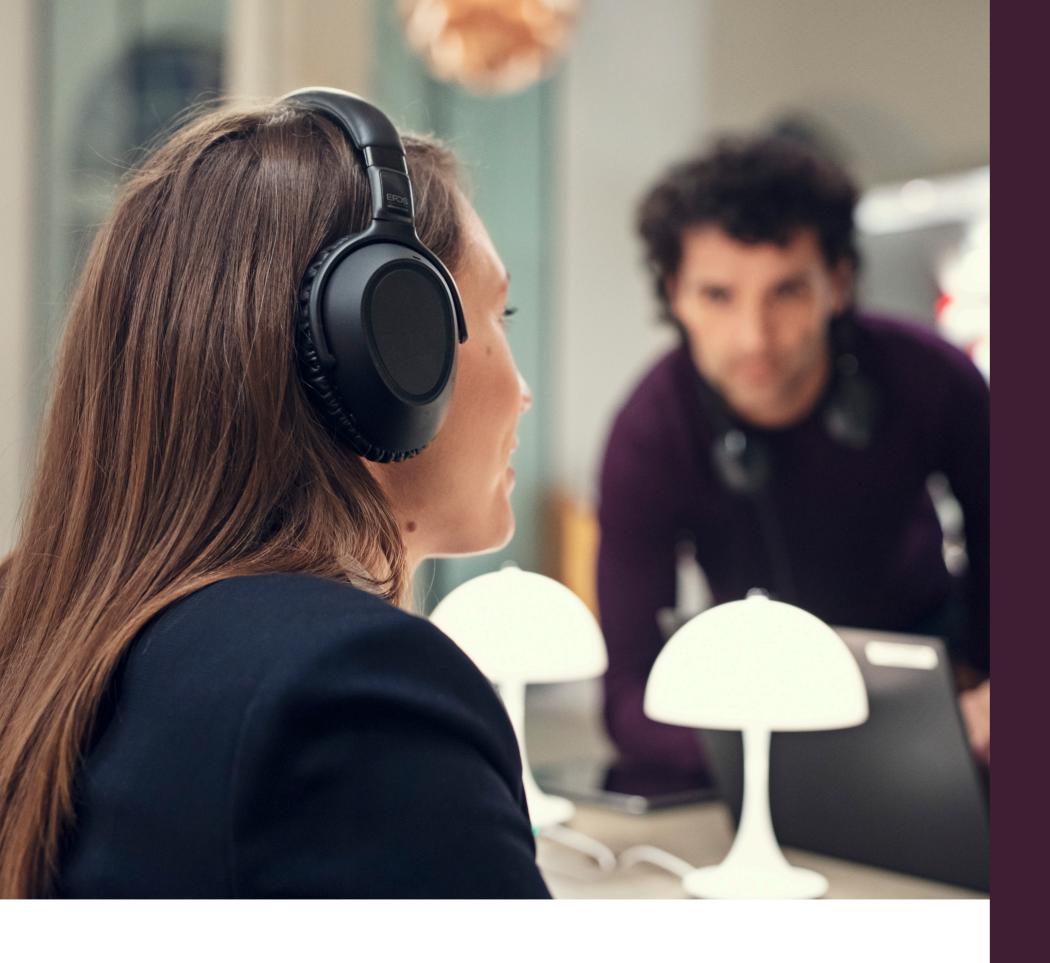


What Will the Post Covid-19 Workplace Sound Like?

Acoustics, Productivity and the Future of Work

A report by EPOS in partnership with Worktech Academy



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Introduction

The major disruptions to work and workplace caused by the global coronavirus pandemic is posing a serious challenge for organizations everywhere. Employees are no longer present in an office each day but spending more time working remotely and across distributed teams. The office itself is undergoing a change of purpose from a container for routine, supervised daily work to a destination of choice for face-to-face interactions such as training, mentoring or project meetings.

Companies have worked hard to pivot to this 'new normal' with new ways of working supported by digital technologies. Amid Covid-19, much effort has necessarily been directed to maintaining employee health, safety and wellbeing in order to keeping the wheels turning. But now attention is turning to how companies can maintain productivity in a much-disrupted world of work that is unlikely to revert to its original shape.

One of the casualties of the pandemic has been higher-value collaborative and concentrated work that contributes to innovation. We are now seeing a crisis of productivity approaching the level of the global financial crash of 2008 when corporate performance dived to an all-time low. Since the financial crash, progress on improving office productivity has been patchy. Researchers in the field attribute this sluggishness to the way employee performance is influenced by a web

of physical, social and technological factors that is more complex than ever before.

