HURTLING TOWARD THE OFFICE OF THE FUTURE:

PREPARE NOW OR RISK BEING RUN OVER TOMORROW

EXECUTIVE SUMMARY

The way we work is changing before our eyes.

Nine-to-five jobs are vanishing. Stuffy offices and cubicles are giving way to technologically advanced workspaces that serve as hubs for enabling communication and collaboration among workers everywhere. And the workforce itself is more diverse and distributed than ever.

It would be a stunning series of events if not for the truth that many visionaries began predicting this evolution a decade ago when everyday consumers started using smartphones to access and share information online. With millions of people already doing this from personal computers, the addition of mobile users served as a Big Bang, of sorts, for an explosion of digital information that continues to this very day. In fact, it is estimated the digital universe will reach 44 zettabytes by 2020, an astonishing statistic because that means there would be 40 times more bytes than there are stars in the observable universe[1].

Access to all this data is a powerful thing for consumers and their spending ability, as well as for employees who can use all this information to make well-informed decisions and do a better job – no matter where they might be.

This is particularly important because our personal and professional lives are becoming increasingly interconnected globally. Indeed, when everything from technology and people to industries and governments come together, digital platforms and ecosystems that provide secure and unfettered access to critical data become vital.

What's more, because data can be accessed from any connected device almost anywhere on the planet, employees today – especially millennials and members of Generation Z (Gen Zers) who have mostly grown up with mobile and digital technology – are leading employers to offer more flexible work arrangements. To these employees, sitting in a confined space 40 hours a week makes little sense if they can do their jobs just as well from locations of their choosing. For that matter, many of today's workers aren't necessarily even full-timers. Rather, more laborers are opting for the independence and freedom of being part-time, contract or freelance workers as part of the "Gig Economy."

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This makes even more sense when one stops to consider the four key megatrends HP has identified around rapid urbanisation (the expectation there will be 8.5 billion people on earth by 2030[2]); changing demographics (the fact that the composition of our population and workforce is shifting and growing older); hyper-globalisation (the idea that digital technology is "flattening" the world by connecting more people and organisations, but also underscoring the need for robust cybersecurity); and accelerated innovation (the notion that technology is advancing on an exponential, rather than linear, trajectory).

Fueled by advancements such as artificial intelligence (AI), machine learning (ML), the Internet of Things (IoT) and advanced analytics, our rapidly changing world finds us more connected and reliant on digital technologies that are altering how we live, work and socialise with one another.

Nearly 70 percent of the world's population is expected to relocate to major urban centers for their jobs by 2050, according to the United Nations[3]. Cities such as San Francisco, Istanbul, Mexico City, Sao Paulo, Los Angeles, Tokyo and Mumbai are becoming so inundated with workers that office space is getting smaller and smaller. In the United States, for example, the national average is 194 square feet per employee, which is down 8.3 percent from 2009[4]. In addition, with so many people moving into big cities, the price of real estate in those areas has also risen, which has forced many lower-paid workers to find housing options well away from their places of employment. For some, the only option may be braving long, time-consuming commutes each day[5], adding to the congestion nightmares many of us already endure. But for numerous others, the answer could lie in some blend of in-office and remote work.

Multiple factors are changing the world of work. Just as the Industrial Age was about efficiency and productivity and the Information Age was about access to data, we are now moving into an Experience Age where people utilise technology to engage with one another, collaborate and drive higher levels of creativity and innovation. As a result, we are on the precipice of a massive paradigm shift where workforces, workplaces and workstyles are about to look vastly different than what we've known in the past – or even today.

UNDERSTANDING THE CHANGING WORKFORCE

With people living longer[6] and retiring later[7] just as younger generations are taking their first jobs[8], there are now five generations in the workforce. In addition, more women are entering the workforce along with non-traditional "gig" laborers. Each of these groups tend to have their own approach and philosophy toward work. They see the world in different ways, think differently about what constitutes an ideal working environment and have varied levels of comfort and familiarity with workplace tools.

Distinctions aside, there is one thing nearly everyone has in common: a need for modern tools to communicate, collaborate and get the job done. For millennials and Gen Zers, this not only means offering functional devices but machines with more modern designs than had been prioritised in the past. They see such devices as reflections of their own personalities and want them to represent who they are – whether they're in the office, a coffee shop or their living room. For instance, more than half (52 percent) of millennials surveyed say design is important when choosing a PC[9].

