The Future of Work
Empowering people and organizations to achieve more
In ways large and small, our lives are being changed by digital technology. Ever-present mobile devices enable us to work from anywhere and stay in touch with the people we care about and the information we need from everywhere. From precision agriculture and automated manufacturing, to personalized medicine, autonomous vehicles, social media, and augmented reality games, every industry, every economy, and every aspect of how people manage their day-to-day lives is being reshaped.

We’ve never seen anything quite like what is happening right now. According to World Economic Forum, the speed of current breakthroughs has no historical precedent. Driven by the advent first of the steam engine, then electric power and the telephone, and now digital information, previous industrial revolutions gave rise to progress that moved at a linear pace. But transformation today is exponential. By some estimates, change today is happening 10 times faster and at 300 times the scale of the First Industrial Revolution. The change is so momentous that it is referred to as the Fourth Industrial Revolution. And the clear consensus is that the pace of change is only going to quicken. This creates an overwhelming imperative for businesses to respond—and respond rapidly.

Which explains why, by the end of this year, two-thirds of Global 2000 CEOs will have placed digital transformation at the heart of their corporate strategy. They recognize that digital transformation offers unprecedented opportunities to reinvent and reimagine their products, infrastructure, and operating models in ways that have the clear potential to drive growth and create competitive advantage.

But if advances in digital technology are the catalyst for the current transformation, it is people who will determine how progress unfolds over the next few years. At Microsoft, we have always believed the ability to adapt and innovate is fundamentally a human trait. And our approach as business leaders must always start with an understanding of how we can enable people and organizations to do their best and achieve more. As always, the real power of technology lies in its ability to enhance and amplify what humans can do.

It’s time to frame an emerging future of work. In offices and factory floors, in server rooms and board rooms, in retail stores and call centers, the workplace is evolving in important ways—and now is the time to foster the future of work to empower people and drive business growth.

**Trends in the workplace**

The nature of work keeps changing as technology advances. Starting with the invention of the steam engine and the rise of industrial manufacturing, successive waves of technological innovation have provided new capabilities, tools, and power to make work more efficient and productive. These have always been times of great disruption as old ways of operating became obsolete and new models of work emerged.

Adapting to change in periods of rapid technology transformation is never easy for organizations or the people who work in them. Businesses and industries are challenged to reinvent processes, develop new markets and partnerships, and invent new business models. At a personal level, people are often challenged to let go of old ways of doing things so they can learn new skills and adopt new ways of...
working, thinking, and being in the workplace. The companies that thrive are those that understand the forces driving change as well as their impact on people and implications for the workplace. At Microsoft, we believe several key trends will reshape the future of work over the next few years.

Rise of digital natives
For the first time in the history of the modern labor market, the workforce spans five generations—from the last of the Silent Generation through Baby Boomers, Generation X, Millennials, and now to Generation Z. Millennials have become the largest generational cohort in the labor force. By 2025, they will constitute 75 percent of the global workforce. Meanwhile, Generation Z is beginning to surge into the workforce as well.

Why is this so important? Because these new generations include the first digital natives. For many, they are the first to come of age in the era when life without a mobile device is nearly impossible to imagine. They expect flexibility about where and when they work, with touchdown spaces available so they can connect and collaborate with coworkers when it’s helpful or necessary. Increasingly, they demand the option to work remotely—something that 75 percent of Millennials would like to do more.

Millennials and Generation Z are looking for increased flexibility from employers about where they work, because staying connected is so central to their lives. They’ve grown up with social media as the primary way to communicate and create community. For them, forming and conducting relationships with people through mobile technology tools and platforms is simply how the world is supposed to operate, including at work.

These digital natives are also more likely to prioritize a sense of purpose when considering where to work and are often motivated as much by the desire to ensure their work has a positive impact on society as they are by more traditional measures of success.

Blurring boundaries of time and place
As more companies become truly global with employees and partners located all across the world, traditional boundaries of time, location, space, and structure are quickly blurring. Work doesn’t just happen between the hours of 9 a.m. and 5 p.m. at fixed desks in the same office building five days a week. People are now more mobile than ever, and business success depends on connecting people with each other and the information they need from anywhere, at any time, with whatever device is handy. Work environments have also become much more fluid and flexible. Organizations are taking cues from coworking models like WeWork, enabling employees to work wherever they want, but also giving them the flexibility to visit modular offices and conference rooms equipped with digital collaboration tools that transcend geographical boundaries.

