

Unfolding the next growth chapter in South Africa

How Tech Leaders drive business performance with next gen 5G networks, digital technologies, and innovation



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Introduction

A new generation of digital technologies has arrived and is transforming business as we know it across South Africa. 5G networks and converging technologies—including artificial intelligence (AI), cloud, edge, and the Internet of Things (IoT)—are set to fundamentally change how enterprises operate, unleashing innovation and market opportunities like never before.

To realize the full benefits of advances in network connectivity and digital technologies, companies will not only have to invest in a suite of new convergent technology solutions. They will also need to carry out organizational and cultural change, elevate the next-gen connectivity and technology agenda on the C-suite radar, and develop the internal skills needed to put these solutions at the base of innovation and company growth.

This will not be easy, and companies may have concerns over the complexity of associated technology integration, extracting return on investment, and choosing the appropriate partner ecosystem and platform for solutioning.

However, if organizations are prepared to rise to the challenge, they stand to realize significant financial and operational benefits. New research from Accenture, leveraging the perspectives of senior technology executives from 100 South African enterprises, shows that leading companies in South Africa are already unlocking considerable value from 5G and converging technologies. These “Tech Leaders”, as we call them, are on track to grow revenues and drive innovation far ahead of their peers.

In this report, we reveal what sets Tech Leaders apart and how others can learn from their experience—accelerating the transition to the next-gen enterprise and avoiding obstacles along the way. We also look through the lens of key industries to explore the consumer and enterprise impacts, the most significant use cases, and the outlook for 5G and converging technologies.



The time is now

The next generation of mobile networks, combined with technologies like AI, cloud, and edge, will be exponentially different. These transformative technologies present disruptive opportunities far outside the scope of normal business activities, unleashing new operating models and opportunities for enterprises.

In South Africa, deployment of 5G infrastructure and services is underway. In May 2021, the Minister of Communications announced the government's intention to expand the 4G network and deployment of 5G to rural and underserved areas in South Africa, as well as an overhaul of policies and legislation to enable digital transformation.

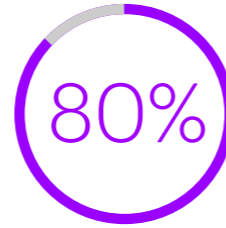
Additionally, in July 2021, the Independent Communications Authority of South Africa (ICASA) published its draft National Radio Frequency Plan 2021 (NRFP), which makes provisions for the incorporation of globally harmonized frequency for the deployment of 5G networks.

The time is now

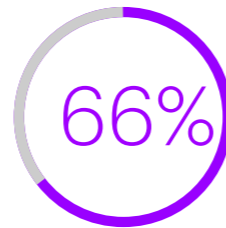
Although South Africa is the most advanced 5G market in the region, mass deployment and adoption are still some time away. Government has been slow to act on infrastructure and policy barriers, and to establish the legislation needed to foster innovation.

Meanwhile, legal disputes between ICASA and local operators have pushed back a much-awaited 5G spectrum auction until at least early 2022.

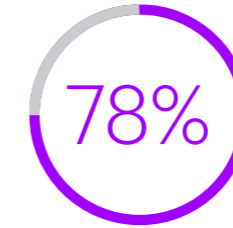
In spite of the headwinds, network operators are pressing ahead with 5G network development. The enterprise market in South Africa is expected to be the main driver of more sophisticated use cases, with 5G enabling new technologies such as IoT, real-time analytics, AI and augmented/virtual reality (AR/VR). Across the country, businesses are getting ready for a technology revolution, doubling down on 5G and converging technology investments.



of respondents are at various stages of adopting digital technologies, ranging from wide adoption to partial implementation to piloting



say they are planning to invest an incremental 3-10% of their IT budget on advanced networks like 5G in the next 3 years



of respondents are planning to invest in 5G-enabled campus networks

The time is now

Why these technologies—and why now? Across multiple industries in South Africa, we see three key trends driving enterprise investments:

1 The new post-pandemic way of working: COVID-19 has provided a harsh reminder of the need to have robust, well-connected digital infrastructures in place.

And enterprises' future budgets reflect that reality. Research from Gartner shows that, globally, almost 70% of organizations using cloud services today plan to increase their cloud spending in the wake of the disruption caused by COVID-19¹. It also found that 66% of enterprises globally increased or maintained their AI investments since the start of the pandemic, while 75% will continue or start new AI initiatives in 2021². Companies are also investing significantly in their networks.

Nearly 45% of worldwide and U.S. respondents to IDC's Future Enterprise Resiliency & Spending Survey plan to increase spending on 4G/5G wireless/cellular connectivity in 2021³.

2 The push for accelerating digital transformation: True digital transformation can only happen when next generation technologies (cloud, edge, AI) and networks (5G) come together.

As per IDC, spending on digital transformation is set to gather even more pace in the post-pandemic period, increasing from 25% of total IT spending in 2020 to 37% in 2024⁴. According to ICASA, the advancement of 4IR technologies depends heavily on the capabilities of 5G networks⁵. Connecting billions of devices requires stable networks, capable of supporting exponentially higher capacity and speed requirements.

In South Africa, 5G will become the foundation for key digital platform ecosystems, which will drive the 4IR in the country and accelerate organizations' digital transformations.

3 The need to explore innovation and disruptive opportunities: Organizations across South Africa are looking to accelerate innovation to support business and operating model reinvention, fast-tracking transformation programs to future proof their businesses.

Accenture's 2020 Innovation Maturity Index shows that 85% of South African companies are vulnerable to future disruption. Indicating that companies are in dire need to ramp up their innovation capabilities⁶.

Companies on the winning side of disruption deliberately build innovation into their businesses, and embed innovation into their strategy, culture and architecture⁷. Companies must make innovation a priority and intensify their efforts if they are to compete both nationally and on the global stage.



Harnessing the power of convergence

Advanced networks such as 5G have the potential to unlock unprecedented opportunities for business transformation and growth.

