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New Era In Experience Report

Full Academic Review

Dr Alexander Grous
Department of Media and Communications, LSE

Artwork by **Caroline Kjellberg**

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Dr Alexander Grous

Lecturer & Researcher - Department of Media & Communications, LSE
Report author

Executive Summary

COVID-19 has had an unprecedented tripartite impact in modern times on health, society and the economy. The scale and depth of the pandemic has resulted in an unparalleled degree of Government engagement and assistance across countries to furlough employees, assist businesses and individuals with loans, grants, and enforce restrictions on travel, social engagement and workforce activities. The pandemic has also revealed the weaknesses inherent in many businesses, as they strive to address the crisis with this influenced by the firm-type, including three observed categories of Thriver, Hider or Survivor firms, based on initial research and analysis to define these firm-types in 2009. Continued research since this period before and during the pandemic highlights the presence of key digitalisation requirements and blockers in both small to medium enterprises (SMEs) and larger enterprises in major EU countries, including France, Germany, the UK and others. Many blockers are based on managerial perceptions that can be overcome through the use of cost-effective, agile, digital solutions that are available today and can unlock hidden opportunities in both large and small organisations.

This report consolidates and extends research commenced in 2007 that is ongoing at the junction of digitalisation, innovation and productivity in both B2B and B2C. The research continues to reinforce the applicability of the three firm-types and in particular, how each addresses crisis including the pandemic in an increasingly digitally native milieu. The research represents both primary and secondary activities encompassing data from multiple modes: the world's largest ongoing project with SMEs to assess management practices and operations initiated at the LSE and continuing in a collaborative project with 20,000 interviews in 35 countries undertaken; LSE research projects on cloud and digitalisation; engagement with global and niche digital and technology consultancies in the EU encompassing results from firms across sectors, size and regions; ongoing deep engagement with enterprise managers in the Retail and Finance sectors in the EU; engagement with digital technology providers delivering pre- and post-pandemic B2B and B2C customer solutions; ongoing CxO engagement with large and small enterprises; deep multi-sector engagement including advisory and operational research in Banking, Finance, Retail, Technology, and secondary research. The results provide insight on how digitalisation has evolved over the past decade and how many requirements and blockers have harmonised between sectors, firm-types and B2B and B2C as firms align to a new post-pandemic equilibrium. In many cases, COVID-19

has accelerated existing digitalisation while in others it has initiated transformation, underpinned by data-driven, agile, secure, scalable digital solutions that can enhance both customer and supplier experience. The research continues to confirm the relevance of good management practices aligned with technology use in enhancing productivity and competitiveness both before and in the pandemic, in addition to highlighting a number of other observations.

First, remote working has been a key catalyst driving digitalisation-by-necessity, agnostic regardless of firm-type, sector or size. Second, the most cogent overriding success factor prompting and maintaining digital transformation is managerial recognition and engagement. Third, B2B has significantly lagged behind B2C in the adoption of digitalisation, with greater gap-reduction between the two being spurred by B2B activities that have relied on traditional face-to-face engagement models. Fourth, despite significant media attention on the 'high rate' of digitalisation spurred by the pandemic, only **60%** of planned changes during 2020 were observed to be technology-related, with **38%** of these defined as 'permanent', and **60%** of these reflecting more 'significant' technology-led change. This equates to **23%** of total planned technology transformation and is forecast to rise to **30-40%** by the end of 2021. This indicates a significant untapped, hidden opportunity for digitalisation across B2B and B2C. Fifth, the most significant blocker to digitalisation is 'managerial perceptions', with **85%** of SME managers and **20%** of large enterprise managers not aware of the available digitalisation options that could address their perceived blockers and requirements.

Six, barriers and requirements aligned between B2B and B2C as the pandemic progressed, but with a greater rate of change observed for B2B firms playing catch-up to the digital maturity of many B2C firms, and to substitute digital modes for traditional face-to-face engagement for many. For SMEs, barriers included perceptions that solutions were designed for larger business, were too expensive, complex, lengthy to implement and required specialised skills. In addition to the observation of some of these amongst managers in larger enterprises, additional blockers were cited that included security concerns, integration with legacy solutions and more complex operating environments, and others. Seven, the areas in which the most significant challenges for digitalisation were perceived include marketing (**19%**), e-commerce (**17%**) and website activities (**13%**), but over **75%** of managers in large enterprises indicated a lack of time to assess feasible alternative options to incumbent solutions. Of these managers, 80% would review suitable solutions that addressed their perceived blockers if this could be accommodated. Eight, where enterprises had adopted low-cost digital solutions offering agility and aligned organisational processes, they achieved headcount reductions of **200-400%** in larger enterprises and **100%** in SMEs, while reducing code release cycle times by **50-100%** and organisational decision making sign-off time by **1000%**, going from months to days in many cases. Nine, at a consolidated level, best practice digitalisation transformation combined with best management practices resulted in a reported productivity uplift range of **15%-50%** incorporating staff reductions or re-deployment, combined with enhanced digital asset adoption and intensity across analytics, reporting, collaboration, marketing, CRM,

campaign management, and others. This uplift reflects the significant accelerated leverage that can ensue when digital transformation is combined with managerial excellence, rapid changes and fast sales growth from agile experimentation in digital channels.

Finally, there appear to be few true organisational barriers to the adoption of digital solutions that can address the impact of the pandemic. COVID-19 has placed considerable pressure on costs, with this representing a common cited blocker to digitalisation amongst some organisations but which can be obviated in many cases through the availability of lower-cost flexible digital solutions. This research also indicates that a degree of digital maturity before COVID-19 has been a success factor enabling many firms to survive in the pandemic, but equally, some have successfully adopted digital solutions after the onset of the pandemic and also made required organisational changes. The research indicates that a firm's stability and quality of its leadership can determine the degree of its digitalisation, technology transformation and whether it's a Hider, Survivor or Thriver. The opportunities to digitalise incrementally or through a step-change in the pandemic are often unnecessarily blocked by managerial perceptions of high cost, skill requirements, security concerns and others. The market has evolved, however, in its provision of cloud-based, agile, lower-cost digital solutions that can ameliorate these and other blockers and leverage digitally native and digitally mature employees, customers and suppliers to deliver enhanced functionality, performance and competitiveness. Enterprises engaged on a digitally led transformation during the pandemic are benefiting from the scale, speed and depth of change that the crisis has facilitated that was not possible in many cases before its onset. When aligned with best management practices, the effects of this digitalisation can remain long after the pandemic has abated.

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(T) +44 (0)20 7106 1198 **(E)** consulting@lse.ac.uk **(W)** lse.ac.uk/consultancy

1. Changing Digital Social and Economic Trends

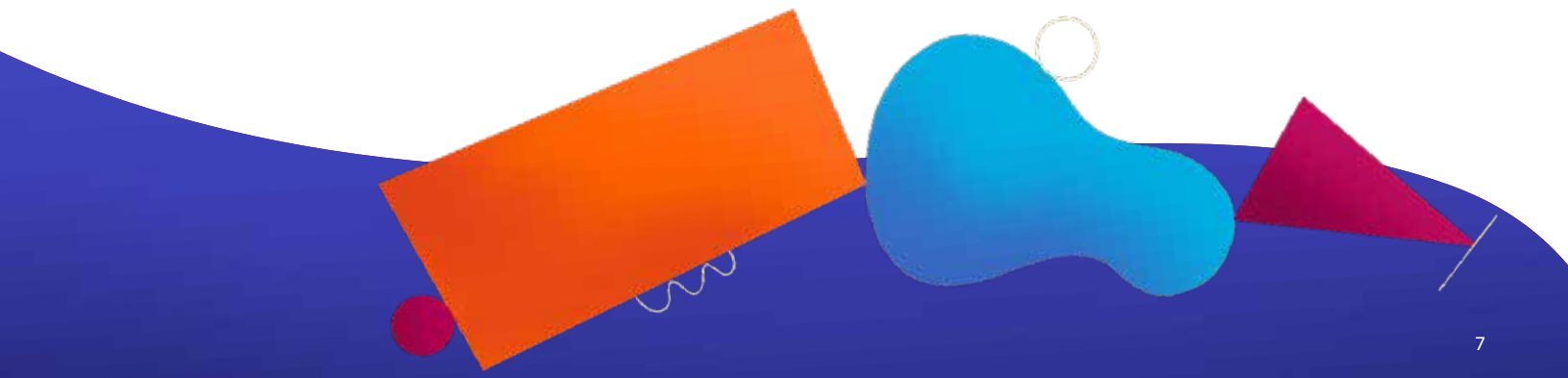
1.1 Digital Cohort Behavioural Shifts: Driving B2B and B2C Changes

The pandemic has altered the pattern of purchasing, social engagement and working practices for consumers and business alike.[1] The speed and scale of the virus' spread has also served to harmonise the behaviour, requirements and impact both for consumers and businesses between major countries including the UK, France, Germany and others. The International Monetary Fund (IMF) has classified the pandemic as being worse than the 2008-2009 global financial crisis, with the human cost immeasurable[2]. It has affected how individuals engage, work, and enjoy their leisure time.[3] The continued use of digital tools is now firmly entrenched with consumers for work and leisure, with the use of social media in particular spiking during the pandemic: Twitter reported a **23%** increase in the number of monetisable daily active users to 164 million by Q2 2020, while Facebook's total use across its messaging service increased by **50%**[4]- this included a doubling of voice and video calling for Messenger and WhatsApp - while Snap reported spikes as high as **50%** compared to a pre-pandemic period.[5]

Free communications and collaboration tools such as Zoom had a daily usage increase of **300%** in April 2020 compared to before the pandemic; daily active users were up **378%** from a year earlier (March 2020); monthly active users were up **186%**, and daily and monthly average use were up by **340%** and **160%** respectively when compared with December 2019[6]. This was also reflected by growth in Microsoft's collaborative tool, Teams, with 75 million daily active users registered, and a record 2.7 billion total meeting minutes recorded at the end of March 2020, up from 900 million total meeting minutes recorded earlier that month.[7] This trend has also been reflected in the growth of cloud: Google reported **45%** growth in cloud revenue year-on-year in the third quarter of 2020, while Amazon, Microsoft and IBM reported a **29%**, **19%** and around **7%** increase respectively for the same period.[8] Cloud continues to impact firm-level activities by enabling the delivery of agile, rapidly-delivered, cost-effective services that facilitate software and product development, project management, help desk and customer services, document storage, distance training and others. Digital transformation, however, beyond the adoption of basic collaborative tools has not occurred ubiquitously or in an accelerated manner post-COVID-19: on average, **18%** of enterprises in the EU have made changes in the way that products are offered; **45%** have made some changes, and **37%** have not made any changes.[9] Digitalisation continues to be aspirational for many firms.

The OECD defines digitalisation as **"the use of data, digital technologies, and interconnections that results in new or changes to existing activities."**[10] The pandemic has highlighted the mission-critical nature of digital enablement, fostered by the availability of low-cost and low-code agile solutions applicable across the spectrum of business operations.[11] This encompasses B2B and B2C operations, with B2B increasingly adopting elements from B2C, including enhanced website functionality, the use of analytics, digital data generation to optimise performance, and the use of previously lower-utilised modes including social media.[12] The influence of B2C on B2B is also directly impacted by employees: they are both consumers, who can influence their organisation based on their digital experiences and expectations and employees who can influence the digital and operational elements of organisations they engage with. All four cohorts are represented in the workforce encompassing Generation Z (1997-2012), Generation Y ('Millennials', 1981-1996), Generation X (1965-1980), and Baby Boomers (1946-1964).[13] Cohorts were engaging digitally before the advent of COVID-19,[14] driven by increasing smartphone use: this has been enabled by high-bandwidth mobile networks with **100%** or greater handset penetration amongst Generation Z and Millennials, **85%** by Generation X, and **70%** by Baby Boomers.[15] Connectivity is critical to employment for over **50%** of cohorts,[16] and has been growing with remote working during the pandemic in particular.[17] The most marked digital transformation has been amongst the non-native Baby Boomer cohort: over **80%** engage online on a daily basis, double the figure from 2010,[18] with social media use up **1000%** since 2006[19] at 27 hours per week, only two hours less than younger cohorts.[20] One quarter of this cohort also utilise social media to follow a brand,[21] including an increasing number of B2B businesses.[22] These trends are relatively homogenous across countries including France, Germany and the UK, with only minor variations observed: social media use is the highest rated category by consumer visits in all countries, followed by news, information, and entertainment in France.[23] This varies marginally in Germany and the UK with news, information and retail following the highest rated category of social media respectively.[24]

Cohorts spend seven hours per day connected, with video accounting for the highest mode of connectivity (**51%**) followed by music (**28%**) and games (**21%**).[25] Twenty per cent of cohorts also utilise their smartphone as the sole mode for broadband connectivity, with this reaching **30%** amongst Generation Z and Millennials.[26] The extensive degree of digital adoption by all cohorts has continued to influence their work and leisure habits, with a growing digitally native and digitally mature population offering less resistance to digitalisation and employees who can keep pace with technology transformation, with this even more relevant in the pandemic. Research highlights: **"Expected work design characteristics have an important influence on the employees' attitude towards digital workplace transformation… Enabling employees to expect being autonomous, competent and connected at the workplace is not only vital for their expected future work performance, but also for their expected well-being in the workplace. Both of the latter, in turn, increase employees' positive attitudes towards digital workplace transformation and consequently their intentions to actively support the necessary change process."**[27] The onset of COVID-19 has harmonised the challenges faced by small to medium enterprises (SMEs) and larger complex organisations, concomitant to shifting employee work-life balance requirements and levelling the playing field across countries and sectors.



1.2 Research Methodology

This report consolidates LSE research in digitalisation, cloud, management practices, and productivity that commenced in 2007 and is ongoing, including during the pandemic. Both primary and secondary research continues to be undertaken with only selected elements of the research published. This report assimilates relevant key research findings before and during the pandemic including macroeconomic indicators, consumer trends and cohort digital behaviour, before dovetailing to digitalisation in B2B and B2C and the impact of the pandemic on firm responses to the crisis. A final section consolidates the results to highlight best practices, with this and other preceding sections drawing on considerable research undertaken to date including the originally defined firm typologies and their relevance in the pandemic. Selected relevant research includes:

- Engagement with technology providers, cloud providers and research agencies in 2009 for B2B and B2C including assessing data from interviews with 300 CIOs in the UK, France and Germany to determine organisational typologies during crisis.[28]
- Results from the world's largest ongoing survey of practices encompassing management, operations, finance and resourcing in SMEs commenced at the LSE in 2005 and is ongoing through the World Management Survey, with 20,000 interviews undertaken to date in 35 countries. This includes in-firm research and in-situ firm visits focusing on technology adoption, digitalisation, including major global enterprises with £1bn+ revenue and SMEs.[29]
- Engagement with global technology and cloud providers to assess digitalisation from 2012 on an ongoing basis to undertake major modelling of cloud impact, adoption and productivity effects at firm-level for B2B.[30]
- Extensive UK technology and productivity assessment to define best practice adoption in B2B and B2C from 2016, including SME digitalisation analysis.[31]
- Engagement between 2013 to present day with French public entity developer of firms, Bpifrance, and Fundacion Ramon Areces in Spain, to review digitalisation in around 100 SMEs across sectors to date, research capturing digitalisation attributes, blockers and solutions utilised to deliver digitalisation and management practices, training and guidance.[32]
- Deep analysis of technology adoption in the EU, the Basque Region and the UK (2016-2017) amongst industrial clusters in B2B, encompassing aerospace, automotive, shipbuilding, energy and others including extensive case studies with in-situ extended firm engagement over 12 months in over 20 SMEs and large firms.[33]
- Research with global cloud technology providers to assess firm adoption patterns, management behaviour in B2B and B2C, blockers and market trends and firm-level behaviour (2017-2020), including AWS to assess the transformative impact of cloud.[34]
- Engagement at CxO level in the EU with multiple digitally-enabled SMEs, large and global solutions in B2B providers across sectors, including Banking and Finance, Retail, Telecommunications, Internet, Consulting and others in cloud and digital technology across sectors to assess metrics and operational technology adoption performance.[35]
- Firm-level CxO engagement (2017-2018) with 25 large global enterprises in the EU, Asia and the US across multiple sectors in B2B and B2C representing over 1 billion employees and over $400bn to assess digitalisation and technology adoption.[36]
- Deep Banking and Finance Sector engagement (2010 – present) for digital advisory and operational engagement, covering major UK and EU banks and EU Fund Managers, assessing B2B and B2C digitalisation, enablers, technology and solutions adoption and customer analysis.

- Deep Air Transport Sector engagement to assess digitalisation for B2B and B2C, including the delivery of three major reports, Sky High Economics Chapter One, Chapter Two and Chapter Three between 2016-2020, encompassing 150 pages and the most comprehensive digital impact analysis undertaken to date of the Sector. This includes global airline and supplier engagement internationally.[37]
- In-situ engagement with European digital and cloud technology solutions providers in Spain and the UK 2019-2020 to assess the impact of the pandemic on digitalisation for B2B and B2C, including detailed customer analysis, metrics, and segmentation including Banking and Finance and e-commerce.
- Engagement with global and European B2B and B2C enterprises at CxO level for this research, including enclosed case studies for Vodafone UK, Boots UK, Sunstar Enterprises, Asprey and others, to assess digitalisation during the pandemic.
- Ongoing secondary research of academic material on digitalisation, management practices, innovation and other relevant aspects.

Consolidated research from these activities provides: (1) findings to date across digitalisation, management practices, productivity, technology use and other areas; (2) results drawn from a combination of secondary and primary data to depict adoption trends, activities and estimates; (3) a selected number of case studies included in this report from engagement with CxOs in leading participating B2B and B2C organisations. This multi-tiered and longitudinal approach over a decade provides data and is accented by activities and engagement with technology and solutions providers during the pandemic to contrast firm activities to a pre-crisis environment and depict the segmentation between thriving firms and those 'riding out the storm' with a mix of less intensive strategies. This encompasses major EU countries such as France, Germany, and the UK to deliver directional, relevant, topical digitalisation insights before and after the onset of COVID-19.

1.3 Mobilising Digital Capability and Skills in SMEs and Larger Enterprises in the Pandemic

"The enterprises also face internal constraints related to talent gaps and weak managerial capacities. These constraints are manifesting in a concentration of SMEs in activities that require low resources, in terms of capital, skills and financing."