It’s not simply a matter of location. Today, it’s rare to find a successful company without connections across a wide range of external partnerships. This makes it essential for communication and information sharing to work not only for groups within a company but across teams that may span multiple organizations and communities. This is equally true for how companies communicate with their customers and—even more critically—how companies facilitate the flow of feedback and input from customers.

Demand for lifelong learners
As technology automates routine tasks, human intelligence becomes even more important in the digital economy. More and more, companies will find that success comes from people who offer imagination,
empathy, creativity, and ingenuity. These skills will be increasingly critical for humans to master and for organizations to encourage and develop. According to LinkedIn research, interpersonal skills are foundational for people to be successful in the workforce, in addition to more specialized skills.

And as the pace and scale of change continue to increase, perhaps the most critical traits for humans to possess are agility and adaptability. A generation ago, the knowledge people gained in college probably served them well for most of their working lives. Now, according to a report from the World Economic Forum, about 50 percent of what students learn while earning a four-year technical degree will be outdated by the time they graduate. However, we all need to become lifelong learners who embrace every opportunity to cultivate new skills. Because everything is changing so rapidly, people need to be able to adapt in real time, often without a lot of training and practice needed for a given task. This means companies will have to play a different role in ensuring their employees are “job ready.” In addition to traditional learning and development, such as on-the-job training and certification programs, companies will need to explore peer mentorships, open knowledge sharing, on-demand learning, and other new approaches.

Shrinking shelf life of information

While much has been said about information overload, the rate and speed at which new information is created drives an even greater sense of urgency for companies to rethink their information management strategies.

The increased speed of information now results in its shrinking “shelf life.” These days, information comes in bite-sized tweets and posts, and speed and immediacy are often more important than quality and depth. The ability to quickly turn information into insight and action can be overwhelming, yet it has become the key to almost everything—from improving productivity and driving innovation, to understanding customers, expanding into new markets, and much more.

We now have more data than ever about our customers, products, operations, and market conditions. However, it is estimated that less than 0.5 percent of digital data is ever analyzed or used to enhance business performance. According to a recent Harvard Business Review Analytic Services study, 63 percent of enterprise leaders believe in the promise of artificial intelligence, machine learning, and visualization tools to turn massive volumes of data into useful insight—however, only 14 percent believe their company is successful at harnessing this power. This underutilized data represents tremendous potential for companies. In healthcare, for example, better integration of big data could save as much as $300 billion a year, and retailers who leverage the full power of big data could increase their operating margins by as much as 60 percent.

This proliferation of information coupled with the need to process it as quickly as possible seems to have cut average attention spans by about a third in a relatively short time: Studies have found that while Millennials have an average attention span of 12 seconds, members of Gen Z lose interest in just 8 seconds. This has major implications for how businesses manage the flow of information and knowledge among employees as well as customers and partners.

Additionally, improving data access and utilization will require the use of cloud-scale computational power, AI, and machine learning in order to process massive volumes of information and transform it into competitive advantage.
Growing impact of artificial intelligence

One of the hallmarks of the current era is how quickly artificial intelligence and machine learning is augmenting every aspect of business. It’s not just in manufacturing where robots are doing physical labor on the factory floor. AI systems are already preparing our taxes, helping doctors diagnose diseases, and enabling lawyers to search vast databases of legal decisions to pinpoint the precedent they need in seconds instead of days or weeks.

But this is just the start. In recent years, great strides have been made in a number of key areas of AI research. Increasingly, we are able to create digital devices that recognize what they see in images, video, and in the physical world; identify the words and sounds they hear; interpret the meaning of language; and even reason by inferring relationships between people, objects, places, and events. With these capabilities, how computers understand and interact with the world is becoming more natural and responsive than ever before.