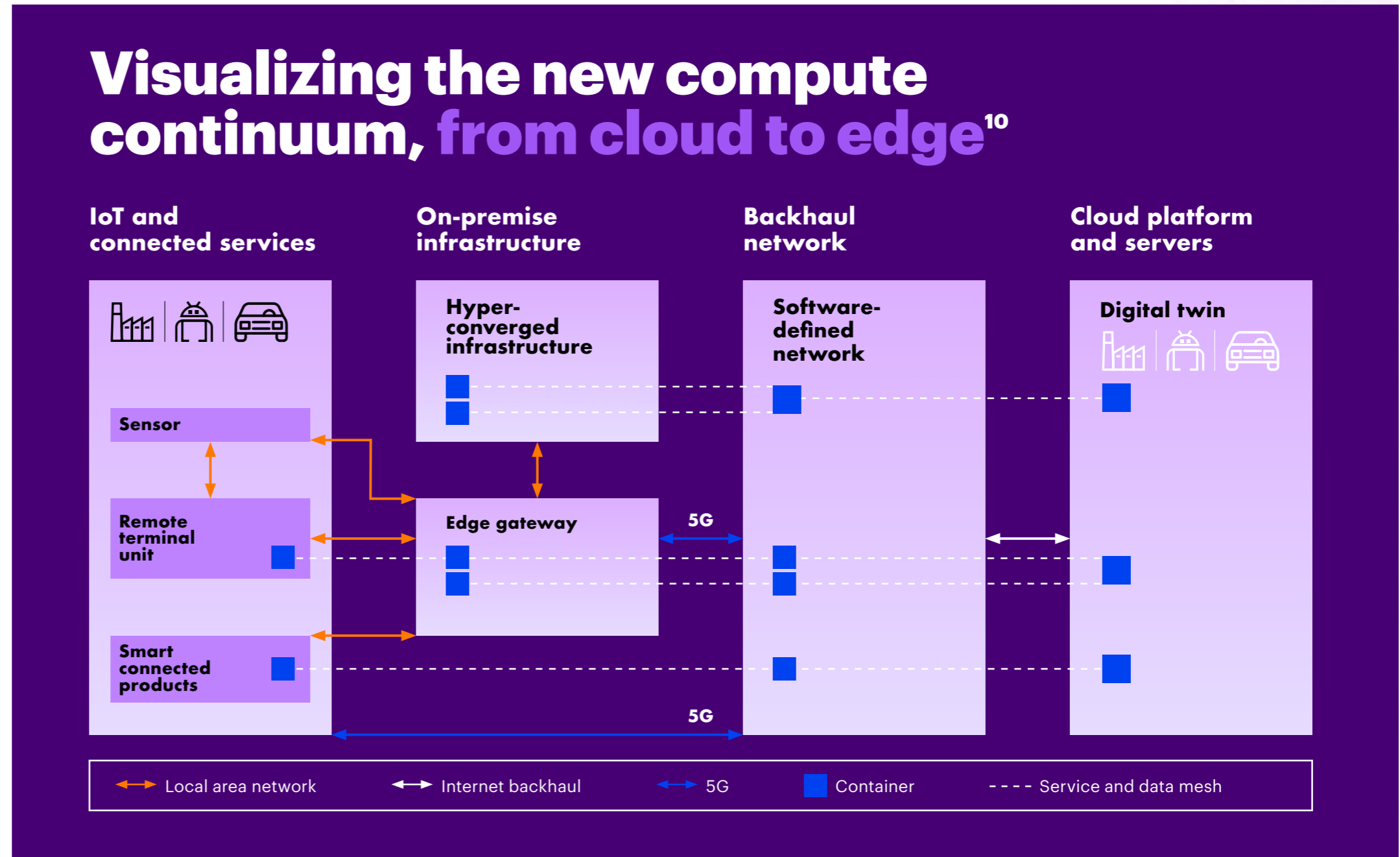
However, 5G alone will not create the revolution. Next-gen networks must be paired with complementary digital capabilities to best serve business needs—now and in the future. End-to-end digital transformation will come about through the convergence of 5G and key technologies: cloud, edge computing, AI, and IoT.

In the cloud continuum, cloud sits at the center and the edge complements it, as it radiates out toward the “ends” of a network. Cloud will integrate with data and computed insights from the edge and spur new apps that will be deployed at the edge—making edge an extension of cloud⁸. 5G connectivity makes the division of computing resources along the cloud-network-edge continuum possible, and its ultra-reliable low-latency capabilities make the short connection between the device and the edge even more efficient.⁹

Harnessing the power of convergence

The combination of 5G, cloud and edge computing will have a massive impact on the development of AI and IoT technologies. With 10-20x faster speeds and dramatically lower latency, 5G makes it much more feasible to process AI workloads locally at the edge, where data is gathered.

Similarly, billions of IoT devices interconnected through 5G networks will give businesses unprecedented, real-time data to maximize the analytical power of AI for operational decisions.¹¹





Barriers to implementation and value extraction

While South African enterprises show a clear appetite for new technologies, organizations may find it difficult to unlock value from their investments.

Most companies today are implementing individual technologies and upgrading networks as standalone transformation projects, without tying them into the overall enterprise strategy of digital transformation and innovation, thereby falling short of achieving holistic business value.

Across different industries, we see three common barriers:

- 1. Navigating the complexity associated with deployment and integration of new network and digital technologies**
- 2. Managing financial and people resources while extracting business value**
- 3. Navigating the still-maturing partner and device ecosystem**

1

Navigating the complexity associated with deployment and integration of new network and digital technologies

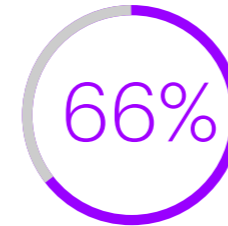
Enterprises are going through a radical change in their digital infrastructure:

IoT devices and AI applications proliferating across business functions, cloud computing becoming an extension of enterprise infrastructure, and edge solutions starting to see deployments. When implemented correctly, advanced networks like 5G tie these digital technologies together by providing the connectivity layer essential for their seamless implementation.

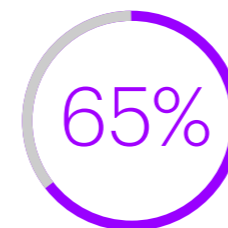
However, enterprises may face challenges due to limited understanding of the relationship between 5G and other technologies. Deploying 5G in a silo will not lead to transformational outcomes, it is only when advanced networks are combined with digital technologies, killer new experiences and business models can be created.

Once enterprises begin to deploy 5G, they are likely to experience a new set of barriers. 5G implementation is an uncharted territory for enterprises and they are likely to face challenges right from network planning stage.