Modern tools are also thought to be important for not only attracting strong employees but keeping them engaged on their jobs – which most executives see as essential for business success. In fact, nearly all (95 percent) of executives polled in a Harvard Business Review survey[10], sponsored by HP, believe engagement has a direct effect on their organisation's performance and that without fulfilled employees, satisfying customers becomes an insurmountable challenge. What's more, 86 percent say technology has a greater impact on employee engagement than it did just three years ago.

86% EXECUTIVES SAY TECHNOLOGY HAS A GREATER IMPACT ON EMPLOYEE ENGAGEMENT THAN IT DID JUST THREE YEARS AGO.

Of course, as organisations roll out more modern tools, they face a need to assure their existing workforces not only know how to use them – but use them effectively. By 2022, no less than 54 percent of all employees will need significant re- and upskilling, according to a World Economic Forum (WEF) report[11]. The WEF noted many employers' retaining and upskilling efforts remain focused on narrow sets of "current highly-skilled, highly-valued employees. But to formulate a winning strategy for the future of work, businesses will need to recognise human capital investment as an asset rather than a liability", the WEF said.

Going a step further, some analyst firms even suggest technology training should be built into corporate cultures as part of their ongoing digital transformation efforts. An Altimeter report[12], for example, finds two of the top focus areas for transforming companies are new training programs to modernise legacy or aging skill sets and creating cultures of empowerment and innovation. To modernise legacy or aging skillsets, most leaders recognise the need to invest in training.

When creating cultures of empowerment and innovation, organisations will need to snap into the choose-your-own-device (CYOD) trend in which they provide and configure modern computers, notebooks, laptops, tablets and smartphones that reflect what employees use in their personal lives.

With 81 percent of people working during their personal time and more than half multi-tasking personal activities at work[13], using devices that can straddle the realities of each environment should be more important than ever for organisations. This could mean providing convertible and detachable laptops employees

can easily carry and use in either setting or high-end business smartphones that are designed to be your only device.

In addition, as part of the hyper-globalisation megatrend, it is becoming clear that work really will occur anytime and anywhere, especially for business travelers employed by global companies. In fact, evidence suggests that as more millennials and Gen Zers become hiring managers – which is already happening – they will embrace flexible work scenarios more than any previous generation. This will be partly out of necessity because in a tight job market employers must compete by offering what prospects want, which includes strong work-life balance options. But it also relates to the reality that young managers themselves simply believe the future workforce should be more widely distributed and diverse.

As a matter of fact, a 2019 survey[14] by Upwork, an online freelancing hub, found nearly 70 percent of younger generation managers already have team members who work remotely and believe two in five full-time employees will work remotely within the next three years.

Younger managers who were more than twice as likely as Baby Boomers to have increased their use of freelancers over the past few years are expected to continue doing so, the study found. In the meantime, a 2018 survey of 6,500 executives worldwide found roughly 40 percent of respondents expect freelance workers to account for an increasing share of their organisation's workforce in the next five years[15]. Key reasons for this trend include the feeling that non-traditional workers help increase productivity, give organisations greater access to specialised skills and drive efficiencies.

NEARLY 70 PERCENT OF YOUNGER GENERATION MANAGERS ALREADY HAVE TEAM MEMBERS WHO WORK REMOTELY AND BELIEVE TWO IN FIVE FULL-TIME EMPLOYEES WILL WORK REMOTELY WITHIN THE NEXT THREE YEARS.

BLUEPRINTS FOR A CHANGING WORKPLACE

The future workplace isn't going to resemble what we've always known. As opposed to an address on a business card – or somewhere people go to do their jobs every day – it will instead become a catalyst for bringing people together – physically and digitally. It will be a hub enabling people in home offices and other remote locations around the world to communicate and collaborate.

Successful businesses recognise a clear connection between office design, collaboration and productivity. As such, we're beginning to see a shift toward more open and agile spaces with a variety of areas designed for different types of work. Focus rooms to get away from the hustle-and-bustle of the office. Huddle rooms where workers can converge and connect with colleagues around the world on a moment's notice. Integrated communal spaces for socialisation, play and wellness. Interactive conference rooms for larger meetings involving more employees who might be joining from various parts of the world.