The introduction of more flexible ways of working has forced organizations to reassess how they frame and measure the productivity of their employees. Traditional metrics (such as hours spent on a job) no longer adequately reflect today's knowledge-based economy in which productivity is all about value, quality of output and innovation. Now the global pandemic is shaking up the workplace up even further. After a 'honeymoon' period in which many organizations felt relieved and pleased to have transitioned to remote and hybrid working models so smoothly, implementing digital transformation in days rather than months or years, there are now concerns that they face another peak in the productivity crisis. After several months of working mainly from home, workforces are reporting that an unvaried routine of screen-based work and video calls is taking its toll on energy and creativity, and thus having a negative impact on productivity.

In a global survey from the IBM Institute for Business Value (2020), 3,450 executives in 20 countries and across 22 industries reported that they are tired and overworked, feel disconnected and lack the training and support required for remote working¹. Their views were in stark contrast to how the executives managing them felt things were going.

1 IBM, 2020, Covid-19 and the Future of Business: Executive Epiphanies Reveal Post-Pandemic Opportunities. IBM Institute for Business Value



of people say they enjoy working from home

Since the pandemic office workers report they are



more productive than they had been before



as productive as before

On the other hand, there is also research to support the positive impacts of working remotely from the office. Indeed there was evidence of 'a bounce' in performance in the early months of the pandemic. McKinsey research reported that 80% of people say they enjoy working from home, with 41% saying that they are more productive than they had been before and 28% that they are as productive². This study is supported by Deloitte³ research which found that 55% of workers believe that their colleagues are just as productive, if not more so, than before lockdown in March 2020.

However, a prediction in a 2018 report by the Work Foundation at Lancaster University, Productivity, Technology and Working Anywhere, that an acceleration in remote working practices could have a detrimental effect on productivity levels, rather than improve them, is in danger of being borne out. Many people find working from home stressful, amid domestic noise and distractions4.

One of the key areas of improvement in the office environment was identified in the world's largest measurement of workplace effectiveness by Leesman. The study found that 70% of office occupants were unhappy with the noise levels in their workplace⁵. As employees return to the office, they will have uncompromising expectations. These expectations will include reducing office

70%

of office occupants were unhappy with the noise levels in their workplace

density and improving acoustics in the office according to a major study by architects Gensler (2020). If organization can iron out the pain points of the pre-Covid office, they are more likely to entice employees back in.

Organizations are now under increasing pressure to curate workplace experiences which entice employees back to the office. A significant part of this narrative is providing a superior acoustic experience in the workplace. As the purpose of the office turns to collaboration and social interaction to draw people back, organizations need to consider how acoustics play into this narrative now more than ever. This report will look at how organizations can elevate productivity levels in the post-pandemic workplace by getting the acoustic experience right. Noise and distraction were already diminishing performance before the virus. How can we improve the sound of the workplace post Covid-19?

² McKinsey, 2020. Reimagining the office and work life after COVID-19.
3 Deloitte, 2020. Working during lockdown. The impact of COVID-19 on productivity and wellbeing.
4 Lancaster University, 2018. Productivity, technology and Working Anywhere.
5 Leesman, 2015. The Lessman Review. Issue 15, Q2 2015
6 Gensler, 2020. UK Workplace Survey 2020. Gensler Research Institute

The Research

This report focuses on the challenge of maintaining and enhancing human performance in the post-pandemic workplace. The research is based on a review of literature in the field, the latest scientific evidence on office productivity and a series of interviews with international experts in the field of workplace performance, acoustics and neuroscience.

Based on this research, the report identifies three leading drivers of productivity – leadership, environment and technology. It goes on the look specifically at acoustics and explores the issues around noise and distraction as the number one complaints in offices. We ask the question: how can a combination of leadership strategies, design innovation and new technologies support the sound of productivity in whatever environment an employee is working in?

The aim of this report is to communicate the challenges around human productivity amid the Covid-19 pandemic while providing tangible product solutions that can help provide the right acoustic conditions needed for better overall productivity. As coronavirus offers a unique opportunity to reimagine the office environment for better performance, this report will help to equip organizations and hybrid workers with the knowledge and tools to be as productive as possible wherever they are working.



Noise and distraction are the number one complaints in offices



Elements of Productivity

Research into workplace productivity suggests an inter-relationship of three key factors that are critical to raising company performance and individual productivity: leadership, environment and technology. As the landscape of work has changed dramatically both before and during Covid-19, these three elements have remained constant drivers of productivity for many organizations.





