei reveals how 5G networks will transform the world, and uncovers what market-leading global organizations are doing to get ahead of this next revolution.



IN JUST
36 YEARS,
MOBILE
COMMUNICATION
HAS COMPLETELY
CHANGED THE WAY
WE LIVE, WORK
AND PLAY.

HOW BUSINESS IS USING WIRELESS

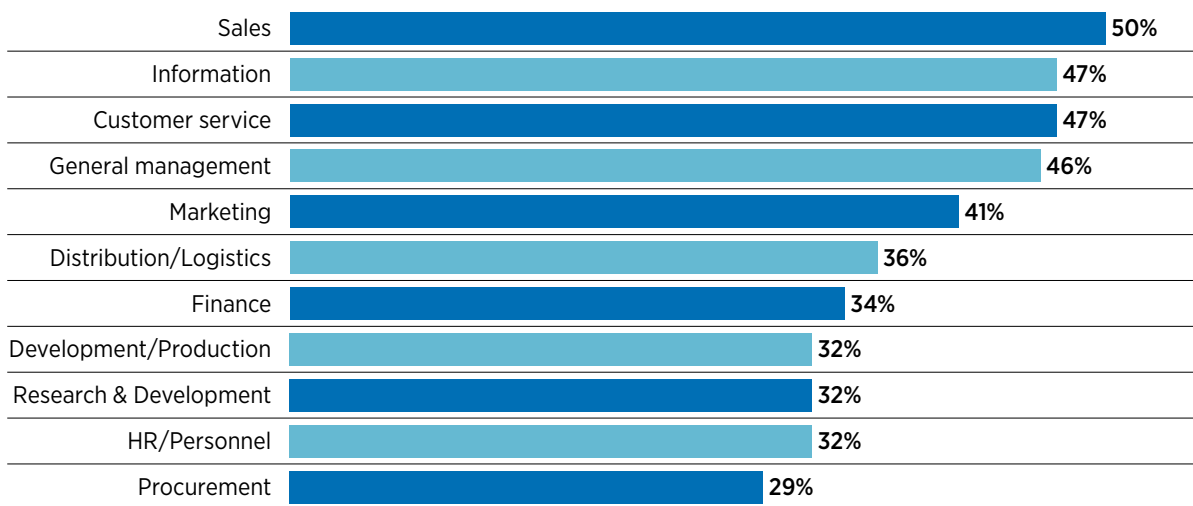
In just a few decades, global businesses have become completely dependent on mobile and wireless. An overwhelming majority of executives say the technologies are critical to providing a good customer experience (86%), producing products and services (85%), maintaining internal operations (80%) and communicating with vendors/partners (84%). Sales organizations have led the charge—and many executives report that as a consequence, they have seen dramatic increase in revenues.

A photograph showing three business professionals in a city street. On the left, a man with a beard in a dark suit is talking on a mobile phone. In the center, a woman in a light blue shirt is also on a mobile phone. On the right, an older man in a dark suit is talking on a mobile phone. The background shows a blurred city street with buildings and trees.

86% OF EXECUTIVES SAY
MOBILE TECHNOLOGIES ARE
CRITICAL TO PROVIDING A GOOD
CUSTOMER EXPERIENCE.



WHERE DO YOU UTILIZE MOBILE/WIRELESS NETWORKS IN YOUR BUSINESS?



In 2014, health care product wholesaler H. D. Smith, the largest independent pharmaceutical wholesaler in the United States, equipped every member of its sales force with 4G-connected tablet computers loaded with a custom-designed application. The app displays a variety of metrics and statistics about each customer's order history, as well as up-to-the-minute product information.

"Pricing in health care is byzantine, because it's tied into things like rebates and tier levels and incentives from manufacturers," says H. D. Smith CIO David Guzman. "Figuring out the current price of a product is almost like playing three-card monte." But when mobile technology enables real-time access to product prices and offers, salespeople are able to work with their customers to find deals.

"We're transitioning the sales associate from a salesperson to a business consultant," says Guzman. "Now they're able to walk into a customer's office, show them metrics about their business, and give them advice on how to maximize their savings, and therefore our relationship with them."

After H. D. Smith deployed the mobile application, its sales went up in every region, with year-over-year increases climbing as high as 21.8%. "There's been a direct correlation between using the tool and driving results," says Guzman. "Every one of our divisions is performing better, and our sales force is performing better, as a result of using the mobile tool."

Developing a custom application and deploying new hardware to an entire sales force might sound pricey. But companies like H. D. Smith report that the significant benefits of going mobile outweigh relatively modest costs. Nearly half (46%) of respondents to Forbes Insights' survey say they allocate less than 10% of their total annual internal IT budget to mobile products and services; only 5% spend more than 30%.

78%

OF COMPANIES WITH REVENUES GREATER THAN \$10 BILLION PLAN TO INVEST MORE FUNDING FOR WIRELESS AND MOBILE IN 2016 THAN IN 2015.