Companies also need to think about the network topology – how to construct the network, integrate it securely with legacy systems and finally changing the current operating model to suit the new requirements.¹²



of respondents cite limited awareness of 5G's relationship with other digital technologies (edge, cloud, IoT, AI) as a significant barrier



of executives cite complexity in integration with legacy systems as a significant barrier

2

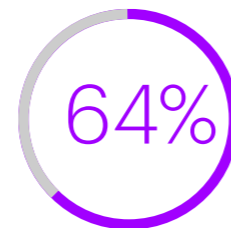
Managing financial and people resources while extracting business value

Adopting 5G and converging technologies requires companies to invest heavily and consistently to drive innovation over a long time horizon before the benefits materialize. Significant capital outlay is required in new hardware, technology, and workforce to enable the functioning of solutions powered by 5G and digital technologies. Companies are asking themselves how they can extract maximum value from such investments and gain an acceptable rate of return.

Lack of 5G and digital skills is another key impediment for companies in South Africa. Businesses are experiencing a major spike in demand for more advanced tech capabilities, but their digital transformation aspirations are being held up by shortage of digital skills in the fields of cloud, networking and emerging technologies.¹³



of respondents cite lack of funding to support 5G investment as a significant barrier



of executives cite lack of adequate technology skills and expertise as a significant barrier



3

Navigating the still-maturing partner and device ecosystem

A mature ecosystem of technology and service providers is essential for successful implementation of 5G and converging technology use cases across industries. However, these ecosystems are still evolving, and it is likely to take a few years for them to fully mature.

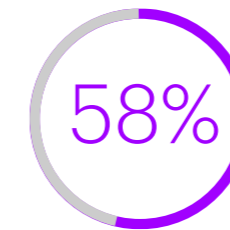
Further, enterprises need to add new and upgrade existing devices before they can deploy use cases. The 5G-enabled device market is still nascent and faces issues on three key accounts: availability, standards, and regulations.

Firstly, devices supporting innovations that leverage the 3rd Generation Partnership Project (3GPP) Release 16 features will take some time to launch and will probably be addressed initially through retrofitting¹⁴.

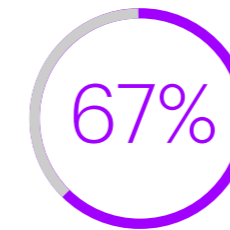
The manufacturing industry, for example, will require new 5G-enabled machinery, robots, vehicles, and other assets. Built-in 5G communication modules in factory equipment will take time to launch and the pace of adoption will be slow for heavy assets¹⁵.

Further, regulatory authorities across geographies have defined more than 40 different variations of 5G frequency allocations within 3GPP bands. This lack of standardization can potentially impact the device market and slow deployments¹⁶.

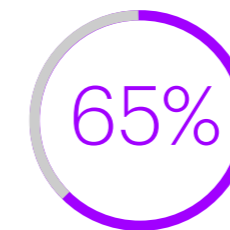
Lastly, securing regulatory approval for 5G-enabled devices can be a long and time-consuming process. In highly regulated industries like healthcare, niche 5G-enabled devices are likely to be delayed due to rigorous approval processes by regulators.



of respondents report immaturity of the 5G partner ecosystem as a significant barrier



of executives cite lack of availability of 5G-enabled devices, sensors, etc. as a significant barrier

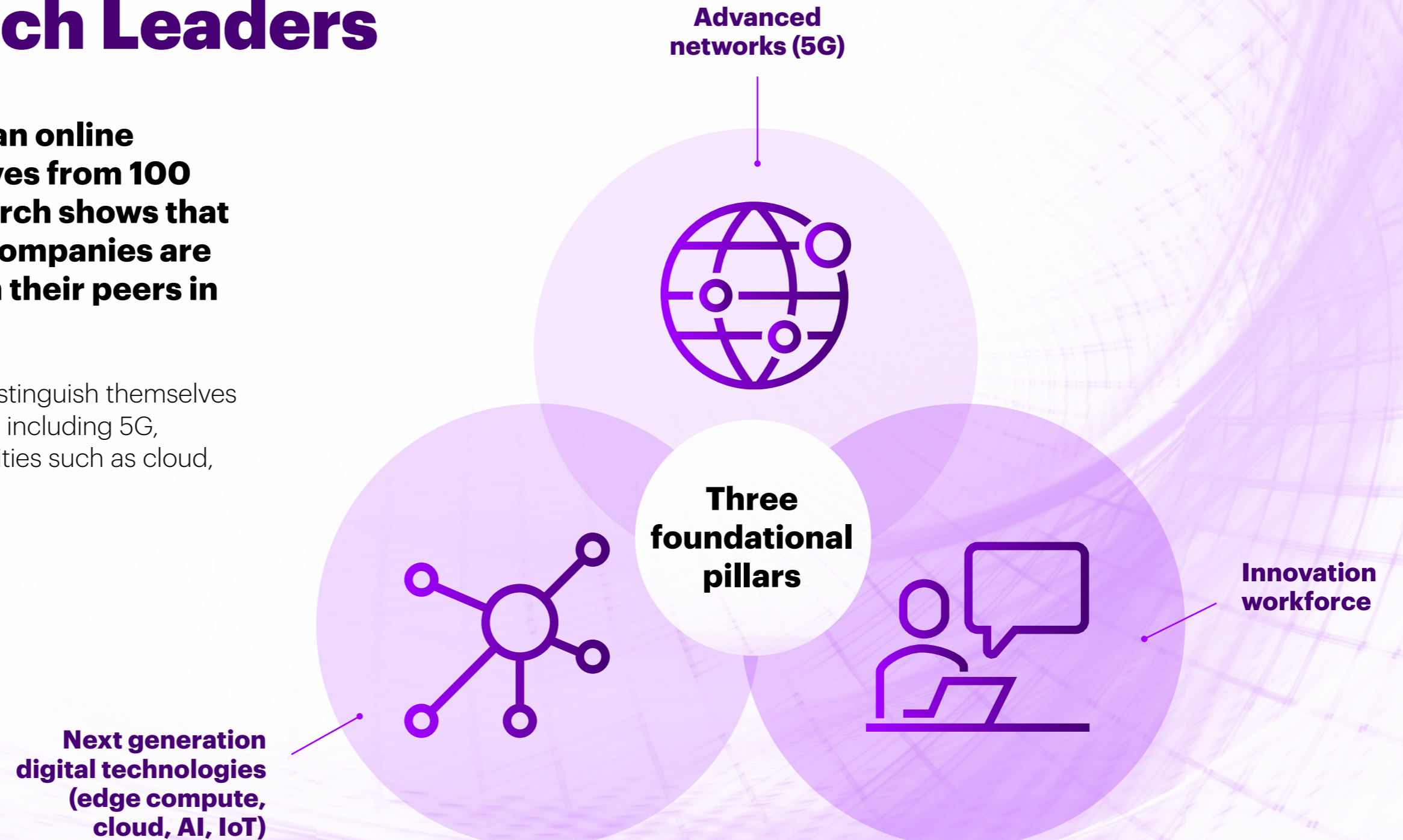


of respondents flag regulatory and/or technology standard challenges as a significant barrier

The rise of the Tech Leaders

In April 2021, Accenture conducted an online survey of senior technology executives from 100 South African enterprises. Our research shows that a small number of high-performing companies are on track to deliver greater value than their peers in the next 3 years.