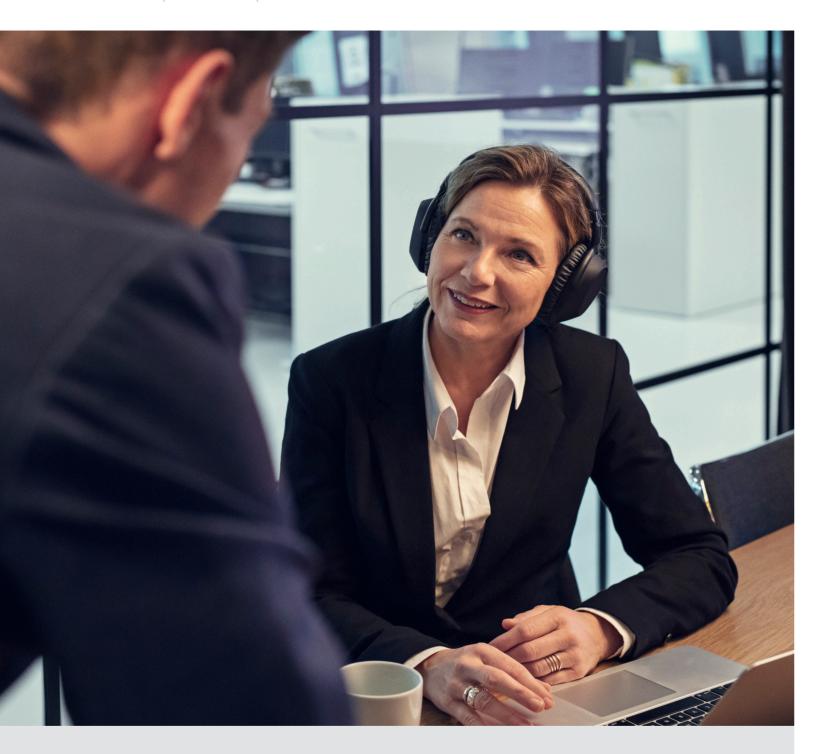


Leadership

Environment

Technology





Motivation Leadership Engagement Generation Management

Leadership

Leadership stands out as a key driver of employee performance in the workplace. According to a survey of 120 companies worldwide by Fourfront Group and WORKTECH Academy in 2018, more than half named quality of leadership as the most critical factor in raising productivity. Leadership is more important than ever in times of disruption because it has a direct impact on how employees work and how they feel while they are working. When employees are geographically dispersed and working in a range of different environments and contexts offering different experiences, leaders need to work around organization constraints and ambiguities to maintain performance.

Research highlights three key roles of leadership: motivation, engagement, and new generation management.

Motivation - Leaders should understand the needs of each individual on their team to motivate, encourage and empower them to work to their best ability. Research has found that motivation is key to achieving the necessary level of performance in an organization and employees may even be motivated to work against the interests of the organization if they do not feel valued by

their team or manager⁷. Leaders can motivate employees by reinforcing positive feedback and making sure their work has purpose and they feel valued. The same approach can be taken to motivate teams and a sense of unity.

Engagement - Authentic leadership significantly increases the engagement and citizenship behaviour of employees at work. Creating a culture where employees feel included and accepted can boost engagement and morale within teams. Research has found that the less positively someone perceived their workplace culture, the less positively they rate their individual performance8.

New generation management - Positive change management is important to the perception of individual performance. A successful change strategy depends on a collaborative approach which pools knowledge, expertise and resources from across the organization, rather than simply deploying new technology deemed appropriate by leadership. Line managers play a critical role as the interface between employees and strategic decision-makers in organizations. Increasingly a new style of management will come into play where leaders become coaches and motivators, shifting away from the more hierarchical and authoritative roles of the past9.

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⁷ Martin, J., & Fellenz, M., 2010. Organizational behaviour and management (4th ed.). Florence, KY: South Western Educational Publishing. 8 Gillen, N., 2019. Powering up the grid to measure productivity gains. WORKTECH Academy 9 Applegate, L.M., Austin, R.D., McFarlane, F.W. (2005). Implementing individual and workgroup technologies. New York: McGraw-Hill

Environment

Design of the work environment is closely linked with raising levels of productivity, according to academic research¹⁰. Some environmental conditions and design interventions stimulate curiosity and creativity - others promote order and logic. As humans, we typically filter two million bits of sense data every moment, each of us in different ways. This is why people respond in a variety of ways to their environment, some focusing more of the look of the space, some on the materials and textures, and others on the sounds around them.

