



+ **Maximising mobility:
Navigating the future
IT landscape**

Introduction

The world of business technology is constantly evolving, driven by a host of factors which today's IT leaders need to account for and manage. The consumerisation of IT devices is altering the expectations and behaviours of today's workers, wider technological advancements such as 5G are improving the potential capabilities of solutions in all fields and, at the same time, the increasing guile and intelligence of cyber-criminals places business-sensitive data under greater threat than ever before. Assessing this state of play, and how best to build an IT infrastructure to contend with it, is therefore becoming an increasingly unenviable challenge.

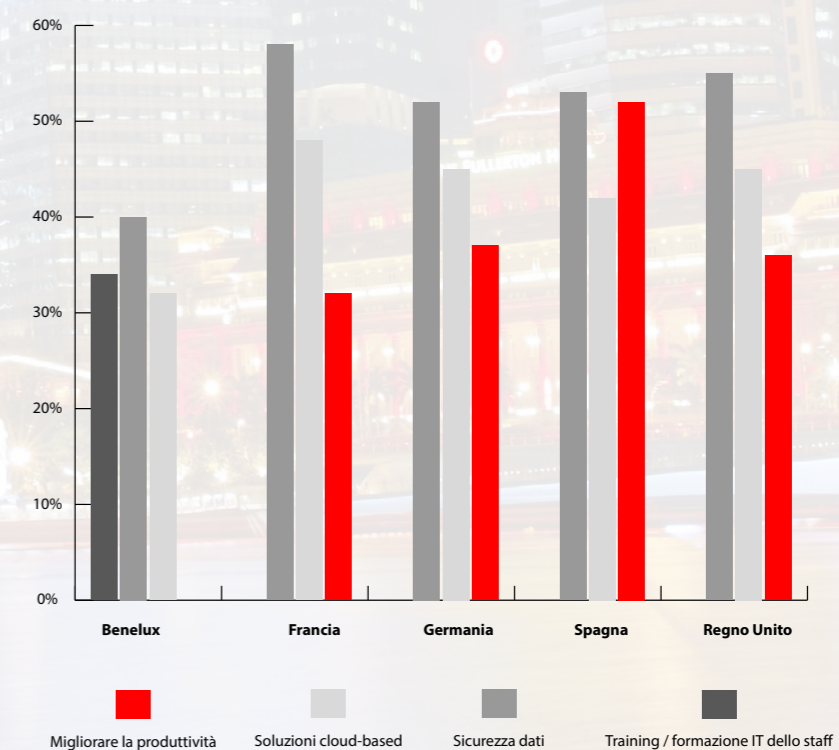
Despite living in this constant state of change, the key concerns for today's European IT decision-makers sound all too familiar. That's according to our latest research, which found data security (62 per cent), cloud-based solutions (58 per cent), and improving the productivity of the business (54 per cent) to be main areas of priority for investment over the next 12 months.¹

To what extent this is the case varies across Europe (Fig. 1), but with the global mobile workforce projected to rise from 1.45 billion in 2016 to 1.87 billion by 2022 – accounting for 42.5 per cent of the overall global workforce² – and the average number of annual security breaches increasing by 27.4 per cent in 2017,³ the fundamental challenge of balancing unhindered mobility with robust perimeter and network security remains as present as ever.



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Top three IT investment priorities over the next 12 months



(Fig. 1)

1 Toshiba, Maximising mobility: Navigating the future IT landscape, Mar. 2018
2 StrategyAnalytics, Global Mobile Workforce Forecast Update 2016-2022, Nov. 2016
3 Accenture, 2017 Cost of Cyber Crime Study, Sep. 2017

Then and now – the evolving IT landscape



With organisations resolved to overcoming this challenge, more funds are being distributed towards technology and IT budgets. Over three-quarters (76 per cent) of IT decision makers across Europe report a year-on-year increase in their budget – most notably in Spain, where 86 per cent are benefitting from greater financial resource this year.⁴

This of course brings with it additional responsibility that money is allocated and spent properly, with it increasingly important for the IT budget-holder to demonstrate tangible results across those core investment areas.

Whether this has been achieved in recent years is questionable – a similar [Toshiba study⁵](#) conducted in 2016 revealed that investment priorities are very much the same now as they were then, with respondents at that time stating data security (54 per cent) and cloud-based solutions (52 per cent) as key areas of investment. What is evident is that, as workers continue to push for more flexible and mobile ways of working, the implications of this trend remain as prominent as ever.

