

Artificial Intelligence in Middle East and Africa

South Africa

Outlook for 2019 and Beyond



How 112 Major Companies Benefit from AI

REPORT COMMISSIONED BY MICROSOFT AND CONDUCTED BY EY

Disclaimer

This report has been prepared by EY Consulting LLC (UAE) in accordance with an engagement agreement for professional services with Microsoft. EY Consulting LLC (UAE)'s obligations to Microsoft are governed by that engagement agreement. This disclaimer applies to all other parties.

This report has been prepared for general informational purposes only and is not intended to be relied upon as accounting, tax, or other professional advice. Refer to your advisors for specific advice. EY Consulting LLC (UAE) and Microsoft accept no responsibility to update this report in light of subsequent events or for any other reason.

This report does not constitute a recommendation or endorsement by EY Consulting LLC (UAE) or Microsoft to invest in, sell, or otherwise use any of the markets or companies referred to in it. To the fullest extent permitted by law, Microsoft and EY Consulting LLC (UAE) and its members, employees and agents, do not accept or assume any responsibility or liability in respect of this report, or decisions based on it, to any reader of the report. Should such readers choose to rely on this report, then they do so at their own risk.

©2018 EY LLP Limited All Rights Reserved.

Contents

Preface

Foreword.06

Executive Summary – ‘At a Glance’08

Setting the Scene

About this Report10

Rich Data13

Executive Perspective14

Participating Companies16

Bits & Bytes18

Follow the Money20

Case Study22

Experts23

Role of AI in Middle East and African Business

A Strategic Agenda27

Among Friends28

Push or Pull29

Ready, Set...30

AI Maturity Curve32

State Your Business.34

Case Study36

Business Benefits and Risks

Another World38

AI Here, There, Everywhere.40

Case Study41

Use it or Lose it42

Making AI simple44

Case Study47

Sector Benefits Landscape48

Risky Business51

Learn from the Leaders

Capabilities53

AI Competency Model55

Advanced Analytics56

Data Management58

AI Leadership60

Open Culture62

Emerging Technology64

Agile Development66

External Alliances68

Emotional Intelligence70

Case Study73

What’s next for you?

How to Get Started.74

Who to Contact from Microsoft77

Contributors from EY79



Artificial intelligence is already changing society and empowering people in new ways by enabling breakthrough advances in areas like healthcare, agriculture, education and transportation. As this technology continues to grow, we will work to deploy AI around the world ethically, inclusively, and with transparency to ensure that it works for everyone.

— Brad Smith, President at Microsoft

Foreword



We see AI as a tool to accelerate our customers' digital transformation and growth journeys.

AI is fueling digital transformation across the Middle East & Africa today. It has the power to amplify human ingenuity and extend our capabilities, empowering us to achieve more. Artificial Intelligence is already improving our lives today and promises to change the world in ways unimaginable to us now.

The AI maturity assessment study, conducted in five countries across MEA, highlights the strategies adopted at different layers of an organization today and helps us understand their readiness in AI adoption, rate of impact and benefits from its implementations, as well as how AI is being approached on a practical level. This study is also a stepping stone in our efforts to better understand the needs of our customers in the region and accelerate their growth journeys.

Samer Abu-Ltaif
President - Microsoft Middle East and Africa



With the right mix of skills, innovation and infrastructure in South Africa; our country, our customers and our citizens will reap the benefits of AI for years to come.

As business people, and South Africans, our focus is firmly on putting the right investments and initiatives in place to ensure that we thrive throughout the fourth industrial revolution. A big part of this revolution will be driven by cloud computing, next-generation wireless technologies, as well as machine learning and artificial intelligence.

To truly flourish during this time of intense change, companies and countries won't be able to simply adopt new technology, but will need to be building their own technology and revolutionary know-how. At Microsoft, we call this "Tech Intensity". Both internationally and here in South Africa, we're seeing examples of organizations in every industry embracing tech intensity to thrive and maximise their impact. We operate in a global marketplace, but workforce dynamics, population age, education levels and the technological adoption curve means the fast approaching AI revolution will play out in a very different way in South Africa. However, whether here or abroad, we fully anticipate AI to be one of the most disruptive technologies in human history.

AI will bring immense opportunity for South Africa. Our research shows that AI has the potential to solve some of the most pressing challenges that impact the country, driving development in sectors crucial to social and economic growth such as agriculture, healthcare, public services, and education, unlocking the huge potential that already exists here.

Embracing AI in South Africa is critical. Forward thinking policy-makers, progressive government players, innovative startups, global tech partners and smart businesses are already driving the growth of a vibrant AI ecosystem with clear roadmaps in place. Key to this is investment in the right kind of education and skills that will make a real difference, something Microsoft wholeheartedly supports.

It's my hope that this study sets a truly collaborative tone that allows all stakeholders to share their expertise and insights, as well as building trust and setting South Africa on course to embrace a bright, AI-enabled future, leading the way for the continent.

Lillian Barnard
Managing Director - Microsoft South Africa



At a Glance

While the hype of artificial intelligence (AI) and its potential role as a driver of transformational change to businesses and industries is pervasive, there are limited insights into what companies are actually doing to reap its benefits. This report aims at getting a deeper understanding of how companies currently manage their AI activities, and how they address the current challenges and opportunities ahead.

To get to the heart of this agenda, we received input from AI leaders in 112 companies, across 7 sectors and 5 countries in the Middle East and Africa, via surveys and interviews. Below is the brief summary of what they had to say.

AI is a “hot topic” - but more so on C-level than in daily operations
80% of the companies respond that AI is considered an important topic on the executive management level. This is significantly higher than on the non-managerial / employee level where AI is only considered an important topic in 26% of the companies. Interestingly, Board of Directors also came out lower with only 37% of respondees reporting that AI is important to their board. This strong executive sponsorship resulted

in 38% of organizations driving their AI agenda from the top down, although 95% of companies that were more advanced in their AI agenda had a combined top down and bottom up model in operation.

Most benefits expected from ‘optimizing operations’, with ‘transforming products and services’ next in line
89% of the respondents expect AI to generate business benefits by optimizing their companies’ operations in the future. This is followed by 71% that expect AI to be key in the creation of new products and services through AI driven insights that enable tailored and personalized products, or processsing more complex data sets that drive new products to address the needs of a changing consumer market. Surprisingly, the poorest showing at 63% was direct customer engagement.

AI is expected to impact entirely new business areas in the future
28% of the companies expect AI to have a high impact or a very high impact on business areas that are ‘entirely unknown to the company today’, although the exact nature is

still vague. The overwhelming majority, however, expect AI to impact the core of the current business with 71% of companies striving to improve their primary value chains and unlock short-to-medium term benefits. With AI opportunities close to home as well as pushing companies into totally new domains in the future, it is perhaps not surprising that AI is receiving attention as a key topic for executive management.

Very few of the 112 companies consider themselves ‘advanced’ with AI
Despite the sizable impact that companies expect from AI, only a very small proportion of companies, constituting 7% of the total sample, self-report that AI is actively contributing to ‘many processes in the company and enabling quite advanced tasks today’ (referred to as ‘most advanced’ in this report).

Another 20% are in the ‘released’ stage where they have selectively put AI to active use in one or a few processes in the company. The majority, 55% of companies, are still only planning for AI or are in early stage pilots. 13% of

companies are self-rated as least mature, indicating that they are not yet thinking about AI at this stage.

Noticeable potential for AI in many corporate functions
The most widely reported adoption of AI (at 47%) was in the IT/Technology function, followed by R&D and Product Development with 30%, and Operations and Logistics with 20%. Interestingly, several functions are hardly using AI at all; most notably the Procurement function, where only 3% of the companies currently use AI, and Strategy with 3%. This is perhaps surprising, given the many use cases and applicable solutions in these functional areas.

8 key capabilities that are most important ‘to get AI right’
When asking the respondents to rank the importance of 8 capabilities to enable AI in their businesses, Advanced Analytics and Data Management emerged as the most important, with AI Leadership closely grouped with the top two.

When self-assessing the capabilities where the companies are least competent, they point to Emotional Intelligence and AI Leadership - defined as the (lack of) ability to lead an AI transformation by articulating a vision, setting goals and securing broad buy-in across the organization.

To summarize, the challenge ahead appears to be as much about culture and leadership as it is about data, analytics, and technology.

South African companies in the early stages of AI deployment
Several of the companies in the study have operationalized some aspects of AI in their business, however the majority classify themselves as starting out with pilot projects and experimentation and are investing in foundational activities such as robust infrastructure, good data management practices and fostering digital cultures to support their future AI initiatives. Although AI is being discussed at all organisational levels from C-suite down to staff levels, it is notable that AI is rarely discussed at Board level. Most South African companies are very optimistic of the opportunities that AI will bring, specifically in the domains of operational efficiencies and productivity increase, as well as creating new revenue streams. Despite the optimism, concerns still linger around creating a culture that truly embraces AI, especially given the employment sensitivities in the region.

What sets the most ‘AI mature’ companies apart?

- They see AI predominantly being driven from a combination of technology push and business pull (57% of ‘more mature’ companies vs 38% of ‘less mature’ companies)*.
- They report using a combination of structured and unstructured data for AI (53% of ‘more mature’ companies vs 42% of ‘less mature’ companies), and data from both internal and external sources (53% of ‘more mature’ companies vs 37% of ‘less mature’ companies).
- They are looking to AI for insights to ‘transform products and services’ (82% of ‘more mature’ companies vs 64% of ‘less mature’ companies).
- They expect AI will help them ‘engage customers’ (75% of ‘more mature’ companies vs 50% of ‘less mature’ companies).

* ‘More mature’ defined as companies that self-ranked as 4 or 5 on the maturity 5-scale, and ‘less mature’ defined as companies that self-ranked as 1 or 2.

Only **7%**
of the companies are actively using AI in ‘many processes and to enable advanced tasks’

Percentage of companies seeing ‘optimizing operations’ as top AI benefit:
89%

80%
of the companies
respond that AI is considered ‘an important topic’ on the executive management level

60%
of the companies
are using partners or alliances to obtain the required capabilities

Companies expecting AI to have a high impact on ‘business areas that are entirely unknown today’
28%

70%
of companies
are using AI in a ‘to predict’ function

About this Report

What’s new?

Artificial Intelligence is not new - it has existed for decades: processing voice to text or language translation; real-time traffic navigation; dynamically serving targeted advertisements based on personal data and browsing history; predicting trends and guiding investment decisions in financial institutions. The current developments have been fueled by an exponential rise in computing power, increasing accessibility and sophistication of powerful algorithms, and an explosion in the volume and detail of data available to feed AI’s capabilities.

Reality vs. hype

Only recently have we started to see more widespread, scaled adoption of AI across sectors, value chains and ecosystems. Yet AI technology is quickly approaching a point where it is becoming a critical element in enabling companies across sectors to drive revenue, increase profits and remain competitive.

We hear people in many companies talk about AI. While the hype is pervasive, not a lot of people fully understand its technological potential, where it can create value or how to get started. This report provides a practical understanding of why companies in the Middle East and Africa are investing in AI, what they are investing

in, and how they are managing the complicated process of adopting this new technology and deriving value across business opportunities.

Perspectives, experiences, self-assessment, and benchmarks

From new surveys, interviews and case studies gathered from approximately 112 companies, we provide a snapshot of the current state of AI in Middle Eastern and African markets. This includes analyzing AI’s relative importance on the strategic agenda, it’s expected impact and benefit areas,

how mature companies are in terms of adoption, and examining self-reported competence levels regarding the capabilities required to succeed when implementing AI.

From the aggregate dataset we have been able to determine some benchmarks across the covered markets, which we compare to South Africa throughout the report. The report also covers a full spectrum of industry groups which reveals interesting insights.

Straight from the executives

This report and extensive dataset adds new insights primarily into how leading companies are approaching AI on a very practical level. We hear straight from executives how their companies are addressing current challenges, and how they apply AI to unlock new value pockets.

Based on the many interviews conducted, this report reveals some clear excitement and immense potential for using AI to bring new, improved products and services to market, create exceptional experiences for customers and employees, and create ways to operate that enhance performance across the board.

We learned that, regardless of which use cases the companies pursue and the role that AI currently has, taking a strategic outlook to assess the implications for the business and responding accordingly are increasingly seen as crucial for any executive agenda.

Contributions from open-minded and collaborative companies

We are extremely thankful for the time and effort the many executives have put into participating in interviews and providing data for this study. We’re particularly appreciative of their willingness to openly share experiences and provide their perspectives on where the future of AI is heading.

While this indicates a general interest in the AI topic, it also speaks to the increasingly collaborative approach many leading companies are taking when entering new technology domains and embarking on journeys into uncharted waters.



A critical capability is getting people to understand the art of the possible, and start asking questions that will drive out the improvements that can be achieved with AI.

— **Life Healthcare**
International, diversified healthcare provider



AI is evolving from initiatives and the question is how will it drive game-changing behavior for the business, to leapfrog and be ahead of the game?

— **AB InBev**
Beer Brewer



Some industries are already causing disruption through the use of new technologies. The AI journey must be started to see what's actually coming and so that you're ready for it.

— **Nampak**
Packaging Manufacturer



AI represents an opportunity to leapfrog some of the issues we experience in our business. In a traditional business like ours we are using AI to avoid building sophisticated and expensive planning modules on our ERP platform.

— **Bridgestone**
Tyre Manufacturer

Rich Data

Which sources of information is the study based on?

This report combines multiple sources of data to determine why, where and how AI is currently being used in business. It provides an inside view across markets and sectors, combining local and regional views. The quantitative perspective measures how advanced companies are in terms of AI, and the qualitative perspective indicates how to develop the skills required to succeed with AI initiatives. We have received input from over 100 participating companies in the form of interviews responses to our online survey.

Extensive online survey data from business leaders in 112 companies

We have surveyed people with a leading role in managing the AI agenda in all the companies that have contributed to the study. This gives us an aggregate dataset that enables a perspective for each market and each sector, as well as comparative insights for the respective company types, sectors, and countries in the Middle East and Africa.

Qualitative in-depth interviews with senior business executives

In addition, we conducted deep-dive interviews to gain deeper, qualitative insights into how AI is affecting the executive agenda. Through conversations with business leaders, we report on where they expect AI will have an impact, how important AI is to their current and future business strategies, what benefits they hope to realize from implementing AI, and which capabilities they believe are key to advance AI maturity in their companies.

We also present case studies of specific companies, both local and international, to provide an understanding of what they are doing with AI and why, drawing on lessons learned and obstacles to be overcome when putting AI to use for specific use cases and to derive value on a strategic level.

Proprietary AI investment data

We have supplemented the primary source input from the companies with acquisition data from numerous sources, to take the pulse of the AI investment market in the Middle East and Africa. These insights help provide a picture of the wider AI ecosystem and its development in the region.

AI expert perspectives

With this wider understanding of AI start-up acquisitions, partnerships, and investment funding, we outline how investments in AI are skyrocketing, where AI investment is taking place geographically, and which sectors are making bets. As we are on the cusp of widespread change driven by AI, we also reached out to AI experts from academia for an outlook on AI technologies going mainstream, and to gain an understanding of the macro scale of business effects that they expect will materialize when looking into a distant future.

Recognizing and mitigating potential survey and interview bias

In terms of methodology, this report follows robust research design and protocol. Doing so minimizes potential bias, but does not eliminate it, as it is inevitable in market research. One potential type is social desirability and conformity bias, as the topic of AI receives lots of media and political attention. Response bias, including extreme responding, cultural bias, and acquiescence bias ("yea-saying"), are potential factors as we ask respondents to self-report on their respective companies' experience. Therefore, while this report follows best practice, some bias is possible. Nonetheless, with the combination of extensive survey data, interview data, investment data, and expert perspectives, we believe the report provides a solid foundation for an indispensable view of executive experience with – and future plans for – AI in business.

Executive Perspective

Who are the respondents that have contributed to the study?

The data approach used allows us to identify trends across industries and countries based on input from various functional business areas. Consequently, we have captured a range of insights, learnings, and perspectives from both strategic and technical points of view.

Respondents almost exclusively in senior level positions

To ensure that these insights and perspectives are relevant at the executive level, we surveyed and interviewed high-ranking officers with a responsibility for driving the AI agenda in their respective companies. With 91% of respondents being either part of top management or the executive management team, their input is likely well attuned to the general perspective and overall strategic direction of the companies they represent.

Functional diversity

The respondents cover very different functions, of which the most common are designated IT/Tech/Digital departments, followed by General Management roles, then R&D/Product Development and Strategy functions. This functional diversity increases the breadth of the report, with insights and perspectives covering widely different aspects of AI.

Surveyed companies span multiple sectors

The participating companies are spread fairly evenly across seven sectors, with the majority of companies belonging to Professional Services (includes Government Departments and Public Services), followed by Financial Services, Retail and Infrastructure & Transport. ICT & Media, Manufacturing & Resources, and Health are represented to a lesser extent.

South African participants from senior levels in the organisation

In the companies surveyed and interviewed for this study, the majority of respondents represented the C-suite, closely followed by Top Management. Only 12% were from other management levels, and there were no non-managerial levels represented. Consequently, this provides a good insight into how South African companies perceive Artificial Intelligence at this point in time.

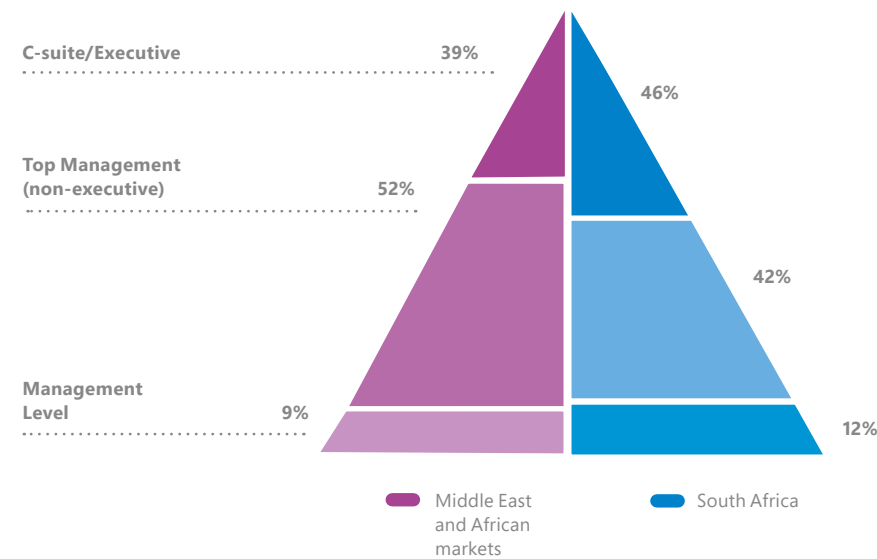
More than 100 participants

Number of participants interviewed and/or online surveyed in the study



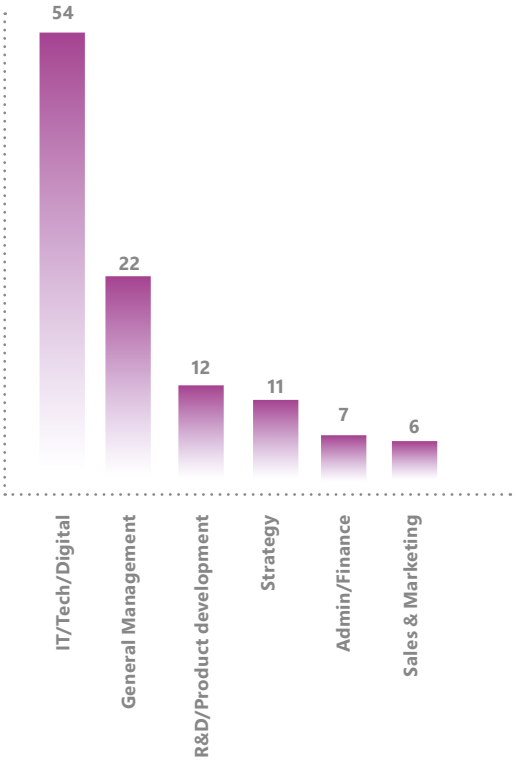
Majority hold a top management or executive position

Organisational level of person participating in the study for South Africa



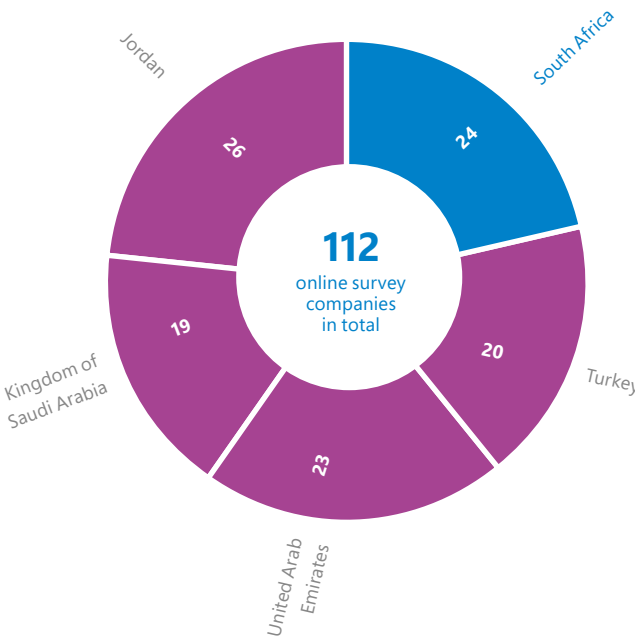
Large group of respondents with a specific AI/digital role

Organizational function of respondents in the online survey



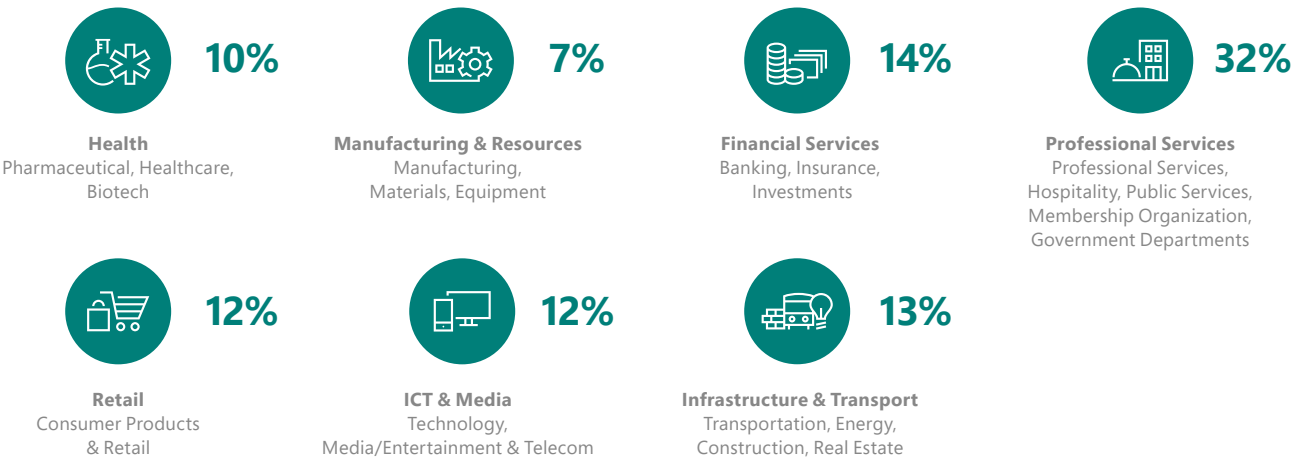
Surveyed companies are well represented across each of the five Middle Eastern and African markets

Number of online surveyed companies per country



Seven major sectors covered in the study

Representation of participating companies per sector category



100+ Companies

AB InBev, Adenium Energy Capital, Alinma Bank, Allianz Turkey, Amman Municipality, Arab Potash Company, Arçelik, Assan Bilişim, Aveng, Bankalararası Kart Merkezi (BKM), BCX, Bigen Group, Bridgestone, Cairo Amman Bank, Careem, CarrefourSA, De Beers Group, Discovery Group, dnata, Emaar, Erdemir, Etihad Airways, Etihad Credit Export Insurance, Exxaro, First Abu Dhabi Bank, General Mobile, Harmony Gold Mining Company Limited, Hashemite University, Hello Group, Heriot-Watt University, Hikma Pharmaceuticals PLC, Imam Abdulrahman Bin Faisal University, Johnson & Johnson, Jolly Tur, Jordan Ministry of Energy and Mineral Resources, Jordan Ministry of Labor, Jordan Ministry of Transport, Jordan Payments and Clearing Company, Jordan

University of Science and Technology, KSA Ministry of Finance, KSA Ministry of Health, KSA National Health Information center, Life Healthcare, Majid Al Futtaim Holding, Medscheme, Migros, MTN Group, MultiChoice Group, Nader Group, Nampak, Netmarble Turkey, Opet Petrolcülük A.Ş., Pharmactive, Publicis, Quantum Global Solutions, Sasol, Savola Foods Co., Setur, Smart Dubai, SMEC South Africa, Specialized Technical Services (STS), Standard Bank, Super Group, Teknosa İç ve Dış Ticaret A.Ş., The ENTERTAINER, Total Marketing Middle East, Transunion, Tüpraş, Türk Ekonomi Bankası, Türk Hava Yolları Kurumsal Gelişim ve Bilgi Teknolojileri (THY), TymeBank, UAE Prime Minister's Office, University of Jordan, Vacation Exchanges International Trading as RCI South Africa, Vakıf Emeklilik, WSP, Yapı Kredi Bankası, Zain

Note: Certain participating companies requested to remain anonymous and are not included in the list above. Also, certain companies supplied perspectives for more than one surveyed country.