These innovations will have a profound effect on the global economy. According to PwC, by 2030, AI is expected to provide a $15.7 trillion boost to global GDP. It will also have major implications for how we work. Before long, many of the mundane and repetitive tasks that take up so much of a knowledge worker’s time will be handled automatically by AI. But the real power of AI to transform the workplace will come as the computational power of machines combines with the cognitive power of people, enabling companies to do more. Machines will also empower people to analyze vast amounts of data and discover patterns that would be difficult or impossible for humans to detect. And artificial intelligence will help us do more with one of our most precious commodities: time. Soon, personal digital assistants will be trained to anticipate our needs, help manage our schedule, prepare us for meetings, assist as we plan our social lives, reply to and route communications, and drive cars.
Fostering the future of work

At Microsoft, we believe these trends are essential because they highlight the opportunities and challenges we will face in the coming years—and they also suggest possible solutions as the next generation of technology advances deliver capabilities that will empower people in entirely new ways.

As companies continue to use the power of technology to automate, simplify, and integrate many aspects of work, there are a few essential questions each one will need to answer, such as:

- How do I engage and motivate my people?
- What would boost their creativity?
- How do we move from data to insights?
- How do I use AI to make my people work better?
- How do I create a workplace my people love?

Around the world, forward-thinking companies are beginning to find answers to these questions. At Microsoft, we have the great opportunity to work with these companies, and we’ve seen four key areas that organizations are embracing in order to achieve the full benefits of the future of work.

Advancing creativity and innovation

In the digital economy, people’s most important contribution to the creation of corporate value will increasingly be their ability to come up with new ideas. Every person in every role will be expected to employ creative and innovative thinking, whether they are giving a sales presentation, doing financial analysis, or drafting plans for deploying new technology. And instead of mostly relying on text to convey ideas and information, people will use visuals, voice, and video into most communications and almost every presentation.

In his best-selling book *A Whole New Brain* published in 2005, Daniel Pink predicted that in coming decades, there would be a growing emphasis on “right-brain” qualities, such as inventiveness, creativity, strategy, empathy, play, and meaning. Recent LinkedIn research confirms much of Pink’s prediction, noting that skills such as empathy, curiosity, adaptability, and open-mindedness are consistently among the most sought after. This shift is also reflected in generational research that finds Millennials look for creative freedom when considering potential job opportunities.

Companies should look to digital technology to help humans do more innovative work. Today, for example, knowledge workers spend more than 20 percent of their time struggling to find information. Technology will give people more thinking time simply by making search easier. As technology handles routine and time-intensive tasks, people can spend more brainpower on innovative inquiry—questioning...
the status quo, proposing radical ideas, solving impossible problems, and exploring new ways to drive growth.

Advances in digital technology can now help us extend our ability to think and create. Machines have become a lot smarter, not only carrying out tasks we give them but doing so in a more personalized way. They learn from our behaviors and adapt accordingly to our preferences, giving us proactive insights such as suggesting people we should connect with or additional content that might be helpful for us to review. AI and machine learning technologies can now process data with such granularity that they can learn from employees’ digital interactions and deliver personalized assistance. For example, forward-thinking companies today are using technology to help people ramp up on new projects, find colleagues who have the right knowledge and experience to offer help, mine insights from massive volumes of data, and equip people to create high-impact, visually compelling content.

Companies should also reimagine the way people get work done with computers. People can now interact with devices and digital content the same way we interact with each other. Like humans, computers can now see us, listen to our voice, respond to touch and gestures, and help us visualize our ideas. We can also deliver richer experiences. With HD video and 3D and holographic technology, people can brainstorm with colleagues from around the world with vigor and engagement like they are in the same room together. As companies harness these advancements in digital interactions, they will easily bring people together from all around the world and across departmental silos to solve problems in less time and with less cost and hassle.

**Inspiring better ways to team**

People have always worked in teams. It is a defining characteristic of our species, and human progress has always been at least partly driven by innovations that enable us to work together more efficiently, more effectively, and more productively.

But the nature of teamwork has changed in the last decade, and companies need to give people the right tools for the right tasks. The collaboration tools we offer should meet the needs of a dynamic array of teams. Teams come in all different shapes and sizes. Teams can have two people or 200. Projects can last for two days or two years. Team members can be local or spread across the globe and include vendors and external contractors along with full-time employees. A recent Harvard Business Review Analytic Services study reports that 70 percent of enterprise customers have implemented web-based video conferencing tools, relying on video connectivity tools as one of the most effective ways to bring geographically distributed people and teams together.\(^\text{xiv}\)