Devices remain integral to any mobility framework, and business-laptops are unsurprisingly the most common tool provided to staff who work remotely. 61 per cent of organisations supply such devices to employees, keen to benefit from the portability, security and connectivity such units offer – in particular over their consumer counterparts which are only in use within 38 per cent of organisations.⁶ It is important to remember though that devices are just one part of the chain when it comes to unlocking mobile productivity in a secure fashion, a point demonstrated by the fact that hardware security, while still important, is only listed as a top three investment priority by 28 per cent of Europe's IT decision-makers. The discrepancy between this and the more highly ranked priorities of data security and improving productivity suggest that organisations are aware of the need for broader IT solutions, and indeed focusing their efforts on integrating these into their infrastructure.

⁴ Toshiba, [Maximising mobility: Navigating the future IT landscape](#), Mar. 2018
⁵ Toshiba, [Make IT work](#), 2016
⁶ Toshiba, [Maximising mobility: Navigating the future IT landscape](#), Mar. 2018



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Cloud solutions themselves are still very much on the radar, helping employees to work collaboratively no matter their location while also providing an element of central control to the network administrator. This is taken a step further with zero client solutions, which minimise device-based threats by storing data centrally – rather than on the hardware itself – and making it accessible only via a Virtual Desktop Infrastructure (VDI). However, while investment in cloud-based solutions remains important, it is not as significant as in 2016 – 43 per cent rank it as a top three priority this year, compared to 52 per cent previously. The reasons for this vary, but one is undoubtedly the length of time cloud has been on the radar of businesses. In fact, [Forrester](#) predicts that by the end of 2018 over 50 per cent of enterprises will be using a public cloud platform by the end of the year.⁷ Given the scalable nature of such services, organisations are now looking to broader solutions which support the cloud, as well as those which enable further digital transformation across the business.

⁷ Forrester, [Predictions 2018: Cloud Computing Accelerates Enterprise Transformation Everywhere](#), Nov. 2017

Embracing technological innovation

It is unsurprising that Europe's IT decision-makers believe the more innovative use of digital tools is a key gateway to improving organisational productivity – 43 per cent plan to invest in this, second only to better training (47 per cent), which itself is understandable given the risks associated with mobile working.⁸

One notable area of enterprise innovation is that of wearables which, while long-mooted, have yet to impact the professional world in earnest to date. A ripening of market conditions make this set to change in the coming months and years. According to [ABI Research](#), global wearable device shipments to the enterprise will reach 154 million by 2021 – a significant jump from approximately 34 million in 2016.⁹ Verticals leading the way in this area include healthcare, manufacturing, transportation and warehousing, according to the research company, and Industry 4.0 is certainly a major influence in this sphere as such companies seek to derive greater intelligence from the Internet of Things (IoT) and related data revolution.

This trend is notable in the anticipated adoption of smart glasses into the enterprise. 80 per cent of organisations are aware of such solutions, but only two per cent have already deployed one.¹⁰ This is set to accelerate rapidly over the next few years, with 89 per cent of engineering, 83 per cent of logistics, and 77 per cent of manufacturing businesses set to implement smart glasses within the next three years.¹¹

The maturing of related technologies is a further contributing factor to the anticipated explosion of smart glasses. [Global spending](#) on virtual and augmented reality is expected to hit \$17.8 billion this year – up 95 per cent on the 2017 figure – while comparable technologies such as assisted reality have too experienced growth recently.¹² All of these technologies are integral to the use-cases of smart glasses in the enterprise, enabling hands-free working while receiving remote advice or overlaying instructions into the first-person view. Companies such as Ubimax have also developed class-leading application suites to enhance the

capabilities of wearables for a professional audience, delivering a wide range of sector-specific functionalities which provide previously unachievable levels of mobile productivity to companies.

Yet it is the arrival of Windows 10-based wearables which is perhaps the most notable recent development in the space, and that which is helping to transform the perception of smart glasses in the enterprise. Previous wearable solutions have been limited to operating systems less common within the professional world, creating unwelcome integration problems at a time when mobility and security are more important than ever before. Meanwhile, Windows 10 usage continues to rise, according to [Statcounter](#), and its popularity in business eclipses that of other systems.¹³ Beyond ease of integration and the resulting improvements to mobility, Windows 10-based solutions benefit from Microsoft security updates to ensure that the data they process is done so in an efficient and safe way. With 39 per cent of European IT decision-makers expecting smart glasses to deliver improved information capture and data processing, solutions operating on Windows are designed to help secure this process in the professional arena. It is no surprise then, that 28 per cent of European IT decision makers believe this development will drive smart glasses uptake in the coming years.¹⁴

Windows 10 also brings greater potential for mobile edge computing – meeting the need for organisations to develop a competitive edge and drive new ways of gathering and analysing data – through Microsoft Azure IoT services, the intelligent cloud and the intelligent edge.