These days, more employees want workplace tools that will allow them to do their jobs anytime, anywhere and from any connected location. They are almost constantly online[16] throughout any given day, downloading various cloud-based applications and services as they bounce back-and-forth between personal and professional activities. Millennials in particular, who are expected to comprise 75 percent of the global workforce by 2025[17], reject stiff structures in their places of employment and overwhelmingly believe[18] businesses should

MILLENNIALS ARE EXPECTED TO COMPRISE 75 PERCENT OF THE GLOBAL WORKFORCE BY 2025.

be “fluid and flexible” regarding their work environments.

This might seem like a millennial-specific point of view. Yet, studies[19] show that most remote laborers sincerely believe they are more productive during working hours and are generally happier and more engaged on the job. One explanation for this is that working remotely allows people to achieve a better work-life balance – seamlessly interspersing personal and professional activities during their waking hours.

Underlying all of this physical infrastructure will be a host of digital communication and collaboration innovations that go far beyond standard video conferencing and teleconferencing. Instead of the rigid cubicles many of us have known for years, the workplace will be a blend of open and closed spaces – all designed for the preferred working styles of various generations and demographic groups. Indeed, in the office of the future, innovative companies are five times more likely to have workplaces that prioritise both individual and group workspaces[20]. With huddle spaces expected to grow from 8.1 percent of all video meetings to nearly 70 percent by 2022[21], it’s also expected there will be 40 million meeting spaces[22] needing complete conferencing solutions to facilitate more effective meetings (HP proprietary research indicates it takes an average of 12 minutes to start a meeting).

The workspace of the future, therefore, will combine frictionless, smart, physical and virtual work environments optimisedfor mobility, security and privacy. The physical spaces will emphasise flexible configurations, modern designs and naturally interactive technologies,

THE GLOBAL SMART OFFICE MARKET SIZE IS EXPECTED TO REACH $57.05 BILLION AS SOON AS 2025, ACCORDING TO GRAND VIEW RESEARCH.

such as augmented reality (AR) and virtual reality (VR), that will enable more seamless communications as workers move from room-to-room. Facilities professionals, meantime, will tap into a network of IoT devices, actuators, sensors and analytical solutions to track how employees use the various spaces available to them and redesign physical offices to maximise employee effectiveness. In fact, the global smart office market size is expected to reach $57.05 billion as soon as 2025, according to Grand View Research[23].

ADJUSTING TO CHANGING WORKSTYLES

Because of changes in the workforce and workplace, workstyles are changing as well.

For instance, nearly all workers collaborate today because they must. It's part of the job. But studies show nearly two-thirds (65 percent) do this several times a day[24]. Similarly, nearly 95 percent of knowledge workers see collaboration as central to performing their jobs. That is inducing many employers to find ways to enable more effective conversations between their workers. Some studies suggest collaboration is now more about ad-hoc modular working with groups comprised of four or fewer employees. HP, for example, has seen an increase in the number of ad-hoc teams coming together based on skills, rather than traditional functional lines. When a project is completed, these teams either disband or move on to other projects. All of this is interesting to observe in terms of the how technology tools enable various scenarios.

One of the results of this trend is that multiple teams within organisations – individuals from the board room to human resources, facilities and IT – are all having to come together to reimagine and reinvent office space to accommodate changing workstyles. In fact, modern office design is transitioning from

STUDIES SHOW NEARLY TWO-THIRDS OF WORKERS COLLABORATE SEVERAL TIMES A DAY.

individual offices to shared spaces in a variety of sizes meant to accommodate everything from video conferencing to large meetings. This change in how work gets done, paired with the move to cloud-based technologies, has contributed to a transformative shift in business infrastructure needs. No longer do conference rooms need cumbersome and costly standards-based infrastructure. IT decision makers not only acquire computers and devices for each individual but are also increasingly seeking out devices that are intuitive to use for collaboration – both inside and outside of conference rooms.

Work is also under way on digital "whiteboards," which would not only hang on a conference room wall but also connect into any virtual meeting. So, as an employee draws an org chart or outlines the essential ingredients of a new product, everyone on the digital connection would see the illustration on their computer screen in real time, without the squinting that goes along with trying to view a traditional white board from a grainy conference room camera. Down the road, some futurists believe workers will regularly utilise 3D holographic conferencing in meetings, giving them the ability to pick up important non-verbal gestures, facial expressions and eye contact that might be missed with other communication technologies. What's more, that technology will seem to follow people wherever they go, becoming a part of their everyday work regimens. Before long, workers will enter conference rooms and find everything automatically and intuitively set up for their meetings. This seamless integration of technology, spaces and room solutions will break any existing barriers, bringing productivity and creative experience to a whole new "beyond the devices" level.