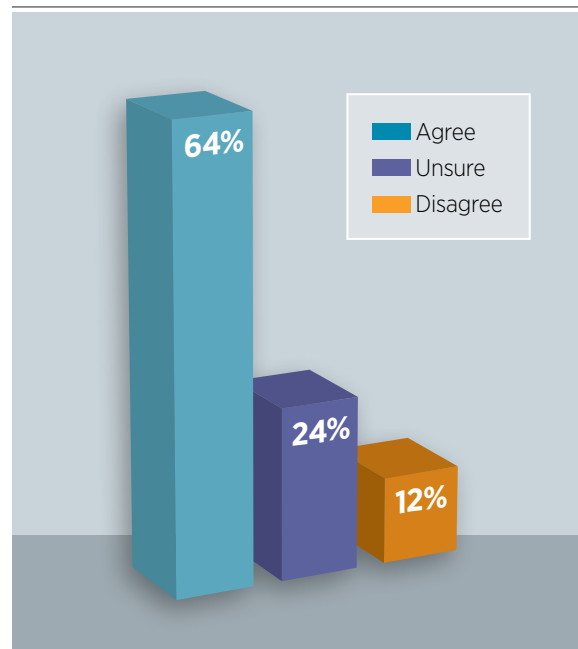
And they like what they're getting for their money. Ninety-two percent of executives say they are satisfied with their mobile service provider's ability to meet their business needs; only 4% say they're unsatisfied. The most requested area of improvement is cost, but only 35% of respondents say value or price needs to be lower to better meet their needs.

As a result, most companies are increasing their investments. Fifty-six percent of executives surveyed say they're planning to spend more on wireless and mobile in 2016 than they did in 2015; only 17% indicate they may spend the same or less. Bigger companies plan to spend more: 78% of companies with revenues greater than \$10 billion plan to invest more funding for wireless and mobile in 2016 than in 2015. Only 32% of companies with revenues of less than \$500 million say the same.

And some industries are particularly enthusiastic about mobile. Sixty-eight percent of executives in the manufacturing and industrial products business plan to invest more in mobile and wireless during 2016, the most of any vertical industry, while only 42% of health-care executives say they're increasing spending too.

Across every industry, increasing informatization and intelligentization are driving businesses to a place where they say they will need network connectivity everywhere, all the time. "If you've done good things with mobile, of course you're going to do more," says Guzman. Now the real question is: what technology will get us there?

IN THE FUTURE, EVERYTHING IN OUR LIVES WILL BE CONNECTED TO A NETWORK.





Case Study: **H. D. Smith**

WHEN MOBILE REALLY MATTERED

When David Guzman was an executive at office product supplier Office Depot, he'd sometimes lighten the mood during dry supply chain management meetings by reminding his colleagues, "Guys, we're delivering pencils, not plasma."

But now Guzman is the CIO of health care product provider H. D. Smith, where distribution problems are no laughing matter. "You've got to remember that medications are vital," he says. "Supply disruptions can be life-threatening to the patients that depend on us."

In 2011, Guzman decided to rely on mobile networks to help prevent potentially fatal breakdowns, installing backup routers equipped with 4G wireless cards in all of H. D. Smith's regional distribution centers. "Our idea was to have a backup communications capability," he says. In the unlikely case that the company's wired network went down and stayed down, the supply chain could go wireless in order to remain up and running.

When H. D. Smith installed the system, Guzman didn't think he'd ever have to use it. But just a year later, in October 2012, Hurricane Sandy slammed into the New York metropolitan area—and H. D. Smith's regional distribution center in Kearny, New Jersey, lost its wired network. "All the landlines were down due to severe flooding," says Guzman, "but mobile networks were still up and running. When the backup routers with wireless cards came online, business continued uninterrupted.

"WE RAN A \$1 BILLION-PLUS DISTRIBUTION CENTER ON A VPN OVER 4G, AND IT WORKED WELL," SAYS GUZMAN. "IT SAVED OUR BACON. IT KEPT OUR BUSINESS RUNNING."



MORE THAN

ONE-THIRD

OF ALL EXECUTIVES SAY THAT
THEIR CURRENT SYSTEMS
ALREADY CAN'T SUPPORT THE
EVOLVING NEEDS OF THEIR
BUSINESS.

BUSINESS NEEDS BETTER NETWORKS

Wireless and mobile technologies are helping businesses around the world increase innovation, efficiency and revenues. But there's an obstacle in the way of future growth: a technological gap where future use cases demand capabilities that are beyond our current networks. More than one-third of all executives say that their current systems already can't support the evolving needs of their business, and more than half (55%) of executives at organizations with revenues in excess of \$10 billion. The problem is most pressing in the Asia/Pacific region, where 38% of all executives agree they've outgrown their networks, followed closely by Europe (36%) and North America (34%).

Hawk Aerial, which provides training on, sells and operates unmanned aerial vehicles that are used to inspect infrastructure such as cell towers, wind turbines and utility poles, is a good example of a company that would benefit from better wireless networks. Hawk's commercial-grade drones are outfitted with on-board cameras that stream live video to a pilot on the ground who remotely controls the vehicle. At the same time, an accompanying visual observer triggers the drone to gather images of key infrastructure features in hard-to-reach places. The system allows Hawk Aerial's clients to document the results of their inspections and avoid the cost of installing safety rigs and scaffolding, and to keep their inspectors out of physical danger.

But its greatest promise has yet to be realized due to the current limitations of wireless communications: the connection to the drone is fast enough to stream live telemetry data, control commands and video for use in navigation, but not the high-resolution imagery required to immediately analyze any inspection problems adequately. "The images that we can see in real time are hugely degraded," explains CEO Kevin Gould. "That's one area where the technology needs to move forward."

"THE TECHNOLOGY NEEDS TO
MOVE FORWARD."

—Kevin Gould
CEO, Hawk Aerial

Currently, in order to complete an inspection, a drone records high-resolution images to a memory card on board the vehicle, and then the files are manually transferred to a computer after the drone has landed. If a pilot or field inspector needs to send the images back to experts in the home office for further review, they then have to upload the large high-resolution files again—a task that's often impossible over the spotty data connections available in rural inspection areas.

