

Digital Economies of the Future: Innovative, Connected, Secure

MENA Vol. 4-2020



In partnership with
HSBC



Publishing

Thegulfintelligence.com

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Time to craft a new game plan



BY GHINWA BARADHI
REGIONAL CHIEF INFORMATION OFFICER, HSBC MENAT

The digital game plan in the Middle East and North Africa (MENA) is quickly evolving especially in the UAE, which is one of the most advanced digital economies in the region with an 18% share.¹ Consider that Bahrain, Qatar, and the United Arab Emirates are among the top countries in the world, with more than 100% smartphone penetration and more than 70% social media adoption — even higher than in the United States.² The MENA region could see approximately \$400bn added to its economies over the next 15 years if artificial intelligence (AI) solutions are adopted.³ Against this backdrop, customers' rapidly evolving needs means the banking industry must proactively explore sustainable and transformative digital solutions to disrupt the status quo — for the better.

NEW CHALLENGE, SAME ROAD

As we stand at the edge of a new decade in the 21st century, we must remember that anything worth achieving took perseverance and trial-and-error. Digitalisation is no different and embracing an agile attitude while keeping customer service — encompassing trust, efficiency, ease, growth — at the top of banks' priority lists is the best approach to help customers thrive amid this change.

Saudi Arabia now has the region's largest 5G network, with the first phase providing the service through a network of 2,000 towers across 20 Saudi

cities. The result? High-speed internet connectivity that is ten times faster than the current 4G network, allowing customers to use advanced digital solutions i.e. robotics, 3D printing, and virtual and augmented reality.

The concept of cashless societies is rapidly gaining momentum across the region — good news for banks and payment solution providers that want to offer a seamless, digital experience for their customers. Boston Consulting Group (BCG) estimates that the migration to a more cashless society can boost annual gross domestic product (GDP) by as much as 3 percentage points⁴. Countries in MENA must leverage this potential.

Digitalising all transactions — not just cash — could lead to greater accountability and reduce the occurrence of black-market transactions. This was reaffirmed by respondents to an Ernst & Young poll late-last year on digital and cash payments, who cited the top benefits of a cashless economy being convenience (39%) and financial crime prevention (36%). The majority (52%) believe that financial institutions can do more to reassure consumers that their data is protected. Transparency feeds strongly into building this confidence⁵. The UAE has been making headway in this space, with the Ministry of Finance embracing the Open Data Policy and providing a selection of files and documents through its website, including content that can be shared and republished.



BLOCKCHAIN: IN FOCUS

Historically, advancements in digitalising trade have resulted in disparate 'digital islands'. The challenge is connecting these digital islands to create a cohesive network. In June 2019, HSBC and Landmark Group completed a first-of-its-kind transaction that connected two independently built blockchain platforms, proving their interoperability and showing how collaborative technologies can further accelerate international trade. Bringing together HSBC's Contour platform with Landmark's ReChainME platform enabled seamless connectivity at both ends of the key trading corridor.

With all the key participants along the logistical supply chain able to view documents and track the shipment's progress in real-time, the overall time to complete the transaction was reduced by approximately 12 days, a 40% reduction. Further blockchain trade transactions have since followed, demonstrating the commercial value of the technology.

Therein lies the value of blockchain — making global trade faster, safer and simpler. By reducing friction, blockchain helps accelerate the velocity of trade, while allowing organisations to protect their own data. Unsurprisingly then, worldwide spending on blockchain solutions is forecast to be nearly \$15.9bn in 2023, according to a new update to the Worldwide Semiannual Blockchain Spending Guide from International Data Corporation⁶. On a governmental level, the UAE's Vice President and Prime Minister and Ruler of Dubai, His Highness Sheikh Mohammed Bin Rashid Al Maktoum, expects blockchain technology to account for half of the country's government transactions by 2021.⁷

Digitalisation must be a global tool for global advancement, be it through business, politics, communities, or other. Together, we must write a digital game plan that spurs positive disruption in the 2020s.

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³ <https://www.weforum.org/press/2019/11/building-emerging-technology-governance-key-to-realizing-saudi-arabia-s-vision-2030>

⁴ http://image-src.bcg.com/images/BCG-Global-Payments-2019-Tapping-into-Pockets-of-Growth-September-2019-rev_tcm58-231986.pdf

⁵ https://www.ey.com/en_gl/news/2019/11/cashless-society-benefits-financial-crime-prevention-but-raises-concerns-with-inclusion-and-data-privacy

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⁷ <https://sheikhmohammed.ae/en-us/news/details?nid=25825&cid=>

MENA's pioneering spirit



1st

Country worldwide to appoint a high-ranking government official as an Artificial Intelligence Minister is the UAE. The move illustrates how the country, home to just shy of 10mn people, is intent on becoming a global leader in AI research, development and innovation.