We call these companies “**Tech Leaders**”. They distinguish themselves by investing in innovation and advanced networks, including 5G, as a strategic asset, alongside other digital capabilities such as cloud, edge, AI, and IoT.



Compared to peers, Tech Leaders are more likely to have invested higher in:

1

Advanced networks such as 5G:

Leaders expect to invest an incremental 9.4% of their ICT budget on 5G and next-generation network in the next 3 years, compared to incremental 6.3% among their peers

2

Innovation capabilities and workforce:

Leaders expect to dedicate incremental 11.7% of their ICT budget to innovation in the next 3 years compared to incremental 7.2% among their peers. Similarly, 69% of Leaders dedicate more than 20% of their workforce to innovation, compared to just 20% of their peers

3

Converging technologies like cloud, edge, AI, and IoT:

Tech Leaders recognize the relevance of convergence of 5G with digital technologies and see convergent technology platforms as critical enablers of transitioning from piecemeal approach to a more holistic end-to-end digital transformation.

Compared to peers, Tech Leaders are:

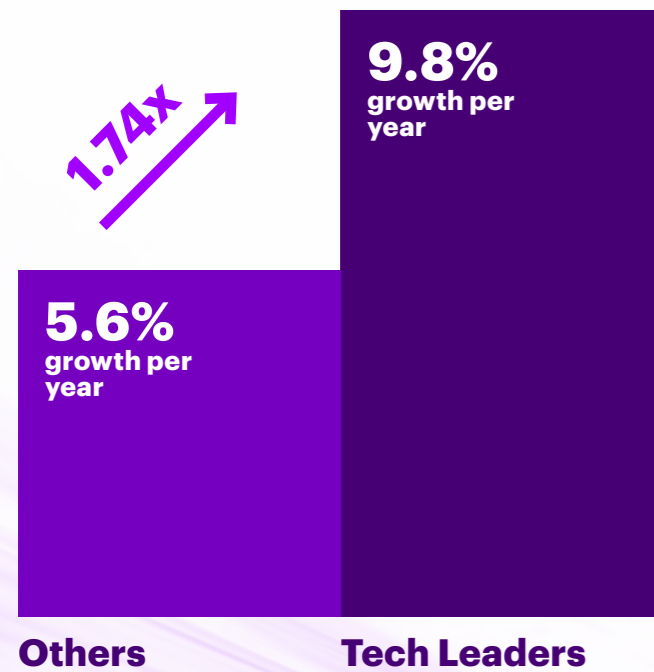
- **30%** more likely to have transitioned to the **cloud**
- **21%** more likely to have implemented **edge** capabilities



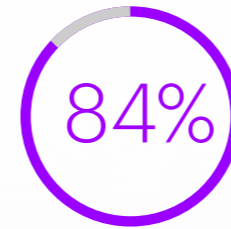
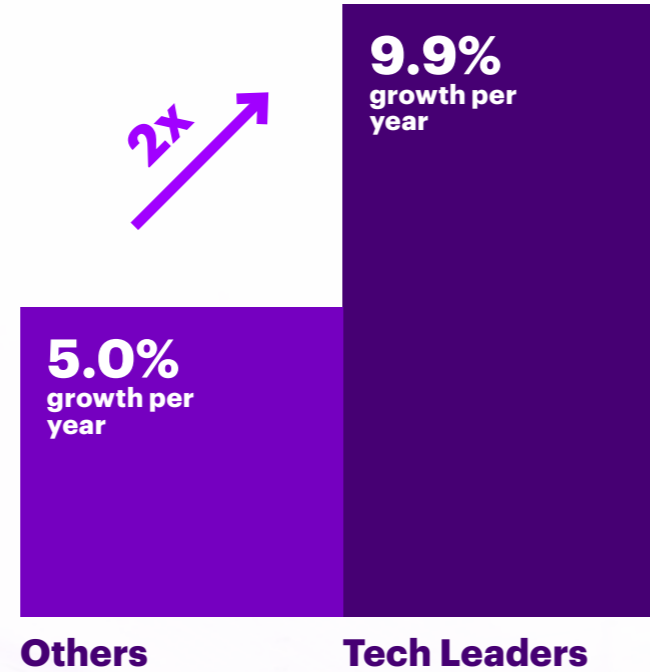
Rise of the Tech Leaders

By prioritizing forward-looking investments such as these, Leaders are poised to grow revenues and margins, drive greater innovation, and speed time-to-market for new products and services.

Expect revenue to grow 1.74x faster than peers over the next 3 years



Expect margin to grow 2x faster than peers over the next 3 years



Leaders are more likely to see their 5G and network investments result in faster time to market for new products or services





Laying a foundation for the next-generation enterprise

Realizing the massive potential of 5G and converging solutions demands much more than technology implementation.

It requires organizations to adopt fundamentally new ways of working, adapt their operating models, develop new skills and priorities, and drive deeper collaboration with partners.

Tech Leaders understand that real reinvention is needed to evolve to a next-gen enterprise. Their experiences offer a valuable example for other South African businesses looking to accelerate their own digital transformation.

In analyzing Tech Leaders, we found that they maximize the value of their investments in 5G networks and converging technologies by focusing on four key imperatives.

- 1. Elevate the business case for next-gen technology solutions**
- 2. Plan for workforce and cultural transformation**
- 3. Build security into every step of the process**
- 4. Identify the right partners and platform for solutioning**

1

Elevate the business case for next-gen technology solutions

Why does it matter?

A strong C-level focus, deep understanding of technology convergence across the organization and resource commitment is required to position solutions enabled by advanced networks like 5G and converging technologies like cloud, edge, IoT, and AI as part of a broader transformation and innovation agenda with the ultimate objective of achieving holistic value creation for the enterprise. Any persuasive business case must clearly classify the far-reaching outcomes emerging from these solutions, including the creation of all-new products, services, and revenue streams.