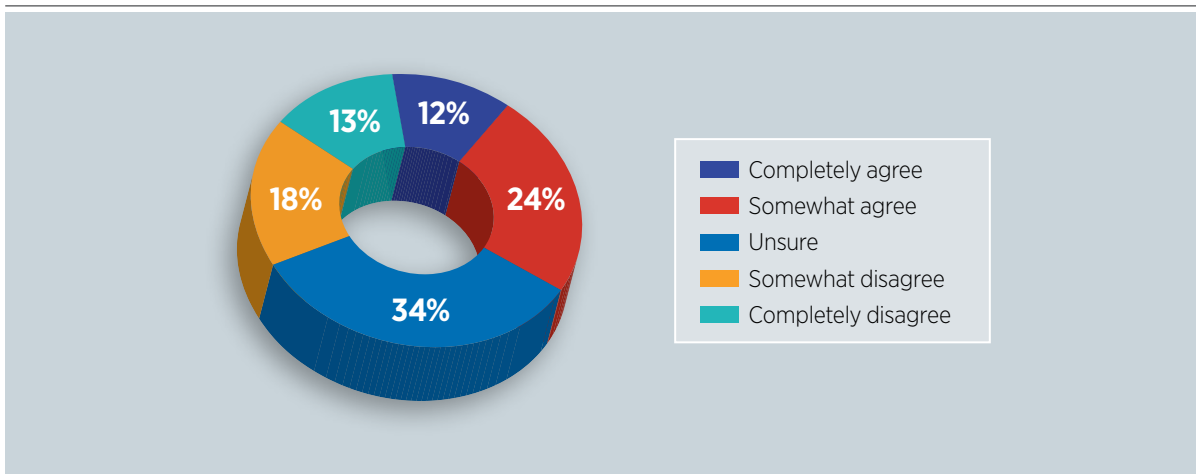
If better mobile networks were available, the inspection system would be significantly more efficient. "The key that people are working toward is to stream live high-definition photographic imagery—capture it live and put it out over the Internet," says Gould. "Think about a company that owns 12,000 cell towers across the country and has multiple inspections taking place all at

once. They could have their engineering headquarters in one major city, and all the engineers are sitting there in a room, receiving feeds from various different inspections taking place in real time, and communicating with the pilots—“that one’s okay, move on to the next one.”

As existing access networks (including cable, Wi-Fi and 4G) increasingly create a bottleneck to innovation,

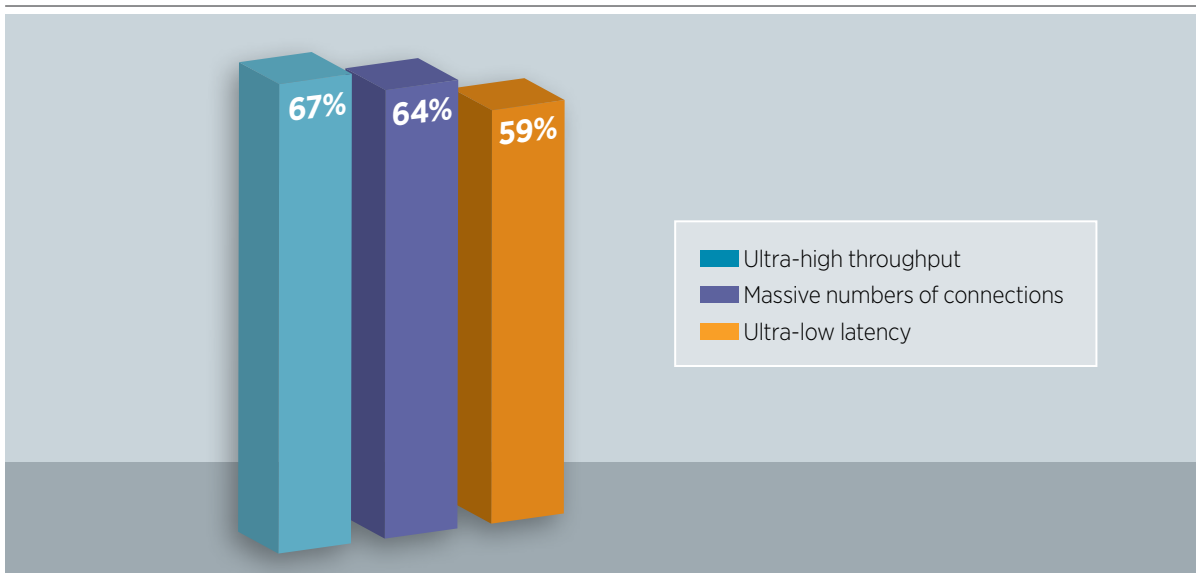
executives are beginning to identify exactly what kind of infrastructure they’ll need in the future. A majority of them (67%) say they need mobile networks that provide ultra-high throughput. Nearly as many say they require massive numbers of connections (64%), or ultra-low latency (59%). What they need is 5G networks.

EXISTING NETWORKS CAN’T SUPPORT EVOLVING NEEDS OF MY BUSINESS



Note: Does not add to 100% due to rounding.

FUTURE NETWORK REQUIREMENTS (% OF RESPONDENTS WHO COMPLETELY OR SOMEWHAT AGREE)



REVOLUTION, NOT EVOLUTION

Despite the name, 5G isn't simply the next generation of existing 4G mobile networks; it's not a mere upgrade, but rather the new infrastructure of a connected, intelligent world. The standard is still in development, but deployment is expected to begin as early as 2020, and when it arrives, 5G wireless networks will support throughput of 10 gigabits per second per individual user; end-to-end latency as little as 1 millisecond; and connections for as many as a million devices per square kilometer, or 100 billion devices worldwide.