1st

Social robot to be given citizenship was in Saudi Arabia in 2017. Sophia has been given legal personhood.

EXPO
2020

1st

Expo ever to be held in MENA will now open its doors in Dubai in 2021. What the organisers say will be the largest event ever staged in the Arab World has a heavy focus on the future of technology, including digitalisation. Watch this space to see what innovations emerge from the 173-day event.

Sources:
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<https://www.smithsonianmag.com/smart-news/saudi-arabia-gives-robot-citizenship-and-more-freedoms-human-women-180967007/>
<https://www.expo2020dubai.com/>

Digital Advancements

HSBC is a leading and global partner to the public and private sectors that are increasingly engaging in digitalisation. We support digitally driven economic transformation agendas that give life to new markets, new cities and new economic ecosystems. We have made significant progress in the region via multiple digital initiatives – spanning trade finance, payments, channels, account management and security – to make our clients' experience of banking with us even better.

- HSBC aims to invest \$15-\$17bn in growth and technology globally over three years, from June 2018 – June 2021.¹
- HSBC MENAT voted #1 trade finance bank for the fourth consecutive year by Euromoney, greatly due to its enhanced customer experience through digitalisation of products and services.²
- HSBC was listed on Forbes' Blockchain 50 list and has conducted one million foreign exchange trades totaling \$1.2trn on our FX Everywhere platform. Another HSBC blockchain endeavor, Contour, provides letters of credit to global exporters whose ships sometimes travel faster than the loan paperwork. The 14 letters of credit issued on the platform up to November 2019 total \$30mn.³
- HSBC to open the first digital branch in Msheireb Downtown Doha in Qatar in 2020,⁴ growing on its success in 2018, when HSBC UAE unveiled its innovation to deliver the best digital banking experience with a first-of-its-kind Customer Service Unit (CSU) in Mirriff City Centre.⁵
- In 2019, HSBC conducted first-of-its-kind blockchain transactions in UAE⁶, Oman⁷ Saudi and Bahrain⁸, revolutionising trade finance transactions in the region through collaborative technology.

Sources:
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³ <https://www.forbes.com/sites/michaeldelcastillo/2020/02/19/blockchain-50/#4315e1877553>
⁴ https://www.zawya.com/mena/en/press-releases/story/HSBC_to_open_the_first_digital_branch_in_Qatar_in_Msheireb_Downtown_Doha-ZAWYA20190414062235/
⁵ <https://www.tahawultech.com/industry/financial-services/hsbc-uae-promises-80-digital-interaction-to-customers/>
⁶ <https://www.business.hsbc.ae/en-gb/ae/article/landmark-hsbc-blockchain-transaction>
⁷ <https://tokenpost.com/HSBC-Oman-Oil-and-Orpic-Group-complete-blockchain-based-trade-finance-transaction-in-Oman-4270>
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Data acceleration: Keeping pace



4,800

interactions with a connected device are expected per the average person on a daily basis by 2026.¹



7%

compound Annual Growth Rate (CAGR) is anticipated in the Middle East data centre market between 2018-2024.²



2025

will see almost 90% of all data created in the global datasphere requiring some security, highlighted the Data Age 2025 report.³



178%

increase in IoT Malware threats worldwide from January 2019 to January 2020 – encompassing the start of the COVID-19 scenario – according to Sonicwall Security Centre.⁴



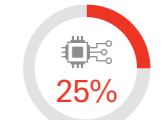
60%+

of global GDP is expected to be digitalised by 2022, while an estimated 70% of new value created over the next decade will be based on digitally-enabled platforms, according to the World Economic Forum.⁵



5.2bn

people subscribed to mobile services at the end of 2019, accounting for a staggering 67% of the global population.⁶



25%

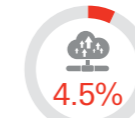
of the data in the global datasphere by the mid-2020s will have the potential to be critical to the continuity of our lives, according to the Data Age 2025 report.⁷

Public hyperactivity: MENA plugs in



2023

will see mobile's contribution in MENA reach just over \$220 million as countries benefit from improvements in productivity and efficiency.⁸