AI capabilities could also play a more prominent role in workstyles of the future, automating the process of reviewing, analysing and interpreting data to make recommendations for employees to consider as part of their work and while in meetings. It could also play an integral role in facilitating live and virtual meetings where people speak different languages, working in the background to translate conversations in real time. Meantime, it could also be automatically capturing key discussion points and action items while scheduling follow-up meetings.

KEEPING EMPLOYEES ENGAGED

In addition to looking for work-life balance options, today's workers tend to favor companies that believe in providing employment experiences aligned to peoples' specific workstyles – just as we like our consumer experiences to complement and cater to our personal preferences and lifestyles.

As consumers, most of us – especially younger generations – have had unprecedented access to data with which to evaluate, select and determine loyalty to various brands. This has created what Forrester analysts call the "Age of the Customer" and forced most brands to compete by catering to our individual needs and preferences. They go out of their way to compete around customer experience, and people have become extremely conditioned to that.

So now it's become similar at work. With this newly conditioned mindset, today's workers believe that any employer they give their time and life to should go to great lengths to provide exceptional experiences in the workplace. One of the ways they want employers to do that is by providing modern tools and technologies for doing their jobs. If an employers does this well, evidence suggests employees tend to be more engaged and productive, which greatly benefits the organisation.

Engagement, in this case, doesn't merely mean assuring a company maintains happy employees. Rather, it also refers to providing technologies that somewhat mirror the devices employees use in their personal lives.

THE CYBERSECURITY IMPERATIVE

Of course, all this technology we're talking about will rely heavily on one thing: a safe and secure digital connection. Without cybersecurity, the future of work will be dead-on-arrival.

For that reason, organisations considering any digital transformation effort must recognise that security cannot be an afterthought. It should be one of the first considerations as part of any workforce plan, and it must always apply cutting-edge security holistically.

This means embracing the concept of "defense-in-depth," where IT looks at securing every possible threat vector on the connected network. The hardware. The software. The endpoints, including connected notebooks and printers. Each should have integrated and updated cybersecurity features. Applying a little antivirus software here and a few firewalls there simply won't cut it in the future of work. Organisations cannot afford to allow even one device serving as an entry point for a network breach, and workers must know their communications are secure and private.

The 2018 SANS Endpoint Security Survey[25] found 82 percent of respondents were aware of a breach involving a desktop machine but 42 percent also said they, themselves, had suffered a breach on one of their own endpoints. It's also estimated companies globally could face $5.2 trillion[26] in additional costs and lost revenues during the next five years due to cyberattacks.

Cybercrime knows no boundaries and will always target the point of least resistance in a network. Business and IT leaders, therefore, need to make security Job #1 for the future of work.