Prior to the pandemic, there was a drive towards creating office space which encouraged collaboration, serendipitous collisions and open environments. As a result, there was a transition from the office as a space for performative 'at-desk' work, to a space for effective collaboration and productive teams. As organizations begin to reimagine their post-Covid-19 office space, the need for face-to-face interaction as a balance to remote working will be more important than ever. This means the drive for collaboration and social spaces will continue.

A high-performance workplace should be led by culture and supported by design. There needs to be an alignment between the two where the overall aims of the business are balanced with the needs of

individual employees. The office environment can impact individual productivity and performance in a multitude of ways from air quality and daylighting to social spaces and biophilia.

Berkeley's Center for the Built Environment surveyed over 65,000 people in North America, Europe, Africa, and Australia and found that speech distraction was the top complaint. Humans have an exceptional ability to pick up on human speech, to the extent to which we are unable to ignore it and do our work. It interferes with exactly the type of cognitive tasks drawn upon by knowledge workers, such as reading, quantitative reasoning, and accessing working memory¹¹. And as research from the University of California, Irvine demonstrates, attempting to concentrate in the presence of such distraction causes stress, and the associated host of psychological and physiological ailments¹². Therefore, in order to create high performance workplaces, organizations need to consider the acoustic implications for staff.



Technology

Today, a 'hybrid' workforce is emerging that is entirely enabled by advanced digital technology. These employees are unwilling to be confined to the four walls of their office, especially now they have tasted the autonomy and freedom of working in their own space and their own way albeit as part of a sudden enforced experiment. The pandemic has allowed a degree of flexibility for individuals which they will expect to continue long after the virus has passed. This flexibility transcends the barriers of time and space, and would not be possible without access to the type of technology that has been the lifeline of productivity during the pandemic.

For companies to maintain collaboration and protect their culture in the long term, the boundaries between being physically in the office and out of the office must be removed. In-office video-conferencing can no longer involve a group of people staring at one another around a table, while others watch from a screen on the side without being able to participate effectively. The pandemic has heralded an always-on, video-first mentality, which involves seamless in-person and remote collaboration spaces such as virtual whiteboards. Software services such as Mural have created a virtual real time collaboration platform where everyone can virtually collaborate on a digital board, irrespective of where they are working from.

While technology in many ways is an enabler of productivity, research suggests it can quickly become a barrier if it performs poorly

¹⁰ WORKTECH Academy, 2020. Research latest: sound thinking on workplace choice, satisfaction and acoustics.

11 Hongisto, V., 2005. A model predicting the effect of speech of varying intelligibility on work performance. Indoor air, 15(6), pp.458-468.

12 Mark, G., Gudith, D. and Klocke, U., 2008, April. The cost of interrupted work: more speed and stress. In Proceedings of the SIGCHI conference on Human Factors in Computing Systems (pp. 107-110).

or doesn't meet real needs. In a survey conducted by Service Now of 1,000 Canadian office workers, the results revealed that 33% of employees feel less productive in the current work from home environment because they do not have the proper set up, tools and technology to enable them to be more productive, even after working remotely for more than two months¹³.

Technology needs to align with the type of work being carried out; for example, if the focus is now on the importance of audio and video conferencing, then employees need the right tools. When the technology works well, this has a significant impact on employee productivity in virtual meetings. Research suggests 80% of employees feel technology has positive influence on their productivity at work; two thirds of managers see correlations between technology and their organization's performance and 54% believe their organization is technologically forward thinking¹⁴.

Technology is not only a way to enable employee productivity, it is increasingly used to help quantify and measure performance in more sophisticated ways. As the digital economy integrates the physical and the virtual, and enhances connectivity through electronics, sensors and software, huge amounts of performance data is being produced. This data can help organizations understand the productivity of employees and the spaces they are working in; it can allow businesses to identify the problem areas and barriers to performance, and work to fix them.

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¹³ Service Now, 2020. Work from home Productivity in Canada.
14 The Work Foundation, 2018. Productivity, Technology and Working Anywhere. Lancaster University

The Sound of Productivity

Open plan office design was created to engineer more collaboration and communication within companies, as well as being an effective way of reducing real estate costs. However, this approach has faced a significant backlash over the past decade due to complaints about noise and distraction. In the wake of Covid-19, the interference of noise distraction is even more threatening. In the home environment, the increase of video calls presents an issue in households with multiple home workers as they battle over each other to be heard with minimal background noise. Also, the new role of the office as a social hub means that the post-Covid workplace will face challenges to overcome speech distraction in open plan environments. These challenges become exacerbated with coupled with bad audio technology where individuals feel like they have to speak louder to be heard, thus creating more disturbing background noise for others in close proximity. Background noise is a particular issue for people who have headsets without noise cancellation because then they struggle to hear others in their audio conversation.