Bits and Bytes

What technologies and data solutions are within the scope of the study?

AI can be defined as the ability of a machine to perform cognitive functions which are normally associated with humans. This includes reasoning, learning, problem solving, and in some cases even exercising human behavior such as creativity.

Advanced AI applications are not yet widespread

AI holds the potential to transform business in a radical way given its wide variety of use. Quite simply, business leaders need to understand AI in order to grasp the opportunities and threats the technologies pose.

While companies acknowledge the significant potential of broader, more advanced AI technologies such as computer vision, speech recognition and virtual agents, they

are currently not in common use by companies in the Middle East and Africa (MEA). Companies surveyed are currently focused on narrower and more specific use-cases that support existing business. These efforts will undoubtedly help companies build capabilities that are necessary to deploy more advanced AI solutions in the future.

Companies are using a combination of on-premise and cloud solutions

Cloud based solutions are starting to gain prevalence in the region to support AI solutions with both storage and on-demand computing given its flexibility to swiftly scale up and down to accomdate changing demand, variable costs structures and access to larger datasets. Despite the advantages almost 43% of respondents utilise

a combination of on-premise and cloud architectures, with executives acknowledging that cloud will inevitably grow more dominant over time.

Machine learning

The most commonly used AI technology among the surveyed companies is machine learning. This is inarguably due to its wide-ranging applicability, making it relevant for a variety of use-cases across the value chain. Of the different types of machine learning, the most common is supervised machine learning, where software is fed structured data and finds patterns that can be used to understand and interpret new observations. While companies historically have primarily used internal data for supervised machine learning, most have now begun exploring the

possibility of combining internal and external datasets in order to produce even deeper insights.

Machine learning was found to be the most useful. It is not clear from the study if this is because it is simply the most common starting point before deploying more advanced technologies, or if it also in the longer term holds the most wide and significant application potential

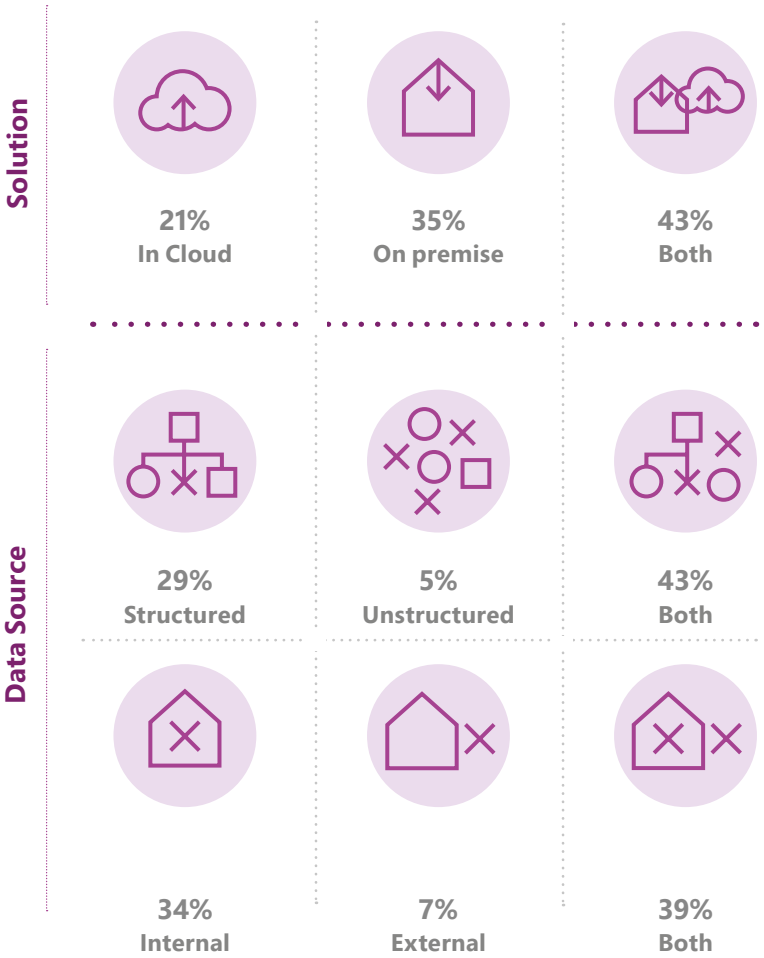
Machine learning and smart robotics most useful for South African companies

Companies scored machine learning highest (67%) when it came to the most useful AI technology at the present moment. It was followed by smart robotics at 50%, and these two technologies were notably also rated highest in a similar Western Europe study. None of the technologies were scored lower than 20%, indicating the widespread adoption of a variety of AI technologies. Although smart robotics is seen as the starting point for many, machine learning is getting the greatest focus for value creation.

Companies are using a mix of Data Sources and Storage

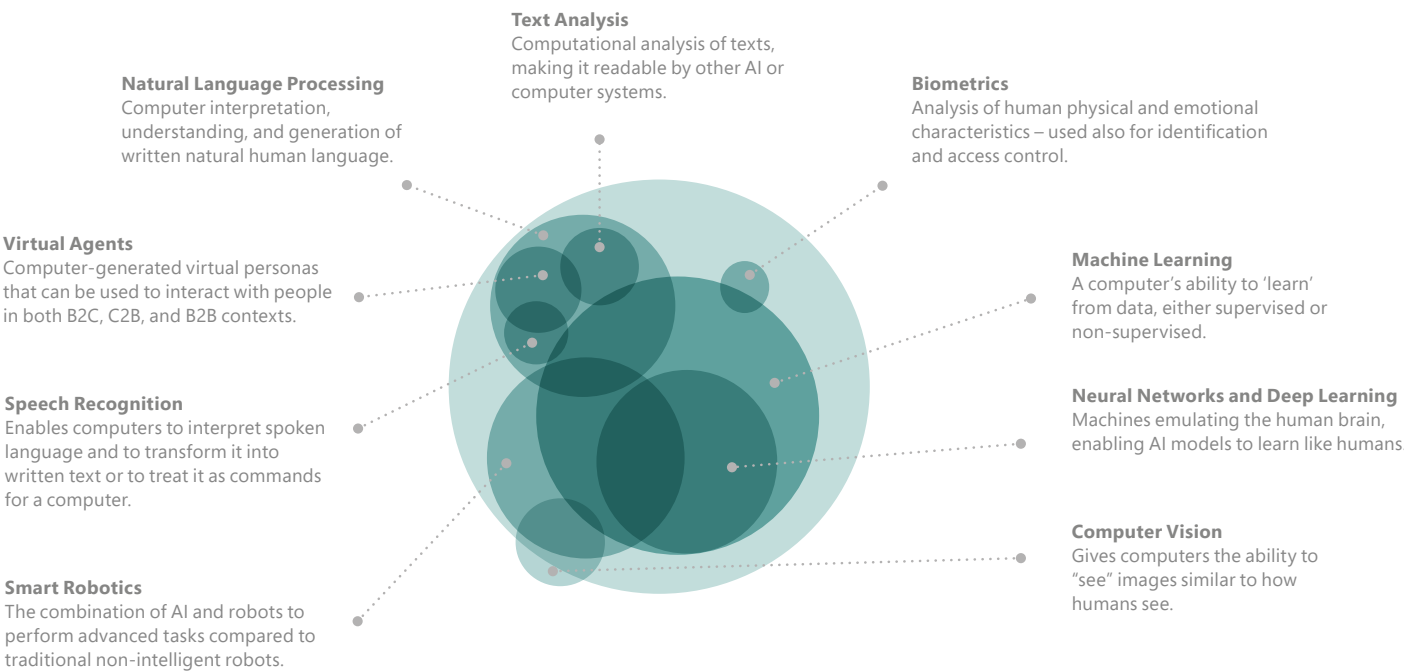
Solution: How are you primarily dealing with the computing demands needed for AI?

Data Source: 1.Are you currently using unstructured or structured data types in your AI process? 2.Are you currently using internal or external data sources in your AI process?



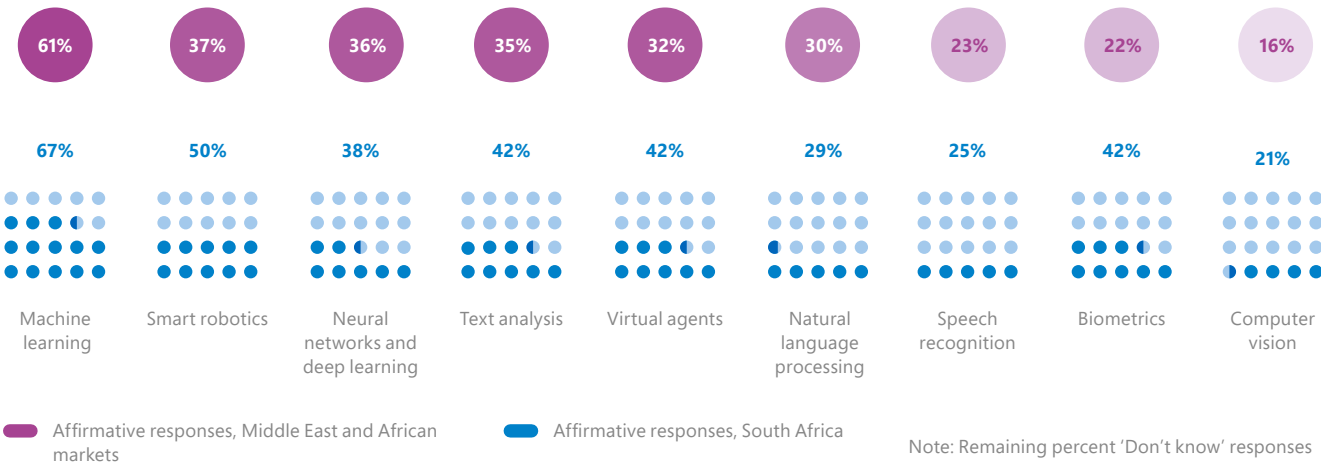
A broad definition of technologies are included in this AI definition

Technologies included in the definition of AI used in this study



Machine learning leads the pack

Which of the following technologies have you found to be most useful in your company's deployment of AI?

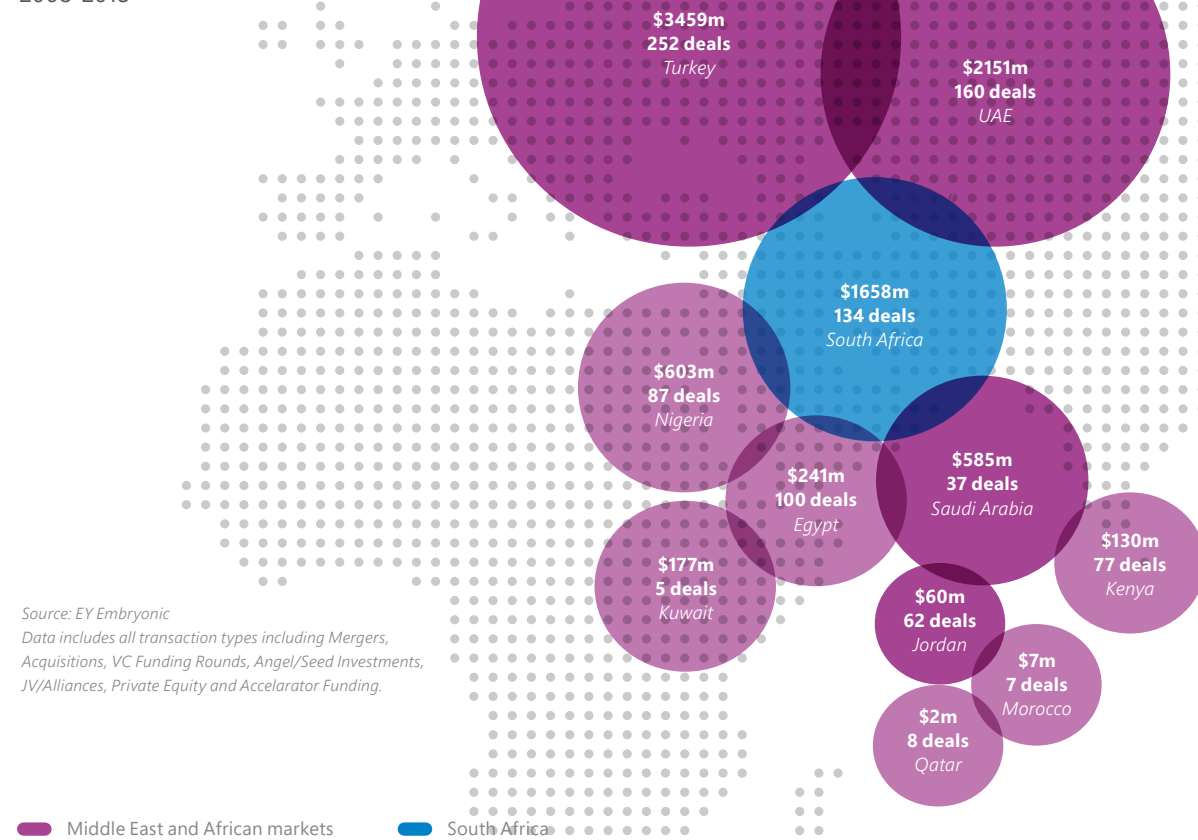


Follow the Money

How much is invested in AI in the Middle East and Africa?

Relative spend on AI transactions across the region

Based on value of transactions from 2008-2018



Source: EY Embryonic
Data includes all transaction types including Mergers, Acquisitions, VC Funding Rounds, Angel/Seed Investments, JV/Alliances, Private Equity and Accelerator Funding.

Acquisition data for a selection of countries in the region gives an indication of where money is being invested in AI technologies. A very broad interpretation of AI was considered, since most countries in the region are in the very early stages of AI.

Growth trend in the past decade

There has been a steady growth trend in AI investment over the past 10 years, from a mere 2 transactions in 2008 to 171 transactions in 2018. Interestingly, the two early starters in 2008 were Saudi Arabia and Egypt, but they

remained relatively quiet since with the exception of one large deal for Saudi Arabia in 2018. Not only has the number of transactions increased over the past decade, but the relative size of the deals has also been increasing over time.

Mergers and acquisitions account for most of the investment

The amount of funding coming from mergers and acquisitions (\$3.9bn) and corporate investment (\$1.1bn) makes up more than half of the total amount invested in AI in the region. Although

angel investors and seed funding are involved in a significant number of transactions, the total value remains small by comparison, reflecting a cautious attitude to betting large amounts in the high-risk/high-return arena of AI start ups.

Investment activity greatest in Turkey, UAE and South Africa

The greatest amount of investment activity over the past 10 years is seen in Turkey, UAE and South Africa. The number of transactions in Turkey was 252 out of the total of 929 transactions,

and it is also the leader in terms of the amount invested, being \$3.4bn. The UAE invested strongly in 2016 and 2017, and whilst South Africa surged in 2011 and then showed a marked slow down in recent years, it remains a major player. Saudi Arabia is emerging strongly again in 2018, and Jordan, although behind others in the region, is positioning itself to capitalise on opportunities in the immediate future.

Social media followed by IoT the most popular AI investment

Social media transactions account for 44% of the number of transactions, with IoT in second place having 28% of transactions. However, the position is reversed when looking at the amount of investment, with IoT investment amounting to almost 60% of the total investment across the region, and

social media investment amounting to only 36%. The balance of the investment amount is shared across the other AI formats with cyber security and smart mobile beginning to gain some real momentum.

\$1658 million invested in AI in South Africa in the past decade

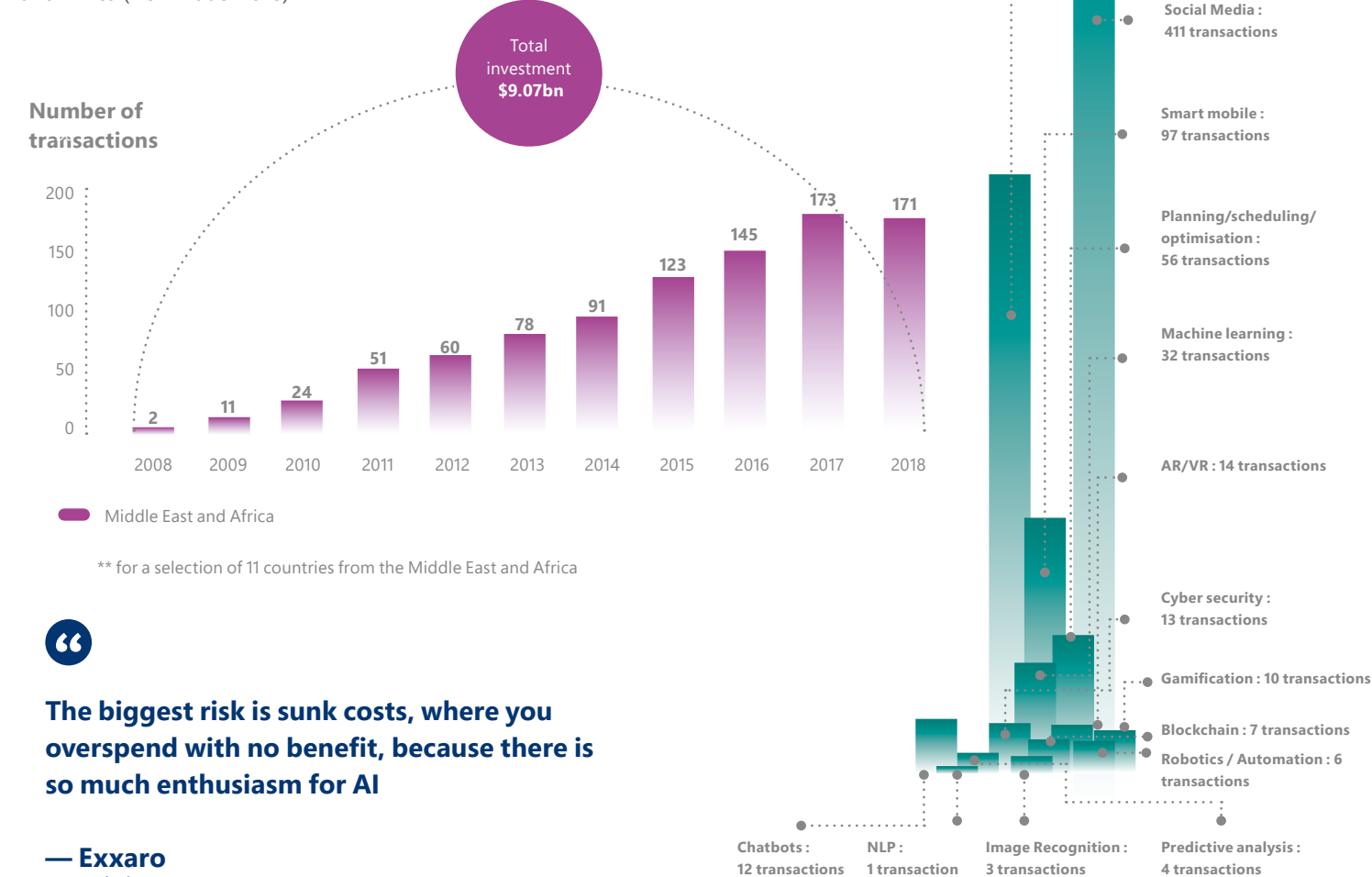
This investment was made up of 134 transactions, 31 of which were mergers and/or acquisitions. The largest of these was for almost half a billion dollars, and was for IoT technology. Apart from social media and IoT, the next technologies in terms of investment and number of transactions were planning/scheduling/optimization and smart mobile.

Social Media and IoT most popular

Based on number of transactions from 2008-2018

Steady increase in Middle East and African AI investment

AI companies invested into, transaction volume, selection of countries from the Middle East and Africa (from 2008-2018)**



The biggest risk is sunk costs, where you overspend with no benefit, because there is so much enthusiasm for AI

— **Exxaro**
Mining company

Note: Several transactions in the dataset did not have publically disclosed deal values, suggesting that actual total values are higher than what's shown above

**Including governmental investment

Discovery

The insurance industry worldwide is experiencing the seismic shifts of digitally enabled innovations. These fundamentally challenge business models that have remained relatively unchanged for many years.

AI is among the primary drivers of this digital disruption, enabled by advances in processing power, the availability of large data sets and improvements in ML algorithms.

Discovery's culture of innovation and depth of analytical expertise have positioned it well to explore the growing possibilities of AI. Its independently operated

business units are encouraged and empowered to innovate, while actively collaborating and remaining strongly aligned to Discovery's core purpose and vision.

Discovery has established AI as a strategic capability, and a key enabler for the innovation, agility and business-model reinvention required for leadership in the rapidly evolving insurance industry.

Across the business, teams are exploring a diverse range of AI opportunities to:

- Improve customer experience (for

example, by providing personalised health goals, and flagging customer interactions displaying negative sentiment for follow-up)

- Deliver operational efficiencies (such as leveraging cognitive solutions to automate manual processes and provide experts with decision support)
- Manage risk (for instance, by identifying and supporting those at risk of developing chronic illness or being readmitted to hospital)
- Develop new product offerings (such as a chatbot and a telehealth platform that accurately matches clients' medical questions to a database of advice from doctors).



Discovery is a shared-value insurance company whose purpose and ambition are achieved through a pioneering business model that incentivises people to be healthier, and also enhances and protects their lives. Discovery's shared-value insurance model delivers better health and value for clients, superior actuarial dynamics for the insurer, and a healthier society. Discovery's unique approach has underpinned its success globally, with substantial new-business growth and an impressive increase in normalised operating profit and headline earnings.

What next?

In pursuit of its core purpose to make people healthier and enhance and protect their lives, Discovery has expressed its ambition to be the best insurance organisation and the largest behavioural platform integrated with financial services in the world. To achieve this ambition, the business has set itself stretch goals and is investing strategically to develop the enabling skills, technologies and processes that will support an ongoing journey of innovation and digital transformation. Among these strategic investments, AI has been established as a core capability and focus area.



We have demonstrated that our pioneering shared-value insurance model is scalable, repeatable and globally relevant.



At Discovery, our growth model and philosophy have revealed the need for continued investment in transformative growth initiatives. AI will be a key enabler and accelerator for this ongoing journey of transformational growth.

Expert Perspective

What does the future look like according to AI analysts?

We also spoke to a range of leading AI experts from business and academia to gain insights into the kind of change which we are on the cusp of, and the role AI is expected to play as part of a broader transformational wave.

AI is entering the mainstream and here to stay

One thing was clear from the experts we spoke to: as far as the peaks and troughs of hype and technological leaps surrounding AI go, there is no doubt that we are living through a particularly prominent peak, with no indication that the buzz nor the potential will fade away any time soon. In a world increasingly dominated, disrupted and driven by innovative tech powerhouses, large and small, it is no understatement to suggest that AI will be a chief protagonist in the change transcending all elements of business in what has been labelled the Fourth Industrial Revolution.

Business-minded people will drive the transformation

The AI experts confirmed some of the key ingredients necessary for AI in organizations: a combination of domain and technical expertise, the appropriate technology, the right talent, and lots and lots of data. While letting tech-savvy individuals drive innovation is great for building understanding, true transformation will not come until business people start suggesting problems for AI to solve - not the other way round.

Agile culture enables AI

Culture was a recurring theme as well. It can either stifle forward momentum in organizations, or be the silver bullet that enables the potential of AI to be realized from top to bottom. Some of the experts even argue that it's not only technical skills that hold up AI projects, it's also the need for a culture of experimentation. Companies that are more natively digital or have gone down that road understand the value of experimenting and iterating. They don't think in traditional terms of committing to year-long projects that need to produce specific outputs, but rather to explore and test ideas before scaling.