International Monetary Fund, 2020; p5.[38]

COVID-19 has resulted in many employees working longer hours across firm-types, as remote engagement has become 'the new normal'.[39] Research highlights: **"Many of the critical issues are the same in the B2B and B2C marketplaces… People are basically the same but that new technologies are changing many of the ways customers shop and buy - thus, many businesses must overhaul their operating models to create digital strategies that meet changing needs and preserve competitiveness."**[40] The pandemic has highlighted that consumer digital maturity is directly relevant to, and can influence, B2B digital transformation with this sector traditionally lagging behind B2C.[42] The adoption of an agile, responsive customer-centric culture is a key precursor to wider and deeper digital implementation: **"Speed is crucial as the product life cycles are becoming shorter. The inflation of social media platforms and smart and connected devices during the past decade drive a radical change in the way customers interact with businesses and also the expectations of customers regarding response time and multi-channel availability."**[42] The always-connected consumer-employee can influence and guide firm-level changes,[43] with the pandemic exposing 'Achilles-heel' areas that if left unaddressed, can result in business failure.[44] This is particularly significant for many B2B businesses in major sectors including Finance, Retail and Services that traditionally utilise face-to-face and non-digital modes. Many SMEs and some larger enterprises do not adopt digitalisation due to a lack of knowledge on available options, cyber-security concerns, cost, complexity, skill-requirements and others.[45] The World Trade Organisation states: **"The pandemic has highlighted the glaring need to bridge the digital divide, both within and across countries, given the central role the digital economy has played during the crisis. Many traditional obstacles have been accentuated and have continued to hamper greater participation in e-commerce activities by small producers, sellers and consumers.... This has underscored the need for efficient and affordable information and communications technology services, such as telecommunication, computer and other IT services and emerging technologies."**[46]

Ninety per cent of SMEs in OECD countries are equipped with computers and **80%** have Internet access.[47] The use of ICT can enable SMEs to become or remain profitable, exploit their intellectual property, provide employee mobility and enhanced functionality.[48] SMEs with high productivity growth are more likely to adopt a greater numbers of

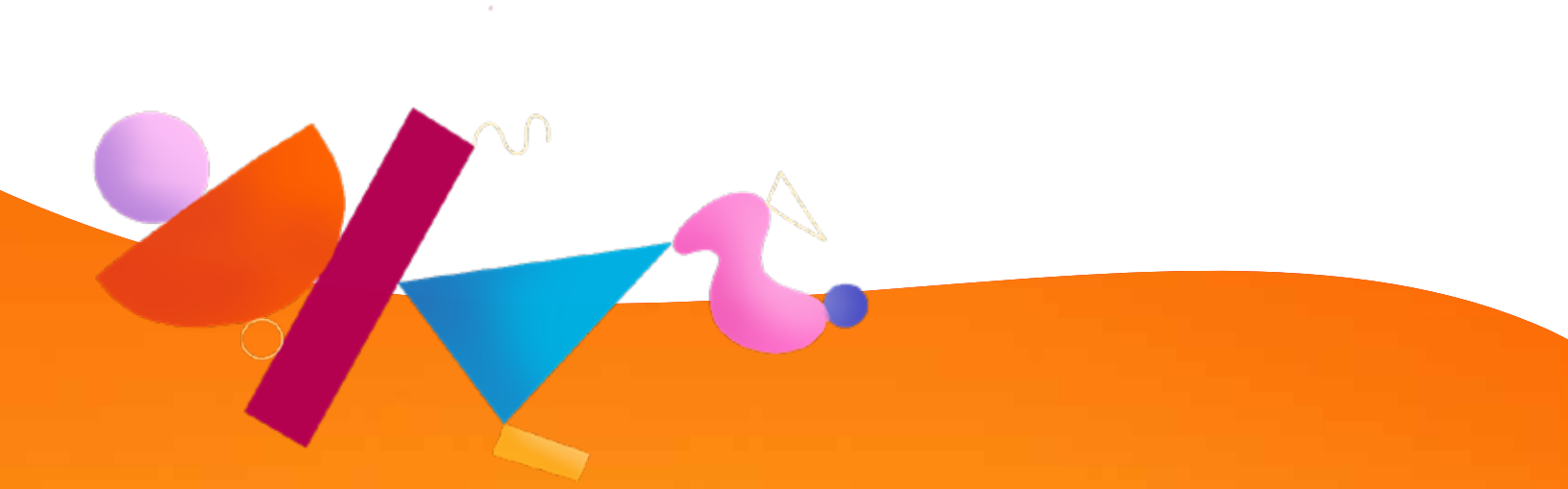
advanced ICTs and engage in innovation.[49] The ubiquity and use of ICT alters as firm size increases including the complexity of technology utilised, security, infrastructure, functionality, integration with enterprise systems, analytics and reporting, and other attributes.[50] The key leverage for ICT-enabled productivity is **management practices:** while ICT and good management are complementary, the latter is the lever for increasing productivity.[51] Firms with better practices are more productive, profitable and have higher sales growth.[52] The pandemic and the adverse economic conditions it has precipitated have magnified the importance for best practices as many firms face funding and cost pressure, reduced revenue, and a lack of required skills, particularly in SMEs, where the average employee number in the EU is four.[53] Prior to the wider adoption of cloud and the availability of the current transformative digital solutions, the European Commission highlighted the blockers faced by organisations: **"Barriers to this include the general deficiencies of SMEs as far as their use of ICT is concerned, the low speed of communications, the high costs of ICT, the difficulties in differentiating the myriad of providers, the frequent changes in technology and, finally, the lack of skills for successfully using ICT effectively."** [54] The OECD identified the development of digital capabilities as being a particularly prohibitive area for SMEs in the decade preceding the pandemic: **"To face this new way of conducting business additional new skills are needed by SMEs, both for technically launching and maintaining a commercial application and sometimes for expanding the market into new regions with another language or culture."** [55] This situation has significantly improved with the advent of cloud delivering low-cost, API-driven solutions by major cloud providers for marketing, analytics, CRM, collaboration and other functions. This has resulted in an updated 'modernised' perspective by the European Commission: **"Digitalisation and the cloud are the infrastructures on which new types of economic activities and organisational models operate."** [56]

Infrastructure continues to be an enabler of digital transformation with the UK, France and Germany reflecting advanced digital ecosystems encompassing a mature market for digital offerings, the availability of technical skills, platform choice, capital access and an entrepreneurial culture.[57] A major step-change in wider digitalisation in the EU and developed countries has been the advent of lower-cost digital solutions enabled by cloud: these are readily accessible by both SMEs and larger enterprises and can result in tangible realisation of benefits.[58] A major concern amongst SME managers is their inability to recruit or fund in-house technical skills to enable digitalisation, with this recognised by the European Commission: **"Cloud-based services can help alleviate financial and talent constraints by reducing ICT upfront capital expenditures, provide ICT expertise, improve digital security and benefit from lower cost cloud-based communication services. Big data analytics can improve customer service."** [59] Cloud-based remedies are particularly relevant during a crisis such as the pandemic, with the International Monetary Fund highlighting: **"The 'great lockdown' has demonstrated how digital technologies can facilitate business continuity and enhanced resilience to shocks. But more critical, digital technologies are rapidly transforming consumer expectations, thus SMEs need to adapt to remain competitive in the digital economy."** [60] Digitalisation can also facilitate businesses acquiring new clients and engaging in new markets at low-cost while providing business continuity during the lockdown.[61]

The accessibility of digital solutions and low adoption barriers democratise technology, making it readily available to SMEs. This can develop the 'hidden opportunity' inherent in firms to survive, thrive and innovate, while delivering multiple benefits including:[62]

- **Lower costs:** Reduces the fixed cost base and shifts the focus to variable costs and operational budgets versus capital expenditure, while providing solutions that were previously available to larger enterprises;
- **Scalability:** Provides scalable resources enabling rapid business start-up and acceleration;
- **Flexibility:** Provides a menu-driven approach from which relevant solutions can be selected;
- **Speed:** Rapid adoption shortens delivery times and execution, facilitating expedient results, review and corrective action;
- **Collaboration:** Improves workplace and supplier collaboration;
- **Security:** Improves data security through embedded security features and protocols in vendor-supplied solutions;
- **Customer experience:** Enhances customer acquisition and support.

The degree and speed of digital transformation is influenced by these factors and moderated by the digital maturity and expectations of managers and employees: they directly translate their experience and expectations to the delivery of a digital end-state that during the pandemic includes the substitution of B2B face-to-face activities with other modes including a website and e-tools.[63] A key enabler of employee engagement and digital transformation during the crisis is managerial leadership.[64] The most successful enterprises in the pandemic display managerial engagement across the organisational structure that is driving change in business processes, individual work activities, information and cyber-security, and other areas.[65] The included case studies in this research highlight the significance of leadership in spurring digital transformation during the pandemic. This is a critical success factor in establishing new sustainable business models in the pandemic. In the process, incumbent operating models have altered and are likely to remain in their current state in the near-to-medium term as remote engagement continues to be a key digital transformation catalyst affecting employees, consumers and suppliers in both B2B and B2C.



1.3.1 Case Study- Sunstar Enterprises SA: B2B Digital Transformation

"COVID hit and the new world sunk in. It was kind of the joke we used to have, saying, 'What would happen tomorrow if you could never visit your oral care professionals in person?' Everyone said, 'That is absurd.' Enter 2020 and that is literally what happened. Suddenly, digital became key."

K. Hungerford, Director of Digital Transformation Strategy and Services, Sunstar.

Sunstar Europe SA is part of the US$1.4bn Sunstar Group from Japan, with 4,100 employees and US$681m in revenues. The Company operates a B2B model, manufacturing and distributing personal care products including toiletries, dental, grooming, shampoos, perfumes and others to healthcare professionals, pharmacies, supermarkets, and other distribution points, in addition to stimulating demand through campaigns targeted at these groups and consumers. Sunstar Europe commenced digitalisation in 2016, with the B2B business primarily undertaken through face-to-face activities, but it was 2018 before in-house marketing technology was introduced. The Director of Digital Transformation Strategy and Services joined in 2016 to drive digitalisation across Europe: **"It was clear even before COVID: you need to retool everything from the bottom up across the way you work, across people, process and technology, working a lot on culture. We had a huge cultural shift to make from this very traditional mentality and senior management asking, 'Why do we need to do any of this? Sales are fine and growing in double digits'. Thankfully our management team saw the potential of digital and we launched 'Achieve': Europe's multi-year digital transformation initiative including redefining the marketing process from the ground up, to work on integrated marketing communications and to implement a new cloud-based marketing suite across Europe."**

Sunstar Europe targets two key segments: consumer and healthcare professionals and buyers for resellers. The Company accelerated digitalisation to build brand awareness and generate recommendations. It aligned best practices with executive managerial sponsorship of a digital vision and the use of a mix of readily adopted digital solutions including a cloud-based, integrated marketing suite that, although implemented before COVID-19, became a key tenet for activities during the pandemic: "**I think this switch to pure online was a huge wake-up call for the organisation. This was the first time that our European markets had an email marketing tool, so newsletters and campaigns, helped grow trust and also drive sales or interactions. We have markets using it to strengthen the sales channel, introduce their sales team via email, send information and connect the dots between social, email and website.**" Sunstar Europe utilised digital in a hybrid decentralised/centralised mode, aligning with best practice that localised digital campaigns and activities: **"We are very decentralised, but**

'glocal' with very lean corporate management and autonomy provided to each of the regions. We have centralised all of the marketing assets and all of the campaign creation from headquarters. It is then just localised providing 'controlled autonomy' through our digital marketing suite - we can do that through technology today. You have the guidelines and control your brand presence but leave the autonomy to the markets to execute. That is something that we strongly needed in order to build that one face to EMEA."

The role of the pandemic has precipitated changes including localisation: **"This was critical during the pandemic: we needed to accelerate how we enable our markets to execute fast and furiously, and we were not as fast with this last year. If anything, COVID has lit a fire under our feet. The marketers are very articulate about what they need and, because we have the right infrastructure in place, we can power that fast. I think that is one change we have really seen, as well as the enablement of rapid campaign testing, results review, and re-launch."** The localisation of digital activities has been observed in multiple EU enterprises, underpinned in many by cost pressures, but also increased standardisation following the pandemic: **"I think we are going to see, coming out of COVID-19, a lot more countries or marketers or organisations find, as we are restricted by budget and really doubling down on profitability, that you have to have a common base and you need to have centralisation to decentralise. That centralisation and standardisation provides you with the benefit of being able to scale and also to roll out operations that are cost-effective. My hunch is that a lot of marketers and organisations are hopefully going to see that. They can't keep up these decentralised, multiple databases, especially as all of our consumers are so fluid now across Europe."**

The Company's digital transformation during COVID-19 is congruent with other enterprises that have rapidly implemented solutions and commensurate practices: **"Our local teams have gone through intense analytics training this year, campaign training, and refining personalisation: we are continuously testing, failing, testing, learning, succeeding, testing. We say that often, 'You need to really test and fail, learn and fail.' I think people really understand what that means today, especially when the business is under pressure. We are not going to be able to be perfect and we are not going to hit it every time but the times that we fail, we are going to double down and move even faster the next time. We have to be really comfortable with failure, even in times of crisis. Covid has made this mindset possible, while the digital tools have made it a reality."** The drive for agility and speed-of-execution has been observed amongst leading enterprises in the pandemic with a high correlation existing in either the degree of digital adoption preceding it, or senior managerial willingness to adopt this. Significantly, a shift has also been observed in the perception of digital 'as a service' post-pandemic, in contrast to a wider held view before that it was related to hardware: **"Through COVID-19, one of the changes we have seen is that we need to accelerate how we enable our markets to execute fast and furiously. This has impacted many people's view of IT. Digital transformation doesn't imply having an association with IT. You can completely decouple these two, and as the pandemic showed us, you can use digital solutions to scale up quickly, cost effectively, and deliver ROI."**

Although a degree of localisation occurs in the EU, target market requirements and behaviour have been aligning: **"The landscape is becoming more neutralised because there are so many consumers, and new consumers, online, but their online habits are the same and are transcending traditional marketplaces and how we think about segmentation. I think after Covid it is going to be very difficult to discern between them, except for regulations, so 'structure' becomes more important than 'behaviour'. We are trying to provide 80% of what meets the common need and then 20% is left local - that's working."** Sunstar Europe's digitalisation

reflects one of the other most cited requirements and changes since the pandemic: the use of low-cost digital tools that facilitate rapid product development with minimal additional training requirements:
“I think the other thing we are seeing that is working really well is that the future is codeless technology. Our digital solutions provider’s products do 80% of the heavy lifting for us. ‘I want it now’ but I don’t want to code or to have large development teams. We want to use as much as we can out-of-the-box to reduce the maintenance and let our provider do the heavy lifting. All of the ‘technology’ is in the hands of the marketers - none of the technology stack lives with IT. I think this is also something that organisations are not thinking about. They are talking very often about the challenges that they have with IT.”

The acceleration of digital transformation commenced before COVID-19 and is migrating to an ROI-driven stage that will gain in importance post-pandemic:
"Lowering the cost of development is a key use of our off-the-shelf digital toolkit. Through this, analytics and process refinement we have on occasions knocked out seven to eight pretty costly changes that would have come into place as we refined campaigns. We don’t need to continuously add functionality to a website because we think our customers will need it. Our digital solutions help us to create an experience, do the AB testing and then let the data tell the story. That was a huge learning for us. That will be really big moving forward also as we refine ROI in a post-Covid world, where ROI might be intangible. What is the ROI of good brand awareness? What is the ROI of influencer marketing? Digitalisation, data and analytics help you to get there.”

2. The Game Changer: COVID-19

2.1 Remote Working as a Catalyst to a New B2B and B2C Paradigm

"This jump in numbers shows that with the right technology, tools, (e.g. communication tools), and work reorganisation, a lot more jobs can be performed from distance than previously assumed."

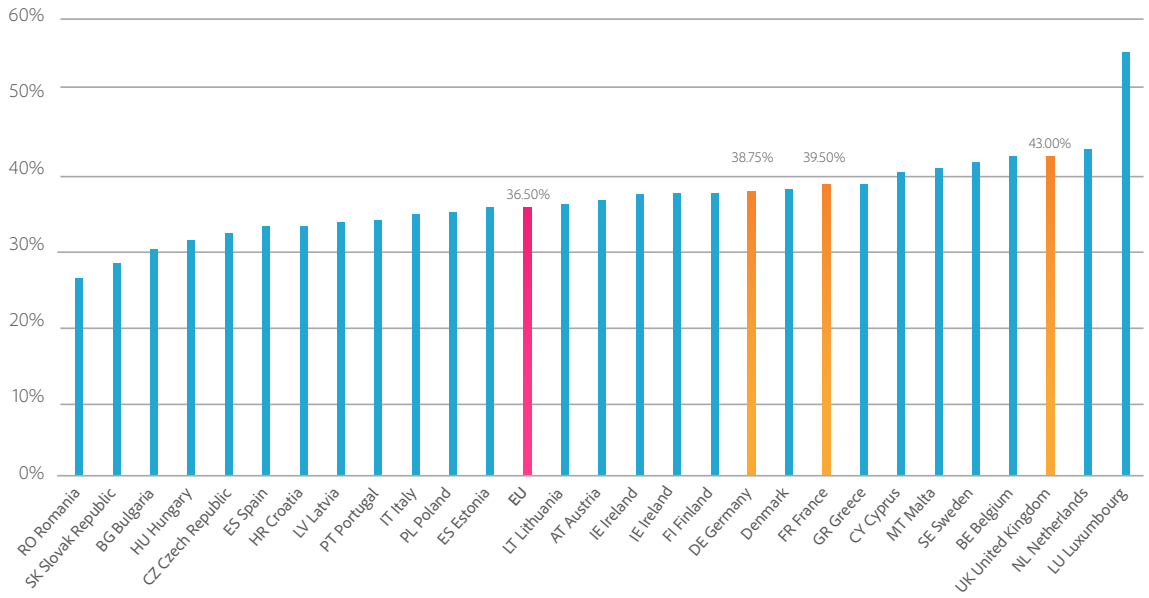
International Labour Organisation, (p3; 2020).[66]

The incidence of consistent remote working spiked during COVID-19 and has been a key catalyst for change across organisations, agnostic of sector and size.[67] In the EU, **86%** of those undertaking some remote work did so as a result of COVID-19.[68] The global push towards remote working had a significant impact on B2B and B2C business alike, disrupting activities and ushering a new unforgiving era in which business weaknesses are amplified and if unaddressed can result in rapid business failure.[69] During lockdown in April 2020, the proportion of people exclusively working remotely in the UK spiked at **43.1%**, before reducing marginally to **40.8%** in May, and to **36.5%** in June.[70] A similar peak figure was also observed in France (**42%**) while in Germany this was lower (**27%**), with these above and below the EU average of **33%**.[71] A gradual increase in the incidence of dedicated teleworking has been observed before COVID-19 since the early 1980s, when **1.5%** of over 16 year olds in employment primarily worked from home, climbing to **2.8%** by 1991, before reducing to around **2.1%** in 1999.[72] Over a decade later by 2011, this had grown to **3%**.[73] In the UK, this reached **5.7%** immediately preceding lockdown in early 2020, up from **4.75%** in late-2019.[74] In industries where teleworking is optimal such as professional services, knowledge intensive jobs and clerical-administrative, the use of telework relies on the prevalence of appropriate technology, policies, support and organisational and personal factors. This includes trust-based working time arrangements (TBW), which can enhance employee and firm-level productivity.[75]

Before the pandemic, an average of **15%** of EU employees had ever teleworked, with an average of **5.4%** undertaking this on a regular basis.[76] This proportion varies between self-employed and dependent employees: **36%** of the self-employed are intermittently working from home during the pandemic, in contrast to **30%** before the pandemic.[77] This is lower for dependent employees with an increase from **7.5%** to **11%** during the pandemic.[78] A varying degree of teleworking is observed between professions, with high-skilled workers in knowledge-intensive activities depicting the greatest penetration, and a lower degree occurring for unskilled and untrained workers.[79] Around **18%** of workers reside in countries where the infrastructure permits them to

effectively perform their work from home:[80] Over **38%** of German workers, **39%**, of French workers and **43%** of UK workers are estimated to be in occupations where work can be undertaken through remote and flexible arrangements.[81] Chart 1 depicts these countries against EU-27 figures for employment classed as teleworkable.