Noise impacts negatively 69% of global employees' concentration level

A report by Interface in 2019 found that noise negatively impacts 69% of global employees' concentration levels, productivity and creativity¹⁵. The same report found that 16% of people surveyed claimed they would rather work remotely due to unsolved noise problems in their workplace. The report outlined the top four distractions in the workplace: conversations among employees, phone conversations, phones ringing and the sound of people walking around. These findings are supported in a recent report by EPOS, 'Understanding Sound Experiences' where top frustrations include background noise, having to repeat yourself and asking for information to be repeated16. All of these distractions are soundrelated and heavily impact the performance of other individuals in the space. This data shows that historically companies have not been responding to the demand for more acoustic privacy with 44% of participants surveyed across US, UK and Australia reporting that their company does nothing to address noise which can lead to brain fatigue and stress for individuals.

In the age of remote working during the pandemic, the laptop or smart phone has become the central working hub and headsets have replaced physical meeting rooms. Employees have been forced to dedicate spaces in their homes to work; fundamentally this means everyone is working in acoustically different spaces. For some, the home working environment is eerily quiet, while others battle with other household members to secure private space where they can have a video meeting or call uninterrupted.

15 Interface, 2019. Workplace Acoustics Study. 16 Epos, 2020. Understanding Sound Experiences





"Companies need to rethink office densities and provide more alternative and enclosed spaces if they want to address noise and acoustic issues in the workplace..."

Professor Rachel Cooper - Lancaster University



Numerous studies have confirmed that noise is an ambient stressor relating to job satisfaction and performance in the workplace and is a primary cause of reduction in productivity.



of employees said their productivity had been negatively affected by poor acoustics



of employees struggled to concentrate

Productivity at Home

As working away from the office continues, companies still expect the same level of performance and productivity from their employees. A Wellbeing at Work study found that 99% of UK employees are expected to be high performing and that 98% of those are also required to display creativity and innovation as part of their job¹⁷. If these expectations are to be taken seriously, businesses need to provide a culture and an environment that allows workers to reach their full potential.

Numerous studies have confirmed that noise is an ambient stressor relating to job satisfaction and performance in the workplace and is a primary cause of reduction in productivity. A study by Oscar Acoustics found that of the 2000 working adults surveyed, half said their productivity had been negatively impacted by poor acoustics and 44% said they struggled to concentrate¹⁸. Research from the University of California, Irvine found that workers attempting to concentrate in the presence of such distraction causes stress, and an associated host of psychological and physiological ailments¹⁹.

The Impact of Brain Fatigue

Psycho-acoustics and brain hearing are two growing fields of research where the psychological effects of noise are measured. Psycho-acoustics explores how the brain reacts to different sounds, for example it is

common knowledge that the human brain does not like loud noises. Brain hearing is about understanding what fatigues the brain. For example, constant background noise means the brain is working harder to block out ambient noise; the brain is working overtime to compensate - if humans are exposed to constant loud noise over a long period of time they can eventually lose their hearing, and in the short term it can cause stress.

Neuroscientists in WORKTECH Academy's network point out that as more people spend long hours trying to communicate in virtual teams, the brain can suffer from 'listening fatigue' in the same way that it suffers from visual fatigue. Audio nerves are stretched in processing too much information. Generally, a surfeit of static, screen-based work deprives our neural networks of vital sensory stimuli without the regular level of electro-chemical 'hits' that the brain craves, people can 'switch off' and experience a dip in energy and performance. According to Professor Fiona Kerr of the University of Adelaide, who has studied brain behavior during the pandemic, video communication without direct eye contact or a shared context does not stimulate our neurons sufficiently; however, the voice does more positive things to the brain, including building trust, which is so important to teamwork and productivity. Voice-based communication, believes Kerr, will be significant part of the post Covid-19 world of work.