When it comes to AI, knowledge is power

Expert opinion also seemed unanimous in that most people not directly involved with AI must still have quite a basic understanding of what AI is and what it can actually do. Therefore, the task is to educate and improve understanding, from C-suite leadership teams to employees at the coal face.

This also ties in with the importance of partnering to get started and access the expertise needed to use AI. While partnering and collaborating solves the perennial AI challenge concerning the scarcity of talent, the significant cost and substantial benefit that can be gained from AI means that organizations also need to be cognizant of building capabilities in-house for the long-term.

Finally, as AI develops, we are also going to see innovation and expertise spreading outside of the dominant clusters of the likes of Silicon Valley, as governments, businesses and universities increasingly invest in building knowledge, resources and capabilities.



As the demand for AI will vary across different levels of work in the organisation, it is essential that we equip all our leaders to be comfortable to lead transitions to a more AI enabled workplace to ensure full value is realised.

— Sasol
Integrated chemicals and energy company

Key insights on the potential of AI*

*Global Leader's views from the field



The full extent of the AI story remains in its early stages. What we do know is that big data, computing power and connectivity are changing the industrial landscape. The opportunity rests in accelerating the digitization of businesses, making them more data driven by building applications that deliver machine-assisted insights.

— Mona Vernon, CTO, Thomson Reuters Labs



AI will eventually transform many enterprises and industries. But its pace of development has been affected by a lack of trust. Today, without mature risk awareness and the right frameworks and controls, applications of AI have not evolved much beyond proofs of concept and isolated solutions. Though proper implementation of AI into business models still faces a number of questions around trust, understanding and appreciating the risks will ultimately allow businesses to position themselves to capitalize on it the most.

— Nigel Duffy, Global AI Innovation Leader, EY



Think about the sheer computing power that is getting distributed, and how it is creating rich experiences through our lives. In our homes and cars, in our cities and at work, across every industry, from manufacturing to health care—all will be transformed by data, cloud and AI. That's the incredible opportunity in front of us.

— Harry Shum, Executive Vice President , AI & Research, Microsoft



If you have a ton of data, and your problem is one of classifying patterns (like speech recognition or object identification), AI may well be able to help. But let's be realistic, too: AI is still nowhere near as flexible and versatile as human beings; if you need a machine to read, or react dynamically, on the fly, to some kind of ever changing problem, the technology you seek may not yet exist. Intelligence is a really hard problem.

— Gary Marcus, Founder & CEO, Geometric Intelligence [acquired by Uber] professor, NYU, contributor to The New Yorker and The New York Times



AI is a general purpose technology, so will eventually affect all industries. However, this impact can be slowed by the lack of data in particular industries. There's also more innovative cultures inside different organizations, that can either drive adoption or prevent it.

— Marc Warner, CEO, ASI Data Science

Role of AI in Middle East and African Business

There is a lot of hype surrounding AI at the moment, and few doubt its potential. We examine how important AI is compared to other digital priorities and where AI fits on the strategic agenda.

We look at the impact of AI on the company's core business, as well as on adjacent and new areas of business.

We also examine the current AI maturity levels across sectors and markets, the potential drivers for deploying AI, and where AI is applied within organizations, across customer-facing functions, operations, product development, and internal business support.

A Strategic Agenda

Where is the AI conversation currently taking place?

AI is being discussed across organisational levels in South Africa, with 83% of companies reporting direct involvement at the C-suite level.

AI is being discussed at all levels in mature organisations

Companies with a higher degree of AI maturity are having discussions across the organisational spectrum, from Executive level down to the workforce. These companies are creating awareness amongst their staff by educating them about AI and giving them opportunities to engage with it, and this is generating excitement about AI within the organisation. Executive involvement

is seen alongside a more formal approach, whether driven from the IT environment or from business, with a focus on solving business problems. The interest at the lower levels is more likely to be experimentation with the technologies and running pilot projects.

Board of Directors involvement

Involvement of the Board is significantly lower than would be expected. However, where Boards take an active interest, the organisations tend to have a more strategic agenda in terms of the longer term benefits of AI adoption in the markets they are in.

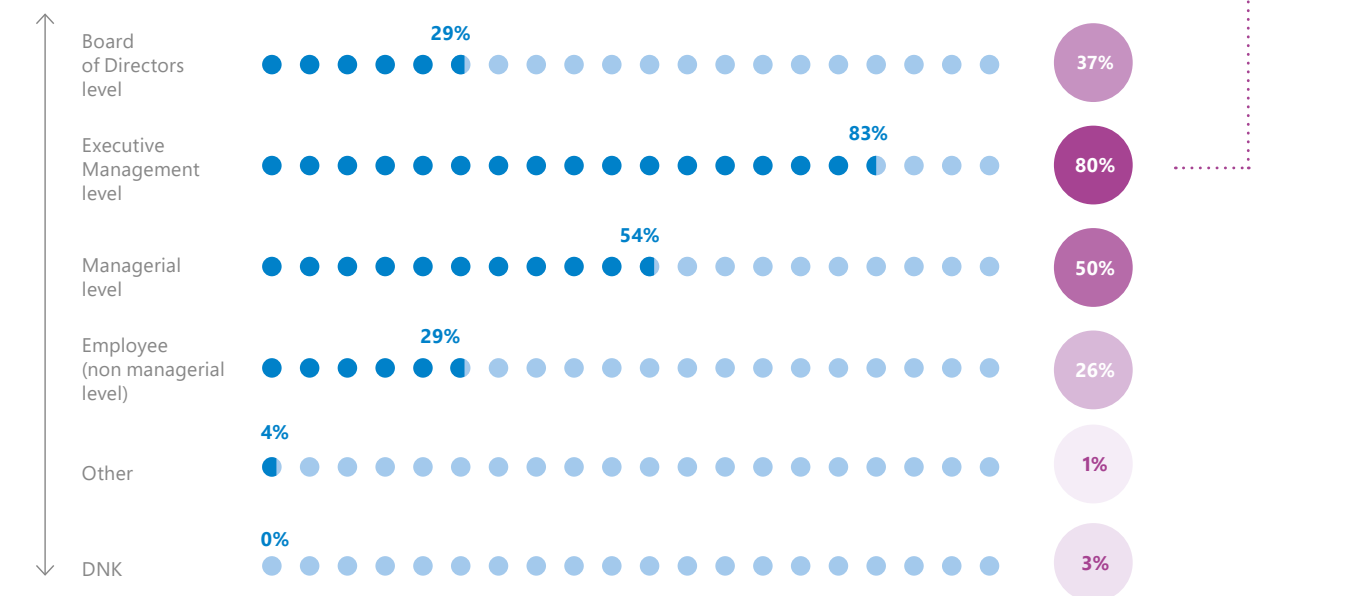
AI particularly relevant at higher organizational levels

80% of regionally surveyed companies had AI as an important topic on the C-Suite agenda regardless of their degree of AI maturity - from cost-conscious CFO's, to efficiency-focused Operations Heads, and CDO's with customer-centric ambitions as part of wider digitalization efforts. On the other end of the spectrum, the AI agenda has not cascaded down through organizations to the point where non-managerial levels (employees) are discussing it systemically, due mainly to a lack of knowledge, limited involvement in pilot programs and fear of the impact on job security.

AI is an important topic on the C-suite level in particular

On what hierarchical levels in your company is AI an important topic?

STRATEGIC LEVEL



OPERATIONAL LEVEL

Affirmative responses, Middle East and African markets

Affirmative responses, South Africa

Among Friends

What is the importance of AI against other digital priorities?

When looking at how AI ranks against its digital peers in terms of strategic importance, very few South African companies regard it amongst their top strategic priorities at this juncture. It is interesting to note that although several companies did rank AI as a high priority, this did not always translate into a proportionate share of direct investment funding when compared to other digital initiatives.

AI initiatives vs digital initiatives by sector

The strongest rating of AI as a priority came from the ICT & Media, Retail and Finance sectors. The Finance sector has the highest budget spend on AI, even though it is split in terms of those who are actively pursuing AI initiatives

already, versus those who are still trying to find their feet. In the other sectors executives are prioritising foundational digital activities as a precursor to exploiting AI initiatives in the future.

Foundations first

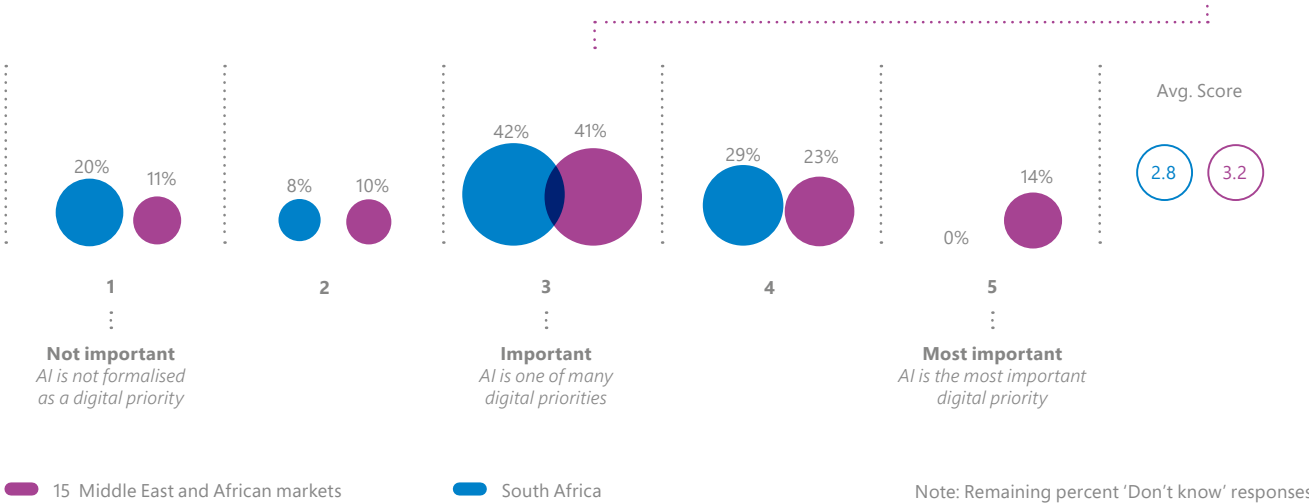
The less mature organisations have recognized the importance of getting started on exploring use cases for AI, and are putting in place the basic foundations of data management/governance, robust connected platforms and skills acquisition as pre-requisites for their AI initiatives. All companies indicate that this position could change quite dramatically within the next year or two, with pilot AI initiatives gaining momentum.

Future impact driving AI's digital ranking

Despite AI being in the early journey stages in this region, it has managed to anchor itself to other digital initiatives as a peer or higher, with a significant 78% of respondents. This reflects the understanding that the future will be heavily influenced by AI and that it will become a major domain for differentiation between competitors in all sectors. This strength in ranking is caveated with the knowledge that AI is a relative newcomer to the digital stable, other initiatives are significantly more advanced in their programs, and AI has some catching up to do in terms of actual value creation. Cross dependencies between AI and broader digital initiatives is also contributing to AI being seen as an actual digital priority, more than just a important topic.

AI is seen as one of many digital priorities - but not the most important

How important is AI relative to your company's other digital priorities??



Push or Pull

How is AI predominantly deployed into the organizations?

It is always insightful to understand how AI is being orchestrated in organisations, either being driven down from executive levels or bubbling up from the workforce and operations, and also to what extent it is driven by IT vs Business. In South Africa the approach is remarkably different across organisations and appears to be greatly influenced by the culture of the organisation and its heritage.

Top down vs bottom up

The majority of companies indicate that the AI drive is top down, with these organisations demonstrating the most structure, greater funding and clearer strategy. By contrast, those having a bottom-up approach have a more diverse or experimental application of AI, and solutions that are more integrated into actual processes. A combination of the two undoubtedly generates the best outcome, as can be seen in those with the greatest AI maturity who follow a blend of both approaches.

Technology push vs business pull

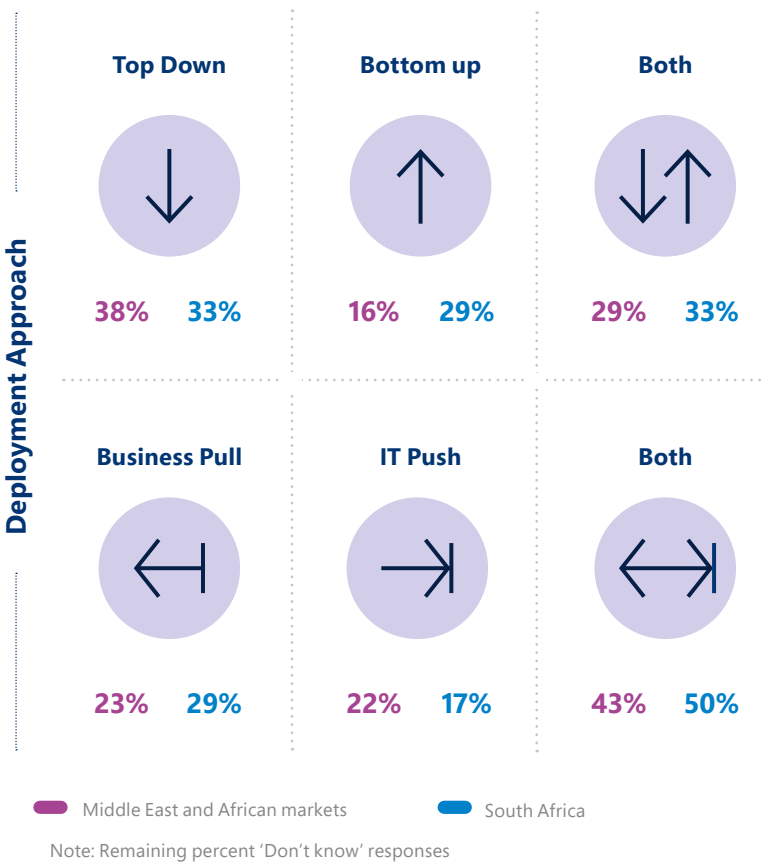
The approach to use both technology push and business pull is most dominant, and several organisations indicated that they see themselves moving towards that hybrid model if they are not already there. Those organisations who recognise that AI cannot be driven solely out of their IT environment have made the most progress in finding relevant business applications. This is often seen alongside decentralised centres of excellence, with combined technical and business teams leading the way in the different fields of AI.

Regional Business and IT driving from the top down

As expected, given how prevalent AI is on the Executive management agenda, most companies (38%) are managing their AI programs from the top down, directing the strategic direction as well as centralizing innovation and pilot programs. The ideal is to accelerate and concentrate the activities whilst avoiding duplication of effort across the organization and unnecessary cost. Where strong digital cultures and technical capabilities exist, a hybrid of both top down and bottom up has enabled functional use cases to be identified and to attract executive sponsorship and direct funding. The concentration of executive buy-in for AI has also driven a more integrated collaboration between business and IT, as both play their role in driving the AI agenda, with 43% of respondents adopting this approach.

AI deployed and managed in a balanced way

How would you characterize the way AI is being managed in your company? How would you characterize the way AI is being deployed in your company?



Ready, Set...

What is the maturity of AI in different sectors?

The shift to becoming AI enabled is a continuous journey with some organisations further along the path than others. The vast majority of organisations surveyed have not progressed beyond the early pilot stages as they grapple with early adoption issues. However, a few organisations are definite leaders in their respective sectors, being beyond the early formative stages and already accelerating in the released stage of maturity. And then there are those organizations who consider themselves to be advanced, in that they are already applying AI technologies in the running of their business.

Experimenting with technology, but need use cases

The more technically-oriented companies have no shortage of interested staff members who are experimenting with the AI technologies and running pilots. Despite this, almost all the companies in the study indicated that they have difficulty in identifying use cases to support the business and provide a meaningful return on investment to attract more funding. Those companies who are more structured in their approach are taking a strategic view of how AI can give them a competitive advantage, and are directing AI initiatives in these areas with more success.

Some machine learning models in production

ICT&Media and Financial Services are the standout sectors where some companies have gone beyond experimentation, with machine learning models running in a production environment, but these are in narrow channels within the companies and not systemically at

scale. Across all sectors the number of machine learning models directly corresponds to those companies with high volumes of well managed data, strong foundational infrastructure and where AI takes its place alongside their other top digital priorities.

Trends across the other sectors

In the Retail and Consumer Products sector, the majority of companies stated they don't have the same ability to leverage data as the information technology orientated sectors, and are still trying to break out of the planning and piloting stage, due to complex legacy IT and a shortage of relevant skills. There is a general intention, with a few exceptions, across the Infrastructure & Transport and Manufacturing & Resources sectors to be behind the bleeding edge of AI and therefore look towards leveraging AI solutions from other sectors as 'tested solutions', or buying them off-the-shelf as they mature. These sectors also have large workforces with the majority in the low to unskilled category, and cite the need to handle change management and worker reluctance towards AI before they invest more heavily. The Health and Professional Services sectors are generally being held back by inadequate data on which to base their AI efforts, and are thus mostly in the planning phase.

Everyone is in the race, but the pace differs

Regardless of sector, there are a few companies that are leading, a handful that are bringing up the rear, and the vast majority that are in the Planning or Piloting stages somewhere in the middle.

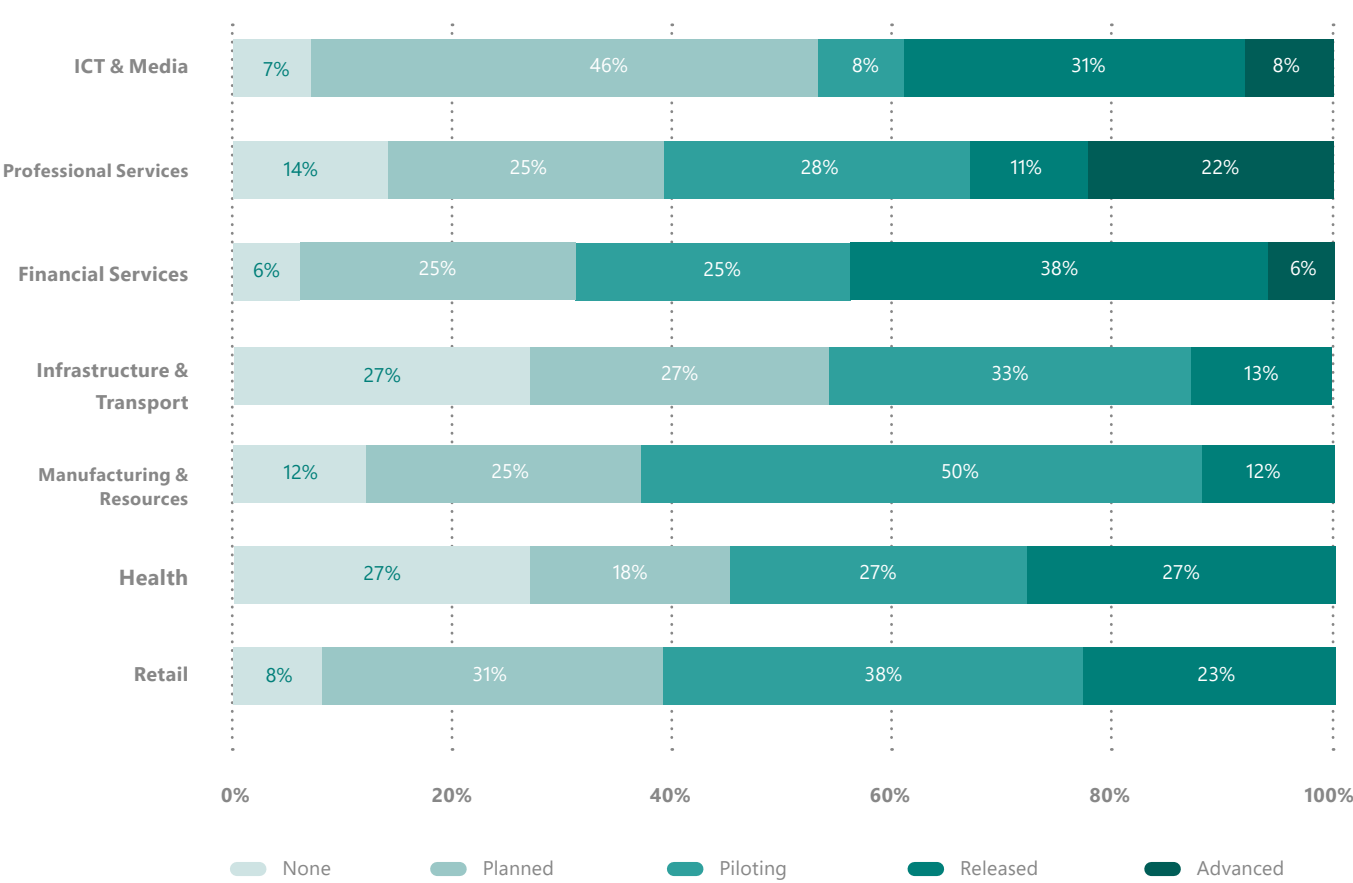
Financial Services have progressed the most as a collective sector with 38% of respondents in the Released stage, and productionized AI use cases in their daily operations. This sector's run to the front has been fueled by fierce market competition, accelerated starts to AI programs and generally stronger foundations in data management and technology adoption.

Historically more conservative sectors such as Retail, Manufacturing & Resourcing as well as Infrastructure & Transport are yet to move to the next level, with the numerous pilots still underway reflecting their slower technology adoption lead times.

Surprisingly, given their data-rich and customer-centric environment, the ICT & Media sector still has 46% of the respondents in the Planned stage and working hard to close the gap on the sector leaders.

Most companies in Middle East and Africa still in Planning or Piloting stage

How would you describe your company's general AI maturity?



“

Technology tends to go through ‘hype cycles’, so even if you are a latecomer to AI you have the ability to choose more established and proven solutions and can leapfrog others and fast track your initiatives.

— Multichoice Group
Broadcasting company

South African companies already off the start line

All of the surveyed companies reported that they are already out of the starting blocks in terms of AI maturity and are either in the Planning, Piloting or Released stages. No companies surveyed ranked themselves as Advanced yet, although several executives expect their companies to be there within the next 12 months. At 46%, the Piloting phase is where most companies are currently, which is aligned to the broad based experimentation and technology exploration that is currently underway. Several of the identified pilots are maturing and companies are expecting to pivot them into mainstream production shortly.

AI Maturity Curve

Majority of companies are in the ‘Piloting’ or ‘Released’ stage

We asked companies to self-report their current AI maturity level, grading themselves at None, Planned, Piloting, Released, or Advanced - as defined below.