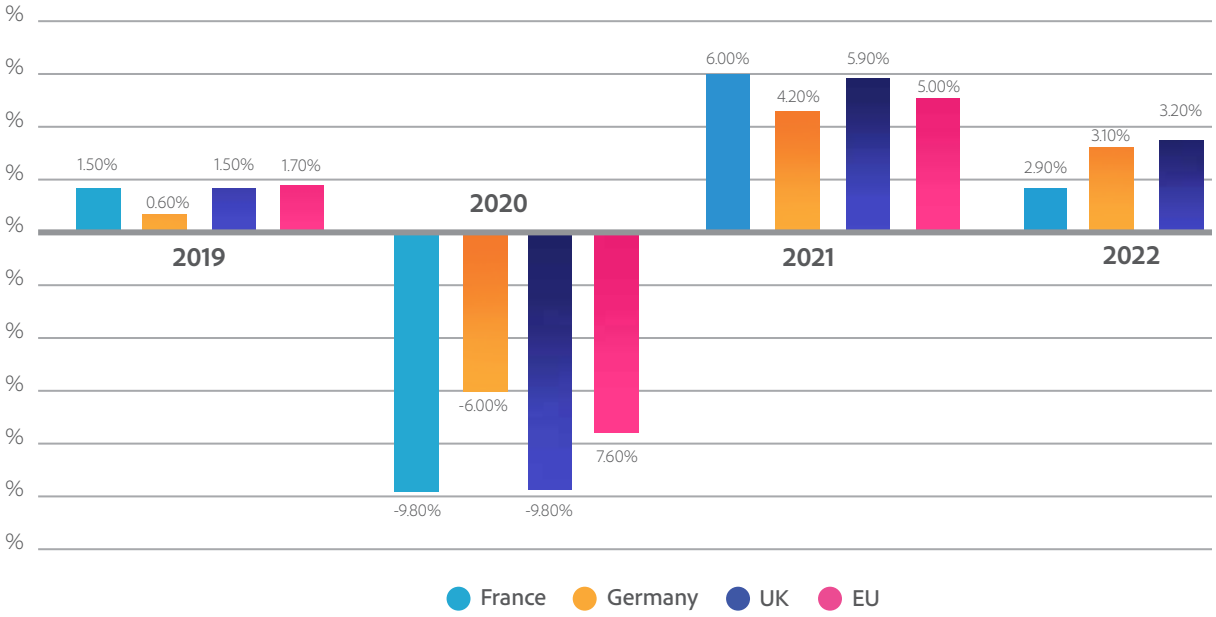
Chart 1: Share of teleworkable employment in 2020.
Source: EU Countries- Labour Force Survey, COVID; UK- WISERD Report.[82]



Remote workers are evident in both B2B and B2C enterprises and engaged in both upstream and downstream activities.[83] Their sustained presence will continue to define how both B2B and B2C firms address their engagement models and undertake digital transformation. In some cases, this requires the augmentation of existing practices, while in others it requires usurping them with a next-generation digitally-centred activity chain that Covid has accelerated.

The cross-sector financial impact of COVID-19 has been dramatic: real GDP fell by around **40%** in the EU in the second quarter of 2020 on an annualised quarter-over-quarter basis, with deeper contraction occurring in advanced Europe, where the virus reached first, relative to emerging Europe.[84] GDP is forecast to contrast by **7%** for 2020, followed by growth of **4.7%** in 2021.[85] Germany recorded a record plunge in GDP, dropping by **10.1%** in the second quarter of 2020 compared to the previous quarter and by **11.7%** for the first quarter compared to the same quarter in 2019.[86] France recorded a **13.9%** and **5.9%** reduction in GDP for the first and second quarters of 2020 when compared to the previous quarters,[87] while the UK displayed the greatest impact to its GDP, shrinking by **2.2%** in Q1 2020 and a **20.4%** reduction in Q2.[88] On an annual basis, Germany's GDP is forecast to contract **6%** in 2020,[89] while the UK displayed the greatest impact to its GDP, with a drop in April 2020 of **25%** against the last pre-pandemic month of February 2020.[90] This improved by November 2020, with a reduction of **8.5%** in GDP versus February 2020, although November recorded a GDP drop of **2.6%** compared to October 2020, due largely to the restrictions that came into effect. [91] At a consolidated level, the EU's industrial output is forecast to contrast by **7.6%** in 2020.[92] This reflects a continued slow-down in GDP that grew **0.1%** in August 2020 compared to the previous month, following an increase of **4.9%** in July, **9.6%** in June and **11.6%** in May.[93]

Chart 2 depicts GDP growth in 2019 and forecast growth between 2020-2022. Chart 2: Real GDP Growth Year-on-Year, 2019-2022, France, Germany, UK and the EU.
Source: International Monetary Fund.[94]



Improving the growth rate will occur as firms, suppliers and consumers adjust to a 'new normal' for both B2B and B2C, including: the persistence of a larger group of 'permanent' remote working employees than existed pre-COVID-19; altered engagement practices with suppliers and customers; sporadic government constraints on mobility, transport and socialisation, and recessionary conditions including higher levels of unemployment. The financial impact of COVID-19 has been significant at the firm-level with UK, French, and German managers highlighting multiple impact points:[95, 96]

- **72%** reported a decrease in revenues;
- **44%** reported a struggle to fund technology;
- **33%** postponed technology acquisition/implementation in 2020.

An inability by firm managers to address the business vulnerabilities magnified by the pandemic can result in a greater number of business closures or businesses that are significantly weakened.

2.2 Addressing Technology Transformation Barriers and the 'Catch-Up' of B2B

"The COVID-19 pandemic further unmasked the vulnerabilities from the lack of digital capabilities as the impossibility of working remotely resulted in the lockdown halting business operations of many SMEs."

International Monetary Fund, (2020; p10).[97]

The pandemic has highlighted both the opportunities available to enterprises to enhance their operations and the challenges faced by many. This is particularly evident in small to medium enterprises (SMEs). These firms account for **99.9%** of all firms in the UK, with this firm-type encompassing medium, small and micro firms with employment not exceeding 250 people and annual turnover up to €50 million.[98] The same degree of SMEs exist in France and are marginally lower in Germany at (**99.6%**), with all three countries congruent with the overall EU SME average of **99.8%**.[99] This reflects a total of 5.8 million, 3.05 million and 2.52 million SMEs in the UK, France and Germany respectively.[100] These firm-types display lower propensity for teleworking, new sales channel development and the adoption of digital solutions that may assist them to mitigate the impact of the pandemic through digitalisation.[101] This is due to a number of barriers observed amongst SME managers, with these frequently underpinned by managerial perceptions that contrast the availability of remediating options in both B2B and B2C firms, in SMEs and larger enterprises.[102] Before the pandemic, around **85%** and **15%** of firm managers in SMEs and large enterprises respectively were not aware of the range of lower cost digital options available to them across their operations along with light-touch technology skill requirements and ease of use.[103] Technology managers in larger organisations display a greater awareness of alternative solutions than their SME counterparts, with inhibitors reflecting factors prevalent in larger, more complex organisations:[104]

- A lack of recognition and 'championing' by senior management;
- Greater legacy system use and the maintenance of multiple solutions and infrastructure;
- The use of globally mandated solutions that restrict the ability to review and select alternatives or complementary solutions;
- Corporate ICT management overseeing complex portfolios of technology assets;
- A view of low-cost, agile options as 'less-relevant', and 'simplistic';
- Security fears in the integration and use of lower-cost alternatives including cyber-security.

SME managers often have low technology exposure that influences their adoption perceptions:[105]

- Managers and/or owners prioritising costs to ensure firm survival;
- Solutions are designed for 'larger businesses';
- Solutions are 'complex' and cannot readily be implemented by smaller firms;
- Digital tools are 'expensive' both to license and to implement;
- Switching to new technology is 'risky' and could 'harm the business';
- The firm does not have the required organisational model;
- A lack of confidence that the business has the required skills and expertise to implement new solutions and technology.

During the pandemic, alignment has been observed between digitalisation adoption blockers in SMEs and large enterprises,[106] including the post-implementation stage: **40%** and **37%**[107] of SME and larger enterprise managers respectively believe that ongoing support and cyber-security are issues affecting digital adoption in the latter category.[108] The functional areas in which the most significant challenges were perceived to exist include digital marketing (**19%**), website activities (**17%**) and e-commerce (**13%**).[109] To assist firms adopt greater digitalisation during the pandemic the Government in the UK, France and Germany and in other EU countries has offered SMEs financial incentives to digitalise their operations. In the UK, SMEs can apply for grants between £1,000-£5,000 for new equipment and specialist technology advice;[110] in France, state-granted loans, repayable advances and other technology and training measures are available;[111] in Germany, measures include loans and grants for SMEs and large enterprises in a combination of national and state aid.[112]

Prior to the onset of the pandemic, an average of **75%** of European SME managers believed that digitalisation was a priority,[113] with **40%**, **37%** and **30%** of managers in the UK, Germany and France, respectively citing that this was a top priority. In contrast, around **60%** of EU managers in larger enterprises believed this was a top priority, reflecting a greater focus by many larger enterprises on efficiency, workforce reduction and resilience.[114] Around **80%** of managers in larger enterprises would review lower-cost, agile digital solutions that addressed their concerns and queries on adoption, but the majority indicate that they do not have the time to assess offerings (**75%**) and that this task is made more difficult by the large number of lower-cost providers in the market (**65%**), and a lack of familiarity with them (**60%**).

Many SME and large enterprise managers have aligned, however, to factor the long-term impact of COVID-19 on their business. On average:[115]

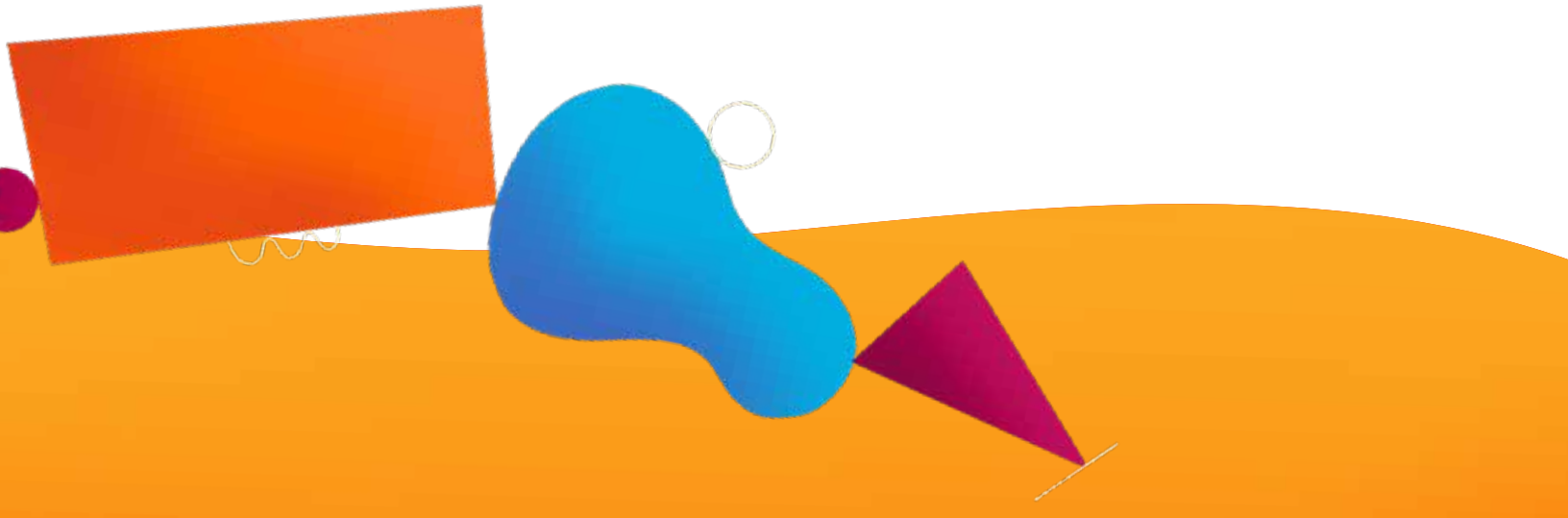
- **93%** highlight that the pandemic will impact the way that their business operates;
- **69%** believe that larger competitors in their industry will have a significant advantage over smaller operators than occurred before the onset of the pandemic;
- **68%** are likely to permanently alter their business model.

COVID-19 has disproportionally impacted SMEs and medium-larger enterprises employing up to 1,000 people, with **50%** of managers indicating concern on their firm's viability, with this reducing to **20%** for larger enterprises with more than 1,000 employees.[116] Before the pandemic, the obstacles to digitalisation cited by managers on average across sectors included:[117, 118]

- Senior management decision-making and buy-in (**33%**)
- Security considerations including malware and hacking (**32%**)
- Defining a strategy that encompasses digital (**31%**)
- Time required for implementation (**30%**)
- Legacy system and software replacement (**29%**)
- Cost (**28%**)
- Skills (**27%**)
- Lack of quantifiable ROI (**22%**)
- Multi-site applicability (**15%**)

In contrast, the barriers to digitalisation in large enterprises before the pandemic[119] overlap with a number of defined SME barriers, while others reflect the contrast in the size of the entity types:[120, 121, 122]
Senior management decision-making, buy-in and a digital strategy (**55%**)

- Security including malware and hacking (**45%**)
- Legacy systems and software replacement or augmentation (**40%**)
- Risk exposure in implementing additional non-core solutions (**35%**)
- Infrastructure including complex portfolios of dispersed assets, software and other elements (**33%**)
- Silo structure that may impede successful collaboration and delivery (**30%**)
- Skills (**25%**)
- Cost (**20%**)



2.3 Multi-Sector Applicability of Blockers and Break-Away Opportunities

This research highlights that many firm-level requirements for digitalisation, technology and operations have aligned across firm-type, size and sector as the pandemic progressed with other results confirming this: **"Despite the competitive business environment, adopting state-of-the-art technology can help SMEs create new strategies and set the stage for long-term growth and market leadership. The current technology revolution can benefit all businesses irrespective of the company size, industry or operations activities."**[123]
Major observations include:[124]

- **The challenges and blockers** observed in very large enterprises in the Financial, Retail, Manufacturing, Services and other sectors reflect common themes: concerns on the use of alternative digitalisation solutions on legacy infrastructure; integration and/or impact with complex portfolios of ICT and their related contracts and maintenance; managerial time, including in technology management, is often not aligned to exploring alternatives to incumbent solutions; a large, distributed workforce needs to be managed and connected to company solutions securely. **Implication:** Blockers and requirements are often agnostic of the sector. Agile, low-touch digital solutions offered on a cloud basis can overcome managerial concerns, address requirements and enable significantly leveraged capabilities to be introduced in a distributed manner during the pandemic.
- **B2B digitalisation lags behind B2C** across sectors with 'catch-up' observed in B2B as firms attempt to bridge the substitution of face-to-face and sales-engagement traditionally utilised, with a digital operating model. **Implication:** B2B firms often address a greater number of gaps than B2C firms due to the lack of a substitution for current engagement models. This is equally applicable to B2B in sectors such as Finance, Retailing and Services engaged in the selling of products and services that are dependent on relationship management and direct engagement, where these are not purely transaction-driven activities. Often, firms engaged in these activities lack the ability to capture and utilise data and metrics without undertaking significant code development. The use of readily available, low-cost digital solutions can undertake heavy-lifting and spur products to be developed, tested and delivered quickly.
- **The rate of innovation stalled** for many organisations during the pandemic as other priorities were addressed including maintaining financial stability. The typology of the organisation defines its approach to innovation: whether it is a Hider, Survivor or Thriver, with these modes explored in this research. **Implication:** Enterprises that continued with, or undertook, innovation during the pandemic often utilised new, innovative, low-cost, low-knowledge solutions, with cloud a prevalent mode, to rapidly digitalise their operations and innovate. This was agnostic of organisation size, B2B or B2C engagement model or sector.
- **A 'hidden opportunity' exists** for rapid, scalable, low-cost and low-requirement solutions to be implemented to digitalise enterprises irrespective of their size, complexity and sector. **Implication:** There continues to be a misalignment between managerial blockers to digitalisation and the lighter touch, lower cost and reduced complexity with which they can be implemented. Managerial engagement is a key enabler to this occurring and differentiates enterprises that are innovating and 'thriving' as a result. This is particularly relevant for SMEs that have lower funds, resources, and experience with digitalisation.

- **The changing skill-base** required to manage digitalisation during the pandemic mirrors the trend observed at the advent of cloud: cloud-based digital solutions can undertake heavy-lifting and deliver agility. This includes a low requirement for highly skilled and experienced IT and development resources. **Implications:** Large enterprises and SMEs can rapidly adopt ICT and solutions delivered through low -cost cloud-based models. Many offer multiple APIs and other code that can readily be adopted or analytics, SEO and other digital marketing and analytics that can be executed with little or no training, resulting in a decrease in the requirement for skilled technology resources.[125]

- Both SMEs and larger organisations that undertook digital transformation before and during the pandemic overwhelmingly made adjustments to their business processes, organisational structure and resource optimisation. Multiple benefits were obtained in key areas including technology and software development:

- Technical teams reduced by an average of **200-400%** in larger enterprises, and by 100% in SMEs, reflecting changes in core IT support, development resources, digital marketing support and analytics resources and related areas;

- Code release cycle times reduced between 50-**100%** including testing, QA and sign-off;

- Decision making and approvals for new product releases reduced by as much as **1000%**, reflecting devolved decision-making and fewer decision-making points, reducing cycles from three months to weeks or days in some cases;

- Code development times reduced by **60-80%**.