4.5%

of GDP in 2019 was generated by mobile technologies and services generated, totalling \$191 billion in economic value added.⁹



50mn+

5G connections across MENA will be achieved by 2025, with 5G networks covering approximately 30% of the region's population by that point.¹⁰



50%

of connections in the MENA region today are due to mobile broadband (3G/4G) networks, and are forecast to increase to 70% of the total by the end of this decade.¹¹

Talent enhancement: Investment is a must



55%

of business leaders haven't yet created a clear narrative about the future of their workforce and automation, according to PwC.¹²



\$24,000

is the price per the reskill of a displaced US worker (due to digitalisation), according to the World Economic Forum (WEF). Still, this is more financially attractive than the bill for finding new talent and paying severance packages.¹³



55%

of CEOs said their company's availability of skills means they are not able to innovate effectively, according to PwC's Talent Trends 2019 report.¹⁴

Sources:
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² ResearchandMarkets: <https://www.researchandmarkets.com/reports/4803240/middle-east-data-center-market-investment>
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⁴ Sonicwall Security Centre: <https://securitycenter.sonicwall.com/m/page/capture-labs-threat-metrics>
⁵ World Economic Forum: <https://www.weforum.org/platforms/shaping-the-future-of-digital-economy-and-new-value-creation>
⁶ GSMA, The Mobile Economy, 2020: https://www.gsma.com/mobileeconomy/wp-content/uploads/2020/03/GSMA_MobileEconomy2020_Global.pdf
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⁸ GSMA, The Mobile Economy, MENA, 2019: <https://www.gsma.com/mobileeconomy/mena/>
⁹ GSMA, The Mobile Economy, MENA, 2019: <https://www.gsma.com/newsroom/press-release/gsma-mobile-technologies-and-services-adding-191-billion-a-year-of-economic-value-to-middle-east-and-north-africa/>
¹⁰ GSMA: <https://www.gsma.com/mena/resources/middle-east-mobile-operators-will-5g-early-adopters-according-new-gsma-report>
¹¹ GSMA: <https://www.gsma.com/mena/resources/middle-east-mobile-operators-will-5g-early-adopters-according-new-gsma-report>
¹² PwC, Talent Trends 2019: <https://www.pwc.com/gx/en/ceo-survey/2019/Theme-assets/reports/talent-trends-report.pdf>
¹³ World Economic Forum: <https://www.weforum.org/agenda/2019/01/who-should-pay-for-workers-to-be-reskilled-1/>
¹⁴ PwC, Talent Trends 2019: <https://www.pwc.com/gx/en/ceo-survey/2019/Theme-assets/reports/talent-trends-report.pdf>

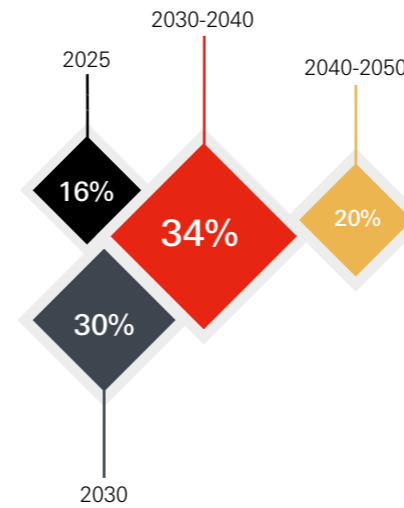
What's next for the MENA region?

Digitilisation in the MENA region is a mixed picture. Efforts are certainly progressing, with particular advancements in blockchain and AI. But there is still some way to go before the region can claim it has a digital economy and have global influence i.e. achieving a cashless society could take two decades. Regardless of the actual pace of progress, however, is the will to change: that is uniform across the region. The appetite for positive disruption is why investors are keeping a keen eye on MENA's digital growth. This survey* – answered by 100 senior industry experts in the MENA – reveals how the region is currently performing and what it needs to do next.

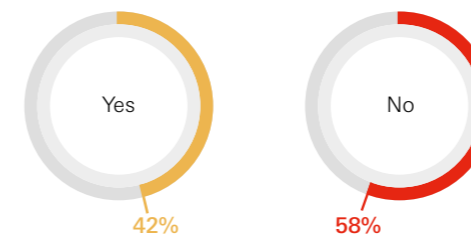


*Survey methodology – survey questions distributed by Gulf Intelligence to targeted subscriber database & social feeds – minimum sample size 100; Subscriber database 500.