LEVEL OF MATURITY

Advanced

AI is actively contributing to many processes in the company and is enabling quite advanced tasks

Released

AI is put to active use in one or a few processes in the company, but still quite selectively, and/or not enabling very advanced tasks

Piloting

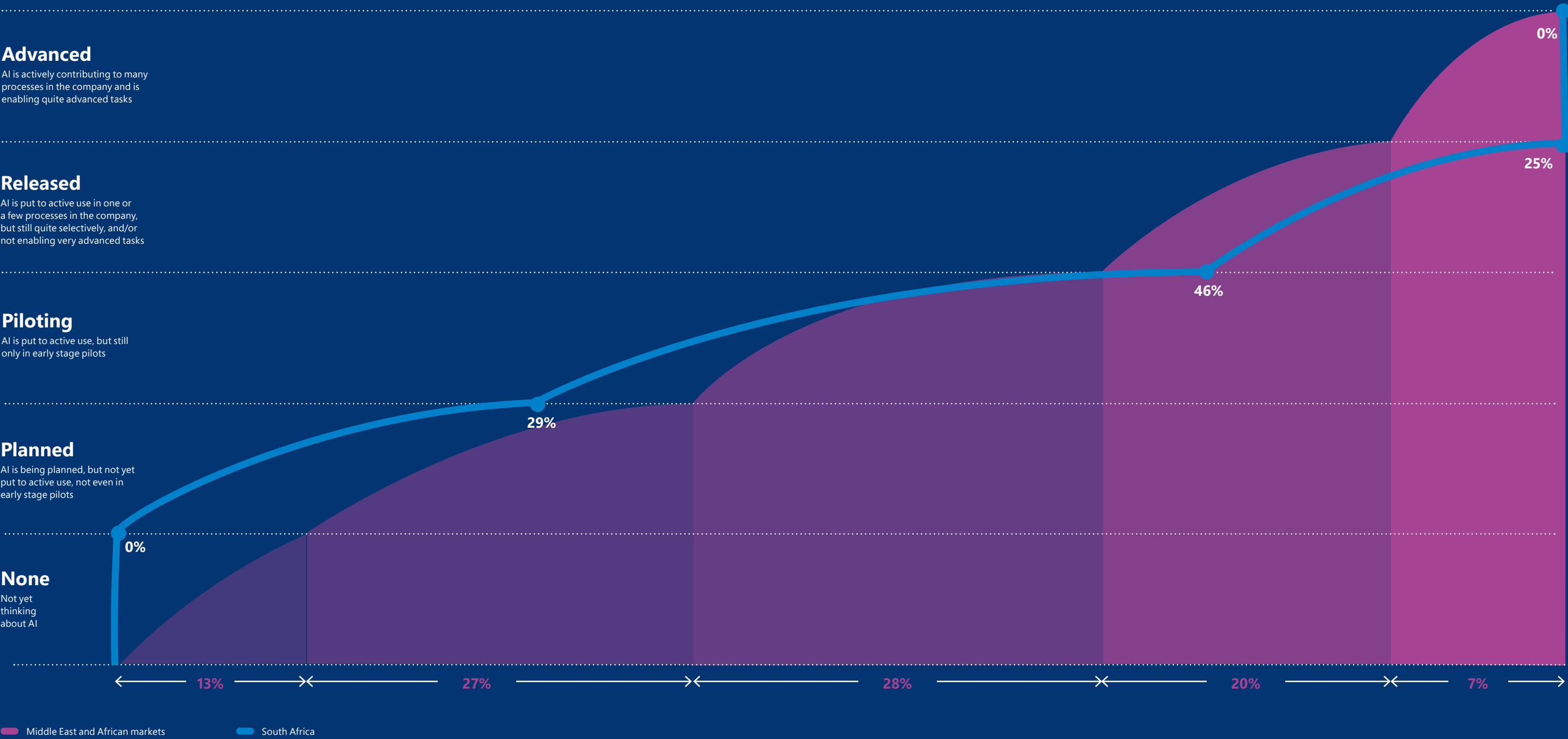
AI is put to active use, but still only in early stage pilots

Planned

AI is being planned, but not yet put to active use, not even in early stage pilots

None

Not yet thinking about AI



Note: "Did not know" responses are excluded from graphic above

State your Business

Where is AI currently deployed across the companies’ value chains?

Noting where organisations have AI activity and focus gives insight to where capabilities reside and where companies see early benefits from ‘low hanging’ AI applications and quickest time to value opportunities.

AI seeded in IT/Digital domains

IT/digital environments often act as incubation centres for AI, as would be expected. The presence of technology-orientated skills, direct access to data sources and appreciation of the technology landscape encourages early adoption. These digital environments harbour an experimental culture and agile development methodologies which are needed in this domain. Early traction is also seen in adjacent domains such as cybersecurity and digitally-enabled fraud detection, where similar circumstances exist.

Speed to value in Operations

Most companies have concentrated their AI attention on their operational

environments to extract efficiencies. In manufacturing and mining companies the main applications for AI are supply chain optimisation, managing equipment and asset environments predictively, and enhancing health and safety processes. In the non-industrial sectors there is early adoption in the back and middle office environments where good data sources and less complex processes exist, making it a safe point of departure for the AI journey. This is expected to be shortlived as confidence grows and AI is used more aggressively in the customer-facing and front office domains.

Customers are Gold

Across sectors, the battle for customers and the associated share of wallet is very fierce and companies see AI applications giving them the edge in achieving superior customer experience. This manifests across the customer value chain, from making improvements in customer fulfilment, to engaging the

customer differently through new and innovative technologies, to identifying new services and products for customer satisfaction. This is seen to be the biggest differentiator resulting from the judicious use of AI technologies, but it also poses the biggest risk if done poorly.

End of the rainbow

Although many companies identified the potential for new products and markets as a result of AI deployments, very few had a clear and definitive view of what those cases would be and rather had a generic sense that this was the direction of travel. Enhanced customer knowledge and differentiated products/services based on larger datasets appear to be where early adopters are looking, but the ability for AI to drive clear cases of new products or markets is still largely ‘green field’ opportunities.



We’ve started actually engaging with potential partners and have been interested in what certain of our looking at what our peers are doing to understand what kind of which use cases to explore investigate further and what identify the benefits these can unlock.

— **Harmony Gold**
Gold mining company

When taking a regional view of where companies are focusing their AI efforts, there is consistency in the reported business functions where AI is being used.

Lots of AI in R&D and IT/Digital functions

On top of an expected high prevalence of AI within IT departments, AI is also commonly used within R&D functions (or similarly focused functions). This primarily comes down to three factors: employees in R&D are often engineers who tend to have a good understanding and appreciation of AI; the R&D function is often already wired towards taking an experimental, agile approach which is key to AI; and the

R&D function often sits on significant amounts of useful data leading to high potential use-cases.

Online customer interactions generating front-end data

Customer-facing, commercial functions such as Marketing, Sales and Customer Service are also heavier users of AI, partly driven by their digitization levels. Although AI is generally adopted more slowly in customer facing interactions than in back-end functions, due to heightened caution in avoiding any negative customer experience, the abundance of data from increased use of online channels is expected to make these functions obvious candidates for AI technologies in the

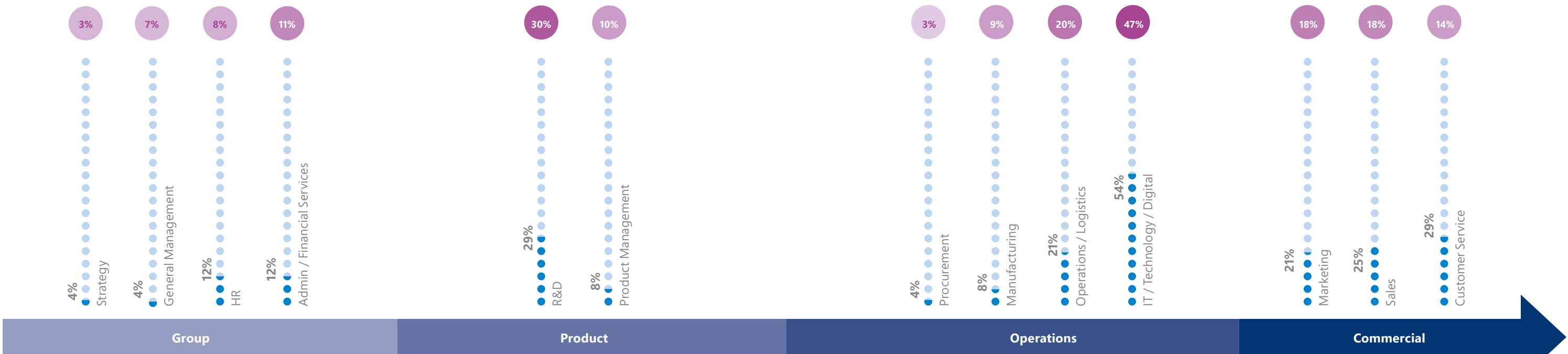
future. Operations and back-end functions use AI to increase efficiency by automating processes and informing decision-making. The key enabler is data infrastructure, and many companies – currently limited by legacy systems and processes that impede capture and retrieval of data – need to upgrade their infrastructure.

Limited use in HR and Procurement

There are several functions where AI is hardly in use among the participating companies. This includes ‘people-intensive’ functions such as HR and Procurement. This is not due to lack of potentially valuable AI use-cases, which in the case of HR include talent acquisition (avoiding human bias), onboarding (Q&A), performance evaluation (analyzing data), etc. but rather seems to be a result of prioritizing other functions and priorities first.

AI most commonly applied in IT & R&D functions

Which of your company’s business functions currently use AI?



MTN Group

MTN Group have a keen interest in innovation to extend their relevance in the ICT sector. Innovation should be initiated by business, and implemented by means of technical innovation, like the use of AI technologies. To intercept innovation that is happening throughout the organisation at the right time is difficult, too early and it stifles innovation, too late and it may already have been operationalised.

The organisation believes that AI technology has the potential to augment the way they interact with customers, and are therefore focused on voice recognition technology, chatbots and RPA at this

stage, rather than on machine learning. They would like to improve their zero touch activation percentage through the use of RPA technology, and at the same time create an enhanced customer experience. Chatbots

In a call centre that receives millions of calls per day, even a small percentage improvement through the judicious use of AI technologies can make a huge difference in terms of costs.

and voice-related technology done wrongly can have a very negative impact on customers, so they are

treading very carefully in this space. You could become disassociated from your customers by not doing something they expect, or by doing it wrongly.

MTN in Uganda has initiated a Proof of Concept with voice biometric software to handle PIN resets and reduce call centre costs. The enrolment will entail speaking several sets of digit strings, and the verification phrase will consist of a system generated random number rather than a fixed passphrase, as random numbers are less susceptible to recorded playback attacks compared to fixed passphrases.



MTN Group is committed to inspiring and enabling growth by leading the charge towards a bold, new digital world. Launched in South Africa at the dawn of democracy in 1994, they offer voice, data and digital services (including mobile financial services) to retail customers in the 21 countries, across Africa and the Middle East, in which their operations have telecoms licenses. They also offer enterprise solutions to corporate and public sector customers in a total of 23 countries. The brand is among the most admired and most valuable in Africa.

What next?

MTN wants to optimise the business use of AI technology to do the right thing at the right time for the organisation. In the discovery and adoption phase they are going to need good business architects to conceptualise how to get value from AI. It will initially be less about the technology itself, but as it becomes more mainstream they will need stronger technical skills in-house. They plan to use start-ups to stay ahead of the game, as with new technologies you can't take the risk internally, even if you are a big company.



A personal approach is extremely important to our business. In the next phase we will take our 24/7 customer experience to the next level through the application of AI enabled chatbots to handle our high-volume journeys, whilst still maintaining speed and a personal approach.



It may not be top of mind with customers today, but it will happen, and if you don't have a bot you will become a dinosaur.

Business Benefits and Risks

As a number of industries are beginning to reap the benefits of AI, we investigate what AI is actually doing for businesses today and what is expected in the future. We look at how big an impact executives expect AI will have in terms of driving growth or causing disruption in their industry, and examine AI's basic and more advanced uses - highlighting examples of these functionalities in operational mode.

We also present a strategic approach to understanding AI's four benefit domains from a business perspective, summarizing the value executives expect to generate by using AI, and touching on what business leaders see as the most prevalent business risks.

Another World

What is the expected impact from AI within the next 5 years?

Much like their Western European counterparts, most surveyed companies expect AI to have a significant impact within the next 3 to 5 years, and strong conviction exists that companies using AI technologies successfully will have a competitive advantage over those who don't.

Competitive advantage

The use of AI to make sense of the vast quantities of data and provide insights into customer behaviour and customer expectations is seen as the domain for competitive advantage in consumer-centric sectors, whereas in sectors where customer focus isn't relevant, the competitive advantage lies in operational efficiencies and productivity gains. Despite the clear

awareness of the disruptive nature of AI, most companies feel that it will take some time for the disruption to occur as they lay down the digital and data foundations as a precursor to being able to exploit AI technologies at scale.

Cultural adoption sensitivity and anxiety

With official unemployment rates reaching record highs in South Africa, trade unions and employers alike are concerned about the impact AI could have on employment levels. Any initial excitement experienced by the workforce is quickly replaced by fear of job losses, so companies are having to put programs in place to manage the change carefully to reassure workers and obtain their buy-in.

AI must integrate to add value

Creating powerful AI applications is not necessarily value creating, as AI solutions need to be effectively integrated into the operational processes in a seamless way, and AI needs to interface with employees within these processes. Combining the experience and institutional knowledge of employees with the binary computing power of AI will allow the systemic unlocking of value. This integration, or lack thereof, has many respondents concerned that a pure technology perspective will hamper the value delivery of AI.

Influence vs Disruption

All companies surveyed in the region were clear that AI will have a marked impact, however the extent to which it will affect businesses varies by sector. Technology and customer-centric sectors who are predominantly in the B-2-C model such as ICT & Media, Financial Services, Health and Infrastructure & Transport see the impact as disruptive, with more than 50% signalling significant impact - changing the fundamentals of how they

do business, completely redefining customer interaction models and creating alternative revenue streams. In the Retail and Manufacturing & Resources sectors executives believe AI will have a significant influence on the future business, but it was not seen as systemically disruptive. Methods of material sourcing and manufacture will remain largely constant and the impact will be on step-changes in efficiency, increased productivity and enhanced Health and Safety.

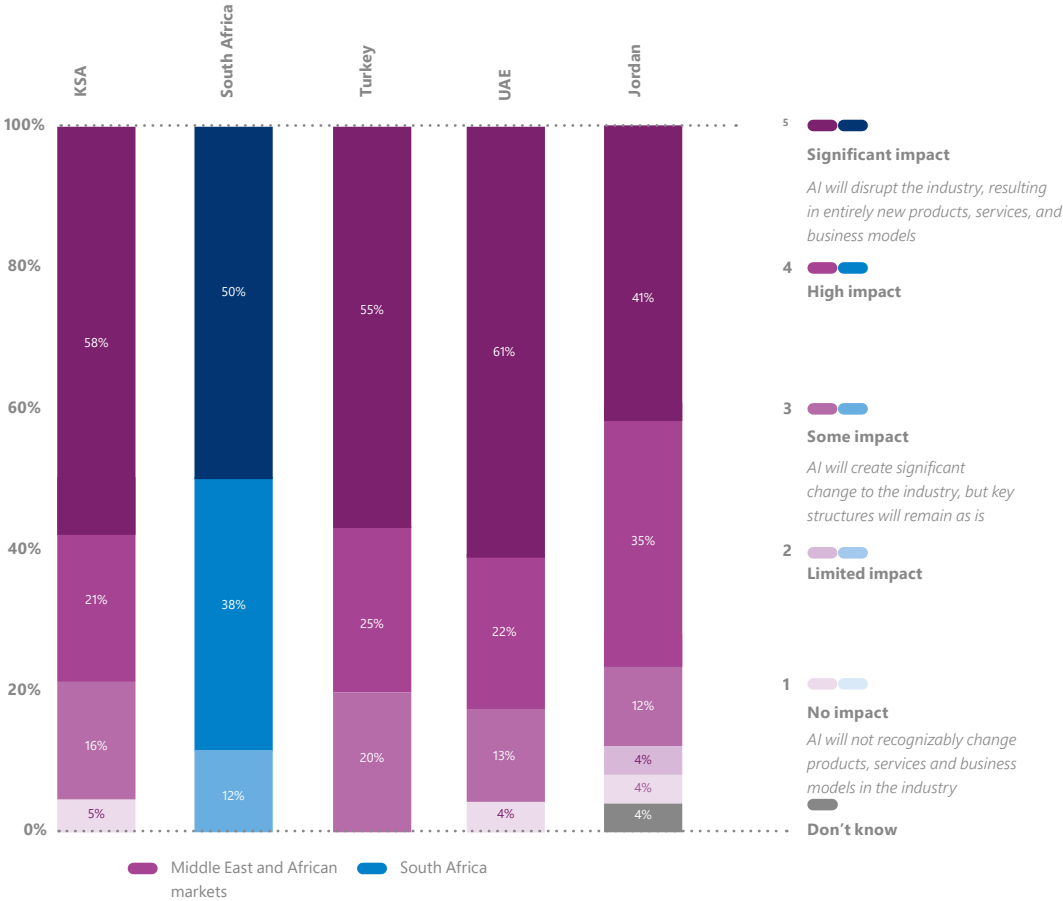


We would want AI to result in something completely new, a massive paradigm shift rather than an evolution.

— Bigen Group
Infrastructure Development Firm

High expected impact from AI consistently across countries

How much impact do you expect AI will have on your industry within the next 5 years?



ICT & Media the sector with the highest expected impact from AI across the region

How much impact do you expect AI will have on your industry within the next 5 years?

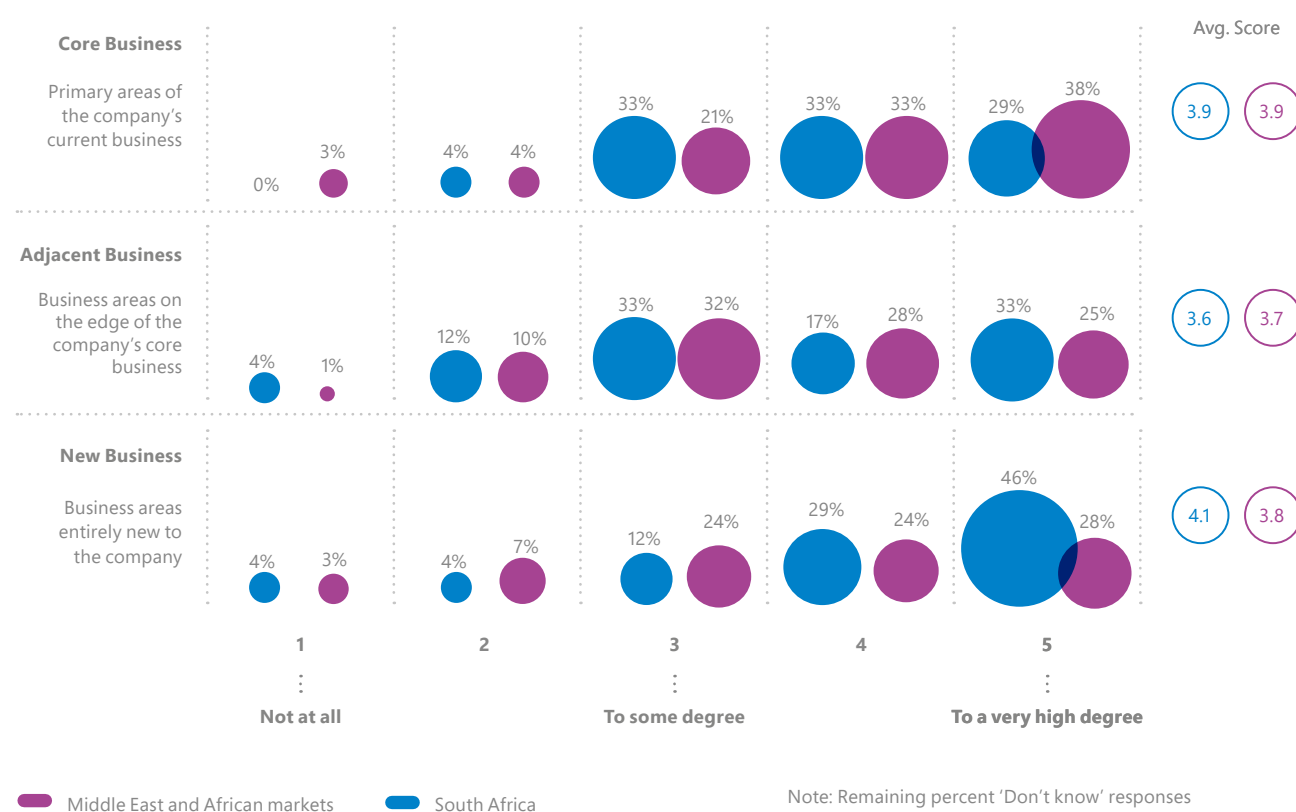


AI Here, There, Everywhere

What is the proximity of AI's future impact to core business?

Companies expect impact across all horizons

To what degree do you expect AI will create impact for your company within each of the following areas?



The response to this question was very upbeat, with high expectations for AI's impact on core business, adjacent business and even new business. South African companies are very positive about the benefits to be gained from AI across all of these three horizons.

46% expect a high degree of impact on new business

Almost half of the companies in the study believe that, within a 5-10 year timeframe, the implementation of AI solutions will enable new streams of business for them, ranging from exploring new channels and offering

new services, to creating new operating models, re-inventing the supply chain and owning more of the extended value chain.

Additional impact on core and adjacent business

95% of companies are of the opinion that AI will have some sort of impact on their core business, mainly in the form of cost savings and operational efficiencies, but also in improved personalisation of the customer experience to drive new products and new markets. They also expect a similar pattern of impact on the business areas that are adjacent to their current core business.

Regionally: Sweet spot in the Core

38% of all companies surveyed across the region feel that AI will impact their core business to a very high degree. This is expected, as technology-driven transformation normally happens where there is a deep understanding of the value chain, a significant amount of data exists and the time to value is short, thereby justifying initial investments. Over time this is expected to spread to adjacent and new business areas, as companies become more comfortable with the technology and business understands what is the 'art of the possible' with AI, enabling them to identify opportunities that may not be so obvious today.

Bridgestone

Bridgestone has just completed a business turnaround, and the priority is shifting to reducing cost and improving efficiency across the value chains. AI will play a key role, focusing initially on extracting internal efficiencies to remain competitive in a market under continued pressure from inbound competitors. This will require them to be flexible and nimble in reacting to shifts in consumer demand and to look creatively at driving process efficiencies without detracting from quality and process integrity.

Expanding the workforce or mass system upgrades is not the preferred approach, but rather a focus on identifying key points in the value chain where differential value can be

unlocked through the selective and creative use of digital technologies (including AI).

The competitive advantage is in the sales and marketing space, starting with the customer, and AI will flow back into the manufacturing area, where it is much easier to apply.

On the production front the driving force is flexibility and responsiveness, and they are applying AI techniques as applicable to increase process velocity in a cost-effective manner. In the back office the use of low-risk tools like heuristic modelling for sales

order processing, sales forecasting and demand forecasting has shown notable improvements in accuracy during initial beta programs and these will be expanded over time.

The customer remains at the heart of Bridgestone's executive agenda and by blending the experience from on-the-ground interactions of the sales force with AI-enabled tracking of consumer sentiment through social media forums, they can focus on developing products and services that are dynamically tailored to consumer needs. The customers they want to attract expect responsiveness, quality, service and a great experience—it's all about enabling convenient fitment and peace of mind.

BRIDGESTONE

Bridgestone SA is a unit of the world's No.1 tyre manufacturer. Today, Bridgestone develops, manufactures and markets tyres for passenger, light truck, truck, bus, earthmoving, agricultural, motorcycle and aircraft applications. Leading the way in this new millennium, Bridgestone develops technology to keep them at the top of their industry, providing customers with innovative quality products.

What next?

Bridgestone is a customer service company, and they want to use AI as an enabler to add peripheral services to support fleets. There is a huge investment into infrastructure, with a digital backbone and a move into the cloud. They are using consultants to facilitate the change that is required in the business and introducing thought leadership to educate Senior Executives about AI and digital opportunities. Some work is starting with key partners and alliances in the AI value chain, in order to identify and capitalise quickly on immediate opportunities as they present themselves, which is a new way of thinking for the business.



Trying to own too much of the value chain in this space carries too much risk, so we are taking small bets on lots of things, rather than big bets on fewer things, and we are doing this with partnerships.



Signs of social upheaval of the workforce is everywhere and 55-60-year-olds are going to be blindsided, unless we get them to realise that they are already using AI if they use a smartphone or the internet.

Use It or Lose It

How is AI put to use in companies today?

Despite the objective of AI applications varying greatly across the surveyed companies, AI is predominantly being applied in back office and operational functions at this stage.

Intelligent Automation as a stepping stone

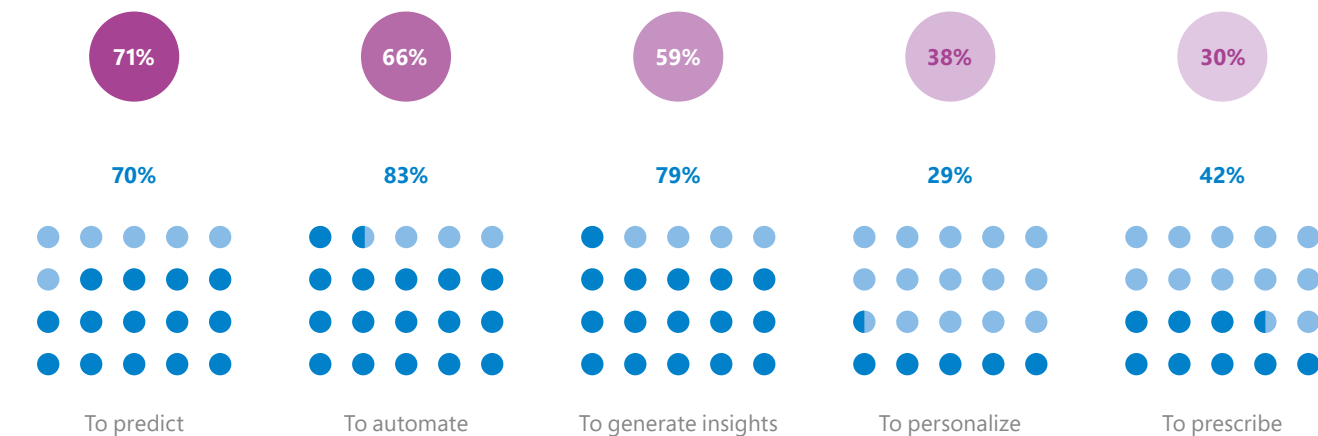
Automation in one form or another is in use by 83% of companies to effect cost savings and efficiency gains, for example in Finance and Supply Chain processes, by removing repetitive tasks and increasing employee productivity. Intelligent automation is therefore seen as a natural gateway into the AI domain, given the relative ease of implementation and low investment barriers.