Over **65%** of firms had already adopted cloud before the pandemic, with around **20%** of these enhancing their cloud adoption and utilisation with options such as multi-cloud and additional cloud services.[126] Around **90%** considered the adoption of cloud as their initial major digital transformation, ranked ahead of other digital solution transformations including enhanced e-commerce (**75%**); digital marketing solutions and CRM (**65%**), collaboration, analytics, reporting and other areas (**35%**).[127] Benefits were observed in sales growth, productivity, product releases, employee satisfaction and other areas that were congruent between firms that were enhancing their initial cloud adoption further and those undertaking first-phase digitalisation during the pandemic:

- Headline consolidated productivity improvements between **25-50%** from collaboration, accelerated product development, workforce reduction and realignment, employee wellbeing, supplier integration, document and administrative standardisation, real-time virtual engagement, and other areas. This range reflects the considerable variation in firm size, activities, and the degree of digital adoption.[128]

- A **20%** productivity uplift in employee output, driven by higher satisfaction in wellbeing, the use of more comprehensive toolsets and the ability to work on-demand remotely with access to information. SMEs in particular reported benefits in the use of digital solutions for their employees to access data, manage website flows and develop marketing campaigns without the need for external assistance and cost, resulting in in more pronounced productivity uplifts.[129]

- HR personnel cost reduction of **15%** with fewer resources required to manage multiple solutions, systems and tasks through the use of enhanced digital self-service, the greater use of single portals for information and lower employee engagement.[130]

These results reflect the progression of enterprises past a COVID-19 reactionary phase, in which expedient urgent activities were undertaken, to a state where changes are becoming planned and are establishing a medium-longer term equilibrium with amended operating and organisational models.

2.3.1 Case Study- Vodafone Business: B2B Digital Transformation

"The pandemic has reinforced that digital transformation starts at home and that non-conventional ways of working are now 'conventional': you need to create an agile, digitally capable organisation that can then help your customers with their transformation."

V. Kumar, CEO Vodafone Business.

Vodafone Business is the business division of Vodafone, a technology communications Company that offers mobile and fixed connectivity to over 300 million customers globally. Vodafone Business connects over 103 million IoT devices and provides a range of digital services to businesses of all sizes and sectors on a global scale. As a digitally centred organisation, Vodafone Business entered the pandemic in a more technologically mature state than many peers but the impact of the pandemic was mitigated by a rapidly engaged management team including an engaged CEO who was visible: **"COVID-19 just accelerated the reinvention journey that we were on, including how we worked as an organisation, with many changes made to help people during the pandemic ranging from flexible hours, pulse surveys every six weeks, virtual gifts, counselling, sponsored kids camps on coding, to create the strongest possible employee community."**

Collaborative applications deployed optimised ways of working during the initial stages of the pandemic, before an innovation strategy was adopted, reflecting a pattern observed in around **15%** of larger enterprises reviewed. These leapfrogged to this stage, with the CEO establishing a clear strategy driven by changing customer requirements: **"We went through a major period of innovation spurred by COVID-19 that reflected what us as an organisation and our customers needed at the start of the pandemic. Digital tools, especially collaboration platforms and mobile devices, became two of the most widespread elements utilised by companies worldwide. And, as we shifted past the pandemic's first stage, we experienced and saw a clear shift in stage two in the use of digitalisation to enhance productivity, agility, and time-to-market for product innovation at speeds and cost-effectiveness not previously seen."**

The Company's approach is congruent with other large enterprises that transformed operational and technology practices in a second stage following the initial crisis phase adjusting to the pandemic: **"COVID-19 caused a major re-write of ways of working, including applications and hardware use internally and amongst our customers, with these often repurposed innovatively and standardised across borders. We are now in the next stage where we are seeing more sophisticated requirements emerging in our organisation and from customers. Despite this, everybody has embraced an agile mindset and we are getting them up and running remotely, collaboratively and in adherence with regulatory requirements in a few weeks - unheard of before the pandemic."** Vodafone Business is a 'Thriver' organisation based on its activities during the pandemic: **"To move ahead, we 'doubled-down' on investment during the pandemic in digital, technology and innovation and saw a number of our customers do the same. The benefits are there: we have seen customers roll out new applications in six weeks rather than six months."** One example of Vodafone Business' continued investment during the pandemic is the release of new distributed Multi-access Edge Computing (MEC) technology utilising 5G in collaboration with Amazon Web Services (AWS). This facilitates the creation of rapid pilot applications to address increasing digitalisation requirements by B2B and B2C enterprises including agility, lower cost, faster time-to-market for new digital services, and real-time analytics. **"When combined with 5G, Mobile Edge Computing will unleash the full potential of technologies like AI and AR. In turn, these combinations being available ubiquitously will help customers move to truly digital business models and ways of working."** The Company has utilised the pandemic to accelerate aspects of digitalisation while also enabling customers, including micro-firms, SMEs and large enterprises, to benefit from lessons learned internally and accelerate their own digitalisation.

3. COVID-19 – Operating in a New, Altered State

3.1 Trends and Drivers

"In this current scenario, the world has entered into an extreme digitisation mode and technology has become the unifying force to help navigate through the pandemic. Technology is playing a key role in helping businesses navigate through these three fundamental shifts by powering a new work paradigm, driving innovation for the greater good and building sustained resilience."

S. Patel, Managing Director, IBM India.[131]

Many B2B and B2C sectors have been significantly affected by the pandemic. Air transport shrank on average by **97%** globally during the peak of the pandemic.[132] In the UK, as with many other countries, sales in Q2 2020 were on average reported to be **30%** lower than otherwise would have been, with employment reduced **5%** and investment by **33%**.[133] Consumer-facing businesses reported the most significant fall in sales in Q2 2020 (**50%**) compared to the previous quarter, while B2B sectors such as non-food manufacturing and construction were the next most affected with a sales reduction (**35%**), followed by other service businesses (**20%**).[134] A similar trend occurred in Germany and France with the direction of the impact congruent with the UK, with these countries placing between **80-90%** of workers on furlough at the height of the pandemic.[135] These factors combined to impact the degree, scale and nature of digital transformation: before the pandemic, B2B digital commerce developments lagged those of B2C by three to five years.[136] Enterprises engaged in B2B normally follow a four-staged development process with the pandemic disrupting this for many firms:[137]

Stage 1: Identify key physical engagement attributes and migrate these to an online presence, including a website ('brochureware').

Stage 2: Develop a communication channel for customers to interact with the business, including to request products and services.

Stage 3: Incorporate electronic transactions utilising online order systems to enable orders.

Stage 4: Integrate business operations with suppliers and supply chain partners.

Some B2B firms do not progress through these stages due to the nature of their business including: the selling of larger complex products; higher priced products; products that involve customisation or the provision of additional and bespoke information; relationship-driven negotiation, and other factors.[138] These firms will often leapfrog activities with the pandemic resulting in over **75%** of firms missing a stage compared to **25%** before the pandemic.[139] This was more prevalent in B2B with the stages one and two, the most commonly bypassed stages.[140]

3.2 Enabling B2B Productivity and Alignment with B2C-Originating Practices

"The pandemic has accelerated the necessity for technologies that bridge the online and digital world, creating a 'new channel' of shopping and digital engagement. To add context, Black Friday 2019 we achieved a total of 500 calls, and now we average 500 calls every 7 minutes. Retailers that we engage with see higher conversion rates than normal websites (up to 30%) and potential average order value (AOV) uplifts of up to 38%, re-defining what online shopping means today."

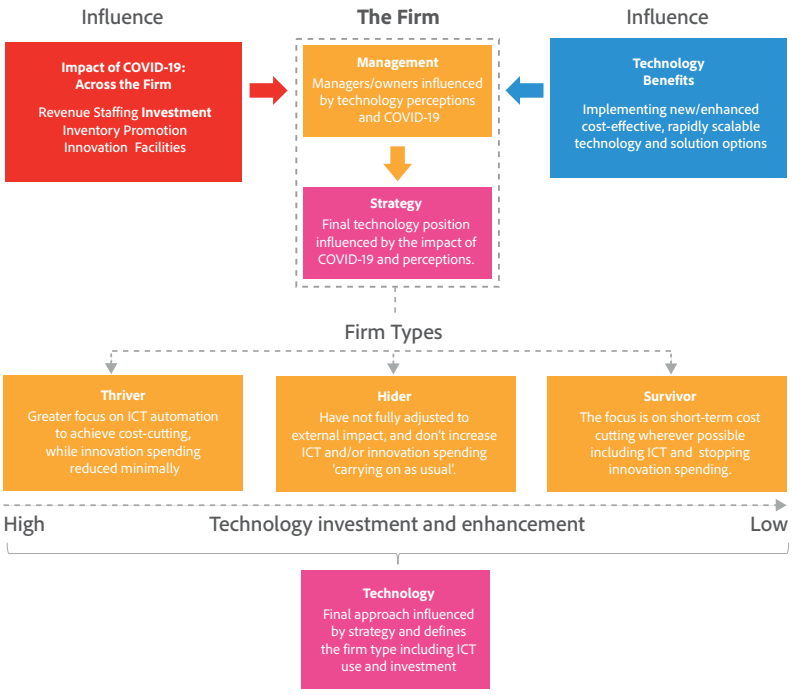
A. Hordagoda, Co-CEO and Co-Founder, Go Instore.[141]

The pandemic is an exogenous shock affecting health and well-being, the economy and a plethora of everyday factors. In comparison, modern recessions have lacked the global impact on these areas, mobility, and have not caused a mass furlough of the workforce.[142] COVID-19 has accelerated digital and organisational changes, with firms that displayed greater resilience already engaged in good managerial practices and intense technology utilisation.[143] This research has drawn on ongoing firm-level engagement both preceding the pandemic and throughout 2020, and interviews with SME and mid-sized firm managers since 2007 encompassing over 20,000 firms in 35 countries. Additional technology research has occurred including participation in EU CIO interviews encompassing 300 large enterprises in the UK, France and Germany, and embedded research with global technology and niche digital solutions providers to assess client behaviour, trends and digital metrics including ROI, productivity and organisational changes. These consolidated results are depicted in this report and highlight the digitalisation requirements in B2B and B2C firms and the blockers that impede the execution of these in many cases. The structure of the subsequent sections of this report illustrate: (a) how a crisis such as COVID-19 defines the organisational response type; (b) the impact of COVID-19 on: Government policies; organisational attributes; technology adoption and use; the social and family impact, and how these can optimise productivity, and (c) a firm-level review of requirements before and during COVID-19. A concluding section explores best practice technology transformation and the readily available, lower cost and light-touch solutions that optimise productivity and firm survival.

3.2.1 COVID-19 as an Influencer of Firm Strategy and Technology Adoption

Management practices define strategy, including the use of technology.[144] Research undertaken in 2009 identified three enterprise types in crises: Thrivers, Hiders and Survivors.[145] Ongoing research and industry engagement subsequent to this research over the past 12 years confirms the continued applicability of this three-tier typology when firms are exposed to exogenous shocks, including the pandemic. COVID-19 has impacted multiple elements of a firm's operation including revenue, staffing, investment, inventory, promotion, innovation and how firms respond. How the firm responds commences with managerial strategy, with **Figure 1** depicting firm-level influences precipitated by external shocks. Good practices provide the lever in the maximisation of technology use and the enhancement of firm performance.[146] This research extends the initial 2009 analysis by enhancing multiple elements including the subsequent role of digitalisation in transforming the organisation; the blockers and opportunities presented by cloud; the altering and aligned behaviour between B2B and B2C organisations; the success factors displayed by firm-types such as Thrivers in adopting digitalisation and amending other organisational practices. Close engagement with innovative digital solutions providers before and during the pandemic has provided insight into digital activities and trends amongst customers including activities with niche digitalisation technology providers such as GoInstore that are digitalising the 'in store' B2B and B2C experience: **"We have seen a surge in B2B and B2C organisations adopting our solution to enhance their digital engagement with their customers. Our technology enables retailers to offer customers an immersive, personalised experience that brings the store or showroom to customers shopping at home. This technology enables customers to shop safely and empowers staff to work in safe environments, even creating Darkstores used purely for live shopping."**[147] COVID-19 has spurred the growth of face-to-face substitutes that can enhance the remote consumer experience in both B2B and B2C with **Figure 1** depicting this influencing factor. In many cases these do not utilise more extensive immersive applications and rely on video applications to facilitate engagement between firms and their suppliers in particular. These can be a stepping stone to deeper, more integrated and immersive digitalisation.

Figure 1: COVID-19 and firm-response strategies. Source: LSE interviews and research.[148]



The three identified firm typologies have remained consistent since the initial research in 2009, but the nature and scope of technology adoption has altered: the advent of cloud, innovative licensing and subscription models for digital solutions, and the use of lighter-touch integration that negates the need for extensive legacy considerations enhance the research and bring it deeper into a digitally native landscape.[149]

Thrivers:

Around **25%** of firms fall into this category. They address external shocks such as COVID-19 through enhanced digitalisation, automation, cost reduction, innovation and investment. These organisations re-invest cost savings from technology and focus on ROI, agile and expedient product release cycles and an informed and connected workforce. Around **66%** reported a fall in revenue due to COVID-19 but the average reduction at **15%** is the smallest of the three firm-types. These firms are the most receptive to digitalisation and seek to continuously enhance their operations, efficiency and competitive position.[150] Managers in these firms are also amongst the most engaged, with studies confirming this observation: **"More able managers tend to be, inter alia, more knowledgeable about their business, leading to better judgments and estimates about product demand, a better understanding of technology and industry trends and a more efficient management of their employees."**[151]

Hiders:

Around **40%** of enterprises fall into this category. They do not fully address the impact of external shocks such as COVID-19 on their businesses and represent a mid-point between the other two firm-types as managers selectively refine investment in areas believed to offer greatest benefits. These firms reduced technology spending during the pandemic, with managers identifying a lack of ICT skills to address the impact of COVID-19, including digital enablement and the management of alternative modes of engagement with customers and suppliers. These enterprises also reduce spending in innovation and other areas, but some investment is maintained to develop or maintain a competitive position. Around **66%** of firms in this category reported a fall in revenue due to COVID-19, with a range between **20-90%** and an average reduction of around **35%**. These firms will often adopt digitalisation in selected areas that offer the greatest opportunity for improvement and enhancement to maintain competitiveness.[152]

Survivor:

Around 3**5%** of firms make the most significant reductions of all firm-types. Managers within these firms are the most disconnected from day-to-day business activities and customers of any of the three firm-types and make the most significant expenditure cuts.[153] These organisations reported the largest fall in sales due to COVID-19, with almost **70%** indicating a fall in revenue ranging from **20-90%** and an average reduction of around **50%**. This is congruent with reported drops in revenue and profits at national statistical account level.[154] This firm-type can particularly benefit from digitalisation but is the least likely to undertake it due to cost-factors.[155] The plethora of available digital offerings that are cloud-based, lower cost and light-touch on technology skills offer accessible transformation options but managerial perceptions often act as a blockers to this occurring.

These attributes and additional digital factors observed since the initial 2009 research are consolidated in **Table 1** including remediating digital options for the effects of crisis.

Table 1: Firm-type and digital attributes.
Source: LSE interviews and research.[156]

Attribute	Survivors	Hiders	Thrivers
Revenue impact from COVID-19 pandemic	Amongst the largest revenue reduction or smaller reductions cause significant impact. Sustained reductions can impact longevity	Revenue reductions can be the same as Survivors or Thrivers but the impact can be managed in the short term, in particular	Revenue reductions can be large or small but the business is better placed to weather the impact longer term, in particular
Brand response	'Panic-driven', cut 'non-essential' spending, reduce staff, seek additional funds, low/no strategic planning	Shorter-term view with some longer-term outlook, reducing spending selectively to balance survival with longevity	Long-term with short-term remedies, low/no reduction in spending, focus on market adaption for continued growth
Time-Horizon	**Immediate**	**Immediate-short term**	**Immediate-long term**
Firm culture	More conservative, often less engaged with the business, or relies on hierarchical reporting lines	Open and receptive. Engaged with the business and willing to adopt some change with analysis	Open, engaged and deeper firm-knowledge. Promotes sharing, collaboration and innovation
Management practices	Focus on profitability and short-term results, promoting status-quo. A mix of some productivity enhancement; controlled decision-making; lower innovation ethos	A mix of near-term profitability and longer-term stepped-efficiency outlook. People and operational management focus and technology openness	Balanced short and long-term view for profitability and innovation. Well-articulated strategy linking operations, technology and people with clear goals
Technology strategy	Dramatic reduction/freeze expenditure and defer hardware, software and projects.	Prioritise expenditure including to aid operating cost reduction, reducing some costs.	Maintain or increase investment with a focus on operating cost reduction, competitive position
Digital appetite	Primarily existing. This can include some innovative options, cloud, and other solutions, but these are frozen when in crisis	Medium-high. Prioritised digitalisation on a lower spend basis to reduce operating costs and spur some innovation	Higher. Investment appetite for digitalisation to reduce operating cost, enhance efficiency, spur competitive position
Digital blockers	Management-driven resistance: costs; time-to-implement; skills required; management attention; security	Distributed blockers through management team and some layers: perceptions on solution security, costs, skills-overhead, and lower awareness of availability	Distributed blockers through senior and middle management teams: legacy solutions, complex infrastructure, security, and knowledge on options
Digital opportunity	Highest requirement for lower-cost, rapidly deployable, light-touch digital solutions to meet financial and operational constraints. Cloud-based solutions offer optimal entry-point across organisational functions for B2B and B2C, but with opportunity for single/low number of functions for entry	High opportunity for lower-cost, rapidly deployable, light-touch digital solutions to meet immediate financial and medium-longer term goals. Can introduce multiple efficiencies across the firm and are ideal for multi-site operations. Alleviates skills and resource constraints	High opportunity for lower-cost, rapidly deployable, light-touch digital solutions to meet medium financial and longer-term goals. Can result in major transformation for international/ multi-site operations and accelerated deployment with existing skills
Consequences of firm-type after crisis	Higher chance of failure. Where survival occurs, often 'bare bones' capability and unable to be competitive longer term or survives with long time horizon for improvement	Stays and emerges in a status quo position, or marginally stronger. Able to selectively target innovation and activities to maximise opportunity to be competitive	Survives and grows during crisis. Emerges in the leadership or upper sector of the market spurred by innovative activities, often adopting new technology and practices

The proportion of these firm typologies is relatively similar in major EU countries including the UK, France and Germany, with some country-level variations observed:[157, 158]

- **33%** of French enterprises reduced their ICT budgets, compared to **20%** of UK and **16%** of German enterprises.
- German enterprises allocate the highest budgets to innovation (**24%**) and undertake the greatest degree of automation, ahead of the UK, and followed by French enterprises.
- The UK displays the strongest resilience towards innovation, with **67%** of enterprises prioritising innovation and **77%** innovating to some degree.
- French companies are the most cautious, with innovation spend decreasing by **17%** on average in downturns, twice the level of the UK and Germany. French enterprises also reflect the highest degree of **streamlining** in their operations with this utilised to offset some of the innovation spending reductions.