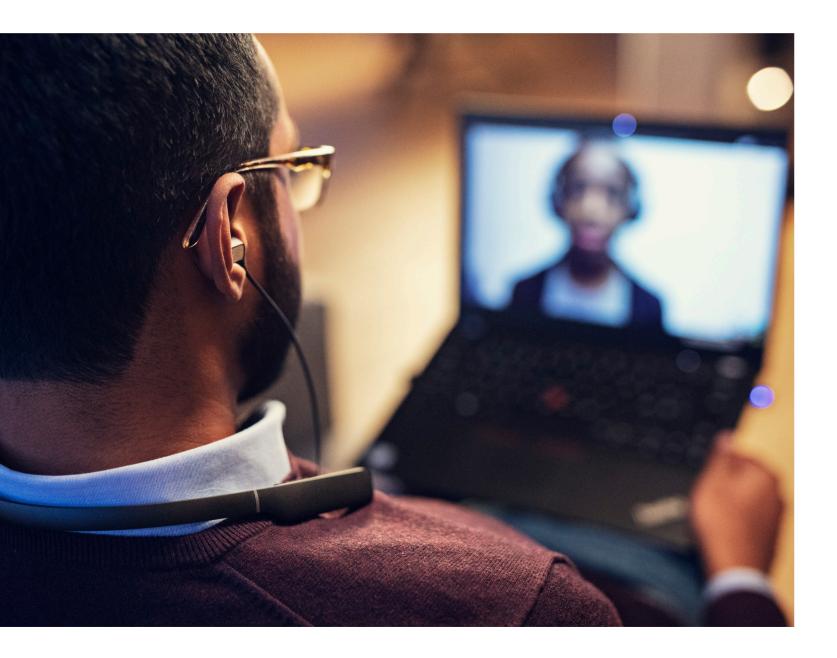
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¹⁷ Morgan Lovell, 2014. Making the Business Case for Wellbeing.
18 Oscar Acoustics (2019). The Acoustics Workplace Noise Survey 2019.
19 Mark, G., Gudith, D. and Klocke, U., 2008, April. The cost of interrupted work: more speed and stress. In Proceedings of the SIGCHI conference on Human Factors in Computing Systems (pp. 107–110).



"The voice affects our neural networks in such a way that it helps members of a virtual team to feel more connected ..."

Professor Fiona Kerr - University of Adelaide



Enhancing Communication

Denmark-based audio specialist EPOS has placed acoustic innovation at the heart of its research and development. It has harnessed ideas from the hearing aid sector and learnt that people who are less able to hear will withdraw from social events and are more easily fatigued. Jesper Kock, Vice President of Research and Development at EPOS, revealed that 50% of workers are using their private headsets to conduct meetings on their computers. These headsets are often not equipped to deal with the auditory demands of a video conference meeting because they do not focus on the voice of the user and they pick up ambient noise which compromises the audio quality and the productivity of the meeting.