Insights for better decision-making

70% of companies are currently using their data, algorithms and machine learning to gain deeper insights for decision-making and to increase decision velocity in the process. Although already widespread, there is still significant opportunity to extend the use given the ever increasing data volumes and complexity of business processes.

Prediction and automation relevant to most companies

What are the relevant uses of AI in your company?



■ Affirmative responses, Middle East and African markets ■ Affirmative responses, South Africa

Predict

Anticipate events and outcomes



One of the key challenges in all the member schemes is their ability to predict where the healthcare patterns and trends are going to go to year on year, and AI is going to play a role here.

— Medscheme Health risk management services

Automate

Handle tasks without human intervention



Efficiency gains from automation will give us a way to compete with the low cost manufacturers and imports on price.

— Nampak Packaging manufacturer

Insights

Identify and understand patterns and trends



The big benefit is insight, there is lots of data around and it's impossible for humans to make sense of it, but if you start using AI for data insights you will be surprised at what it highlights.

— Hello Group Integrated consumer and business services

Personalize

Tailor content and user-experience



If you do a deployment of a bot across the customer base, a segment will hate it, a segment will say how did I live without it, and a segment will say why did it take so long?

— MTN Telecommunications network provider

Prescribe

Suggest solutions to defined problems



Humans have limitations in that they can only process 2 to 3 parameters at once, using AI you can bring in mineral resource data with engineering data and are now able to answer complex questions and use this to adapt your maintenance strategy.

— De Beers Diamond company

Making AI Simple

What is a good framework to map the potential benefits from AI?

The contributing companies generally expect to benefit in all four key domains as outlined in Microsoft's Digital Transformation framework: optimizing operations; engaging customers; transforming products and services; and enabling employees. Each domain draws on underlying AI functionalities – 'reasoning' through learning and forming conclusions with imperfect data; 'understanding' through interpreting the meaning of

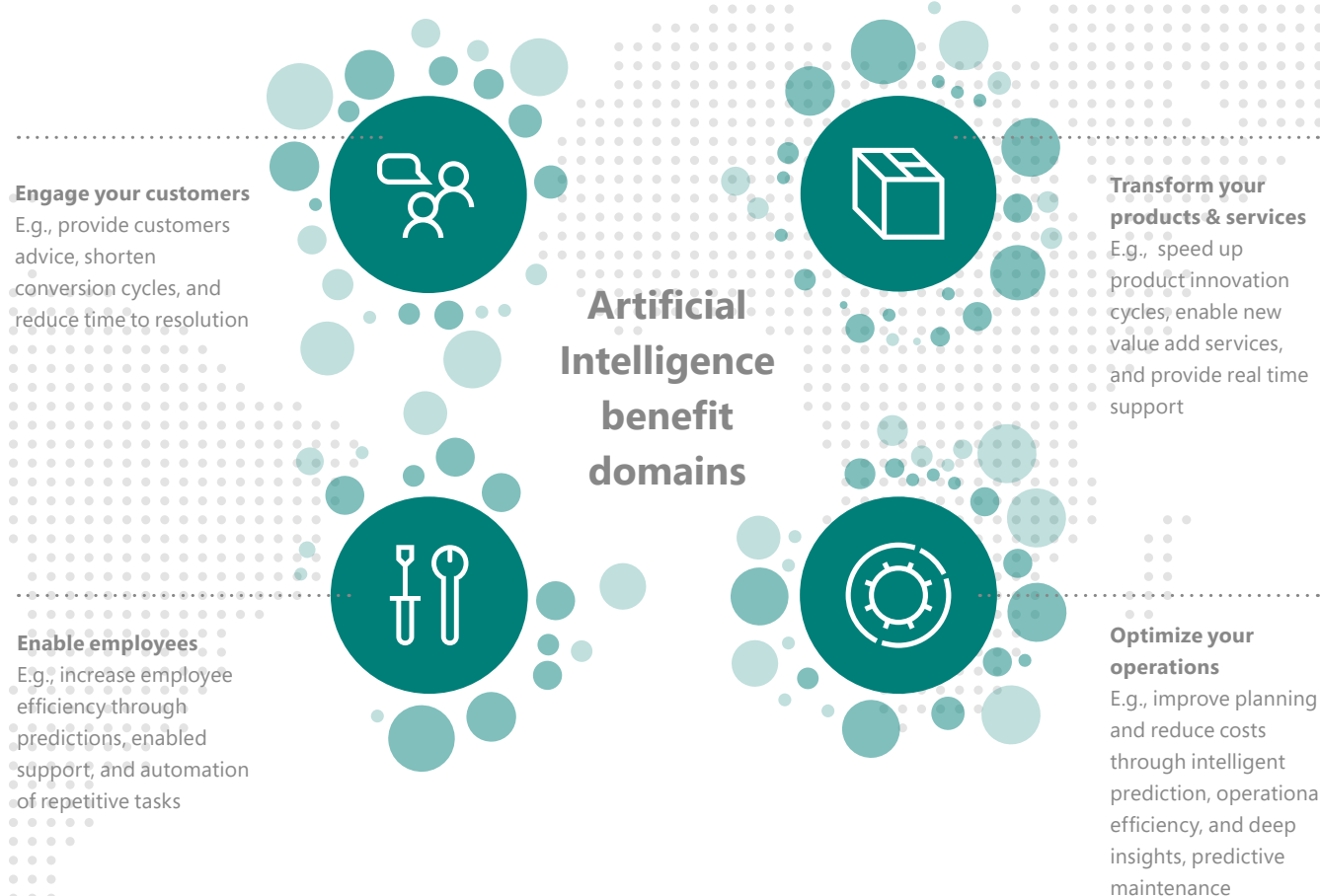
data including text, voice, and images; and 'interacting' with employees, customers and other stakeholders in natural ways.

Applying AI to these domains can be transformational to a business, ultimately changing the landscape of the business itself and the industries and eco-systems in which it operates.

Let's look in more detail at what that entails.

Artificial Intelligence impacts business in four benefit domains

Companies must consider how they approach the benefit domains in their AI strategy formulation



Improved production and efficiency through optimized operations

While digital transformation in general is based on customer engagement, optimizing operations is what companies first look to when putting AI to use. It draws on multiple levers such as:

- * intelligent prediction, e.g., identifying chronic diseases, anticipating non-performing products, or adaptive modelling to flag corrective actions;
- * operational efficiency, e.g., optimizing forecasting and order-to-fulfilment flows across the value chain, or processing huge sets of documents in a fraction of the time;
- * deep insights, e.g., detecting anomalies to surface irregularities such as fraud, or identifying new pockets of opportunity before competitors do.

Engaging customers more effectively through AI

After optimized operations, companies look to customer engagement as the domain in which to seek most business benefits. Early examples of AI applications in the customer engagement space involve levers such as: conversational agents, e.g., bots providing personal recommendations and transactional advice; personal assistants, e.g., guiding decision-making, shortening conversion cycles; self-service, e.g., options to help customers reduce time to resolution.

Staying ahead of the competition by transforming products and services

Transforming products and services, and enabling employees, came out on the same level, slightly below the two other domains when it comes to where companies expect to generate future business benefits. Transforming products and services, ultimately giving rise to entirely new business models, is mostly favored in R&D-heavy sectors where companies consider AI

and advanced analytics as levers to speed up the product innovation and discovery process. In B2C-oriented sectors, AI enables provision of new services via multilingual cognitive tools, geo-location suites, sentiment analysis, cognitive robotic advisory capabilities, personalized service agents and more, to transcend the sectors to a new level of value-add -with significantly increased scale and reach in real time.

Enabling employees to be more efficient and capable

Across sectors, numerous AI use-cases focus on increasing employee productivity or serve to enhance the human ingenuity and the ability to fulfil a given function. AI helps employees in B2C companies expand organizational knowledge by analyzing vast customer behavior datasets in order to adapt online and offline store layouts, driving conversion and sales. Customer personalization is used at scale, powered by AI solutions that reveal real-time customer insights, identifying the best next actions for up-sell and cross-sell opportunities, as well as predictive models that obtain a 360-degree view of the customer by integrating customer data and sentiment to generate targeted offers.



We don't just want to do something because of the cool tech, we want to see business benefits, and if we do it just because of the tech it may actually disrupt our business model.

— **BCX**
ICT company



There are advantages to being a new organization without legacy issues, but the disadvantage is that it takes time to build a critical mass of data volume.

— **TymeBank**
Digital bank

Where Value Hides

What benefits do business leaders particularly expect from AI?

The benefit domains were grouped into optimising operations, engaging customers, transforming products and services, and empowering employees, for the purpose of highlighting the benefits expected from AI.

Optimising operations will deliver the most value

As many as 96% of South African companies expect to gain significant benefits in optimisation of their operations resulting from implementing AI solutions. Obvious areas with strong data capabilities like Finance and HR were mentioned as starting points, but value release there would be relatively low, and primary emphasis will rather sit closer to the core operations such as supply chain optimisation, customer fulfilment, reducing cost of compliance and regulatory conformance, as well as predictive maintenance and product quality optimisation. Use cases will also branch out into the defensive structures of cyber-security and fraud management.

Similar expectations across the other benefit domains

The other three domains were all ranked the same, with two thirds of companies believing they will also deliver benefits to their organisations to varying degrees. Customer interaction is seen as an important application for AI technologies like text/language processing in the form of chatbots, and also for the use of biometrics. Some executives warn that these need to be applied judiciously as they have the potential to also sour customer relations and deride value if the balance between human and machine interaction is miscalculated.

Transformation of products and services appears on the agenda with the potential for using AI to analyse big data and provide insights into possible new product development or service offerings to the market.

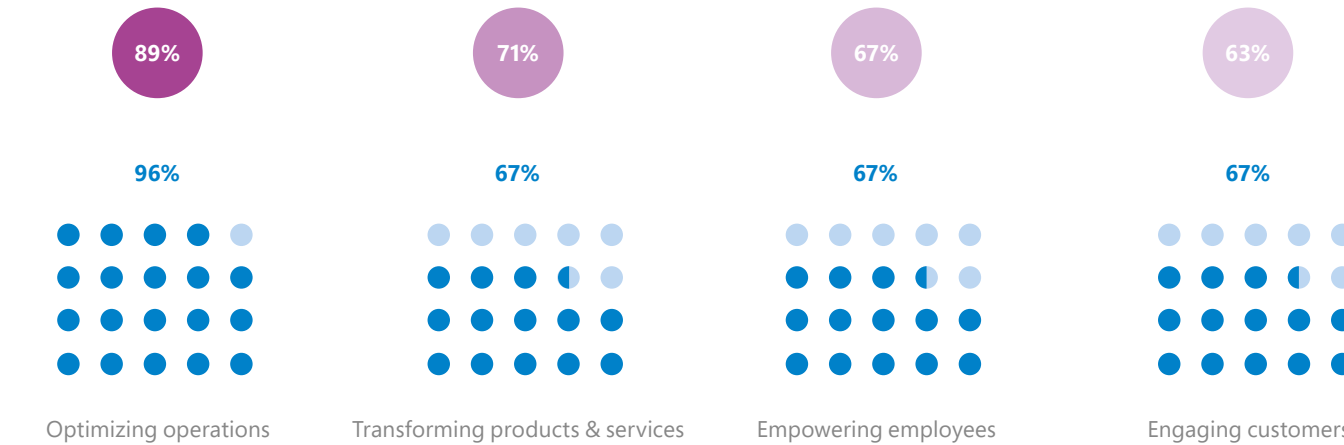
What was clear throughout from executives is the need to bring all stakeholders along on the AI journey by demonstrating the value and generating excitement - failure to do so will severely impact the value that could be attained.

Optimising operations is quickest time to value

89% of the regional respondents identified optimisation of operations as the top area they expect AI to deliver financial benefits in the near term, as the time-to-value is generally faster in this domain and AI's impact is more directly on measurable metrics. This drive for value realisation is underpinned by the need to show returns on AI investments very quickly, to create momentum and justify further investment whilst maintaining operational performance.

Most companies expect to generate benefit from optimizing operations

What business benefit do you expect AI to generate?



Affirmative responses, Middle East and African markets Affirmative responses, South Africa

BCX

As BCX continues to deliver digital solutions throughout Africa, the development of Artificial Intelligence (AI) prototypes to improve their internal operations is underway, with the aim of offering these opportunities to their customers. Early pilots focused on optimising operations and shared services, demonstrating the potential of various technologies and solutions, while enabling knowledgeable engagement with customers to understand their needs and develop appropriate solutions.

As a technology company BCX has established a solid foundation of capable resources and specialist skills

with our expertise augmented through recruitment, upskilling current staff and forging partnerships in niche areas. The field of AI is extremely diverse and BCX is looking at key areas where we would best add value. Areas

As we adopt AI, we need to balance new technologies with our traditional services to customers to ensure enhanced customer service.

such as IoT, intelligent automation, advanced analytics and cyber security have also been identified as warranting

investment and skills development. Being closely aligned to the Original Equipment Manufacturers (OEM's) for their existing suite of services, BCX will monitor their activities closely to avoid the risks associated with experimenting in bleeding edge technologies. Our approach would be that of close follower, observing and selecting technologies and innovations that offer the greatest benefit to our clients. To do this, we actively encourage staff to innovate and familiarise themselves with new technologies as senior leadership shape the strategy and take it to the market.

BCX

As a wholly-owned subsidiary of the Telkom Group, BCX has built multiple Tier 4 data centres across Africa and a global footprint that covers 81 countries across the globe. Solutions include cloud computing, unified communications and collaboration, converged connectivity, mobility, Cyber security, Digital Transformation, Internet of Things, Industrial Solutions, M2M and big data analytics. Ultimately, our passion is to make a difference and enrich communities by making the impossible possible, through technology.

What next?

By investing in AI we can create differentiation in the marketplace. We are currently focused on meeting customer requests for data science, cyber-security, robotic process automation (RPA) and IoT. Future requirements are likely to be Natural Language Processing (NLP), speech and image recognition, and these will definitely play a strategic role going forward. Being driven by customer demand means it is difficult to articulate now what that demand will be, but we will make use of partners to supplement the in-house skills we are building.



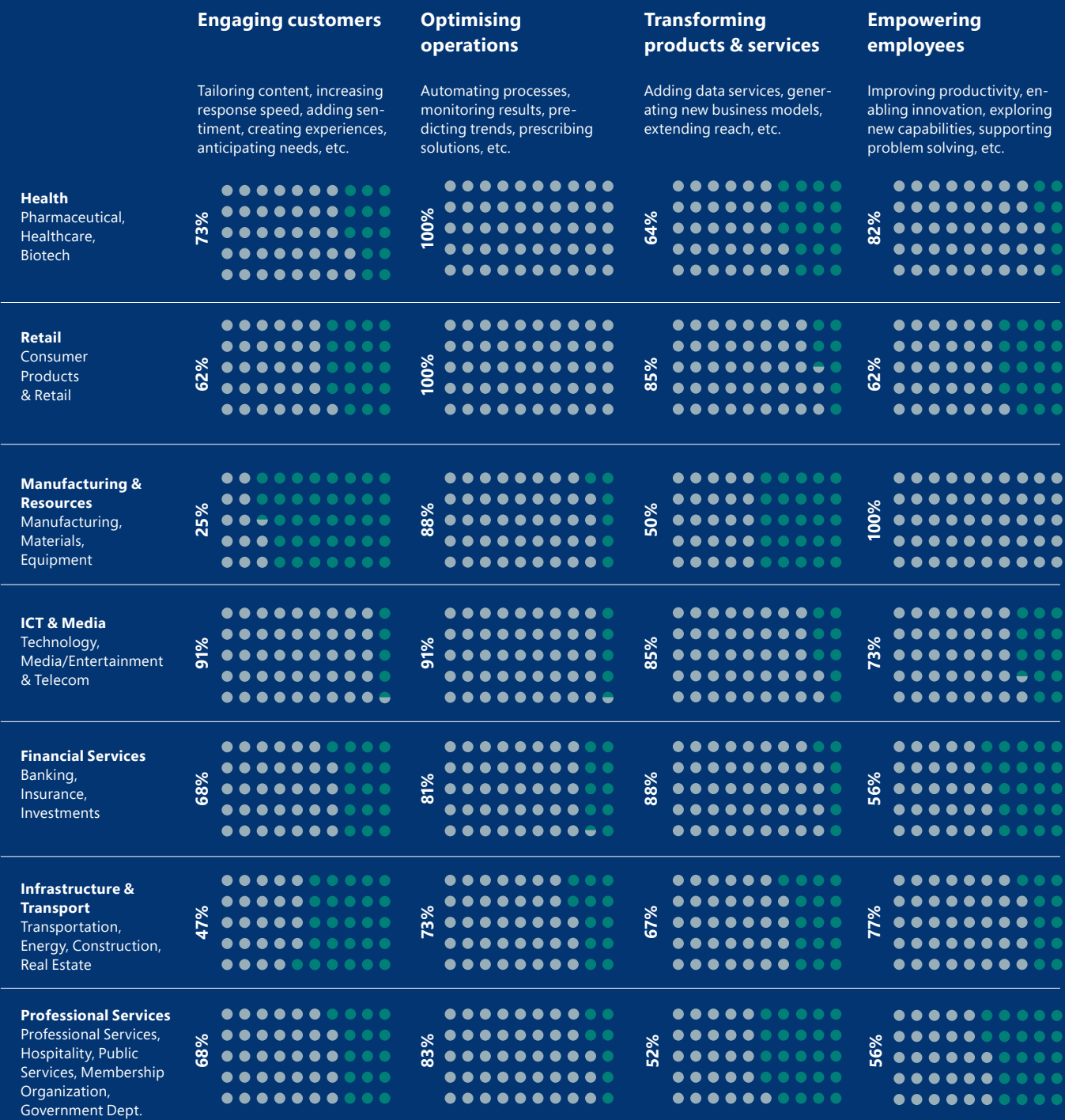
In future, more and more micro services will become available and will focus on intelligence and replication of human brainpower, and the relevance of AI will increase as we harness the power of information.



We will offer the tech we develop to our customers, but the solutions offered to customers will depend on the maturity level of the customer.

Sector Benefits Landscape

We asked companies across sectors in the region what business benefit they expect AI to generate across Engaging customers, Optimising operations, Empowering employees, and Transforming products & services



Affirmative responses by sector

Front to Back

What are the expected benefits by regional sector?

Executives surveyed and interviewed in the various sectors recognize the distinct benefits of AI, speaking about the myriad of ways they see AI transforming their businesses and industries. Although there are clearly discernable patterns, executives from different sectors often speak to different benefit areas that they particularly hope to capitalize on.

ICT & Media companies have the widest range of benefits

ICT & Media companies see significant benefits across the spectrum, where the application of AI ranges from changing customer engagement models to attracting new clients and reducing churn, whilst creating new products that meet consumer needs based on AI enabled customer analysis. In addition, the ability to use AI to reduce the cost to serve in a highly competitive market, and to empower employees to drive up per capita productivity and support better client service are big opportunity areas.

Professional Services companies focus on Optimizing Operations

Despite ranking lowest in overall benefits, executives in this sector all oversee significant human capital pools and intellectual property/knowledge bases. Notable value can be extracted through effective integration and efficient deployment of both assets using AI solutions. As their clients become more technology orientated,

Professional Services companies will change their mechanisms of customer engagement to align.

Efficient operations key in the Health sector

With much of the Health R&D occurring in regions such as Europe, most companies surveyed in this sector see the biggest benefit being more effective within operations. Using AI to better optimise their workforce and leverage the expensive machinery to generate greater ROI, would be imperative. Despite very advanced technology the sector is still plagued by inefficient analogue processes that hamper operations.

Engaging customers in new ways in the Retail sector

The Retail companies we spoke to rank second highest overall in expecting benefits from AI, buoyed by 100% of them expecting benefits in optimising operations. The ability to develop and deliver targeted, tailored offerings to customers was also very high creating flexibility and nimbleness in product development, manufacturing and highly dynamic supply chains was seen as the key.

Manufacturing & Resources and Infrastructure & Transport look to empower employees

Companies from Manufacturing & Resources with 100%, and from Infrastructure & Transport with

77%, are high in terms of expecting benefit gains through AI empowered employees. Very complex operational environments, managed and operated by highly experienced engineers and operators, are constrained by the availability of specialists, so using AI to assist and enhance the output of specialists would yield significant benefits. In companies with large workforces such as in Mining, micro improvements to employee productivity can yield massive gains.

AI to revolutionize Financial Services firms

Finance companies reported some of the highest expectations for AI benefits across the four domains, which would explain the sector being one of the current frontrunners when it comes to AI maturity. Using machine learning to detect fraud, automation to streamline KYC efforts in the back office, and reducing compliance and regulatory costs via technologies that digest vast quantities of legal documents, financial institutions are looking to provide higher quality service at faster speeds and lower costs. Investment decisions can be guided by robo-traders to transform products and engage customers in the front office.



As a very new company, we are building AI into everything we do. Our Chairman is passionate about the AI revolution, and it is discussed right up at Board level.

— TymeBank
Digital Bank



There will be a confluence of emerging technologies like cloud, blockchain, quantum computing and AI that have a natural interplay and will advance each other in ways that we can't predict right now, and that's going to be the biggest challenge, and opportunity.

— **Standard Bank**
Banking



It was initially thought that money would be the speed bump, but it's actually attitude and behavior – the younger generation likes the new way of doing things and the older generation is very sceptical.

— **De Beers**
Diamond company

Risky Business?

What do business leaders need to pay attention to when implementing AI?

Along with the obvious excitement about the benefits that AI can bring, organisations are reflecting on the risks that are linked to disruptive technologies. Executives intuitively sense the value of AI, but are conscious that being caught up in the hype might blind them to the dangers of investment in solutions that are only starting to demonstrate their commercial value.

Common thread is the risk of regulatory requirements

Almost half of the respondents articulated concern about adhering to existing regulatory requirements, as well as navigating the nascent, often ill-defined regulatory landscape for AI. Compliance with regulations such as POPI and GDPR through to cyber exposure means that solutions must be considered not just on commercial viability but also potential non-compliance to regulation. The

lack of clarity around possible new AI regulation can slow down scaled deployments as leaders worry about investing in areas where the rulebook is still being written.

Where is the human in the loop?

It is unsurprising that the second most common risk mentioned is the impact that AI could have on staff members. Automation anxiety is a very real concern against the backdrop of high unemployment figures. It will be imperative for companies to consider the organisational change management aspects and ensure employees are reskilled to become part of the journey, motivated and engaged in restructured work activities enabled by AI.