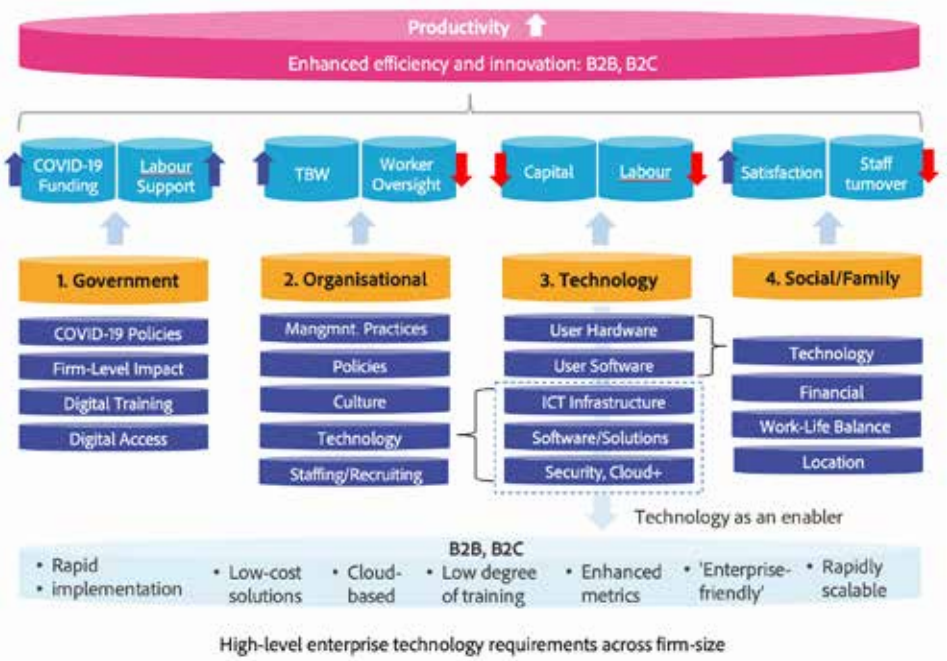
The impact of COVID-19 varies by sector with Accommodation, Food Services, and the Arts the most affected, with over **87%** of firms indicating lower revenues, while Real Estate and Information Technology reflect the smallest revenue reductions, with **30%** of firms indicating a revenue reduction.[159] Firms are shifting their strategies from impact-minimisation at the beginning of the pandemic in early 2020 to a focus on productivity and competitive improvement in later 2020 and beyond, incorporating digital investment and transformation.[160] This is expected to accelerate in 2021.

3.2.2 Enhancing Productivity During COVID-19

COVID-19 has initiated major responses from Governments around the world encompassing financial support for the furloughing of workers, loans, grants, training initiatives, including digital education, in addition to restrictions on travel, business opening periods and hours, mandates on face covering and social distancing. Firm-level productivity impacts national productivity and is influenced by the interplay between Government policies, the quality of a country's management skills, technology maturity and utilisation,[161] wider social and well-being (that the pandemic has particularly impacted in contrast to other modern financial crises), and other factors.[162] **Figure 2** depicts four productivity-influencing elements and the transformative position of technology in the enterprise, with eight attributes presented: **Government** - funding and labour support; **Organisational** - Trust-Based-Working (TBW) and worker oversight; **Technology** - capital and labour satisfaction and **Social/ Family** - staff turnover. The combination of optimal practices in response to the pandemic is leading to enhanced efficiency, innovation and ultimately, greater productivity.[163] These are reflected by the arrows in **Figure 2** that denote the impact of COVID-19 either positively/increase through a green arrow, or negatively/ reduced through a red arrow.

Government initiatives have sought to limit the financial, social and economic impact to enterprises and individuals and their families through increased funding and other support activities (green arrows). Best practices adapting to COVID-19 in the enterprise include an increase in TBW (green arrow) combined with a reduction in worker oversight (red arrow). COVID-19 has impacted digitalisation and technology directly and tangentially through a reduction in capital due to financial pressure on firms or through efficiencies from enhanced asset use (red arrow) combined with a reduction in labour (red arrow). Further contributing factors to productivity include an increase in the mental and physical health of employees (green arrow) and lower staff turnover observed during the pandemic (red arrow). **Figure 2** consolidates observed high level digital technology requirements observed in both large and small enterprises encompassing rapid implementation; low-cost; cloud-based; low degree of training; enhanced metrics; conducive to legacy/existing enterprise technology ('enterprise-friendly'); rapid scalability.[164]

Figure 2: Addressing COVID-19 to enhance productivity.
Source: LSE interviews and research.[165]



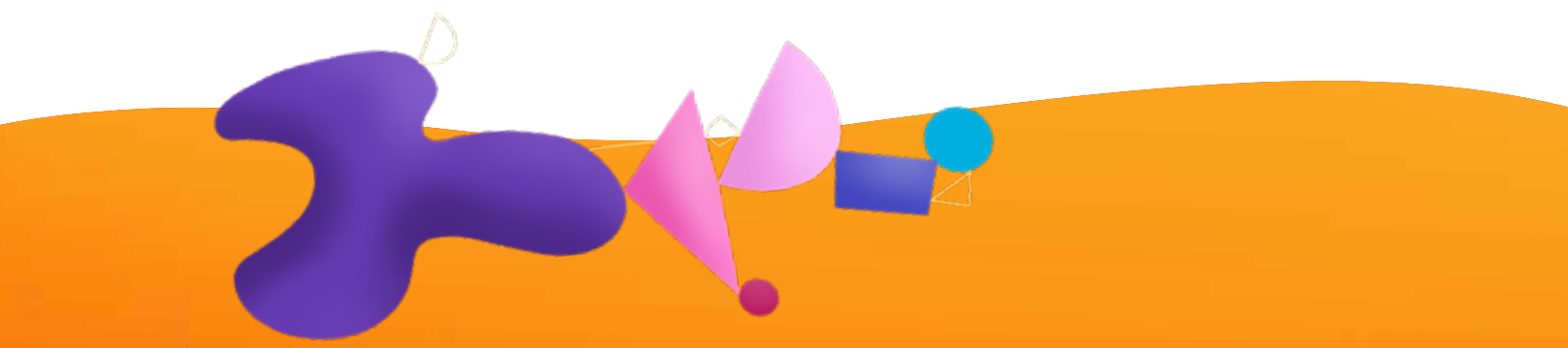
Amongst both Hider and Survivor enterprises, many service innovations brought on by COVID-19 are short-term, with managers focused on 'riding out the storm', and often with a low degree of visible leadership.[166] This is consistent with results from the initial analysis in 2009 on how firms responded to crisis but contrasts research that promotes best practices through active engagement: **"To keep engagement high among employees, managers should provide effective feedback and direction to their subordinates."**[167] On average, around **7%** of enterprise managers actively engage in team meetings, internal activities and externally with suppliers, stakeholders and financial institutions, with this considered to be a low priority in many firms.[168] In contrast, in China all organisational levels often actively engage with teams and participate in live broadcasts to market their products and services during the pandemic, resulting in **70-90%** of company managers participating, particularly amongst small-mid-sized enterprises.[169] Internationally, COVID-19 has not resulted in a ubiquitous shift to digitalisation, despite managerial feedback of its significance and potential benefits:

- On average, **18%** of large and small enterprises in EU countries have made changes in the way that products are offered: **45%** have made some changes, and **37%** have not made any changes.[170]
- In 2021, **64%** of managers in Germany, France and the UK are planning on average to make permanent changes to the way that products and services are offered, while **34%** are planning for this to be temporary.[171]
- Managers in the EU and the US perceive digital transformation similarly for B2B and B2C, but EU enterprises do not invest in digital technologies to the same degree as US enterprises: labour market regulations, business regulations and the lack of external finance are perceived as being major obstacles to investment, that exacerbate digital adoption.[172]
- The differences in digital adoption between the EU and the US are observable across sectors: **66%** of enterprises in Manufacturing in the EU are adopting at least one digital technology versus **78%** in the US; **40%** and **61%** respectively adopt this in Construction; **41%** and **49%** respectively adopt this in Services, and **47%** and **52%** adopt it in Infrastructure respectively.[173]

In the two-year period preceding COVID-19, major research indicates that while **96%** of business leaders in major organisations maintained that digital transformation was a priority for them, only **3%** had completed their initiatives.[174] This is despite **84%** indicating that these initiatives were 'critically important' to the success of their organisation.[175] This has altered with the onset of COVID-19, with around **90%** of firm managers in the EU across all firm sizes acknowledging the need for innovation to occur during and after the pandemic, with **65%** likely to engage in some innovation activity, and **33%** not planning to undertake any innovation activity.[176]
Forty per cent of the transformation initiatives are primarily non-technical, with **60%** technically driven, highlighting an untapped opportunity for digitalisation in particular, despite a stated high degree of managerial interest and intent:[177, 178]

- **40%** of planned changes are non-technical and reflect an enhancement to logistics, greater product offerings, extended returns/purchase policies and other areas.
- **60%** of planned changes are technology-driven:
- **38%** of these changes are planned to be **permanent changes**;
- Around **40%** of these (**15%** of planned changes) are for 'light-touch' changes including video conferencing, chat functionality, that reflect minimal transformation activities, and other similar changes;
- The remaining **60%** (**23%** of planned changes) reflect a spectrum of more significant technology-led changes that can enhance productivity and optimise efficiency;
- **22%** of these changes are **temporary changes**;
- These do not require significant technology investment or technical changes and will not have a medium-longer transformative impact beyond a cursory manner.

By the end of 2021, the current proportion (**23%**) of significant technology-led digitalisation could grow to **30-40%**.[179] This is due to a number of factors: a longer period required by larger enterprises to migrate either from emergency measures to more permanent digital transformation; a longer time horizon for SMEs to assess the impact and digitalisation options, assign or acquire funding and review resources; migration of some 'light-touch' changes to permanent solutions.[180] Increasingly during the pandemic, business priorities and requirements have been aligning between small-mid-sized and large enterprises. Often these can be addressed through solutions that are not being considered by managers as a result of blockers or factors outlined in this research. The prevalence of digital solutions that can address many of the requirements defined by managers in SMEs and larger enterprises provides a 'hidden opportunity' to expediently and cost-effectively enhance productivity and result in tangible benefits. These can accrue both to the firm and at a consolidated level, the national economy.[181]



3.2.3 Firm-Level Requirements Before and During COVID-19

The onset of COVID-19 has impacted consumers, employees, and enterprises. The opportunity to enhance efficiency and extract latent benefits in enterprises during COVID-19 and post-pandemic reflects a cumulative process with many of the required tenets present as Government and enterprises both undertook action. This research provides a number of insights that can result in the identification of strategic digital remediation options by firms that are readily available and often overlooked for factors outlined in this report.
Figure 3 provides firm-level factors that can form the basis for best practices to enhance enterprise productivity and long-term viability. It depicts three areas and their interplay: (1) COVID-19 factors impacting consumers, employees and enterprises; (2) priorities for enterprises by enterprise size across their operations during COVID-19; (3) Post-COVID-19 drivers:

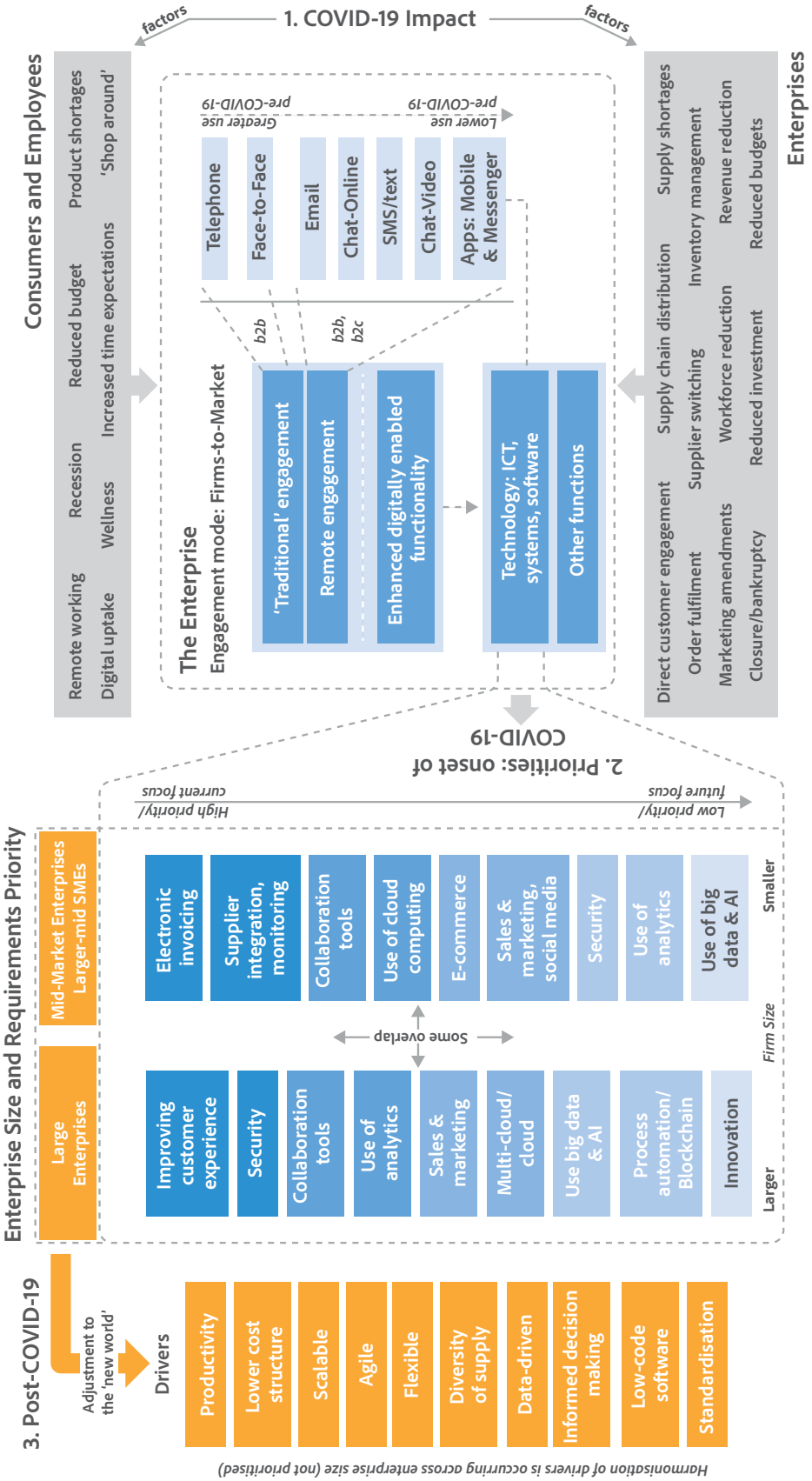
(1): COVID-19 Impact - B2B and B2C

A number of factors during the pandemic were observed to affect both consumers and employees: remote working; recessionary conditions; reduced budgets; product shortages; digital uptake changes; wellness; increased time expectations; increased 'shopping around'. These are relevant for B2B and B2C with alignment in behaviour of groups between the two sectors. In addition, enterprise impacts include: changes to direct customer engagement; supply chain disruption; supplier switching; inventory management; marketing amendments; workforce reduction; revenue reduction; greater closure and bankruptcies; reduced investment and budgets. These reflect major observed changes in both consumer and employee behaviour that flow through to enterprise decision-making and the prioritisation of requirements. This includes enterprise engagement, which has undergone the most significantly observed change for B2B firms during COVID-19. This research indicates that 'traditional' modes of telephone and face-to-face have been augmented or significantly replaced by some digital tools for remote engagement encompassing email, online and video engagement, SMS/text, and the use of apps. This area of digital change is aligning B2B with B2C. In **40%** of firms, the use of these lower-complexity technology options has been the catalyst for enterprises undertaking additional analysis of other enterprise-wide digital solutions.[182] This is expected to continue in 2021.

(2) Priorities for transformation: Onset of COVID-19

At the onset of the pandemic in early 2020 and for the majority of the year, greater variation was observed in the requirements and drivers between small-mid-sized and large enterprises. This research has highlighted that for large enterprises the descending order from high to low priorities for digital transformation includes: improving customer service; security; collaboration tools; use of analytics; sales and marketing options; multi-cloud and cloud use; use of big data and AI; process automation including Blockchain; innovation. In contrast, small-mid-sized enterprise priorities from high to low include: electronic invoicing; supplier integration and monitoring; collaboration tools; cloud computing; e-commerce; sales and marketing use and social media; security; use of analytics; use of big data and AI. These observations reflect a number of influencing factors:

Figure 3: Pre and post-Covid-19 digitalisation-driven enterprise requirements and priorities for b2b and b2c.



- **Applicability for B2B and B2C:** The pandemic has focused attention for both B2B and B2C on supplier engagement, supply shortages and alternative sourcing, stock control and other related operational aspects. In addition, B2B appears to be 'catching up' with B2C in implementing digital, customer-facing attributed from the latter.

- **Variations in requirements:** Large enterprises have in many cases already executed some digitalisation options that are a precursor to enhanced digital transformation, including cloud adoption and others. The focus for smaller-mid-sized firms has been to establish fundamental e-enabling activities including invoicing, integration of manual systems, that have often lagged larger enterprise adoption.[183] Larger enterprise managers are increasingly shifting focus to the use of data including utilising big data, AI, and advanced analytics, while smaller enterprises position this as a lower priority behind the establishment of more fundamental digital attributes. The pandemic is however levelling some of this playing field as both large and smaller firms in some cases can adopt the same digital solutions available on a discrete cloud-based format and scalable by licenses or subscription cost. This reflects the skipping of some B2B stages in digitalisation presented in this paper, accelerated by COVID-19.

- **Existing versus new solutions:** Large enterprise managers utilise existing solutions to a greater degree than managers in smaller-mid-sized enterprises. This reflects perceptions that serve to inhibit the use of alternative solutions in addition to the use of more complex and often legacy infrastructure and software

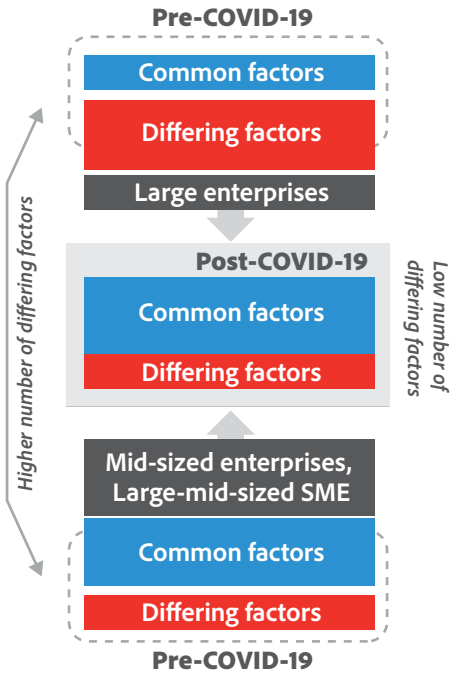
(3) Post-COVID-19 Drivers

A number of trends were observed in this research in organisations as the onset of COVID-19 shifted many from a reactionary phase between late 2019 to early 2020, to an equilibrium phase by December 2020. Common digitalisation requirements have been increasingly observed between firm managers in small-mid-sized and large enterprises in both B2B and B2C, with **20%** planning to expand their current exploratory and analysis stage of digitalisation in 2021.[184] In contrast, **15%** of large enterprise managers are planning to introduce additional solutions in 2021 beyond those introduced in 2020, with **70%** planning to utilise their current solutions providers and vendors for these, but with over two-thirds also planning to assess alternatives.[185] Fifteen per cent of these managers are planning to replace or alter their existing infrastructure, including more extensive cloud adoption.[186]

An observable shift has occurred in the willingness of enterprise managers to review alternative digital solutions than before the pandemic: **10%** and **20%** of large and small-mid-sized enterprise managers respectively indicated that they reviewed digital technology options and alternatives intermittently before the pandemic, with this increasing to **18%** and **80%** respectively at the end of 2020 and become a permanent, ongoing aspect for many.[187] In addition, the requirements for digitalisation and other organisational changes between managers in B2B and B2C enterprises agnostic of size and location have been aligning as 2020 progressed and they adjusted their operations to a new post-COVID-19 operating environment, as depicted in **Figure 4**.
These include: **productivity; lower-cost structure; scalability; agility; flexibility; supplier diversity; data-driven; informed decision-making; low-code software; standardisation**.