But those are just numbers. What 5G really means is zero-distance connectivity between people and connected machines—the ability to transmit huge amounts of data almost instantaneously, to countless devices all over the world. When 5G networks come online, they'll drive economic and societal growth in unprecedented ways, and contribute to the creation of new products, services and businesses.

Consider the ability to support a million devices on a single cell. Today's 4G mobile networks max out at a few thousand connections, which tends to limit their use to phones, computers, and similar smart devices. But since 5G will provide exponentially more capacity, it will allow us to embed intelligence into all kinds of physical objects—from toothbrushes to appliances to running shoes to robots—and get them all online at once.



5G MEANS THE
ABILITY TO TRANSMIT
HUGE AMOUNTS OF
DATA ALMOST
INSTANTANEOUSLY,
TO COUNTLESS
DEVICES ALL OVER
THE WORLD.

For Linda Reed, VP and CIO at Atlantic Health System, a non-profit health care network comprising seven hospitals and more than 600 community-based health care providers, this “Internet of things” means millions of devices keeping track of patients and assets. Smart pill boxes could alert doctors if a patient forgets to take a prescription as scheduled. Hospital refrigerators could warn staff when supplies are at risk of spoiling. Or sensors in cars could immediately alert 911 after an accident, and warn paramedics what sort of injuries they’re likely to deal with.

Some 5G-enabled devices could even provide emergency treatment. “You’re going to be walking around with sensors inside your body, or even pills that have all your medication loaded up, just waiting for a signal,” Reed says. “Imagine if a sensor inside your body says, ‘Oops, my blood sugar is up,’ and then a signal comes back from the hospital instructing [the pill] to release three units of insulin.”



Executives at other organizations say 5G’s ultra-low latency is the key to enabling new capabilities. Joab Schultheis, VP and CIO of the moving and storage firm Atlas Van Lines, says 5G networks could enable entire fleets of autonomous vehicles. Driverless trucks and cars need to receive immediate updates of things like traffic conditions, he says, as well as respond to navigation commands and unexpected hazards quickly; when a car is traveling at 60 miles an hour, the difference between the 50-millisecond latency of a 5G network and the one-second latency of a 4G network could be the difference between safety and injury.

Finally, the profound speed improvements of 5G will also radically change the way businesses operate. Thanks to peak speeds of 10Gb per second, consumers will be able to download media like never before—an entire high-definition movie in just six seconds. “One way I envision using it would be for salespeople to perform video surveys for a customer,” says Schultheis. “A video survey conducted over 5G could provide a much better experience for customer and salesperson, and result in a more accurate survey.”

Other industries will also benefit from the ability to stream high-resolution video over 5G networks. Doctors will be able to perform remote surgeries while viewing crystal clear images of their patient. And once executives can attend meetings virtually via HD multi-user video telepresence, corporate boardrooms will never be the same.

THE PROFOUND SPEED
IMPROVEMENTS OF 5G WILL
RADICALLY CHANGE THE WAY
BUSINESSES OPERATE.



Case Study: **New York City**

THE SMART CITY THAT NEVER SLEEPS

New York City is already home to one of the most complex municipal networks on the planet.

Its public safety wireless network, called NYCWiN, was completed in 2009 at a total cost of \$500 million, and is capable of transmitting secure high-speed data, voice and video from 400 cell towers around the city. But Anne Roest, CIO of the City of New York and commissioner of the NYC Department of Information Technology, says that she needs wireless networks to connect more than just police and fire department vehicles. “My role is to support Mayor Bill de Blasio, and his vision is to bring affordable wireless broadband to the entire city,” she says. “We know that it’s critically important to the city’s future that we have more and more wireless access.”

During the previous administration of Mayor Michael Bloomberg, New York City began operating free broadband wireless networks in select parks and neighborhoods. They were embraced by the city’s residents, and the program grew significantly; today, the largest free wireless corridor covers 100 blocks in Manhattan’s Harlem neighborhood. But it’s still not enough. “There are too many places in the city that we still haven’t reached,” Roest says. “Over one-fifth of the city’s residents still have no access to broadband Internet, primarily because they can’t afford it.” So in 2014 the city announced a new network, called LinkNYC, which is meant to convert at least 7,500 old payphones around the city into wireless hotspots, delivering free, encrypted, gigabit wireless Internet coverage to New Yorkers.

It’s not NYC’s only effort to transform into a smart city. Most of the water meters in the city are connected to wireless antennas that transmit usage data, eliminating the need for manual readings and saving the city \$3 million per year; then there’s the neighborhoods.nyc online platform, which delivers neighborhood-specific transit alerts, emergency notifications and other city data in 13 languages. But LinkNYC is probably “the coolest thing ever,” says Maya Wiley, counsel to Mayor de Blasio. “It’s something that no other city has done—the largest, fastest, free service in the world...a citywide network that will promote increased entrepreneurship and enable the Internet of things.”

PREPARING FOR ANOTHER DISRUPTION

It seems clear that 5G networks are what management expert Clayton Christensen calls a “disruptive innovation”—an emerging technology that overturns existing business methods and markets. But despite the profound opportunity (and potential threat) looming on the horizon, just a few years away, executives still show a surprising lack of awareness of what’s ahead.