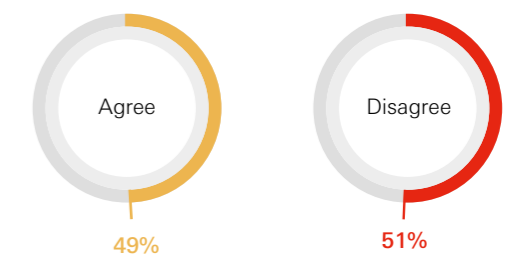
When will the MENA region be a cashless society?



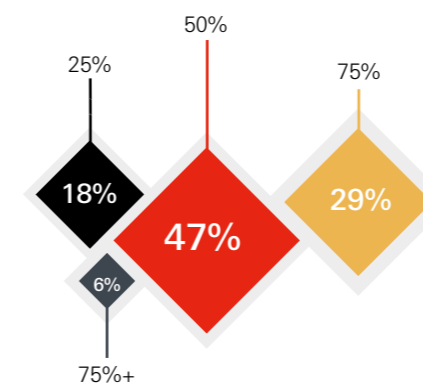
The MENA region has the world's highest rate of unemployed youth. Will digital training and the job market expand quickly enough to ensure they are an economic accelerator, not a hindrance, by 2025?



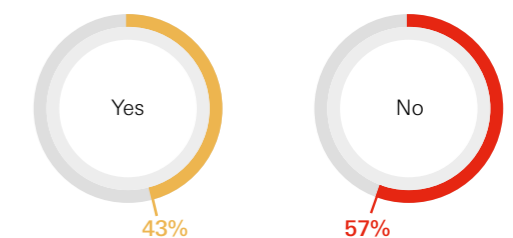
Are governments and the private sector investing enough time and money into digital networks – i.e. blockchain and 5G – for them to be the norm across the MENA region by 2025?



Companies across all sectors must embrace disruptive digital – i.e. big data, AI – to remain relevant and competitive. How many do you think will survive the paradigm shift up to 2030?



Will virtual security methods outsmart the increasing sophistication and frequency of cyberattacks in the early 2020s?



Source: Brookings Institution



Data growth and management: Are you ready?



BY CHRISTIANE LINDENSCHMIDT
Chief Digital and Data Officer, Global Markets, HSBC

As boardroom agendas are increasingly driven by digital trends, how banks spearhead progress is under a brighter spotlight than ever before. Amid the 4th Industrial Revolution, customers want greater speed, safety and accessibility. They want their banking efforts to become, well, effortless.

Integral to achieving this speedy seamlessness is driving value through data. This is both a global challenge – and a global opportunity. The banking industry has an ongoing challenge of ensuring it can

collate and connect the vast data sets it has, and to utilise it in a way that creates value for its clients. One of the key advantages is that banks hold data that is varied from Know Your Customer (KYC) information to payments and transaction data, which is different to fintechs that have very advanced technology stacks but not the size or variety of data that banks do. What this results in is that customers expect banks to use this data in a way that helps meet their needs, and gives them solutions and services that support them.

Outsmarting cybercrime

Historically, banking has proactively led in ensuring cybersecurity – but we must be more agile as the threat constantly changes. Cyber challenges often lurk in the most vulnerable part of value chains, so examining and strengthening the weakest link is key. It is critical to have the right skills to handle and isolate the incident as quickly as possible, minimising the ripple effects of the attack. Take particular care when connecting to third parties, as your safety is, in part, reliant on their diligence.

Countering cyber risks can be tricky. It requires building robust digital defences with the help of firmer enforcement by regulators, as well as global unity to share knowledge and lessons learned. Cyber threats do not see national borders, so digital defences should not either. Achieving both – regulatory guidance and global unity – is extremely hard.

The MENA region must play its part in building global momentum. So far across the GCC countries, jurisdictions like Bahrain and the UAE Free Zones of the Dubai International Financial Centre (DIFC) and Abu Dhabi Global Market (ADGM), have robust data protection laws on the statute books, according to the GSM Association and PwC. The governments of many middle east countries have built country CERTS (Computer Emergency Response Teams) that are very active in threat information-sharing, advising the community on cyber best practices and response playbooks. There is a growing trend where middle east regulators are mandating that financial institutions comply with international standard security frameworks. While it is a good start, efforts must only intensify.