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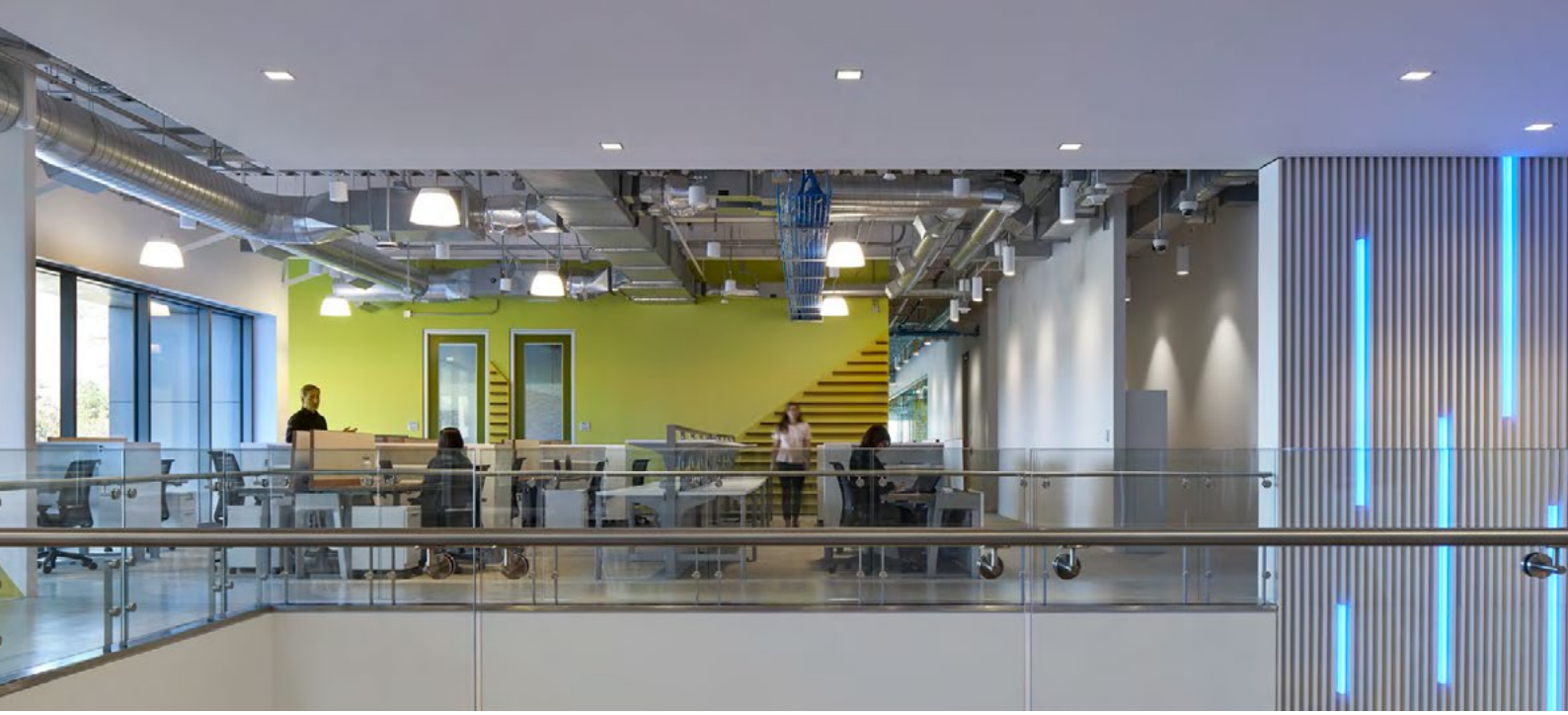


CONCLUDING THOUGHTS

While it's clear workforces, workplaces and workstyles already undergoing a significant transformation, we still have a long way to go before every single work setting operates differently. Most of the promising technology we've discussed in this paper is still in its early stages.

It is clear that many of our current business communication and collaboration tools aren't fully up to the task. While more than nine in 10 respondents to the Harvard Business Review (HBR) survey[27] said their end-user computing systems and technology have led to productivity gains, nearly four in 10 complained these systems made it harder – not easier – for employees to work quickly. A third also said the technology made it harder to collaborate.

This will invariably change because the technology provided by organisations is increasingly seen as important for attracting and retaining top talent. According to a HBR study[28], failing to invest in modern technology can mean losing out on top talent – those exceptional performers companies are actively trying to recruit – as well as employees already on the payroll. More than half (51 percent) of survey respondents, for example, said outdated or inadequate office technology is impeding their organisation's ability to retain employees with high-value skills and experience. Nearly 60 percent, meanwhile, said the state of a company's technology factors into decisions by job candidates when choosing where they want to work.

Millennials and Gen Zers are quickly turned off by employers that appear dependent on old and outdated hardware and software. To them,

NEARLY FOUR IN 10 COMPLAINED THESE SYSTEMS MADE IT HARDER – NOT EASIER – FOR EMPLOYEES TO WORK QUICKLY. A THIRD ALSO SAID THE TECHNOLOGY MADE IT HARDER TO COLLABORATE.

technology is almost a reflection of who they are as people. As such, they look for computing equipment that seems young, fresh, innovative and interesting – such as laptops with real leather or wood grain casings. An HP survey[29] even found that nearly half (47 percent) of workers would expect a company to provide better technology than they could get at home.