What steps should the C-suite take?

Place 5G solutions at the center of enterprise transformation:

Companies must position network strategy and investment as an engine of holistic value creation, rather than a siloed driver of performance. This is achieved by establishing the role of 5G solutions in the wider digital transformation and innovation agenda, supported by a carefully orchestrated migration plan.

Lead the charge through early adoption and investment:

Companies should seize first-mover advantage, investing in and adopting new technologies quickly and scaling them to maximize value. They must raise their level of investment in solutions powered by advanced technologies and 5G networks across the business to develop new products and services, creating new revenue streams for organizations.

Develop a carefully orchestrated business value assessment plan:

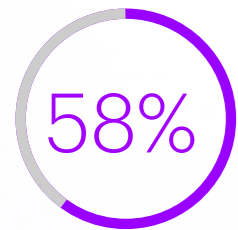
Our research found many executives face an uphill battle in elevating the business case of next-gen technology solutions on the C-level agenda. Before budget endorsement, C-suite leaders must first be convinced that the benefits of such projects outweigh their costs and risks. This makes it critical to take a measured, ROI-driven approach to investment and create a business value assessment plan.

We recommend that companies construct a step-by-step process to:

- 1 Understand the business context, pain points, and expected outcomes
- 2 Evaluate how 5G and converging technologies can support business outcomes
- 3 Create a long-term capex/opex plan that is dedicated and flexible
- 4 Identify specific use cases, as well as associated drivers and business benefits
- 5 Develop an aggregated business value model by evaluating opportunities at each use case level
- 6 Run measurable pilots to evaluate impact and analyze additional investment required to scale

How do Tech Leaders take the leap?

Choose partners who monitor ROI and assist in strategic use case development: For Tech Leaders, the ability to track and measure ROI and strategically support use cases are the top selection criteria for 5G solution deployment partners.



of Tech Leaders consider the ability to track and measure return on investment from 5G as a very important criterion for partner selection



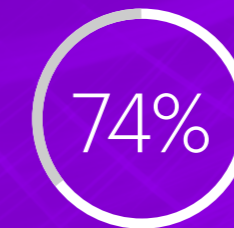
2

Plan for workforce and cultural transformation

Why does it matter?

Technology transformation does not happen in a vacuum: much of its success depends on the ability to unlock people's potential. Companies need to prepare their talent for the future and foster a culture of continuous learning, innovation, and experimentation. Adoption of 5G and converging technologies will generate new forms of workforce expectations and, in some cases, will require entirely new skill sets.

This makes it vital for companies to infuse a “learner” mindset, focusing on skills in emerging fields such as machine learning, robotics, edge, network architecture, AR/VR etc. to realize the full benefits from these deployments.



of respondents say they currently lack the skills needed to deploy 5G solutions and are working to enable the required capabilities



What steps should the C-suite take?

Identify workforce strategy:

What will it take to align your organization to future ways of working? What skills are necessary to leverage 5G and digital technologies and how far away is your organization from that goal? Assess your organizational structure and measure your existing skillset in emerging fields, including machine learning, robotics, automation, edge, and orchestration. Companies must build a talent base with this skill set using a combination of hiring and reskilling internal workforce, as well as relying on third-party providers for select functions.

Build an evolving roadmap for talent transformation:

Next-gen technology solutions are expected to enable a wide range of applications, which creates the need for skills across the spectrum. It is critical to create a roadmap and set timelines for identifying the right technical skills based on various applications, assess the gaps, and build a tailored skill development program.

Continuously measure workforce readiness:

5G and converging technologies are likely to create new roles and jobs, some of which will require skills that do not yet exist. To gain a competitive edge, organizations need to regularly revisit their workforce ambition and structure and reassess skills gaps.

How do Tech Leaders take the leap?

Cultivate a culture of innovation:

Tech Leaders cultivate a culture of experimentation, testing, and risk-taking that is critical for successful adoption of new technologies.

- Tech Leaders are **3.4x** more likely than peers to dedicate more than **20%** of their workforce to innovation functions (where innovation is the primary job responsibility)

Use partner network to cultivate skills:

Tech Leaders look for partners who can help them build the right workforce skills.

- **54%** of Tech Leaders believe that a vendor's willingness to help them build workforce skills is a very important factor when choosing an implementation partner

3

Build security into every step of the process

Why does it matter?

Network security is the number one concern for Tech Leaders. 5G presents several new features for improving network security compared to previous generations.

However, considering the complexity of new network architectures and vulnerability points, these features alone are not enough to ensure end-to-end security of the enterprise. For instance, 5G comes with several built-in security controls, such as International Mobile Subscriber Identity (IMSI) encryption and Security Edge Protection Proxy (SEPP) function. Yet, at the same time, the surface area of attack is increased as a greater number of IoT devices are connected with the pervasive connectivity provided by 5G.

Moreover, unlike previous generations, 5G is designed with virtualization and cloud-based technology in mind, where the network cloud extends from the core to edge. This new network architecture enables services such as network slicing and introduces new zones at the edge of the mobile network, which require a fundamental reimagining of security design. Companies will need to overhaul their network security strategy and governance by establishing a security-by-design mindset and building trust throughout multivendor ecosystems.



of executives cite security breaches as one of the key challenges they face with current networks



What steps should the C-suite take?

Adopt an end-to-end security strategy to implement a zero-trust model:

Companies need a holistic and completely new approach to security as they adopt 5G and converging technologies. Their security strategy and solutions must be part of a single security framework rather than a separate, isolated set of tools. This will enable a zero-trust model—i.e., a "never trust, always verify" policy—for users, workloads, networks, and devices to reduce the risk of potential attacks and enable a more resilient environment.

Set strong security governance in place:

5G networks require rigorous security supervision and governance, which in turn calls for new supervision modes and models, evaluation and authentication systems, and the implementation of a security governance system.

Choose partners with robust, automated security solutions:

Companies should rely on solution partners with high security standards, as well as solutions with automated threat mechanisms across key points in the network, allowing for quick identification and rapid resolution of security-related incidents.

Consider private networks as a secure setting:

Deployment of private cellular networks can enable full control over network architecture, enhancing security by traffic segregation through network slicing. This adds an additional level of security and segmentation for mission-critical traffic, while keeping data on premises and compliant with data regulations. Companies could consider private networks on a case-by-case implementation specific to a business requirement.

How do Tech Leaders take the leap?