And it’s not just *how* people work together that has changed but also how *often*. According to the Harvard Business Review Analytic Services, there has been a 50 percent increase in collaboration demands over the past eight years.\(^\text{\textsuperscript{xv}}\) Today, people work on twice as many teams as they did just five years ago.\(^\text{\textsuperscript{xvi}}\) There’s a reason teamwork is increasing: When done right, it’s a powerful force for success. People who work in teams tend to be more productive. And when teams draw upon people with a diversity of experiences—such as gender, age, ethnicity, educational background, physical abilities, etc.—they are more likely to come up with breakthrough ideas and effective solutions. Moreover, teams that include remote workers tend to be more productive than teams consisting of just people who work in close proximity.\(^\text{\textsuperscript{xvii}}\) More and more companies are using digital workspaces to bring geographically dispersed teams together quickly and engage members from across the globe.
Research recently conducted by Microsoft offers interesting evidence that digital collaboration and teamwork correlate with business success. Our study contrasted the productivity habits of companies with the fastest growing revenue against a comparison group matched by size, industry, and length of tenure with Office 365. We found that fast-growing companies communicate over email and share documents twice as much, are more than twice as likely to have employees collaborating using cloud-based tools, and are three times as likely to use chat-based digital workspaces.

Now, a new generation of digital technology innovation is transforming some of our most basic concepts of how teams are formed and deployed. Instead of creating teams based on hierarchical and organizational structures, intelligent communications and planning tools will enable companies to think about teamwork in much more dynamic ways—as groups that expand and contract intelligently and automatically as business needs change. And as mixed-reality capabilities that blend physical and digital worlds become more mainstream, team members working in distant locations will be able to collaborate through shared experiences that make it feel like they are in the same space.

The ability to capture important information (such as documents, meetings, conversations, plans, and presentations) and make it all easily searchable and accessible (via timelines, capabilities like real-time translation, and other new tools, such as support for working naturally with ink, voice, and touch) will ensure every team member stays fully connected to every aspect of a project that is relevant to them.

Enabling a secure environment

As companies embrace more dynamic forms of teamwork and open information sharing, it becomes even more important for organizations to protect company assets and sensitive customer data. At a time when more and more of business is becoming digital (according to one estimate, 85 percent of corporate assets are already digital), we are witnessing an unprecedented rise in cyberattacks. In 2017, the number of security breaches more than doubled compared to the previous year.

For businesses, the stakes couldn’t be higher. Today, it takes companies an average of more than 99 days to discover a security breach and about 50 days to address it. A recent study of 65 companies that have experienced security attacks since 2013 found stock market valuations fell by as much as 15 percent in the most severe cases. And it is estimated that cybercrime will cost approximately $6 trillion per year on average through 2021. Even more important is the potential impact on trust—breaches that expose sensitive customer information can be devastating to a company’s reputation and its bottom line.

The methods cybercriminals use to attack organizations continue to evolve and increase in sophistication. In turn, businesses have to stay steps ahead—and be more innovative and cutting-edge than attackers. Companies will need to employ intelligent security solutions that minimize the time it takes to identify and address attacks as well as provide multiple layers of defense to protect data, devices, apps, and identity.

Companies can no longer rely on the traditional model of just securing the organizations’ perimeters. With more businesses embracing open, collaborative cultures, they enable an open flow of information from device to device, person to person, and location to location. Sustaining the future of work requires a new way to secure and protect. Security needs to be rooted in identity, and also be more comprehensive and sophisticated, identifying breaches quickly and stopping them before they spread.

This also takes a new way of thinking. For example, many companies now assume their perimeter has already been breached. They know the best bet at staying better protected is to stay up to date with the
latest technology. They also take a proactive approach using modern intelligent security solutions designed not only to help companies detect attacks but also to contain and investigate breaches, mitigating intrusions as quickly as possible and minimizing damage.

Identity is one of the greatest vulnerabilities in security today, so companies are using AI capabilities along with biometrics (including voice and facial recognition) to deploy stronger multifactor authentication across their enterprise. Not only are these new tools making enterprise environments more secure; technologies such as biometric authentication make things simpler and more intuitive for the user.

Intelligent approaches to intellectual property are also making it much easier to classify, label, and protect documents based on their content. This protection will travel with information wherever it goes. Advanced tools will even be able to automatically identify and encrypt sensitive information based on company policies.

Today, the latest security advancements are making it possible to create a more secure environment while also enabling the open flow of information, creativity, and teamwork essential for success.