Fortunately, change is coming. For instance, 5G connectivity, the next generation of wireless, is expected to bring much higher speeds and capacity with much lower latency. This suggests it could help improve everything from IoT device communications to the connection and audio/video quality issues many companies suffer with current generations of connected gear.

The everything-as-a-service (XaaS) model could also have a larger role. Device-as-a-Service (DaaS) offerings, for example, could help digitally transforming enterprises in rolling out the right solutions at the right time while offloading security and management to outside experts. Workplace-as-a-Service (WaaS) specialists could also emerge to specifically focus on delivering the best future of work technologies for each organisation's particular needs.

HP is doing its part to enable the Office of the Future with a conscious shift from device-centric thinking toward a user- and workspace-centric approach aimed at enabling more meaningful employee experiences.
HP is committed to helping customers find the right devices for the right users and the right spaces, segmenting workforces into different "persona" profiles built around specific working needs. Those employee segments will have different needs in terms of productivity, collaboration, mobility, performance and security. Some will require the freedom to get their work done anywhere. Others will value reliable access for time-sensitive back-office tasks. Still another group will need ultimate performance and reliability for more complex tasks, such as data analysis and engineering, differentiating them from typical office users with more basic requirements. In addition, most users benefit from tailored solutions, including their primary work devices, for home, office and "on-the-go" type of work. One size no longer fits all. The same applies to physical meeting spaces with smaller rooms requiring different technology setups than their medium and large counterparts.

The future of work is happening now. But living up to its full potential will have to involve further technological advances around design, security and performance. It will also require business, IT, human resources and facilities leaders to come together and devise comprehensive and far-reaching workplace plans.

That planning must begin now, as the paradigm shift is already underway. Powerful socio-economic forces are in play. Workforces, workstyles and workplaces are morphing before our eyes. Companies that do not prepare for the future of work – now – could miss it altogether and risk becoming a thing of the past themselves.

Alex Cho

President, Personal Systems HP Inc.

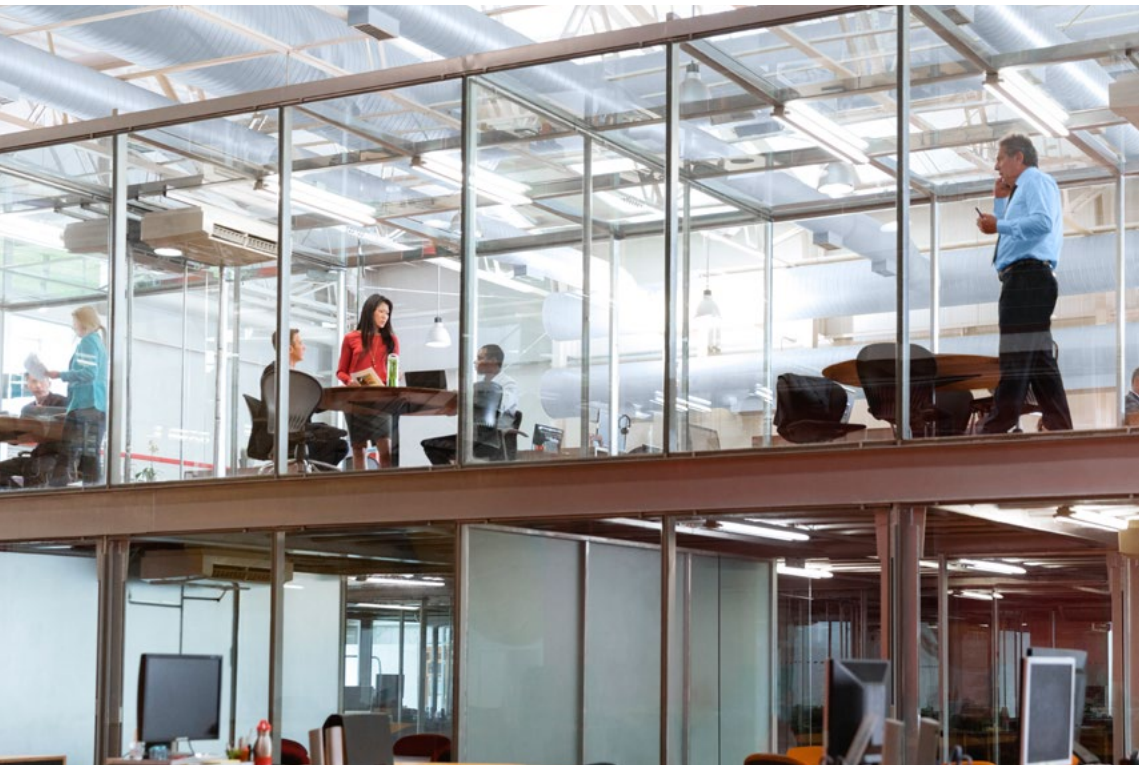
IMAGINING THE OFFICE OF THE FUTURE

Q&A WITH ALEX CHO, PRESIDENT OF PERSONAL SYSTEMS, HP

The world is being reinvented before our eyes.