Addressing these and the sub-digital and operational components they encompass can lead to productivity enhancement when best practice management and technology utilisation occurs. **Figure 4** depicts the harmonisation of many requirements post-COVID-19:

Figure 4: Alignment of B2B and B2C requirements post-COVID-19.
Source: LSE interviews and research.[188]



The most successful enterprises reviewed reflected better management practices, agnostic of firm size and sector or B2B or B2C activities. Better practices also resulted in many cases in a greater degree of digitalisation: leaders who displayed greater external and internal awareness defined a digitalisation strategy that was founded on organisational insight and relevance. Effective leadership through best management practices across the organisation is an essential precursor to attaining the benefits facilitated by digitalisation.[189]

3.2.4 Case Study - Asprey International Limited: B2B and B2C Digital Transformation

"Digital technology offers you a lot of other opportunities and new core competencies that let you do things that you could not do before: anything from rapid prototyping all the way to digital printing, which results in products that can be delivered a lot quicker. Our plan was always to introduce more and more and more technology into the processes of the business."

J. Rigas, Executive Chairman, Asprey.

Asprey is one of the world's oldest luxury brands, founded in 1781 in the UK. The Company is a SME, employing around 100 people in the design, crafting and selling of jewellery, silver, crystal, leather goods, silk prints and trophies, through nine retail locations in the UK, US, Switzerland and Japan. COVID-19 has had a significant impact on Asprey's business model due to the nature of luxury brand retailing, including supplier engagement. The Company commenced a digital transformation in 2006 when it was bought by its current owners with a strongly engaged Executive Chairman (EC) defining a strategy: **"The first thing I believed we needed to do was to review our basic values and make them contemporary with the aid of technology. Digital technology can provide you with new core competencies that you could not have before. Our plan was always to introduce more and more and more technology into the processes of the business: design, production, ecommerce - but we have to be really careful with e-commerce because our experience, that we offer our clients, is unique."** The Company's digital transformation in areas accelerated during the pandemic due to the abrupt severing of the face-to-face engagement with customers and suppliers: **"Before COVID-19, when people are used to doing something in a successful company in a great way, 'How can I bring technology into the company and what can I change?', encounters resistance. I knew we needed to change because the world was changing and if you are going to maintain your value at 100% state-of-the-art technology, which is a sub-component of craftsmanship, you need to incorporate new technologies. When the pandemic hit, we had already started this transformation."**

COVID-19 resulted in an accelerated shift to the use of cost-effective off-the-shelf digital applications to enable B2C to be optimised as a substitute for direct customer engagement, while concurrently enhancing B2B supplier engagement: **"Covid was a shock to everybody. We had a retail company and the basis of our interfacing with a client is primarily retail: it's physical. For the super high-end, the client wants to come in, wants the experience, and we had to 'close the door'. That shock forced us to think through our whole business and ask, 'What are we going to do if this continues?' The first step was to restructure: we took care of our**

people's economic, physical and mental well-being, and put some people on furlough. We then turned to enhancing digital." Asprey shares best practice qualities observed in other enterprises that successfully adapted to the pandemic including senior managerial engagement to drive accelerated digitalisation across the activity chain: **"The pandemic forced us to enhance our digital experience. What it did was accelerate all of our ideas for introducing digital technology to support our value system and enhance: (a)our processes and (b)the customer experience. It accelerated these and brought them forward immediately. The lockdown was in late March. In April, we were still in the shock phase. At the beginning of May, I flagged that we are going to go 100% digital, digitalise everything in our business, and lose any resistance to this. By that stage everybody had realised that it was the right thing to do, otherwise we would not survive. Covid was a catalyst to our thinking and it removed all resistance to rapid across-the-board digitalisation."**

Asprey is a 'Thriver' as the Company has increased digital expenditure during the pandemic, including in areas observed in only around **5%** of other enterprises: **"We partnered with a global digital solutions provider to use blockchain to certificate each of the milestones in the process of manufacturing our products so that when someone visits the store or the website, or points their iPhone at one of our products, they can get the complete provenance and history of how the product is made. First of all, it adds value to the product itself – having the history, the provenance, the confirmation that it was made properly and with the proper values and in the proper factories and so on. This does not only have benefits for us in terms of managing our supply chain, it has great implications to how we interact with our clients and therefore is again a return to living our values as best we can; but, if you think about it, it is enabled by digital technology. If you tried to do this all with paperwork you can have falsification, or, the papers can be lost or got damaged. Now, digital technology enables us to do that on a wide scale for every single product."** Asprey represents a retailer that addressed requirements during the pandemic leveraging some digital journey experience but accelerating utilising low-cost off-the-shelf solutions and other investments to overhaul digital processes and ways of working that will complement a return to retail customer engagement and pre-pandemic supplier activities.

4. Optimising Digital Transformation

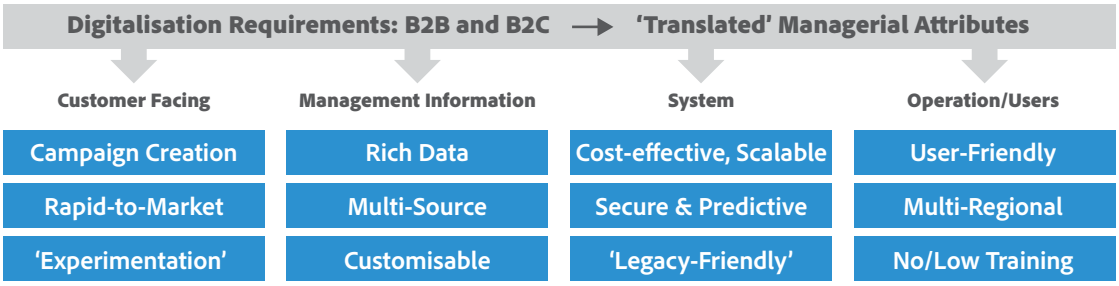
"In such a context (COVID-19) information and communication technologies had a vital role to play. Social distancing meant that online applications became critical in ensuring continuity of personal and business services."

S. Pappagiannidis et al., 2020.[190]

4.1 Enhancing Digitalisation: Managerial Attributes

Digital transformation can enhance productivity and competitiveness when solutions are utilised strategically and executed with the relevant human capital.[191] Research on the impact of the pandemic in Retail, and applicable to other sectors, highlights the requirement for a continuous enhancement process in the organisation: **"Retailers can identify and execute controllable activities. They must identify, optimise, and re-access existing technologies and business models. Specifically, they must understand how their stakeholders operate and interact to reduce response time and optimise communication channels."** [192]
The digitalisation requirements highlighted in this paper reflect industry-observed activities and trends and can be consolidated into four management-defined categories, as depicted in **Figure 5:** customer facing attributes; management-information attributes; system attributes; operational and user attributes.

Figure 5: Managerial digitalisation requirements
Source: LSE interviews and research[193]



These four categories encompass both B2B and B2C digitalisation attributes that are relatively consistent across EU countries including the UK, France and Germany. In addition, enterprises with multi-country operations do not display significant divergences in requirements, objectives and usability-factors within their home market and those abroad.[194] Minor variations have been observed between digitalisation and technology transformation across these three countries and others, primarily at the operational level, including localisation of content and campaigns to reflect local requirements, relevant local B2B engagement modes, variations in innovation and process standardisation practices, amongst others.[195]

In addition, Government schemes to assist enterprises and employees financially pre- and during COVID-19 are similar across the UK, France and Germany and other EU countries, along with the common use of lockdowns and other restrictions on mobility and social gatherings. A number of key attributes can be consolidated for the four categories observed in this research between 2017 and 2020:[196]

(a) Customer Facing:

Managers require digitalisation solutions that can facilitate rapid-to-market product delivery with nimble campaign creation that utilises extracted customer-held-data, digital engagement journey, e-commerce and other information to enable experimentation and agile re-focusing to optimise conversions. This encompasses multiple areas including CRM, data and campaign management, localisation, personalisation and e-mail marketing. The key requirement common across these areas was:

- **Agile: 95%** of enterprise managers identified this digitalisation attribute as a top three requirement, with **65%** citing it as their top lesson learned requirement from COVID-19.[193] This was highest amongst managers whose enterprises had not adopted cloud to date, or where this had occurred, cloud was primarily utilised for storage or a low degree of product development. This attribute was believed to be a key pre-cursor in enabling effective agile targeted campaigns and was prevalent across all four of the categories.

(b) Management Information (MI):

Managers require digitalisation solutions that provide rich multi-source mobile, web, marketing and behavioural MI that can customised for reporting and multi-department use that can aid in maximising revenue-enhancing personalised activities in an agile manner that can quantify ROI. This encompasses the interconnection of data across the user-journey, CRM, campaigns, results, GDPR and security, data analysis, data extraction, report creation and dissemination. The key requirement common across these areas was:

- **Comprehensive: 90%** of enterprise managers identified this digitalisation attribute as the most significant one when depicting MI. This reflects their requirement to obtain considerable MI that provided a non-siloed view of sales and marketing, engagement, and other activities both online and offline (where B2B encompassed 'traditional' engagement activities), and the expedient development of dashboards to report on metrics.

(c) System:

Managers require digitalisation solutions that are cost-effective, scalable, secure and can be integrated rapidly with existing/legacy infrastructure and other solutions, enabling predictive capabilities and delivering an observable ROI from utilisation. This encompasses rapidly delivered and integrated low-cost, cloud-enabled solutions (in the main), 'light-touch' implementation and low-coding requirements for use, required security and emerging area enablement such as Blockchain. The key requirement common across these areas was:

- **Security: 95%** of enterprise managers identified security as the top digitalisation attribute, followed by scalability (**90%**). In addition, **85%** of managers identified integration ('legacy-friendly') as a priority. All three attributes were deemed 'critical' and were often potential blockers in the adoption of increased digitalisation, particularly for low-cost, agile solutions. Blockers were greatest amongst managers in larger enterprises who often lacked the time to assess alternative solutions or did not believe that these were congruent with the complexity, scale and requirements of large ICT portfolios managed.

(d) Operation/Users:

Managers require digitalisation solutions that are user-friendly for employees to utilise with minimal or no additional training required and have multi-regional deployment, customisation, and localisation capability to empower the maximisation of ROI through effective campaign conversions and sales and marketing activities. This encompasses the use of single-multi languages, 'instant' distribution of data, results and advertising and marketing material integrated with a CRM, rapid adoption and utilisation of a solution, no latency in communication, rapid release, test and amendment of product releases with minimal additional effort or required training.

Low-Impact: 75% of managers required digitalisation solutions to have a low impact on employee adoption, use, and training as their top usability requirement. Other attributes such as rapid-to-market testing of product launches and amendments are encompassed by already identified requirements, including agility.

The most significant pre-COVID-19 digitalisation accelerator was cloud computing and its use in a non-storage capacity to enable heavy lifting and facilitate rapid-to-market product development, often kick-starting digital transformation.[197]
Before COVID-19, **90%** of organisations that implemented a digital transformation strategy utilised cloud-based services, with managers citing this industry shift as the originator of wider digital transformation.[198] A number of benefits have been observed in large and small enterprises that have introduced digitalisation through readily-available low-cost, light-touch, agile cloud-based digital solutions:[199]

- The removal of technology as critical path item for incumbent organisations and start-ups;
- The disintermediation of technology and the separation of businesses from infrastructure, administration and other technical overheads, releasing costs and resourcing;
- A rapid release cycle as code becomes the differentiator enabling expedient go-to-market;
- Enhanced ROI as costs reduce and a greater frequency of revenue-generating products and features are introduced.

The adoption of cloud in a COVID-19 environment is not mutually exclusive to the assessment and adoption of other innovative digital solutions: learnings, familiarity, tested ROI and success with cloud in transforming organisations has established a reference point.[200] Firm-level research with large enterprises in France is congruent with UK and German results, with the pandemic influencing technology decision-making due to cost pressure and strategic factors:[201]

- Before adopting any additional solutions, managers review their enterprise costs;
- This process is identifying low-cost services that can fulfil business objectives and digitalisation requirements;
- Following cost analysis and enterprise-wide engagement, enterprises reduced their total costs by minimising costs from existing legacy solutions including technology staffing;
- The digitalisation of the enterprise is focused on gaining a better understanding of customer demands; the development of new services and products; the definition of new lines of business; and new market entry.

These attributes are, in cases, contributing to a Hider culture and mitigating additional innovation and investment in alternative low-cost agile solutions readily available, with a low requirement for additional skills. These can facilitate the transformation of business processes through real-time fulfilment, continuous availability, minimised errors through real-time, accurate data, and the use of more agile processes with a shorter time-to-market.[202]

4.1.1 Case Study- Boots UK Ltd: B2B and B2C Digitalisation

"As Boots, top down, our execs understand and have a passion for what digital can be as it is now. You can see the impact of a footfall reduction in the change of mix in our sales pre-Covid and post-Covid. Our dot-com business is dramatically more important than it ever was before. Interestingly, that has drawn in not just greater frequency from those that used to shop on Boots.com but many more customers who did not previously engage with digital retail from Boots as a channel.... One of the really significant shifts that we have seen, and was unexpected, is much more of an appetite for content from Boots post-Covid than pre-Covid. That is a really dramatic change, and we also made changes to our suppliers, down to how we interact with them."

R. Corbridge, CIO, Boots IT, and, D. Robinson, Head of Loyalty & Personalisation, Boots UK.

Boots is a household pharmacy, health and beauty retailer in the UK with its first store opened in the 1849. The Company is part of the **Retail Pharmacy International Division** of Walgreens Boots Alliance (WBA) and also one the UK's largest retailers with over 2,500 stores and 52,000 employees. The online business grew by **106%** in the Company's financial year-end at November 30, 2020, while overall like-for-like retail sales were down **9.1%** for the year, reflecting the impact of the pandemic.[203] The Company represents a unique opportunity to assess the impact of digital transformation on a business that relies on high street store visits across its healthcare areas and beauty areas including pharmacy, physiotherapy, optical, beauty and other areas. The Company accelerated in-flight digital transformation with additional investment in digital, online pharmacy and retail services, to provide digital engagement modes for patients to receive assistance throughout the pandemic, including increasing the capacity of free online repeat prescription deliveries and the introduction of new online pharmacy and beauty services such as virtual consultations.[204] These and other actions are congruent with Thriver businesses and their activities during crises, with Boots' senior management visibly supporting and driving the acceleration of a transformation plan encompassing continued investment into online and digital services as a key driver of growth for the business, with this and others research highlighting the pivotal role of management support in Thriver organisations.[205] The Company's Global Chief Marketing Officer highlighted: **"At WBA, our mission is to deliver extraordinary experiences that enrich our customers' lives. Capabilities to combine previously disparate customer data sets, including information from more than 100 million members of our loyalty programs, into a more singular, unified view of the customer – powered by these modern technology platforms – will enable us to truly personalise our omni-channel healthcare and retail offering. This digital magic coupled with the valued knowledge and quality of care provided by our pharmacists and team members, is what allows us to best serve our customers."**[206]

Boots has successfully altered its business model during the pandemic, including the use of B2B and B2C. Engagement with both the CIO and Head of Loyalty and Personalisation, provides combined feedback in this case study. Pre-Covid, the business was trying to launch GP services delivered virtually in-store but as lockdowns occurred, this service was scaled, scoped and delivered online to everybody. This was extended to physiotherapy and other services as the CIO sought to widen the digital engagement audience: **"Look at the e-physio service, the customer ratings for physiotherapy done virtually through Boots are the highest in the marketplace. The numbers of people that are waiting for physiotherapy were astronomical and growing and growing - and that was pre-Covid. When you then talk to physiotherapists and understand that they think 70% of what they do, they can deliver over a video link with advice, then**

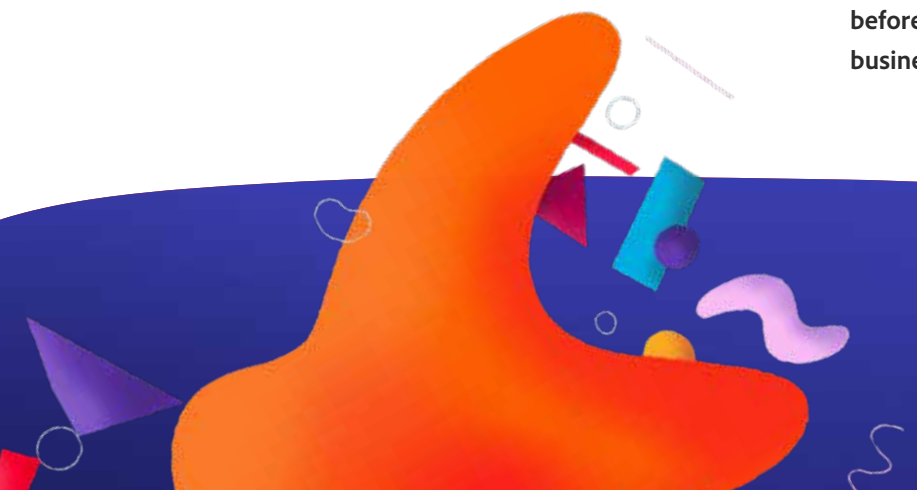
you know you have hit on a way of giving people what they want. You have got to also get the price point right, at a democratised level. Currently, in most cases, physio should be free through the NHS. As long as you get that price point right, and don't turn it into a premium service, the vast majority of people will engage for the convenience and, suddenly, you are helping the NHS and working in a new and different way of delivery that changes the demand curve." Boots' approach reflects both a shift in a business model and the extension of this to B2B that is aligning with B2C, with acknowledgement that the former has been catching up with B2C, reflecting wider market trends: **"I think our focus is still very much to customer rather than to business but our plans for 2021 and 2022 and beyond are to move more and more into that business space in the healthcare role as well. It has refreshed our approach to where we go and how we do that in a significant way."**