Making technology experiences simpler
As companies foster the future of work, IT organizations must embrace this culture change as well. Many IT departments today are moving to more agile, modern IT models that enable businesses to adopt new technologies at the speed of technology innovation.

There are a few reasons why IT culture change and agility are crucial. First, as part of creating a secure environment, organizations need to ensure all devices always have the latest security updates and fixes. This is a critical factor in protecting against cyber threats. Second, companies need to offer employees access to the best tools available. Third, companies need to stay in touch with fast-changing market and customer trends—which means using the latest technologies customers are using.

The good news is recent technology advances are making IT culture change easier. For example, mobile apps and services are increasingly replacing monolithic applications, making adoption simpler as well as more modular, distributed, and streamlined. Companies can easily absorb innovative capabilities without the kind of disruption that characterized application deployments in the past.

Cloud computing enables companies to adapt their available computing power by adding or subtracting capacity and services as demand fluctuates. There’s no question that the move to cloud-based capabilities is well underway. Already, on average, enterprises employ more than 1,400 different cloud services, and their employees use an average of 36 different cloud services at work—including nine for collaboration, six for sharing files, and five for sharing content.”xxvi By the end of this year, it is projected that 80 percent of all enterprise IT spending will go to cloud-based apps and solutions.”xxvii Also, in 2017, people downloaded nearly 197 billion apps.”xxviii That number is expected to grow to more than 350 billion by 2020.”xxix

The proliferation of cloud services and mobile apps has untethered data from devices, simplifying technology adoption for organizations and freeing people to move more easily from device to device without losing access to the information and tools they need. Today, companies can begin to bring all their systems, services, and data into an environment that facilitates easier access to people and information, opening the door to much more effective and productive teamwork and collaboration.
As an industry, we still have a long way to go in simplifying the technology experience for everyone and making technology adoption easier for IT organizations. Ongoing innovation to make technology ever more intuitive, distributed, and modular will be essential to enable IT culture change and support business agility.

**Expanding the Firstline frontier**

These four areas represent exciting opportunities for businesses to foster the future of work and empower *all* workers—not just knowledge workers but also Firstline workers who greet customers in retail shops and hotels, operate machines on factory floors, work on construction sites, labor on farms, and more. The global workforce includes nearly 2 billion Firstline employees, representing about 80 percent of all workers. They are core in almost every industry—the first to engage customers, the face of every brand, and the first to see a company’s products in action.

Historically, access to modern productivity tools and solutions has come to Firstline workers at a slower pace than it has for knowledge workers. But with the era of the intelligent cloud and intelligent edge—and with cloud services and cost-effective mobile devices that can be tailored to specific workplace requirements—comes the unprecedented opportunity to empower and equip individuals and teams in all kinds of work settings. Today, companies can include Firstline workers in the digital transformation journey and, in doing so, drive a better customer experience, improved business processes, and increased employee engagement.
The future of work in action

As the nature of work is changing, the tools workers use in their jobs are evolving to meet new needs and provide new capabilities. At Microsoft, we’re working with customers to empower people and teams with modern solutions designed to help them seamlessly connect with one another, democratize data and analytics capabilities for everyone, and weigh important enterprise considerations like security and compliance. For companies taking advantage of these capabilities, the digital transformation is already having a significant positive impact on productivity, collaboration, innovation, and the bottom line.

Mondelez International

With brands like Cadbury, Oreo, Milka, and Trident as well as more than 90,000 employees in approximately 160 countries around the world, Mondelez International is one of the world’s biggest snacking companies. An important foundation for the company’s success is its focus on the business value of standardizing best practices.

In particular, Mondelez International is focused on changing their culture when it comes to internal communications and collaboration. The company wants to break down corporate silos, improve search and discovery, and give employees easier access to colleagues and expertise. An important part of this journey is to equip people with modern tools for collaboration—namely, Office 365 cloud services, which Mondelez International has deployed across the entire organization.

For example, the company uses Yammer, an enterprise social network platform that helps people start conversations, share knowledge, and build communities. Mondelez International has been successful in building collaborative digital communities across more than 2,000 groups that span a range of functions, like Corporate & Legal Affairs and HR to subject matter groups, social groups, and business strategy groups.