More people than ever are using digital technology to communicate, collaborate and work on their own terms. Businesses are increasingly employing a blend of full-time and “gig workers” to meet ongoing and project-based needs. And office technology is adjusting to enable everything.

For the past several years, **Alex Cho,** President of Personal Systems at HP, has been architecting the company’s Office of the Future vision. He sat down with us to share his thoughts about this major workplace trend and how he thinks organisations should prepare.



WHAT DOES THE "OFFICE OF THE FUTURE" MEAN TO YOU?

At the simplest level, it refers to how workforces, workstyles and workplaces are changing to allow people to be more engaged, productive and efficient in their jobs. The Office of the Future is about addressing a new generation of employees who grew up with technology and have higher expectations for how it can be used at work.

It's about enabling workplaces that are more flexible, more mobile, more public and where the boundaries between personal and professional blur by design. It's also about catering to new workstyles that are far more collaborative across teams, buildings and geographies enabled by technology.

When we talk about the Office of the Future, we're not just laying out a vision for what we think it will look like but are also describing the types of experiences employers and employees can expect to have. Will people have the tools they need to do their jobs in a digital world? Will they have access to technology that fits with their lifestyles, letting them work anytime and anywhere they deem appropriate? Will companies and their workers be able to collaborate and share online information in a safe and secure manner? How will businesses benefit and stay competitive amidst all this change? And how can companies put technology to work to improve employee engagement, which tends to improve employee retention, customer satisfaction and company innovation?

These are the kinds of questions we ask, and we're starting to gather some answers.

SO WHAT WILL THE OFFICE OF THE FUTURE LOOK LIKE?

It's becoming clear the Office of the Future will not be defined by the address on your business card. You might still have cubicles or offices and conference rooms in a physical location. Maybe even a cafeteria or gym. But with 70 percent[30] of people globally already working remotely at least once a week, and the U.S. freelance workforce now up to 56.7 million[31] people, the traditional office is becoming a thing of the past.

What we see happening is that the Office of the Future is going to become a collection of different locations all brought together by a variety of digital technology. A company's physical buildings – while still housing some people who want or need to be on-site – will serve more as a catalyst for communication and collaboration than somewhere people are meant to assemble.

Our vision for the Office of the Future is that distance and boundaries will become increasingly irrelevant so people feel they are able to seamlessly connect with one another – whether they're in offices or outside of them and whether they're full-time or gig workers.

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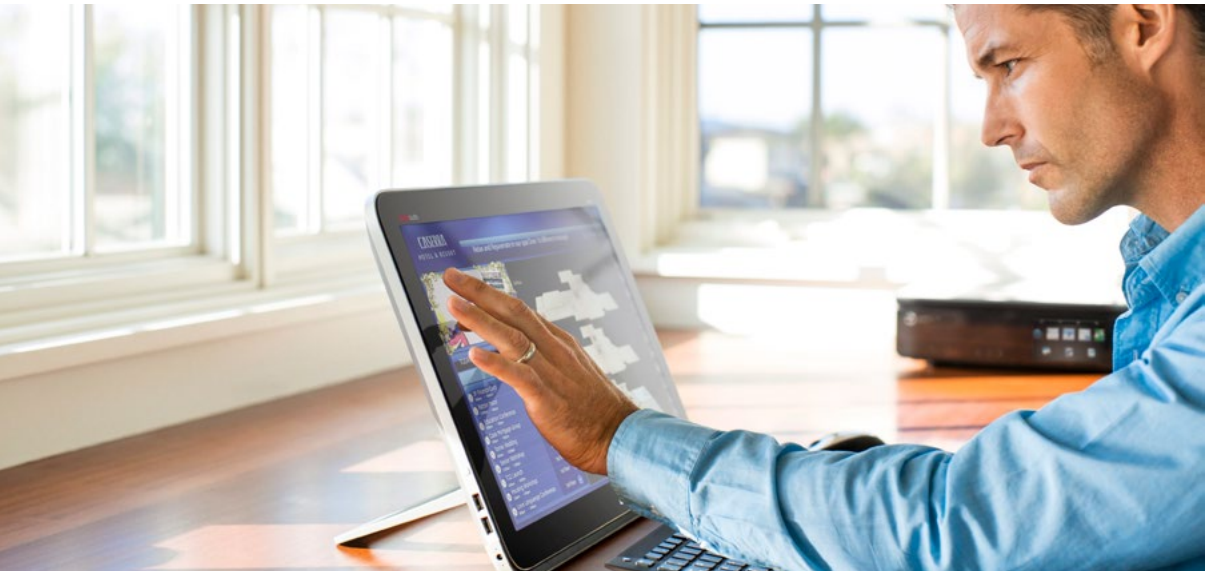