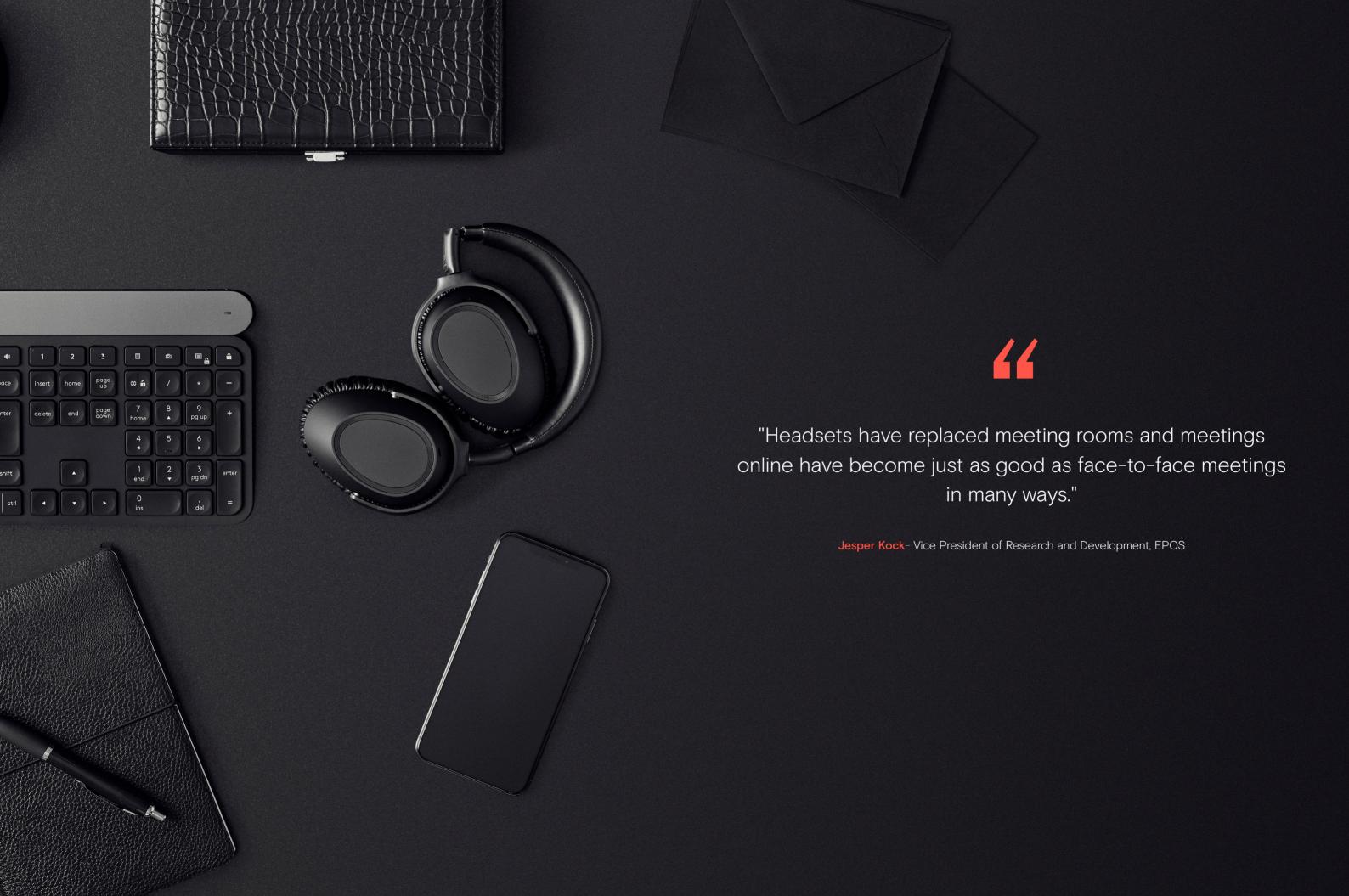
EPOS has engineered professional headsets which guarantee quality audio and communication to break down the barrier of noise disruption in different environments. These carefully researched and designed headsets are able to pick up the user's voice in challenging sound environments, a feature that is increasingly necessarily as workers become more mobile. The headsets are designed with an acoustical 'lens' that focuses in on the user's voice – it points towards the user's mouth which enhances the sound of their voice and filters out any ambient noise. This design recognises the importance of clear communication in virtual meetings.

The EPOS ADAPT Line of premium headsets facilitates the natural progression to a work-from -anywhere culture. The ADAPT Line is

designed to match the communication needs of teams and individuals while adapting to different dynamic environments from open workspaces to travelling in transit. The audio quality is not compromised despite the environment in which an individual may be working in, due to the built-in Active Noise Cancellation (ANC), allowing teams to have seamless audio communication.

An insights study from EPOS found that 25% of professionals spend more than half of their day away from their desk. This means that flexibility in digital tools is not only a priority, but also a necessity. The study entitled 'The Way We Work' was conducted in 2019 and found that 58% of professionals regularly participated in conference calls; this number has now substantially risen amid the pandemic. The ADAPT Line by EPOS allows a seamless transition between desk, commute and home with its wireless Bluetooth capability.

The ADAPT 600 Series is a headset powered by EPOS AI™ which facilitates personal audio with superior call clarity, stereo sound and adaptive ANC. This product uses machine learning to enhance the microphone performance so the user's voice is the focus of the audio. This, coupled with active noise cancellation, helps the individual to concentrate on the task at hand despite the working environment they may be in.



The Way Ahead

The turbulent shift in the world of work in 2020 has not just challenged company performance – it has also provided a unique opportunity for organizations to rethink how communication is conducted within their business. As we look to the future, it is clear that there are some trends that have been accelerated by the onset of the pandemic and that there are opportunities for organizations to support the sound of productivity wherever employees are working. To maintain employee productivity through Covid-19 and beyond, here are some ideas to consider:

Rethink the Meeting Experience

As so many company meetings have migrated onto virtual platforms, the laptop and professional headset now set the scene for a meeting instead of a room or glass box. This shift allows organizations to reimagine the meeting experience to accommodate a hybrid workforce in the future. When people meet virtually, how can business effectiveness be enhanced? When they come into the office for a face-to-face meeting, what should be the desired meeting room experience? If there is a mix of virtual and physically present participants, how can we stop some people feeling like second-class participants unable to contribute? In addressing these questions, the importance of a good acoustic experience cannot be under-estimated - it is essential to improve the productivity of the meeting. Given that constant video calls can be draining, companies should also consider more voice-only meetings.