How companies can translate data into insights:

Creating meaningful insights is a complex challenge that requires banks to bring together the data sets they have, which are often unstructured, and then find patterns and correlations that result in value. Achieving this requires an approach that is agile and iterative, and also needs the skills of data science to create and test models, and the latest software engineering capabilities to deliver these insights to customers.

DIGITAL WORKFORCE AND TALENT

People have been at the heart of banking since the first modern establishment emerged in the 1400s. Centuries later, entering a digital era, this still rings true. The need to deliver digital transformation and create a more digitally fluent workforce does not automatically translate into easily accessible talent, especially as the talent pool of deep knowledge experts is relatively limited worldwide. For one, the accessibility of expert knowledge of artificial intelligence (AI) is a big concern. Pockets of heightened talent exist in US, northern Europe, Canada, parts of China and India, but the rest of the world map is relatively lagging behind when it comes to sophisticated digital expertise. The same applies to talent specialising in cybersecurity (see: Outsmarting cybercrime). The MENA region can address this by inspiring and equipping younger generations to broaden their digital knowledge, via academia, government and industry. Finding talent is just one challenge; the other is knowing how to use and grow it. Often, customers

seek an expert (AI, blockchain or predictive analytics, for example), but struggle to apply those skills in-house. Often these talented individuals do not have the context of banking that helps them succeed, or banks don't have the right culture or even physical environment to really foster and grow people to realise their full potential. Looking ahead to the 2020s, improving the supply of digital talent and for an organisation to be able to best utilise it worldwide must be a priority.

BOLSTER DIGITAL TRANSPARENCY

Sustainably accelerating the digital revolution means learning how to navigate issues with data residency and privacy. Connecting economies and markets is pivotal to a global digital network. Countries and regions are all progressing at differing rates in varying ways, both from a technology and policy perspective. Generally, countries worldwide must carve out their preferred pathway to accelerate the growth of their digital economy.

Top four tech trends for banks to watch in 2020?

Data Analytics and AI:

Leveraging the vast amounts of data that banks hold and extending it using Data Science is key. For example, creating data models and analysing data to generate insights for ourselves and our clients. Machine-learning and AI build on these foundations, often to streamline and accelerate processes. These technologies will increasingly add value for clients with insights delivered in real-time. With improved tooling making these capabilities accessible to wider audiences, robotics and machine-learning have already become part of the mainstream to rationalise operational processes and enhance client experience in retail banking.

Integrated channels:

Delivering seamless and integrated channels for clients is critical given end user expectations, which has been a focus for digital investments in retail banking for several years. This is about making digital client interactions, and authentication in particular, as seamless as possible. For example, through wider use of biometrics.

APIs:

API (application program interface) led architecture has been a focus for most banks internally. However, we now have APIs being more and more exposed directly to clients and marketed through "API Portals" that allow clients to connect directly to the infrastructure of banks.

Distributed Ledger Technology (DLT):

In banking use, cases of DLT are increasingly moving from "proof-of-concept" into production. For example, to streamline aspects of settlement, booking, clearing, and valuation. Immutability and consensus are the driving features of such technologies. Still, it remains unclear if and when large scale efficiency gains will be realised by banks and their clients.



13% of Middle East CEOs said their organisation has made no progress in establishing an upskilling programme that develops a mix of soft, technical and digital skills. Of that 13%, roughly one third, are not even considering it.



19% of Middle East CEOs are very confident in their 12-month growth prospects – lower than the 28% in 2019. The economic benefits of increased efficiency via digitalisation means improved upskilling will strengthen financial outlooks.

Source: PwC's 23rd Annual Global CEO Survey in 2019: <https://pwc.to/2HBq3Kh>



Keep humans in the loop!

Digital advances are dynamic and exciting, but good old-fashioned human brain power and creativity cannot be beaten.

BY GAVIN MAXWELL
Partner – MENA Intelligent Automation Leader, Ernst & Young



software sales, now disrupted by the new medium and significant growth in areas like productivity and business process automation because it saw the need for, and benefits of, rapid innovation at scale.

SPEED MATTERS

High-speed technology is a game changer for business. The ability to process and use data much faster will enable far greater insight on any given issue. Better quality data – available almost instantly – has enormous actionable potential. There is a wider range of options open to decision-makers from a report produced immediately than from one that takes months to present, and qualitatively better information will help ensure a better outcome.