WHAT ARE THE BIGGEST OBSTACLES TO ACHIEVING THAT VISION?

Well, probably the fact that too many businesses today are still trying to rely on old communication and collaboration hardware and software built before the world of work started in this direction.

Think about it. Today, you go into a meeting room and try to video conference colleagues around the world using equipment once thought to be cutting edge. There are all sorts of delays while everyone tries to log-on to the system. That takes, maybe, five or 10 minutes. The audio feed might be glitchy or completely non-existent. And the video quality is often sketchy. Meanwhile, you've got someone standing at a whiteboard drawing out the company's next great product, but only people in the physical room can see it. None of this is conducive to the future of work. The wasted time and annoyances introduced by these antiquated systems are easily once of the biggest productivity killers that companies have faced up until this point. Companies need to let go of those old systems and start exploring newer options built for the Office of the Future.

WHICH TECHNOLOGIES WILL POWER THE OFFICE OF THE FUTURE?

Again, it's all about technologies enabling communication, collaboration and engagement.

By engagement, I don't just mean making employees happy. Rather, this refers to providing the kinds of technology that enable everyone to have a voice. To be heard and seen in meetings. To participate.

Take whiteboarding, for example. If I'm sitting on a conference call in a Houston hotel, and someone is doing all the whiteboarding from an office in Palo Alto, how engaged am I going to be? The typical employee probably won't even see that whiteboard. So, what are they going to do during that meeting? Probably multi-task – push emails, check Facebook or read the news. But if meeting participants were all using PCs to connect to the meeting, and there's a digital whiteboard in the room that automatically sends anything written on it to all connected machines, suddenly everyone can be involved. What's more, if there's software on those laptops that enables workers to directly participate in those whiteboarding sessions, then you have a much more engaged group of people in the virtual room – all able to collaborate to help get the job done.

This is the general direction the Office of the Future technology is going. Laptops will become communication hubs with rich capabilities and far better audio and video quality than current conferencing systems are able to offer.

SO WHAT SHOULD BUSINESSES DO TO PREPARE FOR THE OFFICE OF THE FUTURE?

First and foremost, put some deep thought and commitment into employee engagement. As more people work outside the office, both full-time and on a gig basis, it's easy for them to become disconnected. You need technology that will keep them connected, working together and involved. You also need multiple parties in the organisation doing their part to help make this happen, not only your business and IT leads, but people from human resources, facilities and legal. It must be a group effort, and it has to be engrained throughout the worker's entire journey with your organisation. From the moment they're recruited until the day they take a job with another company, they have to know your firm is all about providing everything workers need to succeed.

Second, companies that plan to keep physical locations – and by the way, some companies have given up[32] their headquarters altogether – should think through space design and how they'll integrate technology throughout. This could mean a blend of open spaces with communications equipment to encourage collaboration, a series of digitised "huddle rooms" for on-the-fly meetings or both. It's important to know what it is you want to accomplish and then to design your facilities to achieve those goals.

Finally, and perhaps most importantly, recognise that with people sharing more sensitive and private information online, the risk of network breaches will only grow over time. Strong security and privacy protection must underlie everything. It has to apply equally to the hardware, software and endpoints, including connected laptops and printers. Without cybersecurity, the Office of the Future cannot succeed.

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