Better management of end-to-end network

security: Tech Leaders have a better understanding of the steps they need to take in order to manage the end-to-end security of the network.



of Tech Leaders consider high security standards to be a very important criterion when selecting 5G deployment partners

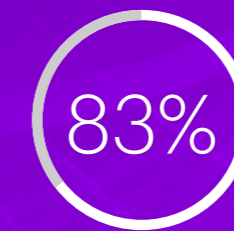
4

Identify the right partners and platform for solutioning

Why does it matter?

To achieve the desired outcomes from 5G and digital technologies, companies need to work with strategic partners—not standalone suppliers—who share their vision of disruptive innovation and growth. Future network and technology architecture and integration is a massive undertaking, involving significant capital outlay, and cannot be done end-to-end in-house.

By jointly investing in the development of innovative use cases, enterprises can unlock greater value from their tech investments through strong cross-industry plays, improve risk-adjusted returns, and drive monetization.



of respondents expect external partners to play an important role in enabling different phases of 5G solution deployment



What steps should the C-suite take?

Create a joint vision with partners:

Implementing solutions enabled by 5G and converging technologies involves significant planning and capital outlay. This makes it crucial to work with partners who understand the business context, company ambition, market strategy, and expected business outcomes from deploying advanced technologies and networks.

Develop an agile partner strategy:

Companies must change the mindset of tethering themselves to standard partnerships. Advanced networks and digital technologies will keep evolving. Today it is 5G, cloud, and edge. Tomorrow it could be something entirely new. As technology transforms, a company's partner ecosystem must also evolve in lockstep.

Partner to innovate:

Companies must choose partners who can co-create and co-innovate. By working together, it's easier and quicker for enterprises to launch new products and services, as well as enhance the customer and employee experience.

Work with specialized providers with end-to-end solutions:

Companies must engage with specialized providers who can help them navigate the complex landscape of 5G deployment. These providers will in turn work with an ecosystem of partners to aid an enterprise in end-to-end adoption of 5G solutions along with other digital technologies.

How do Tech Leaders take the leap?

Choose providers with end-to-end solution capabilities:

Tech Leaders prefer to leverage end-to-end solutions from providers with strong ecosystem partnerships.

- **62%** of Tech Leaders consider the vendor's ability to offer end-to-end solution capabilities to be a very important criterion
- **69%** of Tech Leaders are strongly influenced by the depth of the vendor's ecosystem partnerships

Work with partners who are ready to co-innovate:

Tech Leaders prefer to work with partners who share a common vision and are inclined to co-create new products and services.

- **54%** of Tech Leaders consider the ability to co-create new products and services to be a very important criterion when selecting 5G deployment partners

Accenture-Microsoft joint solution

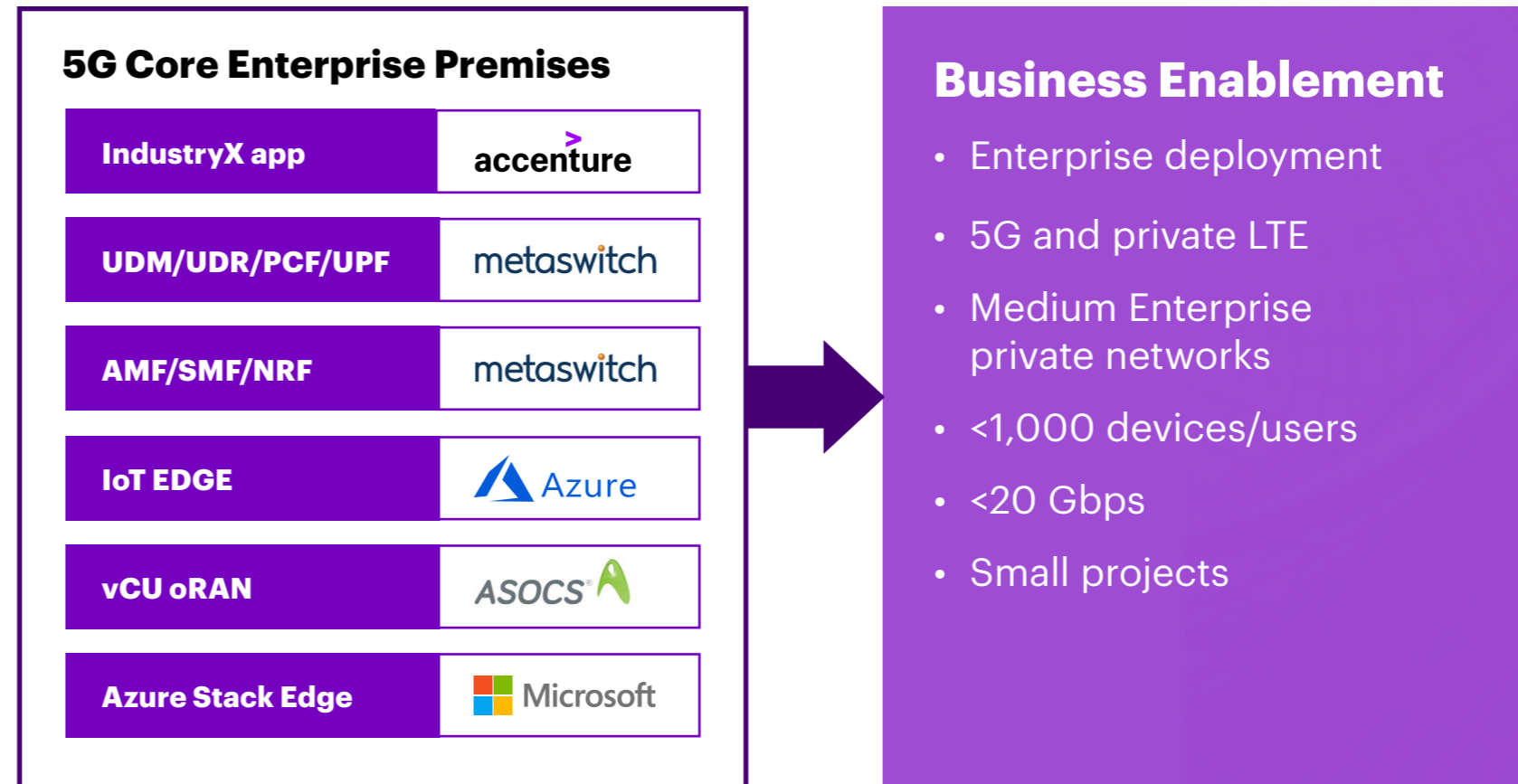
Accenture and Microsoft are collaborating to help enterprises maximize the value of their network and technology investments well into the future.