With all of the benefits, there will be a cost to this transformation, of course. None of the great industrial revolutions in human history have taken place without social and economic disruption, and this one will be no different. That said, all previous historic transformations have also resulted in greater aggregate of economic prosperity and employment.

In recent research, EY estimated that some 65% of the children born in this generation will do jobs that do not

By 2029, the software for intelligence will have been largely mastered, and the average personal computer will be equivalent to 1,000 brains.*

Such a dramatic advance obviously has huge implications for all of us in business, from small and medium-sized enterprises (SMEs), through the blue chip ‘disruptors’, like Amazon and Uber, to sovereign governments.

In this unstoppable transformation, technology will continue to evolve, but the principles of “change” will remain the same. There will be big increases in the scope, speed, and efficiency of intelligent automation.

Microsoft is a case in point. With revenues traditionally coming from software sales, then gaming, and hardware. This year’s revenues will be driven by its strong position in Cloud with

The pace of digital technological change is astounding – but the human dimension must not be forgotten. The age of intelligent automation is upon us, and its advances are inexorable. This is not some consulting jargon or marketing spin, but a technological inevitability. We face a challenge as the inventors and instigators of the radical digital transformation, which will affect all aspects of our daily lives and economic environment, to ensure that humans are kept emphatically “in the loop” while the process is under way.

Nowhere is this more relevant than in the MENA, where demographic and employment trends will be inevitably impacted by the move towards intelligent automation. The scale and speed of the change is startling. By around 2020, a \$1,000 computer will at least match the processing power of the human brain.

* Source: <https://www.scientificamerican.com/article/the-coming-merging-of-mind-and-mach/>



“By around 2020, a \$1,000 computer will at least match the processing power of the human brain. By 2029, the software for intelligence will have been largely mastered, and the average personal computer will be equivalent to 1,000 brains.”

exist today because those roles – in administration, finance and logistics, for example – will have disappeared by the time they come to working age. The same piece of research also pointed to a way forward, with 67% of chief financial officers and human resources officers declaring that “big data” was a key driver in human capital development. The people who are driving employment policy are aware of the need to keep “humans in the loop” by working out their optimal place in the workforce.

WHAT’S NEXT FOR MENA?

For the MENA region, the intelligent automation revolution has important implications. There is a dilemma, for example, in the “nationalisation” of jobs for Arabian Gulf citizens because many of those types of jobs will be replaced by automated processes and transactions. But it also talks to the “happiness” agendas of many Gulf states

– notably the UAE – to give nationals more interesting and varied careers, and to focus more on value creation and job satisfaction.

Two sectors in the region – finance and energy – have been among the early adopters of intelligent automation, backed by pioneering governments that have thrown themselves enthusiastically behind the digital transformation.

Where governments go in the Gulf, the private sector follows, led by the national oil companies that have always been drivers of economic and social progress. Data may be the ‘new oil’, but the oil industry has also proved itself adept at exploring new data techniques. The pace of change is rather slower in North Africa and the Levant, though both Egypt and Jordan have recently taken quite bold steps, primarily in the financial services sector. The over-riding imperative is to embrace digital transformation with the human factor in mind.

Two trends to watch

Two trends will accelerate as the transformation gathers speed.

1. As the experience of corporates like Microsoft has shown, data will become more available, and at optimal prices with a growing belief that data will be the new oil. The days when business insight and automation were only as good as its very expensive in-house computing capability are over. Intelligent automation will be available for the masses at accessible prices.
2. Organisations that use these services will become smarter, and will demand a “show me the money” value case from their suppliers. Within the region, many organisations have run ‘pet’ AI projects that often had limited financial value. Now however, business owners want to see a meaningful return on investment as part of their investment decisions.

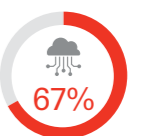


of children in 2019 will do jobs that do not exist today.



\$100bn

of the ‘bad debt’ that was lost in 2018 that could have been predicted by AI technology.



of human resources and chief financial officers see ‘big data’ as key driver of human capital.

Sources: WEF; US Internal Revenue Service, 2018; EY Research

The 5G revolution is here

Rolling out 5G technology across the MENA in the 2020s will overhaul the speed and quality of how we work and live – for the better.



What does digital transformation mean for the telecoms industry?

The digital age is beckoning telecom players across the world to adopt the next wave of technologies in order to deliver the next generation of connected experiences for customers. There are clear opportunities to accelerate the growth of intelligent service offerings.