Overall, more than a third (36%) of all executives polled in the Forbes Insights survey say they know “very little” or “nothing” about the technologies and issues around 5G wireless; 38% say they “understand the fundamentals,” and only 27% say they are “very familiar.” Executives based in Europe tend to be far better informed than their colleagues, with only 24% saying

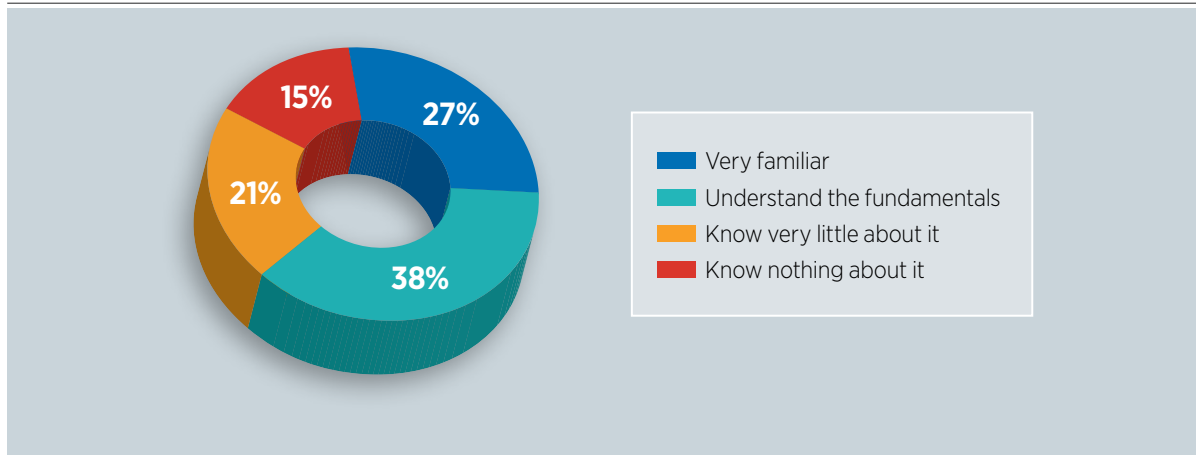
they know little or nothing, compared with 42% in Asia/Pacific and 40% in North America.

Unsurprisingly, leaders in the technology industry are much better informed than their colleagues in other verticals; 52% of tech executives say they’re very familiar with 5G, compared with 42% in media and entertainment, 15% in healthcare and 11% in consumer products/retail. And executives at bigger companies are



36% OF ALL EXECUTIVES POLLED IN THE FORBES INSIGHTS SURVEY SAY THEY KNOW “VERY LITTLE” OR “NOTHING” ABOUT THE TECHNOLOGIES AND ISSUES AROUND 5G WIRELESS.

LEVEL OF FAMILIARITY WITH 5G WIRELESS NETWORK TECHNOLOGIES



Note: Does not add to 100% due to rounding.

also better informed; only 39% of executives at companies with revenues less than \$500 million say they understand the fundamentals, compared with 88% of executives at companies with revenues of \$10 billion or more.

There are similar gaps in who is actually making plans for how they will implement 5G. Executives at just 26% of all companies say they are “extensively” exploring or planning how they might use 5G, while 15% say they are not planning at all. But the companies sitting on the sidelines tend to be smaller: 28% of executives at companies with revenues below \$500 million say they aren’t making plans—five times as many as the 3% of execs who aren’t planning for 5G at \$10 billion-plus organizations.

As director of mobility for SHI International, a leading global reseller of software, hardware and related services, Kevin English helps 17,500 customers ranging in size from multinational conglomerates to small start-ups choose and implement the best technology to run their businesses. He says there’s still a lot of skepticism about 5G networks.

“Many customers think that 5G is just another revenue stream for the carriers,” English says. “It’s a pretty big concept to think about, and we’re already connected, we’re already ordering milk from our refrigerators using 4G. So it’s kind of hard for customers to understand why they should worry about what’s next.”

English says that while his customers do want to upgrade to faster networks with less latency, locking down their existing networks is a much more pressing

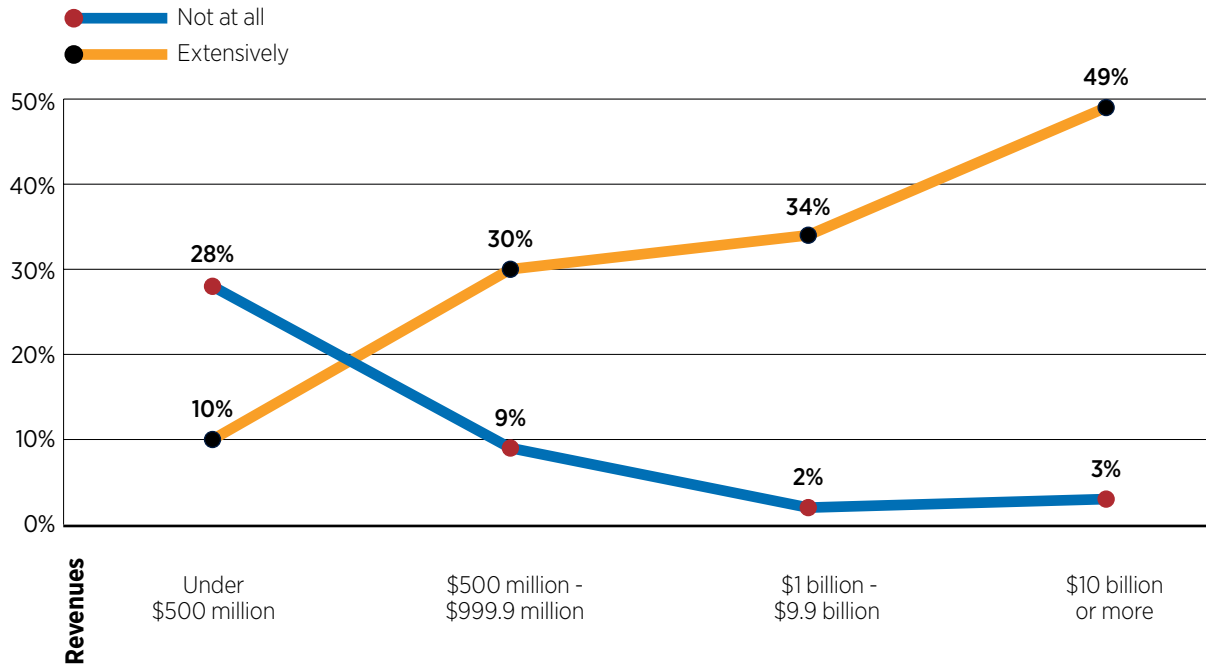
“SECURITY IS A MAJOR CONCERN AFTER ALL THE RECENT DATA BREACHES WE’VE SEEN, SO I DON’T THINK 5G IS REALLY ON THEIR RADAR YET...”