Accenture and Microsoft have partnered to jointly develop a pre-engineered Telco Cloud Edge Box.

It leverages the core 5G SA products of Microsoft's Affirmed and Metaswitch portfolio, along with Accenture's Cloud Native Automation System (CNAS), to enable best-in-class AI practices and automation of intelligent network planning and operation functions.

This is a product for enterprise clients who need 5G connectivity in their premises and want a quick set-up and simple to use product for managing new use cases enabled by 5G network slicing capabilities thereby deriving a unique joint value proposition to our clients.

The Edge Box has been developed in Accenture's Lab in Rome where our teams are jointly developing use cases to take to market. Deployment of the 5G industry use cases on the Edge box have commenced in Accenture's Lab in Bangalore, operating on mid-band spectrum to design and validate the business relevant use cases of our clients.



View from the industries

5G-enabled technology solutions have potential to unlock entirely new use cases and business models across industry verticals.

These solutions will drastically change how enterprises across different industries operate—but impact and adoption will vary from one to another.

To understand the potential effects more closely, in addition to the survey we interviewed experts across six key industries: manufacturing, retail, financial services, government, healthcare, and natural resources. Here, we explore their insights on the benefits that will be driven by 5G and converging technologies, current barriers to widespread adoption, and how different industries will be impacted through specific use cases.



Manufacturing



Retail



Financial Services



**Government
& Public Services**



Healthcare



Natural Resources

Manufacturing

The manufacturing industry in South Africa has much to gain from the adoption and implementation of 5G and converging technologies.

By activating use cases such as factory-floor automation, connected workers, intelligent asset tracking, and quality assurance, companies stand to lift productivity, safety and revenues to new heights. Yet there are many obstacles for the industry to overcome, particularly around investment, connectivity and ecosystem readiness, before such benefits can be realized.

There is a general reluctance from government and industry to invest in new technologies for broader adoption, with many manufacturers focused on saving costs rather than spending on innovation.

Manufacturing respondents intend to allocate spend on 5G-enabled solutions in the short term, which is expected to increase in the long term.

5G-enabled uses cases for manufacturing show sizeable potential—but for many companies it is a long-term endeavor. A small group of manufacturing respondents are already piloting use cases. They expect to see deployment of simple 5G use cases in the next 1-3 years, with complex use cases taking off in the longer 5-10-year horizon.

Manufacturers face a key challenge when it comes to securing the necessary funding and expertise

to support investments in 5G and converging technologies. Many respondents noted that the current cost of adopting private 5G networks is very high in comparison to its anticipated value creation. They also face large internal and industry-wide skills gaps, particularly around analytics, AI and machine learning solutions. Respondents believed that the government has a crucial role to play in overcoming these barriers, by freeing up the spectrum and setting reasonable pricing for it, as well as fostering an ecosystem of 5G-lead initiatives and innovation that will drive skills development and allow services to flourish.



The cost to establish private 5G networks and connectivity within organizations is very high at the moment. I see that will change in the future as the adoption of 5G and the skill sets around supporting and implementing 5G start to proliferate the market a bit better. Right now, many businesses are leveraging existing fiber and connectivity with edge computing. From an edge computing perspective and a data gathering perspective and industrial IoT perspective, there's been a very high uptake in that. And if 5G can enable that in a costly manner, that's where it will be valuable."

Program manager of a South African industrial conglomerate with primary interests in automotive, logistics and equipment.

Retail

Accounting for a major share of gross domestic product and employment in South Africa, retail stands to unlock much-needed value from 5G and converging technologies.

Despite the South African Reserve Bank dropping lending rates to record lows to stimulate consumer spending, a combination of ongoing lockdowns, a rise in unemployment, and stagnant wages has dampened consumer appetite for new purchases. Post-pandemic growth rates are expected to be subdued, both for online and in-store retail.

Considering these challenges, 5G and converging technologies have a critical role to play in helping retailers reinvent their operations. 5G will unlock retail data with near real-time analytics to improve customer engagement, inventory efficiency, and operational productivity. It will allow marketers to achieve radically personalized, and predictive engagement with customers. When used with converging technologies, the enhanced connectivity of 5G can also help solve key value pain points, such as checkout and shrinkage.

Retail respondents say they have started investing in new technologies, allocating an additional 7-10% of ICT spend—in both the short and long term—to 5G-enabled solutions. Retailers are planning to pilot and/or deploy 5G-enabled use cases in the

next 1-3 years. The top 5G-enabled use cases include supply chain optimization, intelligent clienteling, automated surveillance, and frictionless checkout.

Respondents consider insufficient 5G coverage to be the biggest barrier to widespread adoption of next-gen networks and converging technologies. They are looking for managed network solutions and attractive solutions across the ecosystem to help accelerate their implementation of 5G-enabled use cases.



Financial Services

The future of the financial services industry hinges on the experiences it can deliver to customers – simply providing products or channel offerings is no longer enough.

Today's clients expect more efficient and personalized solutions from financial institutions. To meet and exceed their expectations, banks, insurers, and other players effectively need to become marketplaces for financial services.

And these new marketplaces need to be online- and mobile-first rather than branch-based.

Facing disruption from a new wave of digitally enabled rivals, financial services firms have been compelled to modernize technology systems and evolve the user experience to meet new customer expectations. Industry leaders anticipate that this transformation will go hand-in-hand with the advancement of AI, IoT, and 5G.¹⁷

These technologies will drive cost savings, reduce risk and an enhanced customer experience, through new offerings and capabilities, ranging from car insurance premiums based on telematics to AI-powered fraud detection.

Financial services firms are making strong strides in certain aspects of their 5G journey, including planning 5G implementations and developing security and workforce skills. However, they are still in the early phases of acquiring 5G-ready devices as the market is still immature and there is lack of supportive device technology in the market.

Respondents mentioned that significant investment for 5G is earmarked in both the short- and long-term, allocating an additional >7% of ICT spend on 5G-enabled solutions.

“We think that behavioral banking is a place where the ability to bring together 5G, edge, IOT, and customer data in a trustworthy way that adds value for customers.”

Director of Information Technology of a South African based financial services group.

Government & Public Services

The public sector has a pivotal role to play in accelerating the 5G revolution—but it must streamline policy and develop more forward-looking regulatory frameworks to drive both consumer and enterprise adoption.