A shift was precipitated to digital at Boots before the onset of the pandemic. In contrast to Survivor organisations, however, and some Hiders, Boots' Loyalty Team and Senior Management were already implementing a digital transformation strategy that was fast-tracked during 2020: **"Covid for us has definitely created an imperative to accelerate digital retail. It has been hugely important for us, and the decisions about digital have sped up significantly. It has really impacted our bricks and mortar business and created an imperative for us to improve the online experience. You can see that in the change of mix in our sales pre-Covid and post-Covid. Our dot-com business is dramatically more important than it ever was before. Interestingly, that has drawn in both greater frequency from those that used to shop on Boots.com but importantly, also more customers who did not previously engage with digital retail from Boots as a channel."** The Company's healthcare status resulted in it being permitted to remain open during lockdown, but this did not impede the acceleration of digitalisation, including extensive integration between online and offline to ensure fulfilment occurred: the Company doubled its capacity of Boots.com over the lockdown period, increasing more home delivery slots and driving a **78%** increase in Boots.com sales over the period: **"If you look at fulfilment, this is a credit to our colleagues, many of whom are not digital hipsters: these are folk who are used to working on a till or walking the aisles and they have learnt skills, including using new data coming through for orders. That has been a big shift for us. The stores have stayed open. Healthcare has become more important in them: this time last year, we did not have the ability to pick or ship out in-store. We quickly created, built, and changed stores into hybrid stores so that they could do what so many other grocers and retailers are doing with their store stock and staff for online fulfilment. We have done that in days compared to the months that others have had to do that and done it on an infrastructure that can be challenging."** Boots' approach reflects a tiered approach utilised by high-performing companies observed in crisis that leverages core existing skills, assets and resources to augment the business model. This includes both digitally-centered changes and the use of 'traditional' processes and infrastructure as highlighted in current research: **"The [negative trends] can be presumably reversed if retailers integrate ICT services in order to complement their traditional offline experiences with matching online offers; establish business "alliances" targeting economies of scale; engage themselves in providing innovative digital services."** [207]

Boots has closely integrated technology across the organisation and embedded it in key departments engaged in customer and supplier activities: **"IT and digital, IT and marketing, IT and retail are so close to each other in Boots because we needed to focus on the customer and an omni-channel experience. Our 2,500 bricks and mortar stores need to reflect what, in the last year, customers have come to expect from Boots, which is a much more easy-to-access journey, where they can find things more easily and find things that they love with content**

that's relevant." This integration reflects a further Thriver attribute that removes a frequently observed blocker: utilising digital solutions with legacy systems and complex historical infrastructure. **"We are in the midst of one of the biggest transformations that we have ever done from a change point of view, and in a short period of time. Over the next seven months, we will change the platform that the website is based on and move to cloud, changing fundamental elements like basket and checkout capability. We will also implement enhanced campaign and experience management, login and authentication changes, and customer-facing, customer experiences."** These digital changes are cloud-driven and facilitate rapid, agile activities to occur: **"We will now shift from an e-commerce platform from the 2010s to a commerce platform of 2020/21, in reality including enhanced analytics. This includes so much change, and it's critical to keep IT and marketing very close to each other. By the time we are in August, the look and feel of everything a customer engages with us digitally will have totally transformed over a very short period of time."** Cross-company and senior management buy-in within and between departments continues to be identified as a key success factor amongst multiple factors: **"Different aspects of engagement represent the top four enterprise architecture (EA) success factors: (1) active involvement of business leaders in the EA program, (2) active involvement of IT leaders in the EA program, (3)enterprise architects actively participate in project teams and (4) enterprise architects are trusted advisors to the business."** [208]

The digital transformation undertaken by Boots will result in fundamental and long-lasting changes in customer and supplier engagement, and concomitantly alter the current revenue model: **"If you go from a high percentage of sales occurring within physical environments to a greater balance now occurring and growing with digital channels, that's quite an achievement: we will deliver change very quickly during the pandemic, supported by colleagues who help to pick and dispatch, and getting orders out to customers. You then add to that the digital GP and physio engagement and other healthcare components and it's a new model. There is a whole load of stuff going on behind the scenes for B2B and B2C here. Not only is this really interesting, but it's an essential shift that we need to survive during the pandemic."** Boots also reflects best practice digital transformation in the use of real-time, data-driven decision-making across the organisation: **"The business has become much more literate from an IT perspective. We get to the right answer in a more efficient way, as now we actually understand the problem and are stronger capability-wise as our analytics team has become more of a data science team that build the propensity models to take data in and define the right solution. That is a major shift. The other is on the practitioner side: during the pandemic, we implemented agile ways of working in many departments that complement technology and put teams in place that are focused on category activity with a cohort of subject matter experts. It is a much more responsive way of seeing what is happening in the market and this also uses data from our digitalisation that was not possible before the transformation. We are not there yet, but we will be shortly, and in a stronger position than we were before and during the pandemic, as we change our business model for good."**



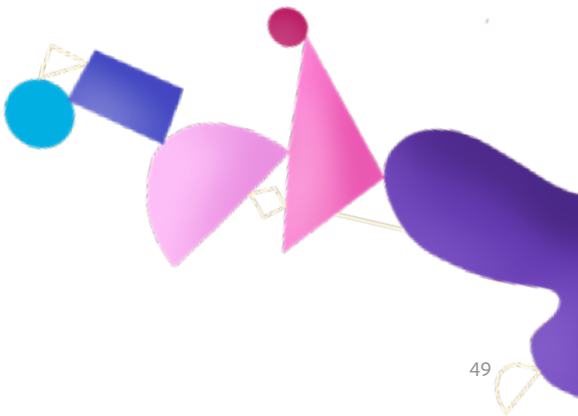
4.2 Accelerating Best Practices with Digitalisation

The best-performing enterprise managers have utilised a dual approach to digitalise their business in the pandemic: (1) undertaking greater cloud adoption, or initiating this greenfield where it has not occurred; and (2) adopting technology solutions that enable digitalisation in an accelerated manner to address the key requirements of agility, security, comprehensiveness, low-impact and others outlined in this research.[209] This contrasts less digitally mature organisations that have been observed to be more unstable during the pandemic, with research highlighting: **"Behind the scenes, digital transformation is a holistic process of continuous changes that replaces fragility with flexibility, that is driven by the constant availability of data and the right skills being held by its people to respond to (COVID-19) volatility, uncertainty, complexity and ambiguity in creative and innovative ways."**[210] Best practice management, combined with the use appropriate technology, is critical to enterprise survival and optimised productivity.[211] European Commission research highlights that managerial culture is particularly significant for SMEs and can be a major blocker: **"These internal barriers include the high burdens caused by the absence of employees, 'mental barriers' from the SME managers, lack of professionalism…"**[212] Successful B2B and B2C enterprises - agnostic of size or sector - display the use of digital solutions across the activity chain, including campaign creation and delivery, content creation, reporting and others can result in revenue increase and productivity improvement through reduced infrastructure and organisational costs, speed-to-market, improved and agile campaign and product testing and other factors.[213]

Best-performing enterprises executing digitalisation are obtaining an ROI from this investment ranging from **50%-500%** encompassing cloud and digitalising solutions in an integrated manner,[214] with this return improving over time as they learn by doing and adjust their practices accordingly.[215] The productivity increase has been observed to be **300%** higher when such technologies are deployed in combination,[216] with the return on digital investments varying by industry, but reflecting that industry leaders achieve a greater productivity increase from investments in new technology than followers: **70%** vs. **30%** respectively.[217] Two additional best practice observations include: (1) in larger complex enterprises with multi-site and/or multi-country operations, a central digitalisation approach and subsequent firm-wide adoption and distribution minimised take-up, training issues, and enhanced productivity through homogenous delivery and minimal errors in use; (2) existing appropriate resources were identified as the catalysts to utilise transformative digital solutions and were provided support and autonomy.[218] This approach is reflected by research on ICT and management practices: **"There is a very wide range of effects of ICT on productivity and the impact seems to be much higher when firms are more decentralised and have stronger "people management" structured policies over hiring and a strong emphasis on ability and effort."**[219] Digitalisation best practices observed during COVID-19 in both small-mid-sized and large B2B and B2C enterprises operating in the UK, France, Germany indicated that execution timelines were reduced by as much as **90%** compared to pre-COVID-19 or the decision sought would not have occurred between in around **50%** of cases or higher due to lengthy approval processes, documentation and data.[220] A recurring benefit cited in cloud-driven digitalisation during the pandemic in 2020 is the substitution of face-to-face B2B sales calls with digital engagement modes, with wider research supporting this report's findings: **"This year, most sales representatives have transitioned to virtual sales, having to reimagine how they interact with their customers. In fact, according to one recent study, more than 90% of B2Bs have transitioned to a virtual sales model during COVID-19. For B2B sellers in Technology, Media, and Telecoms sectors, the figure is almost 100%. The shift to remote selling has been born**

out of necessity as lockdowns and quarantining measures have forced people to stay at home. The need for companies to find ways to reach their customers, despite physical and travel restrictions, combined with professional buyers' growing preference to research and evaluate digitally, means that even beyond the pandemic, B2B sales operations will look fundamentally different from what they were before." [221] The implementation of digital solutions is optimised, however, by the execution of best practice activities. Between 2009-2021, a number of factors have been observed in the ongoing research undertaken on cloud, digitalisation and management practices that are complementary to digital adoption in enterprises, with the case studies included in this report highlighting the presence of many of these amongst Thriver firms in particular:[222]

- **Engaged executive leadership:** Visible activities by CxOs and senior managers during the pandemic and to plan for its impact both short and long-term with enterprise-wide engagement and accessibility.
- **Employee well-being:** Utilising solutions to communicate and monitor employee mental and physical health including offering new products, services, links to specialist resources or professionals and amending practices to adjust to remote working.
- **Collaboration:** The use of video and chat to engage collaboratively in addition to the use of agile multi-site activities for product development, supplier engagement, staff well-being and others. In some cases, this leveraged existing activities that became templates for others.
- **Clear, integrated multi-department planning:** The mobilisation of managers and specialists from Finance, Operations, Human Resources and Technology to define integrated plans addressing near term emergency measures that dovetailed in medium to longer term measures including key requirements of cost-effective, rapidly scalable solutions.
- **Rapid solution adoption:** An accelerated analysis of solutions providers to address key digitalisation requirements in the defined plans leading to engagement and selection of relevant options. Solutions ranged from cloud adoption/ enhanced cloud, (including multi-cloud), individual or integrated solutions providers to address e-commerce, campaigns, content creation, security, alternative engagement modes, supplier integration and communication, and others. Enterprises mobilised and aligned departments to adopt and/or integrate solutions in an accelerated manner often with close vendor engagement.
- **Rapid Proof of Concept (POC):** Selected solutions were accelerated from vendor selection to integration and the development of a POC and rolled out thereafter.
- **Online and video training:** Accelerated use of online and video solutions to deliver any required training for solutions and new processes or requirements utilising video supplied material, additional trainers and online resources.
- **Experimenting:** The use of solutions for rapid-to-market campaigns, product launches and service enhancements with a test-and-amend approach to refine offers and rapidly re-launch.
- **Data use and metrics:** The use of solutions for enterprise-wide data and metrics use across sales and marketing, operations and reporting to create a data-rich culture.
- **Supplier engagement:** The use of solutions and practices in B2B and B2C enterprises to integrate and engage with suppliers including for ordering, fulfilment and reporting.



- **Localisation autonomy:** Adopting solutions or enhancing existing functionality to provide localisation autonomy for centrally created campaigns across multi-site and/or multi-regions.
- **Use of English in multi-region B2B marketing:** An increased use of English by **15%** of multi-country enterprises for B2B supplier campaigns in non-native English countries, and acceptance of this by suppliers. In **25%** of cases, this is likely to remain in place medium-term.

This research indicates that at an overarching level, enterprises in the UK, France and Germany address similar issues in responding to COVID-19 and that minor variations observed do not appear to result in any region lagging as a result. Decision-making complexity increases significantly with larger enterprises that employ a large number of resources and utilise multiple complex technology solutions and legacy infrastructure. Four attributes were observed in this research and are also observed in wider research that address blockers observed in the pandemic, which, if overcome, can result in the implementation of best practice digital utilisation: rapid response by enterprise leaders and managers; digital collaboration internally and externally; flexibility and scaling of digital solutions, and crosslinking value creation between digital solutions, processes and capabilities:

- **Addressing crisis quickly.** The pandemic both magnified and exacerbated digital maturity and conditions in many enterprises with leading entities displaying agility before and during the pandemic. Management adoption of emergency digital measures, or embedding permanent measures, were attributes of all enterprises that adjusted successfully to the pandemic.[223]
- **The presence of collaboration systems** at the core of a digitalisation strategy. In the pandemic this has generated new business models for enterprises in B2B and B2C, with leading entities utilising knowledge dynamically to continuously innovate. This has become a critical engagement mode in the development of digitally enabled knowledge communities between enterprises and their ecosystem of suppliers, customers and between company-sites to deliver enhanced corporate competitiveness and enhanced speed and efficiency.[224]
- **Embedding flexibility and scaling centrally** in a technology strategy. In contrast to many other crises, COVID-19 has had a significant impact on the use of ICT and technology support functions versus a negative impact on existing infrastructure. Responses for many organisations entailed scaling existing services and/or adopting additional services. The benefits of making solutions available to a remote ecosystem of employees, suppliers and some customers are many, with research highlighting: **"Where desktops and corporate applications could be published over the web and accessed from laptops, home desktops or tablets, it made it possible to seamlessly connect users to their familiar corporate applications. The original use cases for such technologies were varied and not related to the pandemic but proved to be very useful."**[225]
- **Digitalisation is essential to crosslinking** the value creation process. The appropriate strategic adoption of digital solutions can lead to enhanced competitiveness, productivity and performance, where this is aligned with capabilities, culture and talent to permit experimentation.[226]
  Research highlights that success occurs when: **"Digital technology enabled processes and services are up and running (continuity); and secondly, appropriate mechanisms (are in place) through support systems that ensure key business processes and staff interactions can be conducted digitally while processes and data are backed up."**[227]

Firm-level research before and during the pandemic has highlighted that innovative, readily accessible digitalisation enhances processes and new product development: around **95%** of firm managers whose

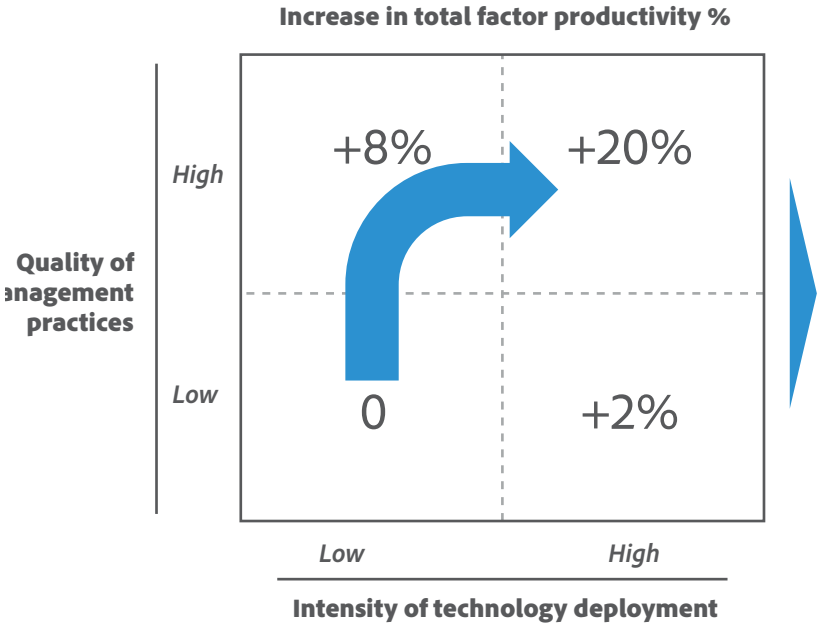
enterprises have implemented digitalisation either before or during the pandemic indicated the positive and transformative effect this has had, including on processes and that this would continue or be further expanded.[228] This is consistent with research that highlights: **"The main impact of technology occurs at the process level and shows that competitive advantage for new product development is related to IT-enabled dynamic capabilities and functional competencies."**[229] Aligning technology adoption and utilisation with optimal management practices is an essential precursor to maximise productivity, ensuring competitiveness and long-term survival.[230]

4.3 Bringing 'IT' Together

This research depicts digitalisation requirements and organisational factors that, if addressed, provide scalability, agility, comprehensiveness of data and low-impact, cost-effective remediation for COVID-19 and thereafter. This is congruent with other global research confirming that digitalisation has enabled enterprises to respond effectively to the pandemic by utilising their dynamic capabilities and improving their performance.[231] Dynamic capabilities are defined as **the comprehensive capabilities to build, integrate and reconfigure internal and external resources when coping with a rapidly changing environment**.[232] Before COVID-19, the onset of cloud provided an initial game-changing digital transformation model that was subsequently utilised by many solutions providers to usher in a subscription-based model, replacing a plethora of elements: hardware, applications, software, gaming, and others. The evolution of Software as a Service (SaaS), high bandwidth mobile networks, changing social and working habits and increasing digital consumption have impacted enterprises for both B2B and B2C.[234] The pandemic has in many cases removed the organisational veneer that masked inefficiencies and redundant processes, technology and resources, to rapidly reveal organisational weaknesses that if left unaddressed have caused business failure or competitive deterioration. The two variables observed in this research that most often moderate whether an enterprise has failed or successfully addressed the crisis are management capability and rapid cloud-based digital technology adoption. In some cases, this was observed to include lower impact solutions such as collaboration tools, remote access to corporate office through a VPN/secure access, while in others it reflected an all-in digitalisation approach that encompassed a suite of solutions accessible remotely and ecosystem integration.