—Kevin English
Director of Mobility,
SHI International

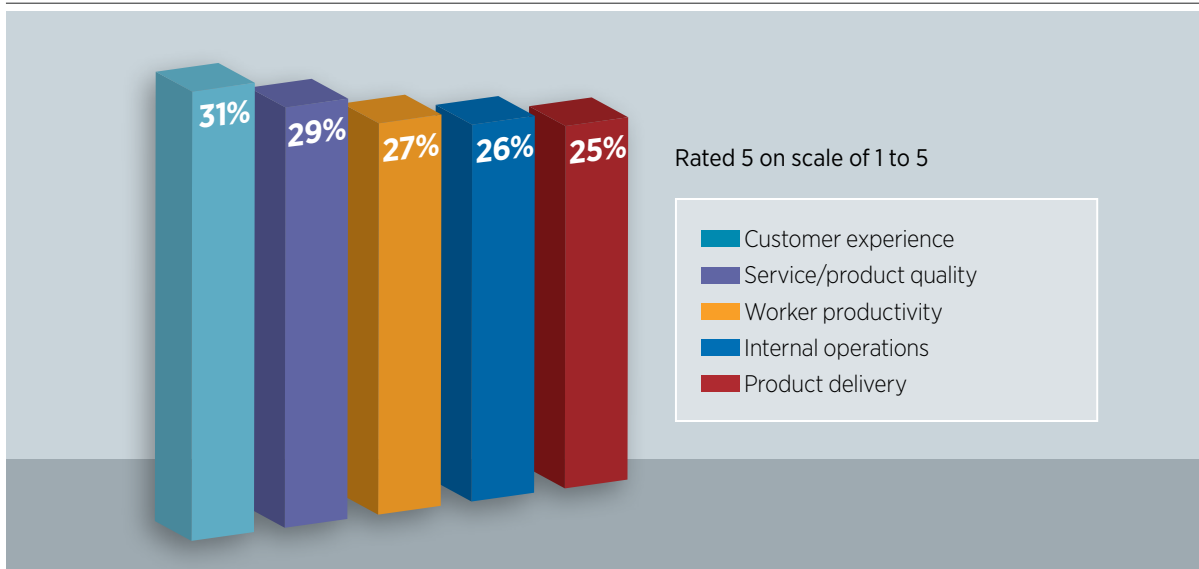
goal. “Security is a major concern after all the recent data breaches we’ve seen,” he says. “So I don’t think 5G is really on their radar yet...but I’m excited. Five or 10 years from now, we’ll blink our eyes and everything will have changed.”

When you explain the speed, connectivity and latency of 5G networks, the vast majority of executives get excited, too. A majority of executives—regardless of region, industry or company size—say that when they do get around to using 5G networks, the technology will drive notable business gains. When asked to rate how 5G will benefit different aspects of their business, on a scale where 1 is “not at all” and 5 is “significantly,” more than 80% of executives ranked each category at a “3” or higher. The areas where they’re most bullish about the benefits of 5G include customer experience (which 31% of executives rated a “5”), service/product quality (29%) and worker productivity (27%).

TO WHAT EXTENT IS YOUR BUSINESS CURRENTLY PLANNING HOW IT MIGHT USE 5G?



AREAS WHERE EXECUTIVES ARE MOST BULLISH ABOUT BENEFITS OF 5G



GETTING FROM HERE TO THERE

Before anyone can start to benefit from the implementation of 5G wireless, there are still significant obstacles that must be overcome.

First and foremost, the world has to agree on what, exactly, is 5G. Major industry organizations and standards bodies have been researching and debating the technical details of the standard for years, and they'll need to find consensus soon, so governments can release and secure required bands of the wireless spectrum. (For their part, Huawei and other 5G pioneers have proposed full-spectrum access with bands below 6GHz for primary use, and bands higher than 6GHz for complementary use.)