⁸ Toshiba, Maximising mobility: Navigating the future IT landscape, Mar. 2018

⁹ ABI Research, Wearables in the Workforce, Sep. 2016

¹⁰ By 'deployment', we mean the roll-out of such solutions to at least 30 per cent of the workforce

¹¹ Toshiba, Maximising mobility: Navigating the future IT landscape, Mar. 2018

¹² IDC, Worldwide Semiannual Augmented and Virtual Reality Spending Guide, Nov. 2017

¹³ Statcounter, Statcounter Global Stats, Jan. 2018

¹⁴ Toshiba, Maximising mobility: Navigating the future IT landscape, Mar. 2018



Europe's IT decision-makers believe the more innovative use of digital tools is a key gateway to improving organisational productivity – 43% plan to invest in this

How Industry 4.0 is leading the way in smart glasses:

Engineering:

A boiler engineer conducting an annual service may use Assisted Reality smart glasses to call up the schematics of the boiler to enable a hands-free view of service procedures – meaning that when a fault becomes a barrier to repair, the engineer is able to use collaboration software to call for assistance from a remote expert and have additional information sent through.

Manufacturing

Assisted Reality smart glasses can be used by workers on the manufacturing line to access and overlay highly-detailed specifications or instructions in real-time, ensuring greater manufacturing precision, reduced errors, and a more efficient overall process. Remote expertise can also be sought through collaboration tools such as Toshiba Vision DE Suite or Ubimax xAssist.

Warehousing/Logistics

When working in a warehouse or a distribution centre, the hands-free scanning of barcodes within a warehouse enables staff to "pick-by-vision", whereby visual cues for order fulfilment are projected into the user's field of view. This delivers a range of benefits to enhance the process, which include indicating the optimum line of movement within the facility, dynamically signposting alternative components to pick if out of stock, or automatically scanning item or shipment barcodes to better manage the inventory.

The rise of mobile edge computing

With mobility a pressing priority for organisations, many are turning to mobile edge computing to raise the productivity of remote and field-based workers, alleviate pressure on the core IT infrastructure, and ensure greater security of the wider IT estate.

According to [Gartner](#), 95 per cent of new electronic product designs will incorporate IoT technology by 2020¹⁵. Organisations need to be able to embrace and exploit this trend for their benefit, especially as we stand on the cusp of 5G, which will only accelerate IoT capabilities and the amount of data in play. [Ericsson's](#) research on 5G's impact within industries including manufacturing, healthcare and utilities demonstrates the vast potential of the technology, with 78 per cent of respondents believing it will enable them to improve or develop new customer offerings.¹⁶

At the same time, data management challenges created by the IoT need to be addressed, or organisations will leave themselves exposed to network strain, as well as a growing number of security-related threats. 30 per cent of IT decision makers say managing strain on the cloud is one of the biggest challenges of managing M2M/IoT data, while 48 per cent say handling this data in a secure manner is a concern.¹⁷ Mobility remains an enabler, but the way in which it must be executed has changed, and mobile edge computing is an emerging strategy to best achieve this perfect blend of unhindered mobile productivity protected by a robustly secure IT infrastructure.

Such an approach reduces operational strain and latency by processing the most critical data at the edge and close to its originating source – something which is invaluable in this increasingly mobile age. Subsequently, organisations can identify and send only relevant data to the cloud, thereby reducing the amount of 'data garbage' which has to be processed by cloud services. From a security perspective, the edge device enables data communication to be locally encrypted and translated to a communication protocol before being sent to the company's network core via the cloud. A report from [BI Intelligence](#) demonstrates this gravitation towards the edge, estimating that **5.6 billion business-owned devices** will be using edge computing for data collection and processing by 2020.¹⁸



Mobility remains an enabler, but the way in which it must be executed has changed. Mobile edge computing is an emerging strategy to best achieve this perfect blend of unhindered mobile productivity protected by a robustly secure IT infrastructure

¹⁵ Gartner, [Top Strategic Predictions for 2018 and Beyond](#), Oct. 2018

¹⁶ Ericsson, [The Industry Impact of 5G](#), Feb. 2018

¹⁷ Toshiba, [Maximising mobility: Navigating the future IT landscape](#), Mar. 2018