Thirsty for information, drowning in data

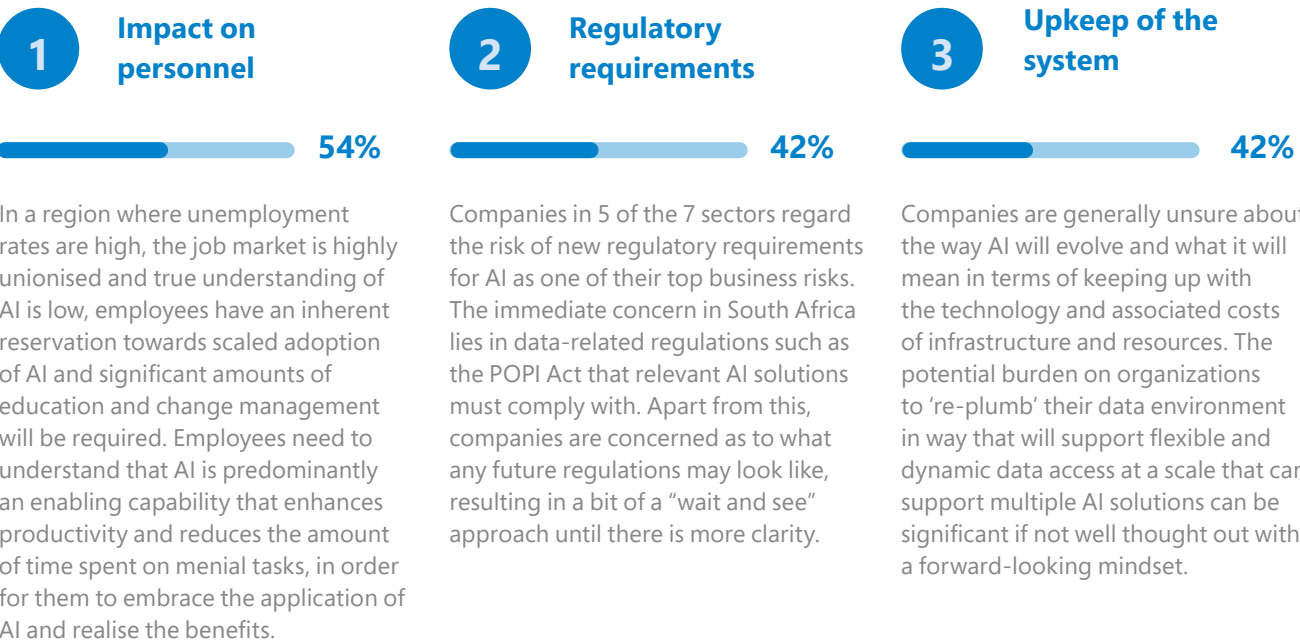
AI will consume a significantly greater quantum of data and will also

accelerate the velocity and volume of information moving around an organisation. AI can manage and make sense of big data, but using it effectively requires careful consumption of outputs to know what is useful and what is just noise. AI is also only as good as the data that feeds it, and organisations do not have sufficient infrastructure and data management protocols in place. How do you build a data platform for something where you aren't exactly clear what the final outcome will be? A significant amount of spend may still be needed to manage the dynamic and flexible data feeds that AI requires before value is extracted.

Loss of control - not yet

AI has not yet progressed to the point or scale where companies expressed notable concerns of losing control of their business operations, as they feel it is neither pervasive or invasive enough to pose a significant risk.

Top 3 business risks in South Africa



Note: Affirmative responses, South Africa. The respondents were asked to select all that applied of the following response options included: Diffusion of resources, Loss of control, Upkeep of the system, Information overload, Regulatory requirements, Impact on personnel.

Learn from the Leaders

The promise of AI lies in creating business value.

We have identified the eight most recognized capabilities needed to successfully create value from AI, and assessed how competent the companies are within each capability.

Perhaps more importantly, the executives we spoke with highlighted the importance of these 8 competencies as those needed to successfully create value from AI.

Capabilities. How?

What competencies are required to get AI right?

This section explores the eight capabilities necessary to develop AI maturity, realize tangible business benefits, and minimize risk. As exhibited in the chart on the following page, we asked the companies to rank the importance of these capabilities in terms of incorporating AI into their business, as well as to self-assess how competent their companies are with regard to each AI enabling capability.

The human element and technology

Some of the eight capabilities center around human elements: AI Leadership; Open Culture; Agile Development; Emotional Intelligence. Others are more technology oriented: Advanced Analytics; Data Management; Emerging Tech; External Alliances.

Ranking of key capabilities for realizing AI potential

Data Management comes out on top as the most important AI enabling capability among the companies surveyed and Advanced Analytics is second. AI Leadership is regarded as the third most important capability. Open Culture refers to collaboration and the ability to embrace change and uncertainty, and is ranked fourth.

Fifth is Agile Development, where self-organized and multi-disciplined teams are characterized by shorter project cycles and the ability to work with constantly evolving technology, leading to wider buy-in and scaling, followed by understanding how to deploy the right Emerging Technologies in a future proven way.

Entering into External Partnerships ranks second to last in terms of importance, perhaps because it's the area that resonates most with existing capabilities and where business leaders

perceive themselves most in control. As the majority of companies we spoke to are looking to enhance their skills by leveraging an ecosystem of internal and external sources and close ties with academia, given the shortage of skills in all surveyed countries, it is not due to a general lack of relevance.

Bringing behavioral science into play via Emotional Intelligence to build solutions that understand and mimic human behavior, and make it easier for humans to interact with the technology, is seen as the relatively least important AI enabling capability. An explanation for this could be that the technical skills are still so relatively complex for companies to grasp and establish, that more advanced human cognitive skills become less of a priority at this stage.

Noticeable sector deviation

As exhibited in the following chart, where business leaders are asked how competent their company is in relation to the most important AI enabling capabilities, there were notable variations across sectors with certain sectors generally showing a stronger competence across most of the capabilities.

Sectors that are more mature in using AI are those that report higher competency in Advanced Analytics - particularly Finance (including Banking, Investment and Insurance), as well as Services (including Services, Professional Services and Hospitality). Life Sciences (including Healthcare and Pharma) was lower than other sectors across the board, due largely to the fact that a lot of the pharmaceutical industry R&D and AI innovation is based in Europe and cascades down to the countries we interviewed. So although they utilise AI technologies extensively, they do not directly create AI solutions to the same degree.

8 capabilities

1. Advanced Analytics

Obtaining and deploying specialized data science skills to work with AI by attracting talent and working with external parties

2. Data Management

Capturing, storing, structuring, labeling, accessing and understanding data to build the foundation and infrastructure to work with AI technologies

3. AI Leadership

The ability to lead a transformation that leverages AI technology to set defined goals, capture business value and achieve broadly based internal and external buy-in by the organization

4. Open Culture

Creating an open culture in which people embrace change, work to break down silos, and collaborate across the organization and with external parties

5. Emerging Tech

The organizational-wide capability to continuously discover, explore and materialize value from new solutions, applications, and data platforms

6. Agile Development

An experimental approach in which collaborative, cross-functional teams work in short project cycles and iterative processes to effectively advance AI solutions

7. External Alliances

Entering into partnerships and alliances with third party solution providers, technical specialists, and business advisors to access technical capabilities, best practices - and talent

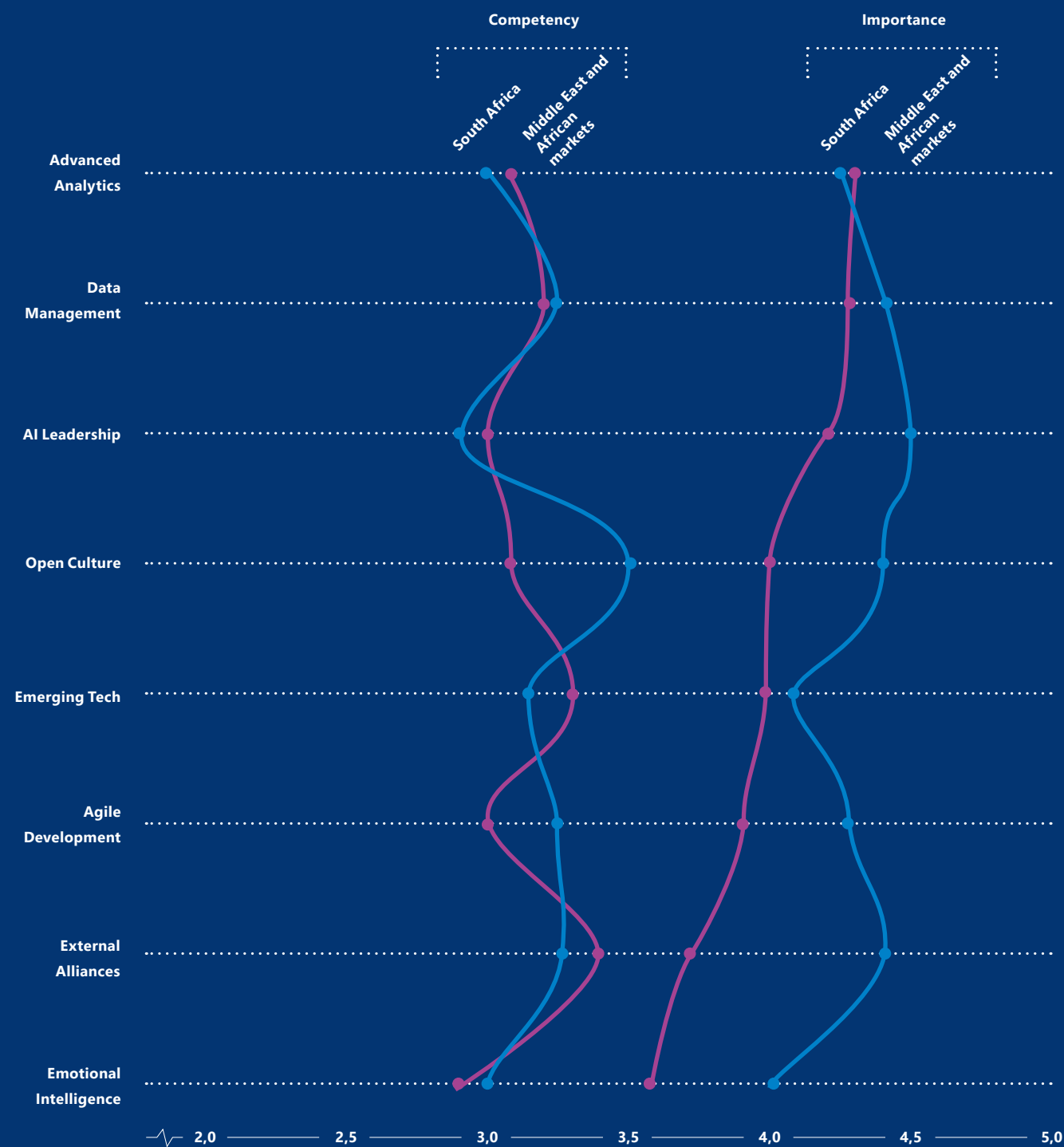
8. Emotional Intelligence

Applying behavioral science capabilities to understand and mimic human behavior, address human needs, and enable ways to interact with technology and develop more human-like applications

AI Competency Model

Advanced Analytics and Data management considered most important AI capability

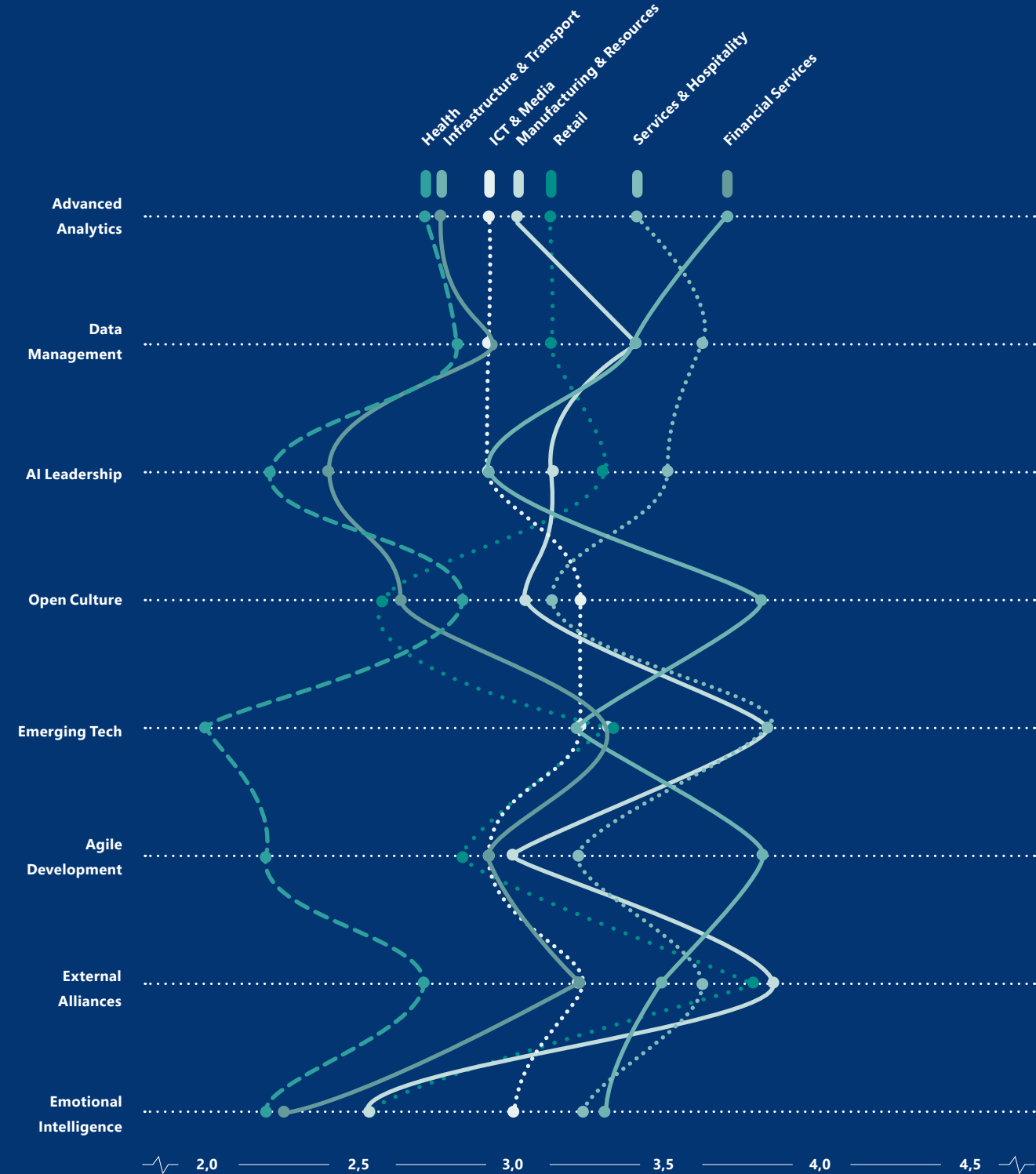
How competent is your company within these organizational capabilities?
How important is each of the organizational capabilities for your success with AI?



Note: 'Don't know' answers not included in average score.
Average competency and importance for South Africa and Middle East and African markets (1: lowest – 5: highest).
Capabilities ranked according to highest importance in Middle East and African markets.

Financial Services leads the other sectors in AI competency

How competent is your company within these organizational capabilities?



Note: 'Don't know' answers not included in average score.
Average competency by sector (1: lowest – 5: highest).

1. Advanced Analytics

Obtaining and deploying specialized data science, data engineering, data architecture and data visualization skills by training employees, attracting talent and co-creating with external partners

The backbone of AI is made up of skilled, intelligent minds who are capable of understanding business problems at the granular level, and deploying AI to effectively solve or support others in solving these problems. This requires technical data science and mathematical engineering skills, but also hybrid profiles with sufficient business acumen to decode problems and ability to tackle them using quantitative methods.

A self-fulfilling talent prophecy

It is evident from the study that there is a major lack of technical data skills to meet the drastically rising demand for AI. As a result, the hunt for AI experts has become extremely competitive, and it is far from uncommon that functional AI experts are paid higher salaries than their superiors and this will necessitate new HR remuneration models. Several business leaders state that the lack of AI talent is the greatest barrier to implementation within business operations. Interestingly, companies that have chosen an early adopter strategy for AI have been successful in attracting senior professionals who again have been able to build out strong AI teams in their companies – based on the premise that talent seeks talent – making AI recruitment a self-fulfilling prophecy for these pioneering companies.

In other words, the longer you wait, the harder it can be to get the right people. Consequently, a 'wait-and-see' strategy can be risky for companies that are AI followers due to the scarcity of talent, which may prove impossible to attract once the company is ready to make a more ambitious move into AI. While many companies struggle with acquiring AI talent, we also experienced companies with significant AI teams of highly qualified and experienced data scientists. Most often, these companies have been first movers on AI and attracted senior practitioners tasked with building out sizeable AI communities to work on the most strategic business agendas.

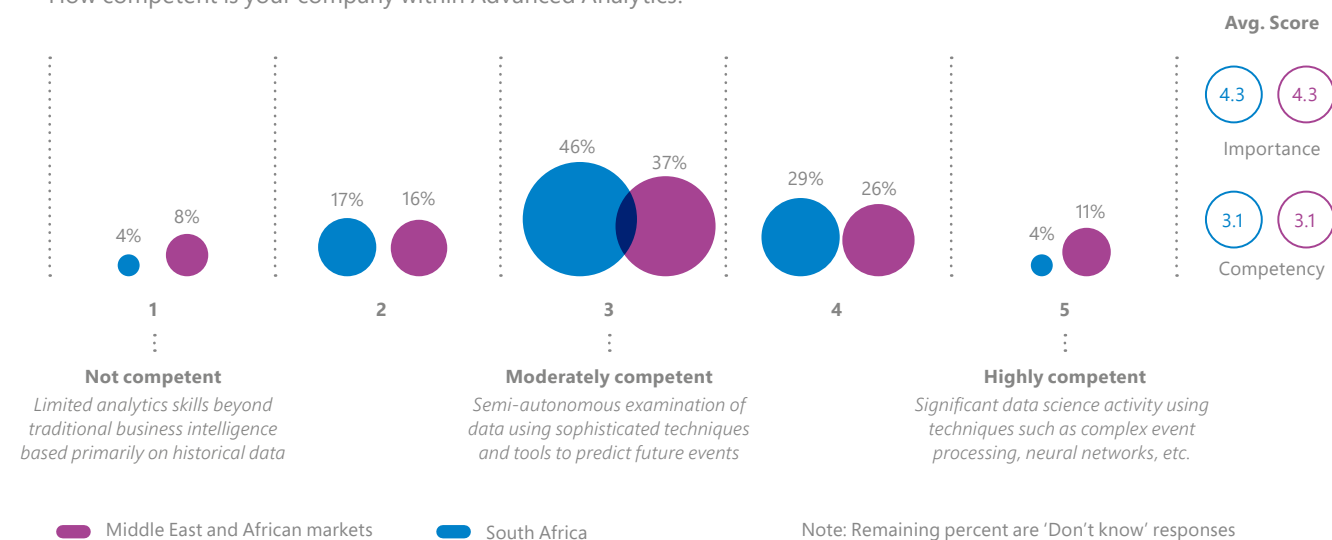
Hybrid profiles becoming the hardest currency

One of the most consistent inputs from the executives was the need for people with deep domain knowledge combined with strong technology proficiency. This hybrid profile is essential to identify relevant use-cases in the business with possible AI solutions.

As opposed to data scientists, software engineers, and even data architects that can be recruited externally, the hybrid profile is often nurtured by training existing employees from the line of business and adding AI skills. To succeed, however, a fundamental appreciation for technology is required.

Companies consider themselves moderately competent within Advanced Analytics

How competent is your company within Advanced Analytics?



Co-creating to compensate for blind spots - while avoiding the black box

The scarcity of available talent has led companies to increasingly co-create solutions with external partners who bring with them specialized know-how. However, executives very clearly point to the need for internal AI capabilities in the receiving end to understand the real problems and evaluate the performance of external partners. Companies find that AI solutions implemented by external parties become black boxes unless the organization is capable of contributing and taking over the solutions after delivery. Avoiding black boxes is a general concern amongst executives. Consequently, internal data scientists must be able to decode and dissect AI applications to explain the underlying rationales. Such rationales are important in making AI driven solutions credible, and greatly reduce the risk that an AI application draws wrong conclusions based on false assumptions.

South African companies are moderately competent in Advanced Analytics

At each end of the scale, 4% of companies consider themselves to be highly competent at Advanced Analytics, while 4% say they are not competent at all. 29% rated this capability as 4 out of 5, indicating that this is a capability that is starting to gain traction in the more mature companies. The remainder of companies rate their skills in this area as moderate and are mostly doing advanced analytics to some extent. What is holding companies back in the Advanced Analytics space is the lack of in-house skills, which are hard to find, as well as challenges in data access and data quality.

What to learn from AI leaders:

1. Providing interesting problems, good data, and a freedom to thrive in a non-corporate environment is key to attracting talent.
2. A wait-and-see follower strategy can prove risky and put companies in a talent scarcity trap.
3. Training existing staff with deep business intrinsics is key to make AI work - and effective when access to talent is challenged.



A big risk is making the assumption that if you have an intelligent machine it's OK to have dumb people in your organization – on the contrary, you will need sentient oracles to make sense of it.

— Hello Group
Integrated consumer and business services

“We need the capability to set up a digital ecosystem platform with AI startups, to manage integration of their products and set up governance structures and security. In that way we can utilize the specialist skills of passionate individuals who would not be comfortable working in a corporate environment.”

— Discovery Group
Financial Services

2. Data Management

Capturing, storing, structuring, labeling, accessing and governing data to build the foundation and infrastructure to work with AI technologies

Companies tend to focus their AI efforts in areas where they already have relevant data. We found that the amount of data available for immediate consumption varies significantly by sector but regardless, a significant proportion of the time companies dedicate to AI is spent on data management related tasks.

Data governance is no trivial task
One of the major hurdles companies face regarding data is governance, particularly who ‘owns’ it, how data is stored, how to access it, and who may access it, are all essential questions when working with AI. Questions that used to be about efficiency suddenly become highly strategic and complex to respond to without rethinking governance structures and policy. Governance aside, the most common obstacles to using data are organizational silos or legacy systems built for specific purposes, resulting in decentralized storage that limits access.

AI is only as good as the data it has access to.

— Exxaro
Mining company

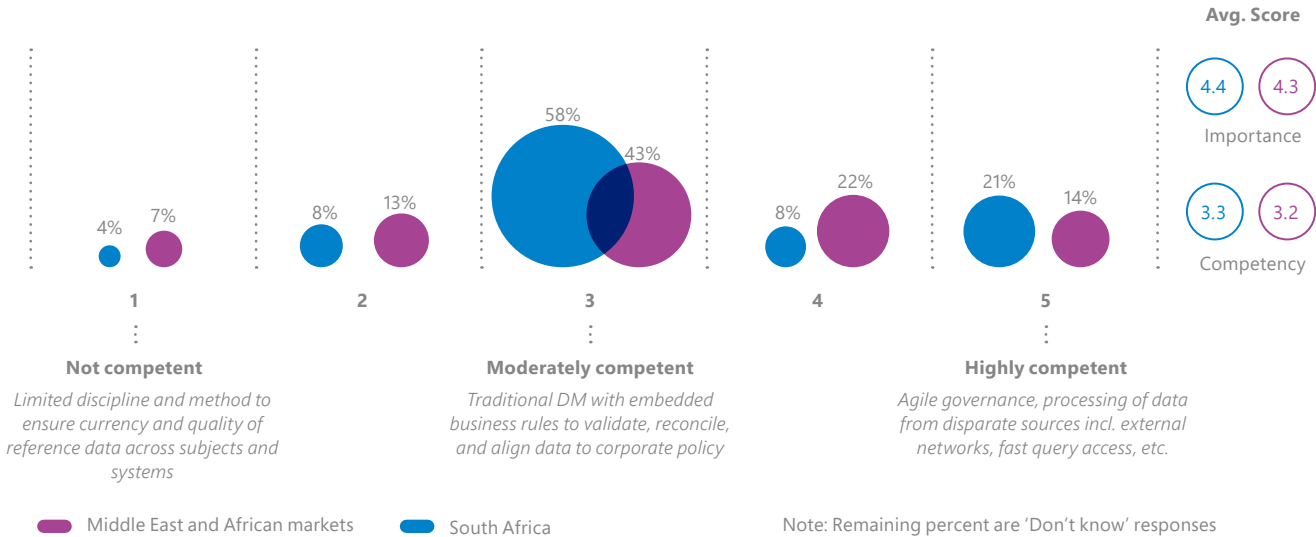
Companies reported that they typically spend 2-3 years building the appropriate data infrastructure for AI, and many respondents with the most ambitious AI visions are still spending the bulk of their time fine-tuning their infrastructure.

Data privacy regulations
Data infrastructure is not only a prerequisite for effectively working with AI, but is increasingly needed to comply with data privacy regulations, which respondents see as a key risk. The recent implementation of GDPR in the EU, as well as local country legislation, has highlighted the need to govern data usage. AI-specific regulation is still very immature, and AI leaders find that a lack of clear guidelines can limit their progress as they cannot factor legislation requirements into their long term planning.

Advanced companies (also appreciate external and unstructured data
To build precise and useful AI solutions, companies not only need a lot of data, but also accurate data that is appropriately structured and labeled. Data is often reported to be in an unusable state, as it could lead to undesirable or unreliable outcomes. A significant number of clients are investing significantly in the ‘foundational’ activities, specifically around data, in order to create the platform for AI solutions in the future,

A significant share of companies consider themselves moderately to highly competent within Data Management

How competent is your company within Data Management?



including creating completely new data structures. Interestingly, we found that while companies that are less mature in AI tend to use mostly structured data from internal data sources, 53% of the more advanced companies use both structured and unstructured data, and a significant 54% use data from both

internal and external sources. Similarly, 36% of these self-rated most advanced companies report use of hybrid architectures with on-premise and cloud based storage, while the less advanced predominantly rely on on-premise platforms.