And in order to reach a workable consensus on standards, all kinds of companies from across vertical industries need to be involved in the standards debate. Previous generations of telecommunications networks were designed and built by service providers according to their own needs; when those networks didn't fulfill the needs of every user, some companies—and even entire industries—built their own networks with their own protocols. If that happens again, a fragmented technological landscape will make true global roaming difficult if not impossible, and delay the development of transformative 5G networks like the “Internet of things.” So this time around, telecom providers must collaborate with potential users in different vertical industries, and stakeholders at individual companies need to get involved in the cross-industry dialogue.

Overall, respondents to the Forbes Insights survey say the greatest barriers to worldwide 5G adoption will be cost of implementation, technological limitations and lack of cooperation among carriers. Service providers and equipment manufacturers need to keep that in mind when they start designing their first generation of 5G products, or else risk slowing adoption and potentially fragmenting the market.

When they look specifically at their own organizations, respondents see the obstacles a little differently. When asked to identify the factors that will most

affect how their business adopts 5G-based technology, executives said reliability was their most significant concern, followed closely by quality of experience and pricing.



HUAWEI

AND OTHER 5G PIONEERS
HAVE PROPOSED FULL-
SPECTRUM ACCESS WITH
BANDS BELOW 6GHZ FOR
PRIMARY USE, AND BANDS
HIGHER THAN 6GHZ FOR
COMPLEMENTARY USE.

MANAGING FOR CHANGE

For many executives, the biggest challenge they'll face during the next five years is getting the rest of their organization to support investments in 5G. While wireless and mobile have proven their worth in the enterprise, no company wants to spend money on new technology simply because it's new; CIOs and CTOs in particular will have to work hard to convince their colleagues that 5G isn't just an upgrade to existing networks, but a transformative, disruptive technology that must be addressed.



“Stakeholders need to be educated and informed,” says Atlas Van Lines’ Joab Schultheis. “IT can play a big role in that, but we have to be careful not to overwhelm people with information. They need a basic understanding and a way to relate to it. If an emerging technology can provide a competitive edge, it will get their attention.”

One strategy is to find an end-user that would benefit from 5G technology, and let their enthusiasm drive education and demand. “In our case, that usually needs to be a doctor or clinical person of some kind,” says Atlantic Health System’s Linda Reed. She might get a doctor excited about a particular application—like performing tele-surgery, or remotely monitoring the vital signs of patients after they’ve been discharged—and let them advocate for investment in 5G. “What you do

“WHAT YOU DO IS HELP THEM UNDERSTAND THE BENEFITS, AND THAT PERSON BECOMES AN EVANGELIST. YOU LET THEM TALK THEIR COLLEAGUES INTO ACCEPTING NEW STUFF.”

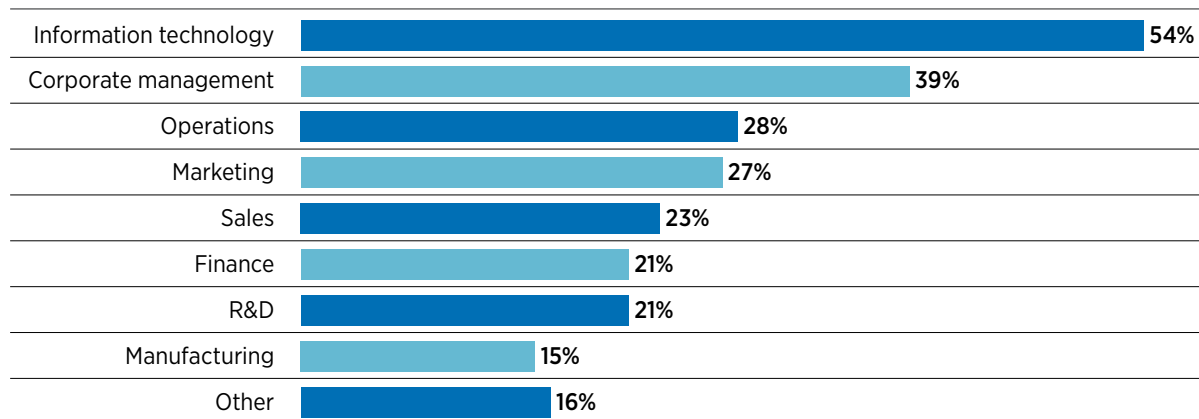
—Linda Reed
VP & CIO, Atlantic Health System

is help them understand the benefits, and that person becomes an evangelist. You let them talk their colleagues into accepting new stuff.”

Another way to facilitate adoption of 5G technology might be to start on the edges of an enterprise and work in. Reed says that when her team decided to upgrade Atlantic Health’s internal telephone system from circuit-switched to voice over IP, they started slow by upgrading a few phones in the corporate office first. After doctors and clinicians had time to see the system running, and realized the reliability and benefits of the technology, then they converted the rest of the organization’s phones.

Finally, it’s important to remember that the true promise of 5G is about societal changes, not technological ones. “Mobility is not just about the device and the infrastructure, or the peak bit rate or spectral efficiency, or all the stuff that people get all geeked out about,” says H. D. Smith’s David Guzman. “It’s about changing the way people work, live and play, and interact with each other.”

WHICH DEPARTMENTS ARE LEADING THE CHARGE TO ADOPT 5G IN YOUR ORGANIZATION?



CONCLUSION



The kinds of innovations that 5G networks will enable are so advanced, they might sound like science fiction: autonomous vehicles, remote interactive brain imaging, ultra-connected smart cities. But 5G is real, and it will help make our future world super-connected and super-intelligent, disrupting not only existing business models but entire industries. So even though the implementation of 5G networks is still at least five to 10 years away, executives need to start taking steps now to prepare for the opportunities and hazards. The path won't be quick or easy, but it leads to a brighter future.