¹⁸ BI Intelligence, [Edge Computing in the IoT](#), June 2016

Less is more: Virtual infrastructure

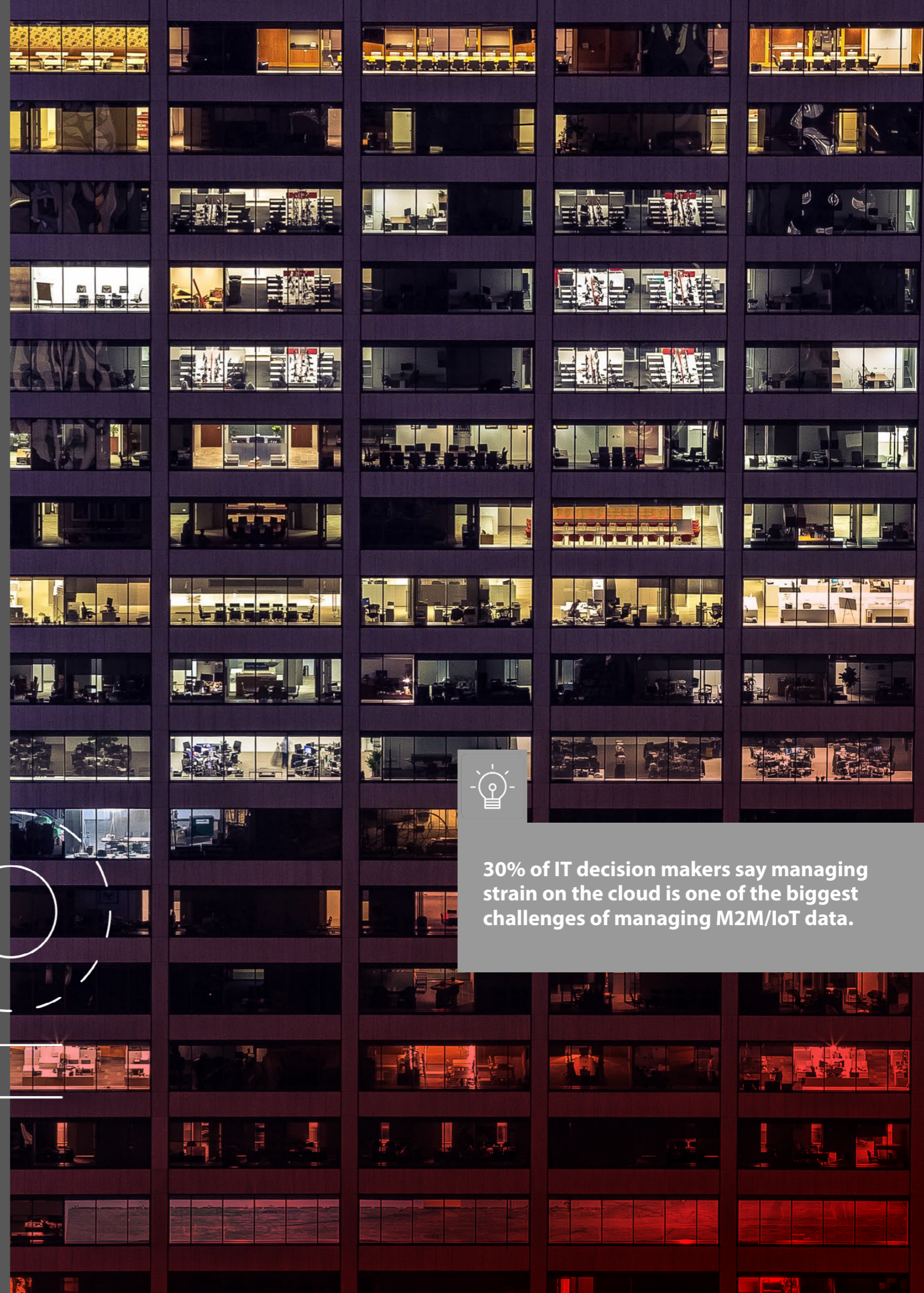
Until now we have primarily discussed the tools to place in the hands of employees or on the edge of the network. However, mobility is about more than those frontline workers – the pace of technological innovation is also creating opportunities for organisations to consider a greater level of internal mobility and security, and a more virtual approach to addressing the needs of their IT architecture. Such an approach can help lower costs and time-constraints on IT departments by reducing the overall estate which needs to be managed.

Take serverless computing, for example, in which IT teams no longer have to themselves manage the servers which run the company's application code, with this instead being run by the cloud provider. This enables developers to focus purely on writing code using precisely the resources needed, rather than having to overprovision for anything beyond this. In an era of widespread mobility, and constantly evolving technology, such agility within the IT architecture is a much sought-after commodity amongst CIOs and their teams.

Similarly, organisations are now looking to the cloud to more securely manage their business-critical data. The rise of mobile zero clients is one such example. With the threat of malware being stored on devices removed, concerns should a device be lost or stolen are eliminated. Integrating solutions which work in parallel with cloud services is becoming a popular method to ensure unlimited mobility in the cost-effective, fluid and secure manner required today.