This research reinforces the findings obtained from ongoing firm-level direct engagement since 2007 assessing over 20,000 enterprises in 35 countries in the world's largest study of management practices, technology and production use, and the impact on productivity.[235] Results indicate that utilising management best practices and technology display a statistically significant correlation with performance: better management directly translates to improved productivity, profitability and sales growth.[236] Through the use of a toolset that quantified the quality of a firm's management practices based on interviews within the firm, and the use of a firm's financial results extending over a period of time, the quality of results on performance can be measured. Following 15 years of accumulated data that commenced in 2005, **Figure 6** summarises the productivity enhancement that can accrue when management best practices are utilised with intensive technology use. Enterprises employing management best practices are far more productive, innovative and profitable with leadership at CxO level a critical driver.[237]

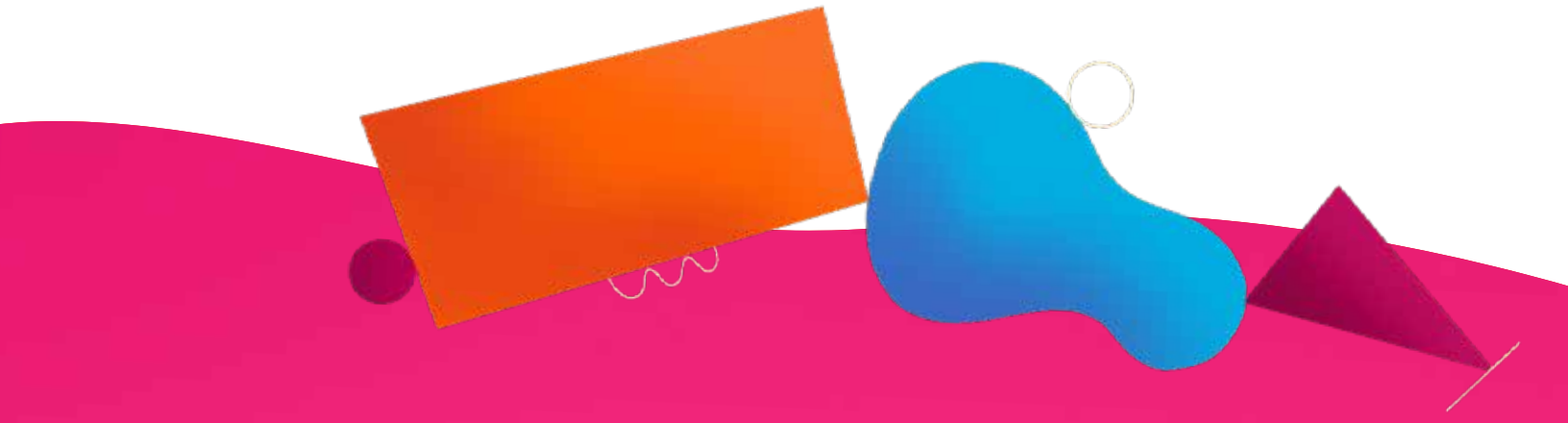
Figure 6: Increasing productivity through the use of ICT and optimal management practices.
Source: LSE and McKinsey research.[238]



These results indicate that enterprises utilising technology without best management practices obtain on average **2%** productivity gains. In contrast, those enterprises utilising technology with low intensity but who display high quality management practices make around **8%** productivity gains. When management best practices are combined with intense technology utilisation, enterprises have been

observed to gain a **20%** increase in their productivity.[239] In these organisations, there is a clear link between strategy, goals and targets and the technology deployed; technology can be scaled rapidly to support growth or, where required, to scale back; technology is delivered in the most cost-effective manner possible; technology permits flexible and collaborative engagement between resources without penalties for distance or location and others.[240] Talent management is optimised in these organisations, including top-down, with the CxO or the leadership team promoting a high performance mindset; poor performers are removed if they are negatively affecting performance; talent is actively nurtured and encouraged; a unique value proposition is defined to motivate other high-performance people to join. In addition, best practices are observed in these high-performing organisations in operations and financial control.[241]

Table 1 depicts 16 technology-driven attributes observed amongst the best performing enterprises across B2B and B2C in the UK, France and Germany and in other countries: these attributes are agnostic of location and are observed in best-performing organisations irrespective of their location. For each attribute, research has guided a segmentation of three options to reflect 'Best', 'Average', and 'Worst', with green, black and red tick symbols utilised respectively to denote this. E.g. for 'Adoption of Hardware', best practices encompasses fast adoption tied to goals, while worst practices depict hardware that is not updated regularly or tied to goals.
It can be utilised to assess an enterprise's position against the average in digitalisation best practice. In smaller enterprises, the scale will be smaller. E.g. for 'Analytics Data and Testing', a more manual processes may be utilised, while in larger organisations, a higher degree of automation might exist. Regardless of organisational size, research continues to reinforce the mission-critical importance in aligning technology with management practices for survival and long-term benefits: **"The current epoch of digital business transformation compels organisations to rethink their attitude towards IT. The recent developments of technology are not only modifying established business models, but also continually creating new opportunities for many companies to innovate. These profound shifts in the competitive business environment inspired by digitisation magnify the importance of achieving tighter business and IT alignment in organisations. Alignment leads to numerous benefits for organisations, including increased agility, financial business performance and overall organisational success."** [242]



Factors Promoting Digital Business Acceleration and Optimised Performance and Productivity				
Category		Best	Average	Worst
1	**Adoption of hardware** Adoption is fast, tied to goals and well understood Hardware is updated intermittently with some links to goals Hardware is not updated regularly and is not linked to goals	◂	◂	◂
2	**Adoption of software and solutions** Software is updated continuously and supports strategy Software is updated intermittently and supports some goals Software is not updated regularly and is not linked to goals	◂	◂	◂
3	**Technology investment during COVID-19** 'Thriver' company that continues investment during crisis 'Survivor' company that maintains some investment during crisis 'Hider' company that cuts investment during crisis	◂	◂	◂
4	**Use of cloud for business competitiveness (vs storage)** Cloud is integral and use widely including product innovation Cloud and non-cloud are used with cloud adoption growing Cloud adoption is low and primarily for storage	◂	◂	◂
5	**Agile and lean practices** The organisation uses agile/lean principles to address problems quickly Agile and lean principles are sometimes used to tackle problems No active agile or lean principles evident to tackle problems	◂	◂	◂
6	**Innovation** A culture of innovation is strong in the organisation Innovation occurs but this is not always consistent Low or no active innovation occurs	◂	◂	◂
7	**Analytics, data and testing** Use of multiple data actively occurs along with analytics and 'testing' Some use of multiple data, analytics and test Data is not used frequently, used with little or no analytics	◂	◂	◂
8	**Personalisation – using solutions to optimise sales and user experience** Personalised content and user journeys are integral Some personalisation of user content occurs Low degree of personalisation occurs	◂	◂	◂
9	**Micro segmentation** Utilise more granular data and tools with micro segmentation Some granular data and tools used with some micro segmentation Low or no granular data, tools or micro segmentation	◂	◂	◂
10	**AI Use to enhance operations and user-experience** The use of AI occurs to enhance multiple aspects of operations Narrow use of AI or it's being introduced AI is not utilised, and/or no plans exist for its introduction	◂	◂	◂
11	**Digital self-service channels** The ability exists to engage track, trace and monitor orders and amend Some ability to engage track, trace and amend element(s) of an order No ability to engage, track, trace or amend an order	◂	◂	◂
12	**Remote selling** A virtual sales model has been adopted and is integral to operations Some virtual selling occurs but this is not integral to operations No active virtual sales capability exists, or is intermittent	◂	◂	◂
13	**Cybersecurity** A cybersecurity strategy is defined and actively implemented Some elements of cybersecurity are present Essential security is present but low or no strategic elements	◂	◂	◂
14	**Flatter organisational structure** An optimised flatter structure exists promoting rapid decisions A mix of flatter and hierarchical organisational structures exist Organisational structures do not promote rapid decisions	◂	◂	◂
15	**Remote and equipped workforce enablement** Employees and the organisation are equipped for full remote work Employees and organisation can undertake some enhanced remote work Only basic remote working occurs by employees	◂	◂	◂
16	**Employee development and training** Continuous development of employees including digital training Intermittent development and training of employees including digital Minimal or no continuous training of employees including digital	◂	◂	◂
17	**Personalisation – using solutions to optimise sales and user experience** Personalised content and user journeys are integral Some personalisation or user content occurs Low degree of personalisaton occurs	◂	◂	◂

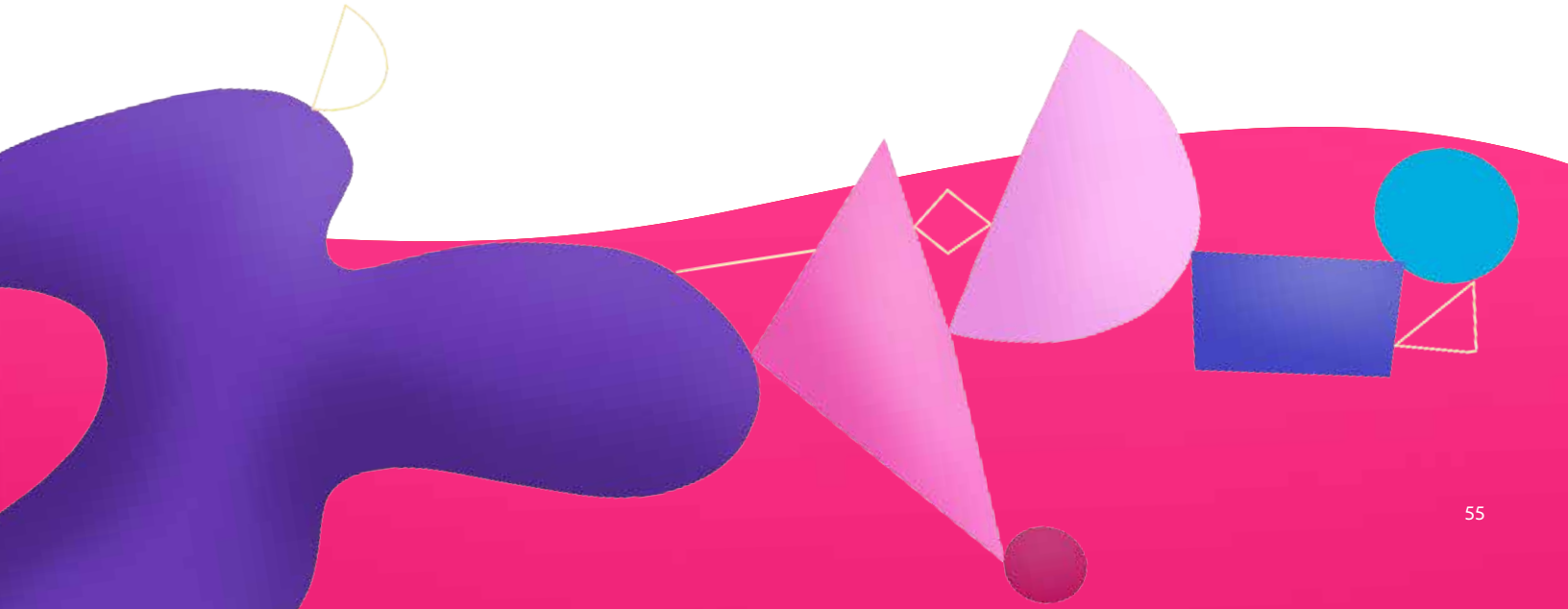
Table 2: Best practice guide for accelerating enterprise digitalisation.

Source: LSE research.[243]

A shift to best practice digitalisation is increasingly being undertaken through the adoption of 'off-the-shelf' digital solutions on a low-cost subscription basis, reflecting the market adoption of a cloud-based model.[244] This addresses a number of key enterprise selection requirements: expedient implementation, light-touch knowledge requirements, security, low-cost and others.[245] The low-cost of many digital solutions offered on a subscription or low-volume licence basis through a cloud model has resulted in a major shift in the market and is an important selection factor for many small-mid-sized enterprises in particular.[246] A number of benefits accrue when best practices exist and are aligned with intensive technology utilisation underpinned by cloud:

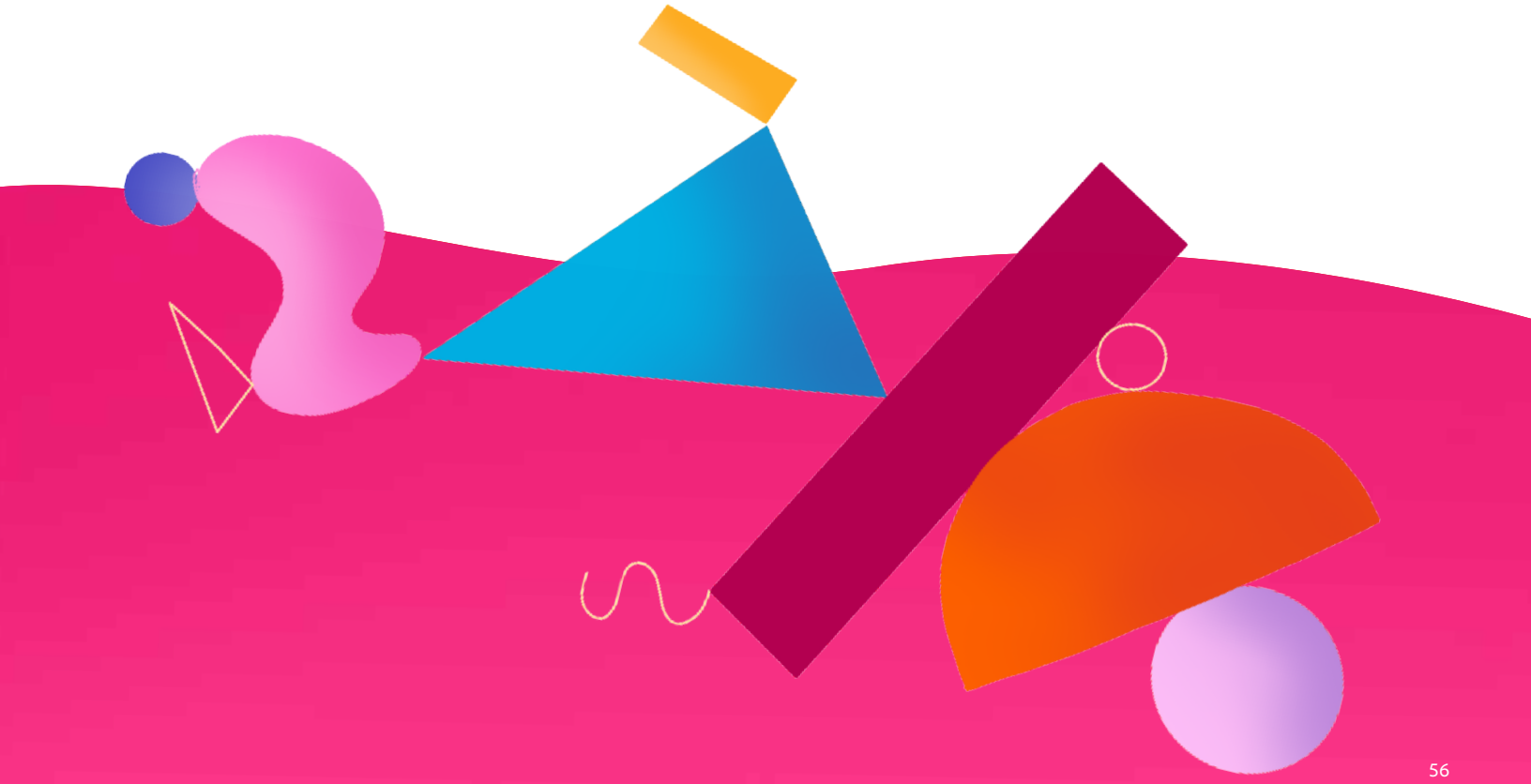
- Enterprises with the highest degree of technology utilisation and that are well-managed are more likely to grow in terms of employment and less likely to exit. Firms in the top two quintiles of ICT intensity grow around **25-30%** faster than other firms and are **4%** less likely to exit.[247]
- Firms can benefit from the usage of ICT by other organisations in their region. This is particularly relevant where digitalisation has been observed amongst enterprises that are integrating with suppliers and customers in B2B and B2C to provide additional capabilities from their own assets and integrate where possible. This results in greater ICT adoption by the external firm, network effects and fostering the growth of skilled labour pools.[248]
- Technology-based product innovation is favourable over process innovation in situations where competition increases. This is particularly evident during the pandemic when, despite business closures, suppliers and customers in B2B and B2C often 'shopped around' to secure alternatives respectively, and where the pace and scale of challenges shortened solution selection for digitalisation solutions including CRM, analytics, optimisation, collaborative tools and others.[249]

The results from this research reflect EU-wide and international findings that identify the priorities of firm managers in the pandemic and immediately preceding it. This research 'peels the organisational layer' through continued engaged firm-level activities in the UK, France and Germany and other countries. These provide CxOs and other managerial insights and come from solutions providers and consultancies that serve digitalisation requirements in enterprises internationally. At an overarching level, the degree of active, deeper digitalisation effort in enterprises remains at marginally higher than pre-COVID-19 levels, at around **23%**, as highlighted in this research. It is estimated that this figure is likely to rise to almost double to between **30%-40%** as 2021 progresses, reflecting a latency from the time period that other enterprises implemented either 'light-touch', emergency measures or did not implement any remediation at all.[250] This is also likely to occur due to the time required for larger more complex enterprises to overcome perceived blockers to enhanced digitalisation.



Many blockers to digitalisation and the transformation of many B2B businesses in particular have been ameliorated by the onset of COVID-19, with over **95%** of CEOs who undertook digitalisation indicating that this would not have occurred otherwise.[251] This is particularly evident in the digital replacement of face-to-face industrial sales, supplier engagement and, for some high-end B2C enterprises, engagement to demanding high-net worth clients during lockdowns. In addition, **80%** of CEOs who implemented work practices to support digitalisation are likely to retain them after the pandemic, with the remaining **20%** indicating that they expect 'emergency measures' to be replaced by additional enhanced practices.[252]

As the pandemic has progressed, a number of the most prevalent managerial perceptions inhibiting greater digitalisation continue to erode, but are in many cases still prevalent, including: a lack of available time required to assess digital options; a belief that many of these are not relevant to the enterprise; a lack of knowledge on available solutions; a belief that additional resources are required in-house; a lack of knowledge of the true cost of digital solutions; the belief that these solutions are less secure than others. Amongst the most successful enterprises observed in the pandemic were firms that had a positive perception of digitalisation or had commenced this process. Amongst enterprises that had adopted a degree of digitalisation, **65%** selected integrated offerings for sales, marketing, analytics, CRM, e-commerce and other areas, with the remaining **35%** adopting either a single service from within an integrated offering or selecting a sole-solution provider.[253] Significantly, over **80%** of firm managers displayed a willingness to address many pre-pandemic blockers to digitalisation, with the majority indicating that this change occurred out of necessity due to the pandemic.



Conclusion

This ongoing research highlights that the pandemic has been an exogenous shock precipitating digital transformation for many enterprises, but that a significant, untapped level of activity has yet to occur. The initial research on crisis and technology transformation undertaken in 2009 highlighted that firms can hide, survive or thrive, with ongoing research indicating that these firm-types are equally applicable before and during the pandemic. Significantly, a paradigm shift has occurred in the availability of options that can unlock digital transformation, underpinned by cloud. Around one-quarter of firms have been observed to engage in longer lasting, deeper digital transformation, with significant opportunity existing to increase this further and initiate productivity-enhancing transformation. This is particularly applicable for SMEs, where managerial awareness is often lacking to ameliorate perceived blockers to the adoption of low-cost, light-touch, expediently implemented digital solutions. In addition, minimal additional technology activities are required in large enterprises to enable the adoption of equally rapid, scalable, secure digitalisation that complements existing legacy or incumbent technology systems.

Many large and small enterprises have already undertaken elements of this journey when they initially adopted cloud and precipitated a first-stage transformation in their business model. The onset of the pandemic has accelerated the urgency for this to occur further, while concomitantly aligning requirements observed between sectors, geographies and large and small firms. The availability of digital solutions that address observed blockers enable enterprises to adopt them with speed, agility and scalability that was not previously possible before the pandemic, as organisations adopt an agile and compressed decision-making approach during the crisis. Industry engagement and the case studies included in this report highlight that Thriver firms have adopted readily available, scalable, cloud-based digitalisation and achieved above-peer results. These firms highlight that a de-coupling of digital capability from the shackles of complex legacy infrastructure can occur, to enable solutions to be rapidly implemented across a distributed remote workforce, suppliers, customers and operations. COVID-19 has resulted in digitalisation transcending the tyranny of distance and complexity to bring about a degree and pace of change that has not been seen to date. If the perceived blockers are addressed, the benefits can be significant, rapid and long lasting.

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