The audio experience of a meeting can be significantly enhanced when it is integrated with the technology. Many of the EPOS ADAPT Line of headsets are Microsoft Teams Certified with a dedicated Microsoft Teams button. This allows employees to effortlessly tap into meetings without the worry of knowing how well their audio equipment will work.

Address Acoustic Equality

In order for effective work to take place, employees need to at least start in the same sound environment. As employees are no longer all in the same physical location, they will be located in different sound environments - this is not a level playing field and the person with poor acoustic ambience will immediately be at a disadvantage for communication. Although there are limitations on the interventions organizations can make for employees working from home, there is still an opportunity to level the playing field and ensure that all employees start communication with acoustic equality. This means equipping them with the right audio technology which enhances communication and blocks out unwanted external sound.

Voice Activation is the Future

The rise of voice-activated technology was on the horizon before Covid-19. However, the postpandemic reluctance to touch shared surfaces has propelled this trend to the forefront of the digital agenda. In the future of communication, video and voice will be critical to all activities associated with collaboration and productivity. It is vital, therefore, that voice-activated technology should have secure systems to pick up individual user voices; the technology needs to be sophisticated enough to work in even the most challenging of environments. If it does not work in some environments, the entire system is rendered broken to the user and instead of becoming an enabler of work it becomes a barrier to productivity.



"If one aspect of voice technology doesn't work, it affects (the function of) the entire device."

Jesper Kock- Vice President of Research and Development, EPOS

EPOS has considered this trend in its product development of the ADAPT 600 headset. The headset is paired with Alexa voice assistant and can connect simultaneously to mobile and PC. Its machine learning developed algorithms optimize voice pick up, for natural listening experience from three advanced microphones. There are four adaptive ANC microphone systems which monitors work environments and adjusts noise reduction in open spaces.



Conclusion

Organizations now find themselves at a crossroad as performance and productivity levels struggle to adapt to new ways of working. As many companies envision their return to the office, it is clear that significant changes need to be made to make it an appealing option to employees who have enjoyed the freedom of working from home.

While designers are preparing to map out a new office landscape, an important feature will spatial diversity. Not only will the workplace have to accommodate for the all important prospect of collaboration and social interaction, but also the provision of more quiet spaces for private video calls.

Balancing the design of space is only half the battle. In the post-Covid era employees will still have to take calls in open and shared spaces. Spatial design needs to be coupled with the provision of superior audio technology, which allows employees the autonomy and flexibility to work where ever they need to without compromising the acoustic quality of their communication.

However, the future workplace will consist of a hybrid approach spanning across the home, office and third spaces. Not only is there a need in all work settings to be equipped with the correct audio equipment to allow clear communication on calls, but there is also a need to block out distracting background noise. Organizations need to consider a future scenario where all employees are equipped with high quality noise cancelling headsets as a standard practice.

As the future of work becomes more flexible, employees are seeking more autonomy and choice over where and how they work. An investment in great audio equipment not only makes employees feel like their time and performance are valued by the company, but also gives them the practical tools to work flexibly in any environment.

In order for any organization to achieve a high performance workplace in post-Covid era it is imperative to get the basics right, this requires the reimagination of the acoustic landscape where ever employees are based.





About EPOS

Empowering people and businesses around the world to better communicate and collaborate – anytime, anywhere and on any device.

Today's leading-edge communications and collaboration devices and software are transforming businesses and employee experience. As a pioneer in auditory experiences, EPOS has come to be recognized as a flagship provider of high-end audio and video solutions for business professionals and the gaming community. EPOS offers premium solutions with contemporary design, cutting-edge technology, and performance as paramount parameters.

EPOS builds on the legacy of Sennheiser Communications, the former joint venture between Sennheiser GmbH & Co KG and Demant A/S and is today part of the Demant Group – a world-leading audio and hearing technology group. As such, it builds on more than 115 years of experience of working with innovation and sound.

With headquarters in Copenhagen, Denmark, EPOS operates in a global market with offices and partners in more than 60 countries.

eposaudio.com

About WORKTECH Academy

WORKTECH Academy is the world's leading knowledge platform and membership club exploring how we'll work tomorrow. The Academy's content is curated in six streams: people, place, technology, culture, design and innovation. It brings data, ideas and insights from its extensive membership base global of workplace professionals. EPOS is a corporate member of WORKTECH Academy.

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