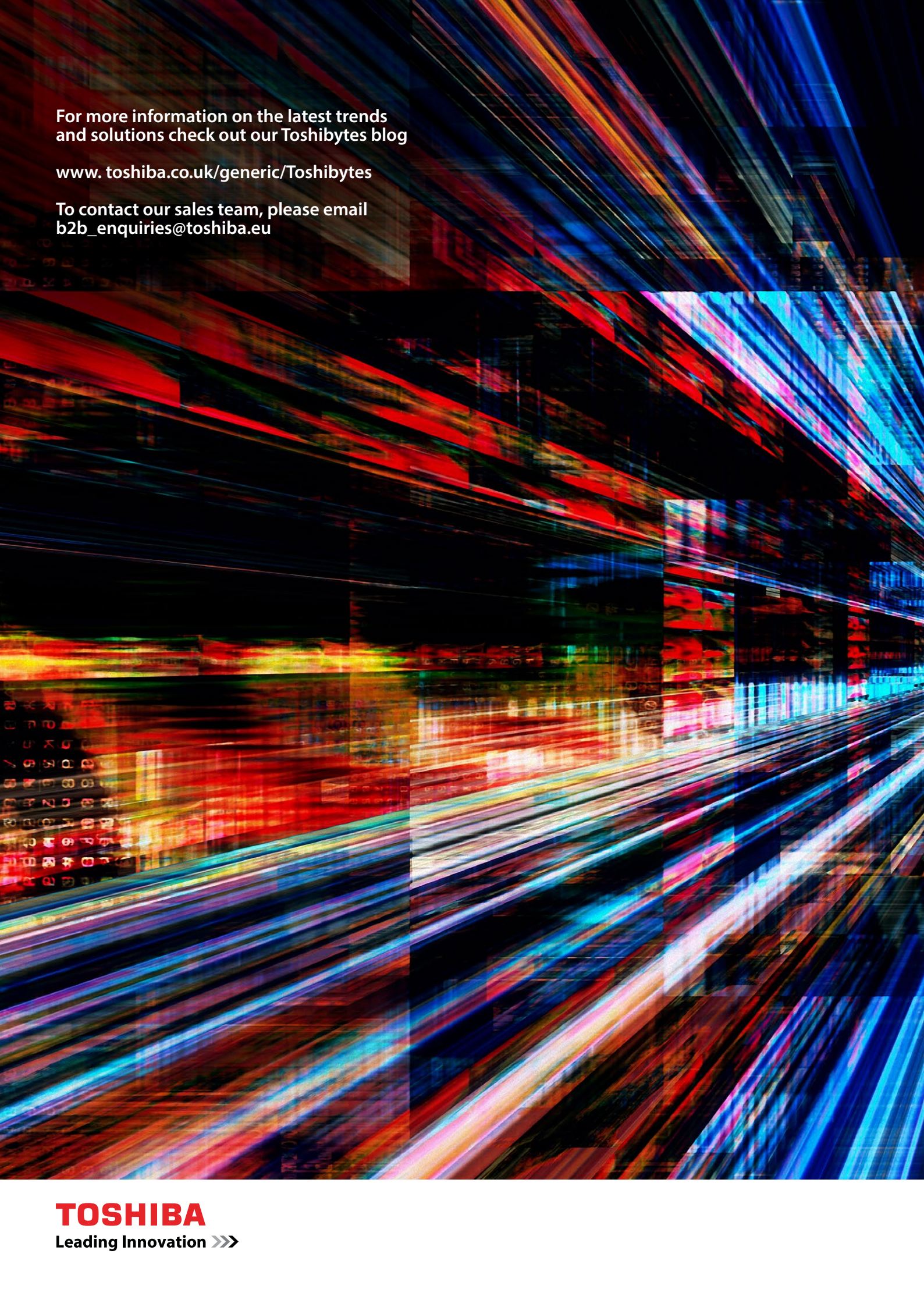
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Conclusion

What is abundantly clear is that IT leaders today are fighting an ongoing battle as they look to digitally transform their organisation in the age of IoT, mass mobility, and explosive data proliferation. Our research shows that there is no one-size fits all approach, nor just one solution which can achieve the required results to enable a fully productive and fully secure workforce.

Organisations must be continually alert to new threats and challenges, and open to adopting the technologies which can help overcome these and empower the workforce – be this refreshing the hardware estate, integrating cloud and clientless solutions, or turning to new and growing trends such as smart glasses.



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To contact our sales team, please email
b2b_enquiries@toshiba.eu