Data Management scored high in South Africa
Almost one third of companies in South Africa consider themselves to be highly competent or approaching that yardstick when it comes to management of their data for the purpose of applying AI. More than half of the companies (58%) rated themselves as moderately competent, although in discussions with the companies there was often an acknowledgement that they had some work to do in being absolutely ready in data terms for implementing AI in their organizations. They have lots of data, but it is a matter of improving infrastructure, governance and data quality. There is general recognition of the important role that well organized data plays in applying AI at scale.

Through data analytics capabilities, Medscheme is deriving value from the vast recorded data in its systems. One of the exciting examples is predictive modelling and machine learning that gives Medscheme the advantage of identifying customers who could be high risk patients in the future. This is changing the game in healthcare as these customers can be advised to proactively look after their health, before it becomes a serious challenge in the future

— Medscheme
Managed Care Services

What to learn from AI leaders:

1. Make sure that the value of data is understood and prioritized throughout the organization.
2. Engage the C-suite in defining data governance and strategy - it is key to getting AI right.
3. Build your data structure to embrace unstructured data, also from external sources - advanced companies indicate that you may soon need it.

3. AI Leadership

The ability to lead an AI transformation from top to bottom - by articulating a vision, setting goals and securing broad buy-in across the organization

As with any corporate transformation, the foundation for successful deployment of AI is executive leadership buy-in and sponsorship. The C-suite must be aligned in what they want to achieve, and AI must be placed on the strategic agenda to ensure that AI efforts are an integrated part of the company's overall strategic goals, that capital is allocated, and employee time is dedicated.

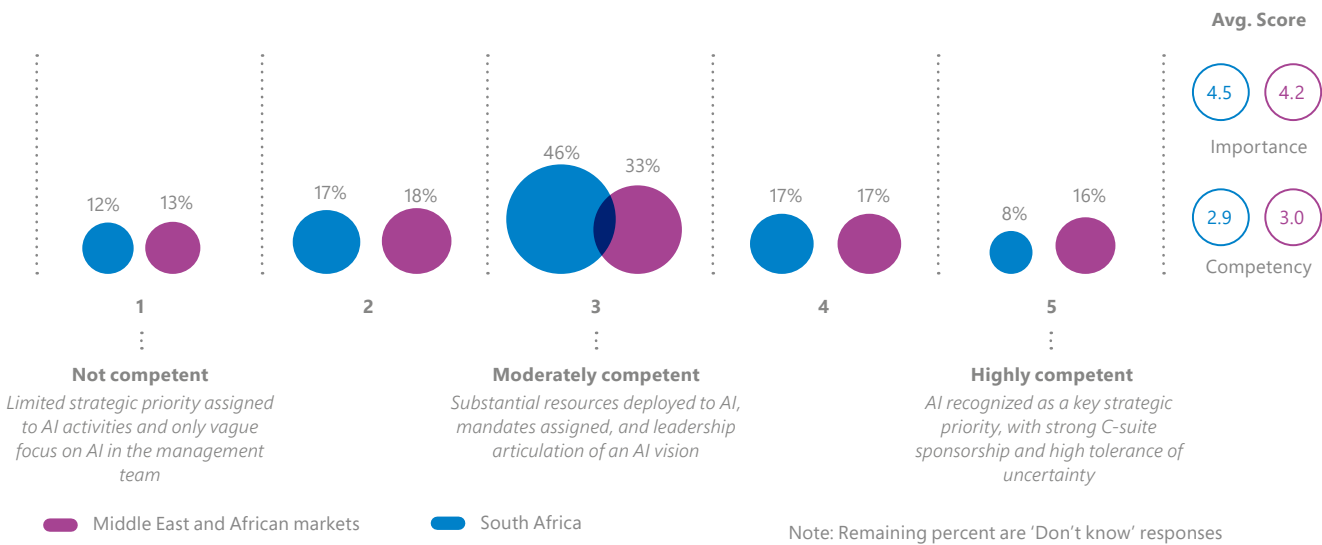
AI Leadership among the lowest competency of all capabilities
Given the relative importance of AI Leadership (avg. 4.2 across all sectors), it is interesting to see that business leaders self-assess their level of competency as among the lowest of all eight AI enabling capabilities, with an avg. competency of only 3.0, and 64% of respondents state that their companies have moderate, little or no AI Leadership competency. Many executives are realizing that business

acumen is not in itself sufficient for comprehension of how AI is impacting the business. As AI technologies become increasingly complex, leaders must be able to launch, support and, where necessary, challenge relevant AI initiatives against strategic business imperatives. The disruptive potential that companies believe AI will have also means that leaders should anticipate and prepare for a broader change management exercise aimed at embracing the change from AI on multiple levels.

Significant variation in AI conversations from top to bottom
Interestingly, data reveals that AI is considered an 'important topic' on the C-suite level amongst 80% of the companies surveyed. However, less so on the Board of Director level, where it is only considered an important topic in 37% of companies, and even less so on the operational employee level, at 26%.

We observed in the interviews that companies very rarely have AI capable leaders across the Board of Directors, Executive Management, and Functional Management layers. Senior AI leaders may sometimes be found on one of these levels, but rarely with any speaking leadership colleagues to challenge their ideas. This leadership vacuum was often pointed to as an issue from lower level AI experts.

A large proportion of companies consider themselves to have limited or no AI Leadership competency
How competent is your company within AI Leadership?



Accepting loss of control
As new technological opportunities foster innovative, dynamic business models, organizations will need to tear down silos to become more agile and collaborative. To achieve this change, it is paramount for leaders to create and convincingly articulate a vision, so stakeholders understand the bigger picture.

A general characteristic of this challenge is that leadership needs to accept that it will lose some control. Projects will increasingly be explorative, bottom-up and have less certain outcomes, requiring leaders to be ready to adjust the overall direction of the company more frequently. Increasingly, AI projects will rely on open source code and off-site cloud solutions, building on collaborative capabilities outside the company.

South African companies only moderately competent in AI leadership capability
Most survey respondents recognize that successful AI implementation requires a strategic vision and the buy-in of the entire organization, however the majority of South African companies believe they are only moderately competent in this regard. Even those companies who are leading from the top are still trying to harness and direct the experimentation that is taking place in pockets, with some exceptions in the more mature companies who are getting it right - 8% rated themselves as highly competent. Shortcomings in AI leadership is around lack of formalised structures as well as shortage of indepth understanding of AI and its applicability. This capability scored the lowest of the 8 capabilities, with an average rating of 2.9 out of 5, and reflects an area for improvement.

- What to learn from AI leaders:**
1. The organizational transformation driven by AI will be continuous - this requires seeing AI as a process, not a project.
 2. Leadership must be accustomed to AI technologies to understand how it will affect the company.
 3. Articulating a clear AI vision is key to achieving buy-in and motivating exploration of use-cases with uncertain outcomes.

There must be a will in the organization to make AI happen.
— Hello Group
Integrated consumer and business services

“We work in a critically competitive space, where we need people across the organisation to be driving efficiencies in order to gain competitive advantage. Our staff are motivated and excited about AI, and we encourage them to take risks and bring initiatives to us.”
— Transunion
Consumer credit reporting agency

4. Open Culture

Creating an open culture in which people embrace change from AI, navigate confidently in uncertainty and ambiguity, work to break down silos, and collaborate seamlessly across the organization

New technologies have often disrupted how work is conducted. AI is no different. Establishing an open, collaborative culture to minimize resistance and enable human performance can prove efficient to prepare the organization for transition. However, this may be difficult, as the magnitude of impact driven by AI can imply a fear of uncertainty, ambiguity, and a general resistance to change.

Risk to employees less of a concern among most advanced companies
Companies reported that employees generally are still uncertain about their attitude towards AI. Although they may have a generally positive attitude towards the principles of AI, the open and supportive attitude wavers, and in many cases reverses, once new technologies start impacting the way work is done.

To achieve buy-in, business leaders must make the changes due to AI tangible to reduce organizational uncertainty. However, companies expect a significant impact from AI which will drive a fundamental transformation and increasingly assist

in tasks previously performed by humans.

Regardless of whether companies rated themselves as advanced or not, 30% still raised culture as a major concern, implying that even as companies mature in AI, fostering and growing an open culture will remain a long term agenda item for executives.

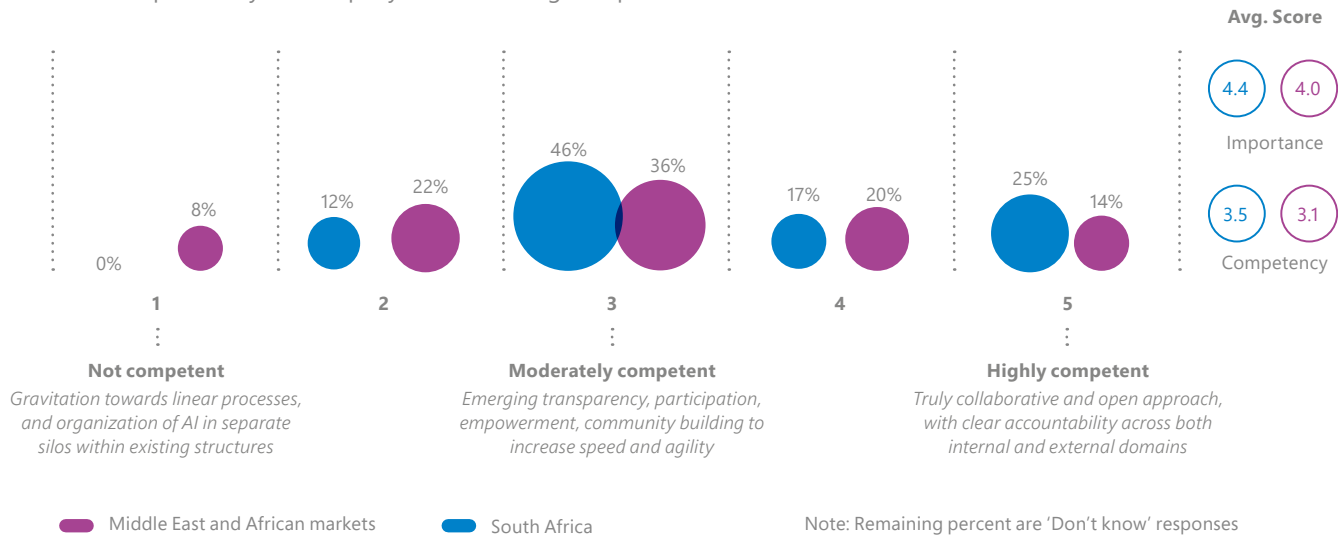
Competency gap still noticeable
There remains an appreciable gap between importance (avg. 4.0) and competency (avg. 3.1), as creating an Open Culture is one of the capabilities where business leaders feel much work needs to be done, specifically in regions where a culture of ‘knowledge is power’ exists and therefore knowledge isn’t always freely shared.

An obstacle mentioned by many respondents is the ability to work collaboratively across the organization despite AI most often being put to use in quite narrow use-cases. With benefit areas being limited to specific domains or functions, it is often not seen as relevant to involve the organization in a broad and collaborative approach on AI.

Furthermore, many companies have had difficulty in carrying out effective AI programs, which are closely modelled on the lean processes of startups. The primary purpose of such programs is to enable brief, agile projects to gauge the applicability of the AI use-cases, which requires a substantial change to company culture. Silos between departments in the

Most companies rate themselves moderately competent in Open Culture

How competent is your company within creating an Open Culture?



company have to be broken down in order to promote a culture where AI teams work in conjunction with the rest of the company to create value, circumventing needless complexity and time-consuming processes.

Another issue relates to the concept of sharing data openly, when the value of the data remains largely unknown until it has been treated, processed or combined with other datasets.

Cooperation across the organization
Many of the most advanced companies that have been able to produce several AI projects have also managed to establish links and cooperation across the organization. These cases indicate that the benefits of an open work culture far exceed the difficulties and associated risks.

An obvious obstacle to an open culture is the fear of job losses with the introduction of AI. According to respondents, the fear of workforce redundancy has some merit, but the concern should not overshadow the significant benefit potential of AI. A pivotal task for company leaders is to proactively articulate a tangible vision for AI initiatives. This will make it easier for employees to understand the AI opportunities on a personal level, and thereby embrace the change ahead.

Open culture very positive in South Africa

This scored the highest overall (an average of 3.5 out of 5) in South African companies, even though most companies generally don't have a very advanced agenda in terms of AI. There is a willingness to embrace experimentation and learning about the new technologies across all organizations in the study. 25% of the organizations consider themselves to be highly competent (rating of 5), with 17% rating themselves at 4, and 46% giving themselves a rating of 3 - moderately competent. This was evidenced by the fact that AI is generally being discussed openly amongst all levels within the organizations, and employees are being given opportunities to experiment with the new technologies on a limited scale.

What to learn from AI leaders:

1. Establish cross-organizational projects to foster collaboration and learning across functions.
2. Ensure employee buy-in by being open and clear about on-going projects and desired outcomes.
3. Ensure that governance structures support collaboration through projects co-owned by AI experts and business leaders.



We want a culture of change in the organization, so that it becomes part of your day job—this is a very uncomfortable position to be in, for most people.

— **Bridgestone**
Tyre manufacturer



Make sure you have a learning culture, a culture of curiosity, it drives an open mind for dare to dream.

— **AB InBev**
Beer Brewer

5. Emerging Technology

The organization-wide ability to continuously discover, deploy, and create value from intelligent solutions, applications, and data platforms

Evidence of the rapid pace of technological change is plentiful in today’s digital world. What we have seen is that there is a definite correlation between being ahead of the pack with AI and having a wider technological adoption. That AI benefits from being able to identify and implement emerging technology may seem intuitive and obvious, yet finding the right formula is no trivial exercise.

How strong is your tech radar?
With an average score of 3.3, the ability to explore and implement emerging technology is an area where business leaders perceive their companies to be relatively competent, second only to External Alliances.

One factor in working with emerging and rapidly developing technology to build a stack that is fit for AI is a well-calibrated ‘radar’ by which companies pick up on the trends outside of their own walls. Many companies mention that being unable to quickly integrate innovative trends and cutting edge



The supply chain market is very cut-throat, everyone has trucks and warehouses, it is about the technology sitting on top of supply chain that makes the difference.

— Super Group
Transport logistics

technology due to the burden of legacy systems, siloed business units, and complex governance processes is proving a real challenge for their AI adoption.

While there is some truth behind such stereotypes, we also heard from several executives who have been able to build radars that pick up on what’s happening in technology domains and applications. This continuous explorative process is serving them well to get an overview of workable AI solutions that could prove successful in production.

Do you enable or hinder innovation?
Once companies are able to selectively source new solutions from the outside world, the challenge is then how to enable them. This may be a case of actively encouraging enablement, or at the very least not hindering it. Many companies treat AI as a crucial piece of a wider digital puzzle, where dots need to be connected across technologies. This means that success

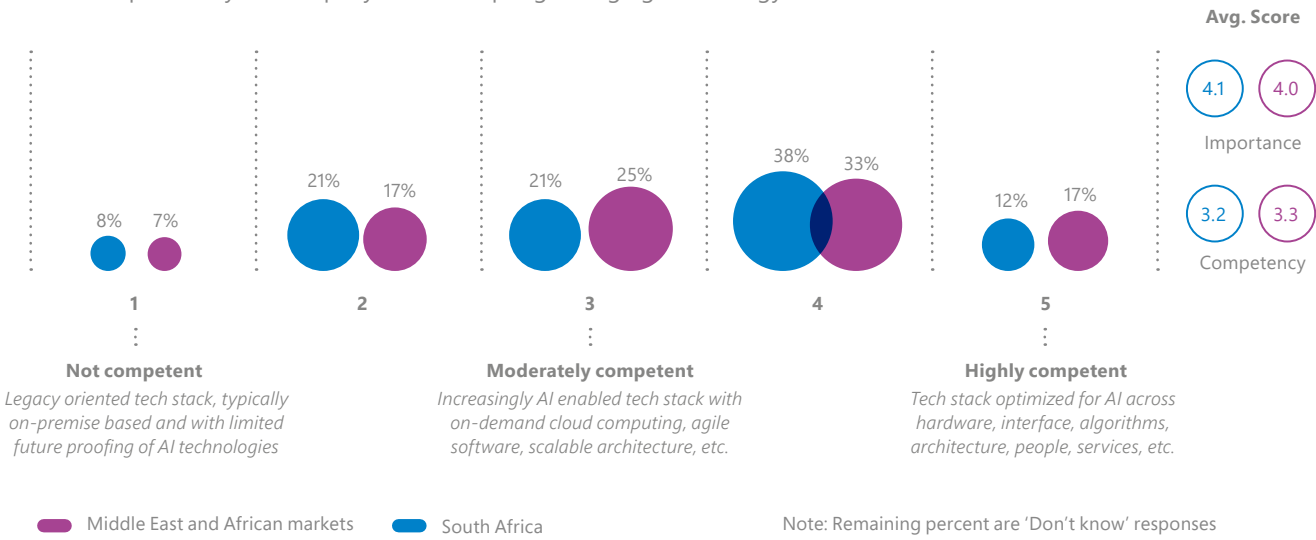
with established technologies, from cloud and SaaS platforms to getting the basics right with analytics, is key to building on what is already there.

Working with emerging technology also relates to agile development and the ability to trial, test and experiment in iterative, short cycles. This kind of agile culture allows companies to work with less stable, untested technology. Enabling innovation requires an outlook from the very top of the organization that accommodates longer investment horizons and at times uncertain financial returns. This is particularly key when working with AI technology that, according to the executives, is often not as mature as the digital solutions deployed for other purposes.

Not all that glitters is gold
Despite the need to explore and navigate a tech sea characterized by uncertainty, a recurring theme when interviewing executives is the importance of balancing the excitement of new technology and commitment to an innovative mindset, with one foot that is planted firmly on the ground.

Seeing past the hype, remembering the business model, and not wasting finite resources on every shiny object is also important. In other words, remembering as a leader that while experimentation is crucial, all that glitters is not gold.

Emerging Technology is the AI-enabling capability with second highest competence ranking
How competent is your company within adopting Emerging Technology?



The importance of execution
Finally, this capability is also about effective execution. Many companies we surveyed across the region had developed strong business cases supported by robust concepts and AI applications - on paper. But technical limitations tend to get in the way of implementation. Employees with limited technical ability often need upskilling to work with new technology. IT and business may need to work closely together and speak each other’s language to reach common goals. In addition, organizations need to learn to move more quickly and nimbly in this space - whether to complete an acquisition of new tech, to ensure compliance with IT standards, or simply to pair new tech with legacy systems. This ability is often also about speed, not far from the development pace that characterizes the emerging tech itself.



We see ourselves as just beginners in this space, and are focused mainly on computer vision, photography image processing, chatbots and natural language processing.

— SMEC
Infrastructure consulting

South African companies experimenting with emerging technology
Some of the emerging technologies like Chatbots, RPA and Advanced Analytics are definitely on the radar at most South African companies, but they are more hesitant when it comes to the advanced AI technologies like neural networks and deep learning. Despite this, 12% of companies rated themselves as highly competent, and 38% rated themselves just below highly competent. This capability was rated 5th out of the 8 capabilities with many of the organizations relying on AI startups and other partners to assist them with new technologies, as they often lack the skills themselves. The challenge will remain to effectively convert the experimentation to production state solutions with ‘gateway technologies’ and progress into the more complex AI technologies over time.

What to learn from AI leaders:

1. Build a radar to pick up on merging tech trends and connect them to market opportunities.
2. Look past the technology hype and remember the business model - it may likely need to change in the not so distant future.
3. Cloud solutions can be helpful to engage with multiple datasets across sources - increasingly a priority to capture value from new pockets.

6. Agile Development

An experimental approach in which collaborative, cross-functional teams work in short, iterative project cycles to effectively progress AI solutions

“We need to develop the ability to look at an opportunity, invest the right amount of money, time and effort to see if it will work, then to roll out or discard quickly. It is very hard to get it right

— Bridgestone
Tyre manufacturer

Considering that many AI technologies are still in their infancy, working with them is far from plug-and-play. To overcome this, many of the companies that are successfully working with AI tend to take an agile, iterative approach to projects. With this approach these companies greatly increase their ability to explore AI potential, owing to a drastically reduced project cycle time and dynamic risk reduction. Short project cycles allow project teams to receive constant feedback on what works and what does not, to continuously steer the direction of the project. This creates a process centered on learning and experimentation, helping to build internal knowledge and capabilities.

Most advanced companies deploy top down or via a hybrid model

With an average competence level of 3.0, Agile Development is an area where companies are self-reported to be reasonably skilled. Quickly establishing proof of concept is key to organizational buy-in, and many companies report that an agile, iterative approach helps them build evidence and proof in a fraction of the time it takes for a more traditional project.

This has great significance, as they find a tangible proof of concept is instrumental in achieving buy-in and understanding from the wider organization. Efforts to develop proof via agile development processes are

often orchestrated by a central unit that collaborates with business units to identify use cases. Of the most advanced companies, 82% deploy AI into the organization via top down only, or a via hybrid approach of top down and bottom up. Whether these central units take a leading role in pushing the agenda, or instead focus on gathering knowledge and experience from already existing efforts that are decentralized in the organization, varies from company to company.

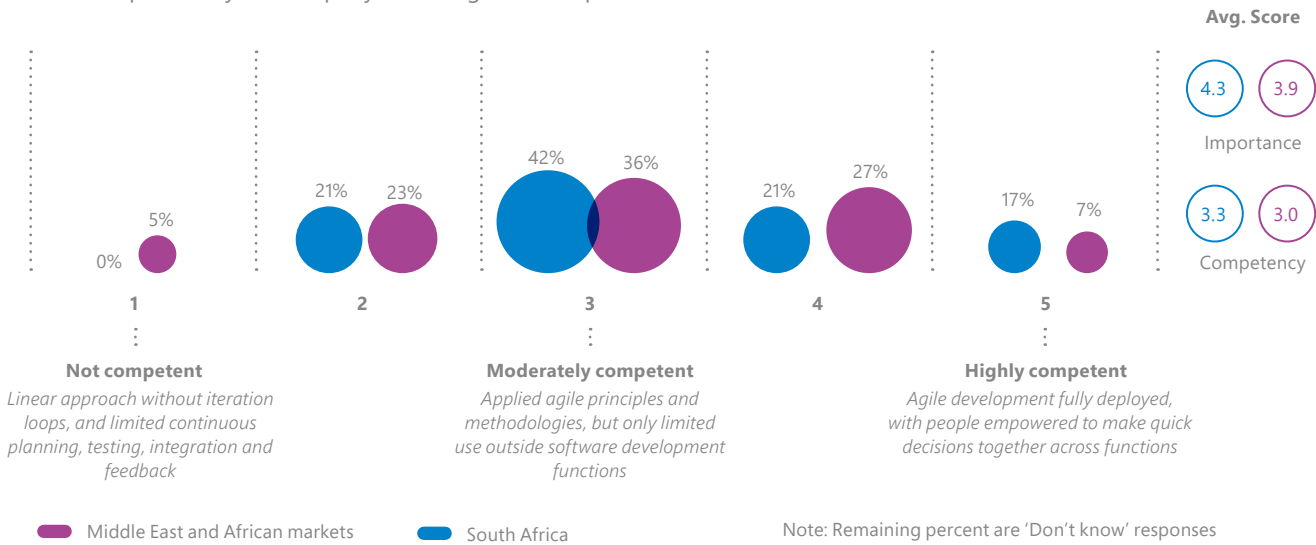
Agility provides the opportunity for informed changes of direction

Taking an iterative approach can also help mitigate risks. Frequent feedback loops allow the project team to better identify, understand, and correct undesired outcomes before the AI application is put into production, potentially doing harm. This flexibility does not only apply to risks - agile projects can generally use ongoing knowledge and experience to make informed changes of direction and avoid the ‘black box’ syndrome.

In contrast to agile projects, ‘big bang’ projects are more destined to fail, as they skip the learning process and lack the important feedback loop pivotal to developing good AI solutions. The world of AI is simply too complex for humans to foresee potential issues, and therefore an agile approach is infinitely better.

Companies seem relatively competent within Agile Development

How competent is your company within Agile Development?