South Africa's government is working together with industries to determine how to best deploy 5G technologies. It has established a 5G forum, overseen by the Independent Communications Authority of South Africa (ICASA), as well as a 4IR center that aims to drive the introduction of applications enabled by 5G, cloud, and edge.

However, 5G network roll-out currently remains confined to urban areas—largely due to policy gaps, a concentrated broadband infrastructure market, and high costs—threatening to widen the digital divide in rural and less affluent parts of the country⁶. Proper policy intervention and closer collaboration between government and the telecommunications industry is vital for bridging the gap.

Public services respondents expect spending on 5G-enabled solutions to ramp up in the next 4-6 years with relatively less spending in the next

1-3 years. The most significant use cases for government include smart city surveillance, enhanced citizen services, and digital education, with some respondents currently piloting these use cases. Organizations cite high implementation costs, insufficient 5G network coverage, and immaturity of enabling technologies as the main barriers to next-generation technology adoption. They believe that a strong ecosystem play and greater spectrum carve-out are essential for accelerating progress.



Healthcare

The COVID-19 pandemic has placed fresh pressures on South Africa's healthcare system, underscoring the urgent need for digital solutions that support better patient management, universal access, and disease prevention.

The healthcare industry in South Africa has lagged when it comes to technology adoption and digitization. The issue is compounded by a sharp urban-rural divide in access to healthcare, as well as an ongoing shortage of healthcare workers.

5G networks and converging technologies have huge potential to fill these gaps. IoT applications and devices, enabled by 5G connectivity, create new possibilities for easier monitoring of individuals' health in remote areas. They will drive greater opportunities for mobile and home care, adding capacity and flexibility within the healthcare system and increasing the reach and pace at which healthcare services are delivered.

Likewise, 5G and edge technology provide the ability to stream vast amounts of data in real time, helping healthcare professionals make timelier decisions and accelerate diagnosis and treatment.

The most significant use cases for the healthcare industry includes connected hospital, healthcare training and remote surgery, with some respondents currently piloting or expecting to implement remote medicine and/or virtual consultation use cases in the short-term.

"If we have connected hospitals, you can be able to actually do all sorts of things anywhere, anytime, without having to move an inch. That's very important for me because these complex operations are very expensive, and they require specialists who are not necessarily available anywhere."

Group CIO & CEO of an investment holding company based in South Africa which provides services and products to the healthcare sector.

Natural Resources

5G and converging technologies will move natural resources companies into a new era of safety and efficiency – but the sector must overcome cultural and technical barriers before it can reap these benefits.

Next-gen networks and technologies can deliver previously unachievable services to natural resources operations. 5G creates new possibilities for faster communication and greater connectivity in harsh, remote environments. It will power complex infrastructure, equipment, and IoT devices to help firms unlock greater automation and improved worker safety.

Many companies have begun proof-of-concept trials and pilots of use cases but have not yet ramped up to large scale rollouts. This is due in part to the remote and dangerous locations of many sites, which makes it difficult to set up fiber connections to 5G base stations.

For a conservative industry, cultural issues are also at play, as leadership often does not fully understand the value of new technologies and prefers to wait for them to be tested and proven rather than taking a leap into the unknown.

Many natural resources companies are already piloting 5G-enabled use cases. The study respondents expect to see early implementation of use cases in the next 1-3 years and expect them to really take off in the next 4-6 years. For these companies, the high cost of deployment, as well as lack of sufficient 5G coverage and necessary enabling technologies remain significant barriers to their use cases. Natural resources companies believe that having attractive ecosystem solutions – including managed network solutions – and proper spectrum carve-out for the industry will help to accelerate deployment.

Respondents from natural resources companies expect 5G to have **transformational-high impact** on business



“Mining companies find it hard to justify why they should invest [in 5G] because it's capital and they have to depreciate the capital over five years. Then also they realize that they can get by on the commodity price. So, they're reluctant to invest, because they can still make a profit without over-digitizing or over-investing in this kind of infrastructure.”

Lead Digital Operations GSS of a multinational mining company with operations in South Africa.

Be ready for what comes next

Advances in networks and digital technologies will unlock radically different opportunities for South African enterprises to create value. But there are also barriers to clear before these latest innovations can truly become a vehicle for business growth.

Organizations that want to lead the way have pivotal decisions to make. From feasibility issues to priority use cases, new business models and device strategies, there is a great deal of complexity to navigate. The right strategy—and partnerships—will be vital to success. With these in place, companies across South Africa can capitalize on the tangible acceleration opportunities and maximize the disruptive power of next-gen technologies.

About the research

We employed a multi-method research approach. Specifically, the research program included primary survey, interviews, and case study research.

Survey:

In April 2021, Accenture conducted an online study of senior technology executives from 100 South African enterprises. The aim was to understand their perspectives on 5G impact, adoption, use cases, barriers to adoption, and 5G solution ecosystem and partners. Six key industries were covered as part of the study: manufacturing, retail, financial services, government, healthcare, and natural resources.

The study covered four primary topics:

- 1.** Enterprise key business priorities, overall technology adoption and connectivity pain points
- 2.** Enterprise expectations for 5G including perceived impact, benefits, adoption and challenges
- 3.** 5G business use cases covering significance, adoption, and accelerators by industry
- 4.** 5G solution marketplace and ecosystem depicting the key criteria for selection of 5G solution providers and trusted partners

About the research

Interviews and Case studies: To triangulate our findings from the survey, we conducted several interviews with Accenture and Microsoft business leaders who are established experts in the domain as well as select 7 senior IT/Technology executives from South Africa enterprises across the industries. These insights were complemented by case studies collected through secondary research.

Definition of Tech Leaders and Index:

We created a customized weighted index to capture the impact of three foundational pillars i.e., next gen technology (cloud, edge computing, IoT, AI, etc.) adoption, advanced networks (5G) future investment, and innovation workforce, on revenue and margin performance of companies.

Based on the index, we classified a small portion of the sample as “Tech Leaders”.

The following variables were considered in development of the index, and each variable was assigned with a different weight in the index.

- **Technology adoption:** Widely implemented business solutions that rely on new technologies
- **Technology effectiveness:** Effectiveness at adopting and scaling innovative new technologies
- **Innovation workforce:** Workforce dedicated to innovation functions, i.e., innovation is their primary job responsibility
- **5G future investment:** Investment in 5G-enabled solutions in the future
- **5G advancement:** Progress across different phases of 5G journey

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