ACKNOWLEDGMENTS

Forbes Insights and Huawei would like to thank the following individuals for their time and expertise.

Kevin English, Director of Mobility, SHI International

Kevin Gould, CEO, Hawk Aerial

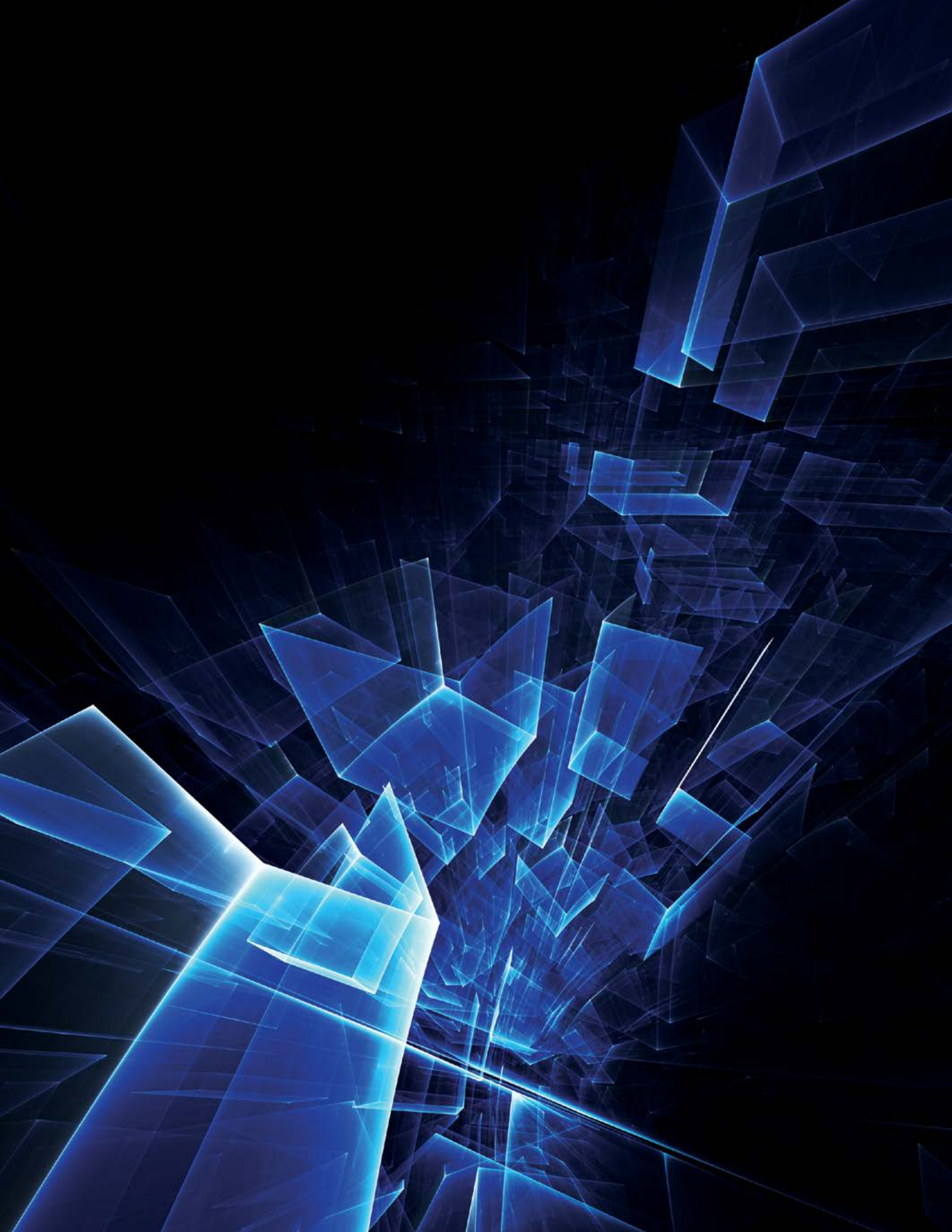
David Guzman, CIO, H. D. Smith

Linda Reed, VP and CIO, Atlantic Health System

Anne Roest, CIO of the City of New York and Commissioner of the NYC Department of Information Technology

Joab Schultheis, VP and CIO, Atlas Van Lines

Maya Wiley, Counsel to New York City Mayor Bill de Blasio



Forbes

INSIGHTS

ABOUT FORBES INSIGHTS

Forbes Insights is the strategic research and thought leadership practice of Forbes Media, publisher of *Forbes* magazine and Forbes.com, whose combined media properties reach nearly 75 million business decision makers worldwide on a monthly basis. Taking advantage of a proprietary database of senior-level executives in the Forbes community, Forbes Insights conducts research on a host of topics of interest to C-level executives, senior marketing professionals, small business owners and those who aspire to positions of leadership, as well as providing deep insights into issues and trends surrounding wealth creation and wealth management.

FORBES INSIGHTS

Bruce Rogers
Chief Insights Officer

Erika Maguire
Director of Programs

EDITORIAL

Kasia Wandycz Moreno, Director
Hugo S. Moreno, Director
David M. Ewalt, Report Author
Kari Pagnano, Designer

RESEARCH

Ross Gagnon, Director
Kimberly Kurata, Research Analyst

SALES

North America
Brian McLeod, Commercial Director
bmcLeod@forbes.com
Matthew Muszala, Manager
William Thompson, Manager

EMEA
Tibor Fuchsel, Manager

APAC
Serene Lee, Executive Director