Agile development new to many business departments

Most companies fully understand the need for agile development, but few reckon that they have the necessary capabilities for it. Working in an agile manner is very different from what most organizations are accustomed to. While a department running an AI project might be familiar with an agile approach, the vast majority of project teams consist of people from other parts of the business. Several IT and AI departments indicate that this collaboration can be difficult, but still see it as pivotal to drive value from the projects. Getting the business accustomed to working in an agile manner is not easy, as it requires acceptance of new ways to govern and evaluate projects.

The outcome of agile projects is typically less predictable than for traditional projects, and for stakeholders to fully embrace an agile approach, they have to accept this randomness and recognize the value of learning.



AI points you in the direction of what the data is telling you, and allows you to create new products in our very competitive market. Everything we do today, in 3 months our competitors will follow, so new ideas and speed to market in building great customer experience is what gives the value.

— Transunion
Consumer credit reporting agency

Agile development rated surprisingly high in South Africa

This capability was rated at an average score of 3.3 out of 5, the same as Data Management and External Alliances, with 17% of companies being highly competent and 21% of companies rating themselves just below that, and with 42% of companies being moderately competent. AI pilots and experimentation are fairly prolific in South African companies, and this type of solution lends itself to an agile development approach, with close integration required between technical and business people with the institutional knowledge. Adoption of Agile principles is being seen, but many organisations still face challenges in following an Agile methodology at scale, as it requires alignment with operating and resource models that are not structured to support Agile development.

What to learn from AI leaders:

- 1. Agile development is effective in engaging people across functions, fostering collaboration, and bridging tech and business.
- 2. Iterative processes promotes quick internal learning due to their frequent feedback loops.
- 3. Fast experimentation with pilot projects and use-case testing can quickly show how to create value through AI.

7. External Alliances

Entering into partnerships and alliances with academia, solution providers, and AI specialists to access technical capabilities, best practices and talent

“
There is collaboration amongst mining companies as we share many common goals. Despite being competitors, the entire industry can benefit from collaboration and the technological advances of AI.

— Harmony
Gold mining company

AI leaders are increasingly opening up to create collaborative alliances with external partners, enabling them to tap into a significantly larger pool of capabilities and talent, and to reduce the time it takes to develop or deploy working solutions.

This trend seems to be the new modus operandi, unfolding across markets and sectors. It is also the capability with the smallest gap between perceived importance and competence level among the participating companies.

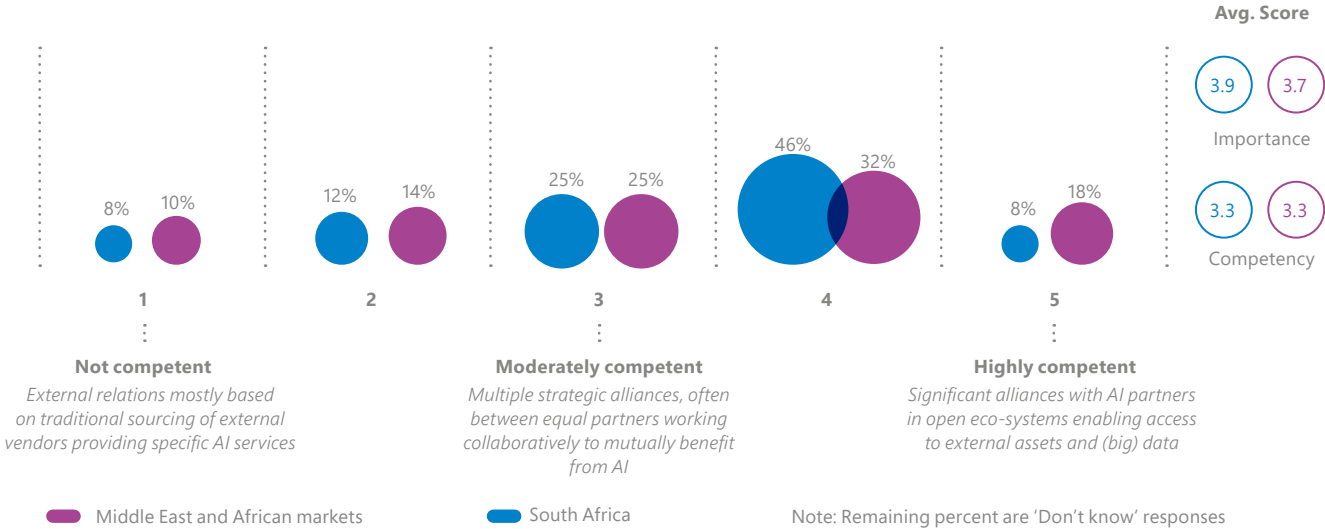
Technology, data, and service delivery partnerships
Development of AI and delivery of related projects are most often done with a mix of internal and external stakeholders. The rationale is multifaceted – some companies are simply struggling to obtain the needed talent, whereas others see a partnership approach to be a faster, more flexible solution. These external alliances typically come in two forms: being focused on technology and technical AI know-how, or focused on strategy and business development. To address one of the biggest prerequisites of working with AI, access to large amounts of data, companies state that they are increasingly looking to entering into data partnerships where they either buy or exchange data with other parties. This is a way for companies to get hold of data that they are unable to capture themselves,

or simply a way of quickly increasing the size of their datasets. Others report that they look to use pre-developed, out-the-box algorithms, in order to increase the speed of bringing quality solutions into production.

Academia playing a more noticeable role in collaborating with companies
It is becoming increasingly common for companies to enter into partnerships with universities in order to position themselves within AI and get access to crucial knowledge. Companies also see this as a way of establishing a pipeline of AI talent already familiar with their business and the problems they face. Some of the more ambitious companies have a strategy of positioning themselves within AI, comprised of active conference participation and multiple university partnerships in which they actively participate in developing courses and programs.

Documentation of code is proving a challenge - also to externals
The lack of code documentation for self-learning algorithms was often mentioned as a very practical issue with AI in general. This led some companies to prefer internal teams and individuals in order to ensure that despite poor documentation, the knowledge about the code at least stays in-house.

Companies generally consider themselves moderately to highly competent forging External Alliances
How competent is your company within building External Alliances?



External alliances common in South African companies

On account of the shortage of technical skills and lack of knowledge around some of the emerging technologies, more than half of the South African companies rated themselves above moderately competent in making use of external alliances - 8% rated themselves as highly competent and 46% rated themselves as approaching that level of competence. This capability had an average score of 3.3 out of 5, and was one of the top capabilities across the spectrum. There is the recognition that this is key for future success and emphasis is being placed on being able to select and manage an ecosystem of partners in an effective and productive way.

What to learn from AI leaders:

- 1. Make sure to have internal people in the receiving end before widely engaging with external partners.
- 2. Academic partnerships are an increasingly sought after way to access innovative eco-systems, gain new insights, and explore emerging AI opportunities.
- 3. Partnerships can pose a challenge to many business processes; consider involving key functions early, like legal and procurement, to ensure a productive partnership structure and effective collaboration model.

“
We don't know what some of the capabilities look like until we have seen them in action, so we are working with partners on a knowledge transfer basis.

— Discovery Group
Financial services

8. Emotional Intelligence

Applying behavioral science to understand and mimic human behavior, address needs, improve human-machine interactions, and ultimately create more human near applications



We would like to use AI for a more consistent and fair model for performance management in our call centre, to eliminate human bias.

— RCI

Timeshare and vacation exchange network

AI has for long focused on cognitive capabilities and skills within mathematics, statistics and logical reasoning. Adding human emotion and intelligence, these capabilities move to a new, more complex level: the understanding of human behavior, and the ability to interact accordingly with technology.

Changing the way people interact with technology

One of the limits of traditional AI has been the inability to understand human traits such as emotional state, for instance exhibited in writing, physical condition, or tone of voice. With AI's cognitive intelligence capacities within reach, machines are increasingly able to sense, recognize, and decode human traits.

This holds the potential to fundamentally change the way people interact with machines, making technology capable of handling more complex tasks and ultimately augmenting humans to an extent previously unachievable.

Emotional Intelligence in its infancy

Except for advanced companies, survey results indicate that companies view the adoption of emotional intelligence in AI processes as the least important capability, and the one where they have the lowest competency. When asked to address why this is, companies across sectors and markets note

that they are still at a relatively low maturity stage where more immediate requirements such as Advanced Analytics, Data Management and AI Leadership are more relevant and prevalent. However, when taking a deeper look at the companies that have assessed themselves to be 'Advanced' in terms of general AI maturity - meaning that AI is actively contributing to many processes and enabling quite advanced tasks in the company - it is interesting to see that they perceive the Emotional Intelligence capability as more important with a score that is noticeable higher than the average score for all companies.

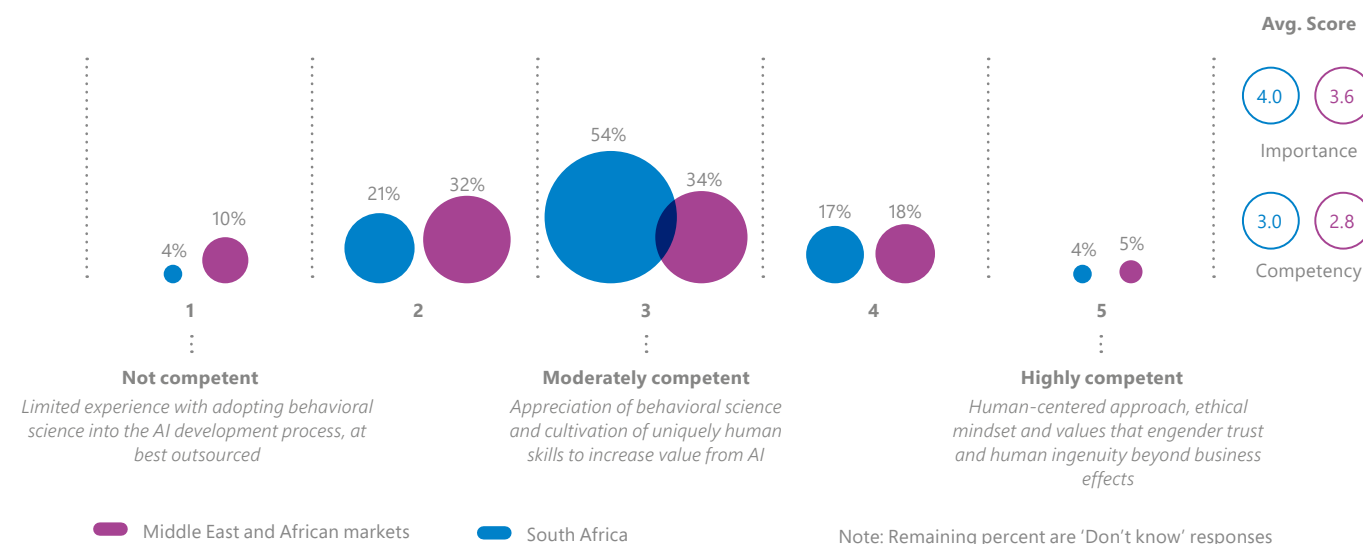
Many advanced companies perceive this to be either 'very' or 'highly' important. Notably, these companies come from five different markets and a wide variety of industries, including Health, Financial Services, ICT & Media, Retail, and Services & Hospitality.

Value in customer-facing applications

The need for behavioral science to understand human needs is expected to increase with the integration of AI in smart devices, and in customer facing applications such as chatbots, robo-advisors, customer enquiry processing, etc. The most advanced companies' AI technologies are beginning to decode human emotions from text, such as

Companies consider themselves least capable within Emotional Intelligence

How competent is your company within applying Emotional Intelligence?



irony, anger, and frustration. This will obviously become more valuable as it is increasingly applied in customer-facing solutions with the ability to learn and improve.

Human centrist requires strong leadership

While emotional intelligence holds great potential that could lead to early adopters gaining a competitive advantage, long-term success is dependent on not only technological development, but also leadership. Leaders must drive the transformation that will make humans comfortable with intelligent technology, as a prerequisite for harvesting its potential benefits. What the most advanced companies have shown is that this transformation must augment human ingenuity to become truly effective.

South African companies finding Emotional Intelligence with AI a challenge

Ranked second lowest with an average score of 3 out of 5, Emotional Intelligence with regard to AI implementation is a bit of a challenge for South African companies. Many cited their concerns regarding the human-machine interaction, and knowing how to integrate outputs from AI solutions with operational processes and the staff in those processes. There is also reservation on how interaction with AI, e.g. chatbots, will be perceived by customers who are not technologically mature and are used to engaging with humans. Despite this, as many as 54% of companies rated themselves as moderately competent, and 4% as highly competent, with 17% between these two ratings.

What to learn from AI leaders:

1. The most advanced companies are putting emotional intelligence to use within their AI applications, despite its relatively infant stage.
2. Companies must develop their behavioral science capabilities to mimic human behavior and translate it to technology.
3. Many have virtual assistants, chat bots, and NLP as a powerful way to get started with building emotional intelligence into AI solutions.



The biggest business risk is that people will stop thinking for themselves, and leave it all to AI. It may get to a point where we trust the outcome of AI without questioning it.

— Aveng

Infrastructure and Resources group



There is a need for discussion on AI, is this the right time to move with this, where is the balance between gut feeling and AI, between using outdated data and perception versus analytics and machine learning?

— **AB InBev**
Beer brewer



AI can definitely assist operations with their stabilisation and optimisation focuses, and the size of the prize is potentially huge if introduced with a sustainability objective.

— **Sasol**
Integrated chemicals and energy company

AB InBev

AB InBev’s digital journey has progressed to a stage where they have progressed beyond just being a beverage company, but have also become a technology company. They have progressed beyond the early stages of RPA and ChatBots, towards machine learning solutions across functional and operational domains. There is a strong emphasis on delivery, rather than commentary, and this has resulted in successful customer-centric AI implementations bringing together deep insights into our consumers, customers and brands. The next evolution will be to use virtual and augmented reality in areas such as product development, marketing and training.

The basis for much of the AI success can be attributed to developing the underlying capabilities within the organization. This is evident through the accelerated employment of data scientists and engineers, who are encour-

The next evolution will be to use virtual and augmented reality in areas such as product development, marketing and training.

aged to be creative, to experiment and to explore new possibilities. This culture is displayed by the senior leadership who have developed a deep understanding of AI and its capabilities and

are enabling deployment of these AI solutions across the globe in a formalised manner, whilst managing the risks of regulatory compliance, applying appropriate governance; and ensuring business value is realised.

Innovation in the field of AI is being driven from all AB InBev Zones, including Africa, with ideas being incubated in the different zones and transferred across the Globe supporting our “build once - scale globally” philosophy. AB InBev is setting up specific AI talent pools and CoEs around the world ensuring enterprise-wide agility that will enable application development and deployment to be repeatable and take an MVP to scale at high velocity. Co-ordinating allows us to create capabilities without the risk of duplication.

ABInBev

AB InBev brews some of the most loved beers in the world, with operations in over 50 markets and 500+ brands sold in more than 150 countries. In October 2016 they combined with SABMiller and is now the world’s largest beer company. They employ nearly 180,000 people and are embedded in communities around the world.

What next?

AB InBev Is a data-centric organisation and aims to leverage this customer and consumer data to improve insights and make the customer and consumer the central focus of data-driven decisions. As the Sales Force leverages omni-channel solutions, and consumers and customer become more digitally enabled, this will create a bigger impact and extend our reach, with the objective of enhancing the customer and consumer experience. This year there will be significant investment on automation and driving advanced analytics across our value chain.



We are moving from legacy on-premise systems to asset light, cloud based solutions, with several more strategic solutions for our business in Africa, already in the cloud with plans to migrate more this year.



We want to leverage next-generation technologies to differentiate ourselves and be market leaders in this domain. We dream big and catching up or being the same is not in our DNA. Information about AI is shared across the organisation through several channels and we have established collaborative relationships with universities to remain relevant and up-to-date with trends.

Fast Forward

How to get started and take AI to the next level?



1. Choose a step-by-step approach in getting familiar with AI

Given the wide scope of AI and variations in use cases, it is key to start out by identifying what problems to solve and what opportunities to pursue. High level prioritizing between engaging customers, optimizing operations, empowering employees and/or transforming products and services adds clarity, is helpful to structure the discussion on a strategic level, and ensures a step-change approach to taking the company to the next AI level. Identify the problems you aim for AI to solve, prioritize the value with business owners, and acknowledge the capability gaps to get there. You need to get on the AI train, but do not jump on the AI wagon blindly. AI should serve your business plan, not vice versa.

[Read more](#) in the blog on LinkedIn about “AI readiness in 2019 and beyond” Samer Abu-Ltaif, Microsoft President, MEA



2. Display executive leadership and approach AI from a position of strength

Leadership comes from the top, also in the case of AI. For this to happen, executives must understand AI essentials and strategic perspectives, and they must communicate a clear AI ambition to the organization. AI leaders must actively sponsor and mobilize AI adoption on all levels, from the Board and Executive levels, through Management and the operational employees. Staying ahead in the accelerating AI race requires executives to make nimble, informed decisions about where and how to employ AI in their business. When doing so, look to strongholds before bringing in the AI ‘twist’. Amplifying existing company strengths is an excellent way to catalyze motivation and internal support.

[Read more](#) customer stories to see how others are using AI to transform their business, and learn from Microsoft Research on how AI is solving the most pressing challenges



3. Hire new skills ahead of the curve – or focus relentlessly on training existing talent

A key challenge for putting AI to productive use and accelerate intended outcomes is the war for skills and talent. This not only relates to data scientists and software engineers, but also to skill sets and experience within human and behavioral science. Opting for a follower strategy and being late to the game can prove risky, as talent seeks to go where talent is already. If aggressive poaching for insourcing talent is difficult to embrace, then work bottom-up by training the engineers you already have on the new AI paradigm and collaboratively ride on the backs of the others. Regardless of strategy, focusing relentlessly on building required skills and talent is key to staying ahead and progressing along the learning curve.

[Learn more:](#) Train your teams through Cloud Society, a free online learning platform with a range of interactive modules on Cloud and AI technologies.



4. Build a data strategy and technology stack purposefully fit-for-AI

Training your AI products essentially requires significant data. Useful data. Valid data. Establishing a solid data strategy and practice in your organization to proficiently acquire data, identify data, clean data, measure data, and manage data will ultimately make your organization flourish with AI. Build your AI resources around data engineers who organize the data, data scientists that investigates the data, software engineers who develop algorithms and implement applications. Make sure that your structure and governance harness the power of data, and that your technology stack across products, solutions, and applications nimbly enables your AI priorities. When doing so, remember that your business model is likely to change.

[Read more](#) about how to build a flexible platform and portfolio of AI tools and next generation smart applications where your data lives - whether in the intelligent cloud or on-premise
Four ways to take your apps further with cloud, data, and AI solutions from Microsoft



5. Beyond all, engender trust and enable human ingenuity

When designed with people at the center, AI can extend companies’ capabilities, free up creative and strategic endeavors, and help achieve more. Humans are the real heroes of AI – design experiences that augment and unlock human potential. Opt for a “people first, technology second” approach. This entails designing AI for where and how people work, play and live, bridging emotional and cognitive intelligence, tailoring experiences to how people use technology, respecting differences, and celebrating the diversity of how people engage, Thereby putting people first, reflects human values and promotes trust in AI solutions.

[Learn more](#) in the Microsoft Trust Center and the book ‘The Future Computed’ by Brad Smith and Harry Shum from Microsoft on artificial intelligence and its role in society

Designing for people

At Microsoft we believe that, when designed with people at the center, AI can extend your capabilities, free you up for more creative and strategic endeavors, and help you or your organization achieve more.

The following principles guide the way we design and develop our products:

- Humans are the heroes. People first, technology second. Design experiences that augment and unlock human potential.
- Know the context. Context defines meaning. Design for where and how people work, play, and live.
- Balance EQ and IQ. Design experiences that bridge emotional and cognitive intelligence.
- Evolve over time. Design for adaptation. Tailor experiences for how people use technology.
- Honor societal values. Design to respect differences and celebrate a diversity of experiences.

Innovation is what creates tomorrow.

[Learn about our AI platform](#) to innovate and accelerate with powerful tools and services that bring AI to every developer.

[Explore Intelligent applications](#) where you can experience the intelligence built into Microsoft products and services you use every day.

[Learn about AI for business.](#) Use AI to drive digital transformation with accelerators, solutions, and practices that empower your organization.

Who to Contact

from Microsoft

The team in South Africa that can empower your company to achieve more with AI



Piyush Bharti

Data and AI Business Lead
Microsoft Middle East and Africa

Piyush Bharti has over 18 years of experience in the IT sector having held senior roles in technology consulting, professional services, sales and marketing leadership positions. He has been with Microsoft for just over two years and currently leads Microsoft's Data & AI go to market and sales strategy for the Middle East and Africa region. His remit is to drive digital transformation through Data and Artificial intelligence at customers through a large and diverse partner network.

LinkedIn: <https://www.linkedin.com/in/piyush-bharti-bb079412/>



Colin Baumgart

Intelligent Cloud Sales Director
Microsoft South Africa

As Microsoft South Africa's Sales Director for Intelligent Cloud, Colin focuses on building a strong and active external network with customers and partners to advise on anticipated market changes and drive new and relevant technological solutions. A key part of Colin's role is to define the digital transformation process across Microsoft South Africa's enterprise and public sector customers. Colin joined Microsoft as the Consumer and Devices Group (CDS) Director in April 2016 and oversaw double-digit growth in that business. Prior to joining Microsoft, Colin spent over 20 years in leadership roles across various industries including Retail, FMCG, Telecoms and IT across Africa.

LinkedIn: <https://www.linkedin.com/in/colin-michael-baumgart-36833510/>



Kethan Parbhoo

Chief Marketing and Operations Officer
Microsoft South Africa

Kethan is responsible for the driving digital transformation success, both internally at Microsoft South Africa and externally with Microsoft's partners and customers. Kethan oversees the local product groups, ensuring that the right solutions are presented to customers, from small businesses to large enterprise and government, to enable their transformation. He also leads the culture transformation within the local Microsoft team, enabling an environment to successfully deliver on Microsoft's mission to empower every person and organization on the planet to achieve more. During his 14 years at Microsoft, Kethan has held numerous senior positions, which has given him an invaluable depth and breadth of experience and knowledge about Microsoft and our customers. Kethan has a BCom from Wits University and a BCom Honours Degree (cum laude) from UNISA. He also has an IT Leadership Certificate from Wits Business School.

LinkedIn: <https://www.linkedin.com/in/kethan-parbhoo-b268a0/>

Contributors

from EY

Team responsible for the South Africa edition of the study
'Artificial Intelligence Report: Outlook for 2019 and Beyond' in
South Africa



Thomas Holm Møller

Partner EY |
Co-founder EY-Box

Thomas.moeller@dk.ey.com

EY-Box is focused on digital strategy, growth ventures, innovation architecture and tech-led transactions. Thomas works with leading companies to uncover plausible futures, launch new businesses, and rewire their core through data and digital in the search for new profit pools and business models. He serves on the board for several entrepreneurial growth-stage businesses.

Thomas was responsible for the methodology development of the AI study and led a similar study across 15 countries in Western Europe.

Based in Copenhagen.



Dr. Ellen Czaika

Innovation, Analytics, Digital
Deputy Leader, EMEIA

Ellen.czaika@parthenon.ey.com

Ellen holds a PhD in technology, policy, and management from MIT. She holds masters degrees in engineering management and system design from MIT and in applied statistics from the University of Oxford. Ellen advised this study on research design, methodology, and analysis. Ellen is engaged in the EY EMEIA Center of Excellence on innovation, analytics, and digital. She has worked with global organizations and start-ups, having recently served as the head of R&D for a precision Ag startup that uses AI to assist farmers.

Based in Zürich.



James Matcher

Partner, EY Advisory Services

James.matcher@za.ey.com

James is a Partner leading the Enterprise Intelligence practice in EY Africa. He is a member of the Jordan Institute of Chartered Accountants CA (SA). He has over 20 years experience in IT and data management fields across various industries including Financial Services, Telecoms, Parastatal, Mining&Metals, Manufacturing and Fast Moving Consumer Goods. James is responsible for this study in the Middle East and Africa.

Based in Johannesburg.



Brian Lewkowicz

Partner, EY Advisory Services

Brian.lewkowicz@za.ey.com

Brian is an Partner in EY's Advisory Services in Johannesburg, with a focus on Intelligent Automation. He has over 15 years of diverse ICT experience across multiple industries specifically in strategy definition and management of robotics, data, analysis, business intelligence and advanced analytics. He has experience in the following sectors:

- Corporate banking
- Insurance
- Finance
- Mining
- Government and the Public Sector
- Pharmaceutical and Healthcare

Based in Johannesburg.