The company’s globally distributed employees sometimes struggle with a lack of human connection due to new, virtual ways of working. But with Yammer, Mondelez International has found that colleagues feel better connected. The global sales force, one of the more remote populations who use Yammer, stays
engaged with their teams and the company. Sales reps take pictures of their in-store snack displays and broadcast their innovative shelf setups to inspire other in-store reps. In addition, cross-functional communications that include the whole organization are now more frequent, natural, and interactive. For example, in quarterly conference calls for various regions and functions, Mondelēz International has opened up “YamJams” to colleagues all around the world. With hundreds of questions and comments, and the most senior members of the leadership team interacting with junior colleagues out in the markets in real time, everyone feels like they are at a virtual cocktail party.

“At Mondelēz International, we believe that an engaged workforce is a more powerful one,” says Russell Dyer, vice president and global head of communications at Mondelēz International. “One interaction at a time, we’re building an engaged, connected global workforce that pulls together to help us live our purpose and vision—to create more moments of joy by building the best snacking company in the world.”

Cummins

The sound of a Cummins diesel engine—throaty rumbling over a purposeful, rhythmic ticking—is the company’s iconic, auditory signature. It’s the sound of power, dependability, and innovation, and it sums up the Cummins brand every time a driver turns the key. Today, as Cummins switches gears to maintain leadership in a rapidly evolving automotive and power industry, another sound signals a technology revolution at the company—and it’s a lot quieter.

Empowering innovation means harnessing the talents of all 58,600 employees in more than 190 countries, and Cummins chose Microsoft 365 to help. As a first step, Cummins needed to improve how it managed the vast amount of corporate data that formed the company’s knowledge stores and intellectual property. How big is the Cummins data universe? On average, employees create more than 500,000 emails and receive more than 3 million emails every day. Unstructured content on the company’s file shares amounts to 1.8 petabytes. Before the program, this data resided in file shares, hard drives, and a corporate intranet with a less-than-stellar search function.

Now, Cummins uses a three-tier framework for everyone at the company, which includes enabling teams to create and co-author content on a shared online drive; publication on a revamped intranet, dubbed Cummins Connect; and archiving as a corporate record in a brand-new digital records center (DRC), also housed on the intranet.
With this approach, Cummins has improved its control over content creation, storage, and access as well as life cycle policies—a huge benefit for a company that rests firmly on the security of its intellectual property. And since Cummins Connect launched in February 2017, the number of employees using the intranet has more than doubled. Now, employees often start their day on the home page, catching up on enterprise communications, videos, and stories, and reviewing their own regional news feeds.

“For nearly a century, Cummins has been innovating new products and bringing them to market faster than competitors,” says Sherry Aaholm, Cummins’ vice president and chief information officer. “As we look ahead, it is crucial to elevate the tech aspect of our business alongside the manufacturing and engineering excellence we have always been known for. We want our customers and potential employees to see us as a tech company in addition to a heritage automotive business. With Microsoft 365, we are meeting these expectations by using the integrated, intelligent cloud solution to power innovation and reimagine the future at Cummins.”

Our journey ahead

To thrive in a world that is changing at such breathtaking speed, businesses will need to reinvent many aspects of work and work culture. But change isn’t easy. Harvard Business Review Analytic Services reports that 78 percent of senior executives from enterprise businesses believe fostering modern workplace strategies is important, but only 31 percent believe their company is forward-looking enough in its approach to doing so.xxxi

At Microsoft, we’re not only helping our customers on this journey ahead, but we’re also in the middle of our own digital transformation as we help our over 120,000 employees thrive in the future of work. We’re learning, we’re growing, and we know the challenges of change. There are new tools to master and new skills to learn. We’re trying new ways to connect and collaborate. We’re leaning on cutting-edge artificial intelligence that give us more dynamic approaches to how we solve problems and transform ideas into innovation.

Most importantly, we’re shifting our mindset. Cultural transformation isn’t just inevitable—it is essential. We look forward to being your partner as your organization discovers how today’s innovations—and tomorrow’s—will enable your organization to thrive in a world of new tools, new ideas, and new possibilities.
Learn more about how to bring the future of work to your organization.

Practical Guide to the Modern Workplace

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The study analyzed usage telemetry signals from applications and services of Office 365 commercial customers in Microsoft Graph.


“Tenure with O365 was used as a proxy for company age.”