INTERVIEW WITH OSMAN SULTAN
Former CEO, du



Digital companies – i.e. Google, Facebook – have recently drawn criticism over issues of privacy and misuse of information. What is your view?

This is, of course, an important topic that concerns all stakeholders involved. We are privileged to be operating in a country like the UAE, which is leading the global conversation for data policy and privacy protection.

Competition breeds innovation in the digital world. How important is it to have efficient and well-run competitors?

In the UAE's telecommunications sector, we are proud to be operating in an industry that is governed by a reputable regulator, such as the Telecommunications Regulatory Authority (TRA). Competition in the digital world leads to success. This is set to come to life even more with new technologies making their presence felt across all industries.

“As the industry evolves, the smart telcos will have a bigger share of the digital pie.”

As the industry evolves, the telcos that become smarter in their business will have a bigger share of the digital pie. 5G is a big part of the digital transformation roadmap for governments, enterprises, and consumer experiences, which is why du/EITC is going the extra mile to uncover what this next generation of connectivity truly means for the UAE's social and economic pillars.

Describe du's progress towards a full rollout of 5G technology?

We have to think bold and we have to think differently to evolve with the future presented to us with next generation 5G connectivity. This is a great opportunity to leverage our strengths as we traverse from being a traditional telco into a digital telco. We were the first to launch a commercial 5G network in the region and are currently expanding our 5G transmission stations around the UAE, with the goal of having 900 installed by the end of 2019. We are on track towards achieving this objective and bringing 5G to all corners of the UAE so that more customers can unlock the benefits of faster, more reliable mobile broadband connectivity.

What are the challenges involved in that rollout?

The challenges for 5G rollout aren't specifically related to the physical implementation of 5G infrastructure. Instead, the challenge is to ensure that

all components of the 5G ecosystem are in place concurrently: the infrastructure, 5G-enabled handsets and use cases.

How will the individual subscriber benefit from 5G?

Individual consumers stand to benefit immensely from the initial rollout stages of 5G connectivity. As lower latency and faster browsing speeds become a reality, consumers will be able to enjoy enriched digital touchpoints and a new era of connected possibilities.

What do you see as the benefits for business and the economy?

The longer-term benefits of unleashing blockchain, IoT, virtual reality, augmented reality and big data analytics technologies is that it will have profound impacts on enterprises and government entities. These new tech-driven solutions will enable them to become more efficient, productive, transparent and operate cost-effectively. The upshot of this is that the enterprise and government sectors will become supercharged towards achieving the digital transformation visions and agendas of the UAE leadership.

Which countries in the Middle East are leading the way in 5G technology?

The UAE is making bold moves towards rolling out 5G connectivity for end users. Saudi Arabia, Oman and Kuwait are also making headway in bringing this technology to life.



3X

the speed of data communication can be achieved with 5G versus 4G/LTE.



50mn

5G connections will be available by 2025, with around 20 million of those in the Gulf Cooperation Council (GCC). The GCC will be slightly ahead of the global average by 2025, with 16% adoption (5G as a percentage of total mobile connections), compared to 15% globally.



\$2.3bn

is the global spend on 5G mobile infrastructure that is anticipated by 2021.

Sources: Statista; GSM Association; Statista



Blockchain will revolutionise trust

There are few technologies that have captured the imagination of the world like blockchain. What's the next chapter?

BY ANTHONY BUTLER
IBM Distinguished Engineer and Chief Technology Officer,
IBM Blockchain Services



It is hard to find any industry that isn't in some way seeking to explore the potential of this technology to transform the way in which it operates; from banks to governments to telecommunications

operators to oil companies. Any organisation that operates as part of a broader business network is finding that blockchain can help them solve the previously intractable challenges

of trust and transparency in those networks. As an immutable, distributed ledger, where all participants share a common view of the state of assets and contracts in a business network, blockchain allows us to reimagine the way in which we interact with each other. We can remove the need for paper exchanges, mitigate the risks around trust in the information our partners provide and know exactly the state of an asset in a value chain without the need for time-consuming manual processes.

Snapshot: Saudi Arabia

The Kingdom has been a very significant adopter of the technology as an enabler of their multi-dimensional transformation towards Vision 2030. Saudi Customs joined the TradeLens Network, which enables digitised documentation and improved visibility into the containers arriving and leaving their ports. The network, launched by IBM and Maersk, allows the Customs Authority to get access to high quality data on the provenance of any container arriving at their shores. This allows them to apply advanced analytics in support of objectives, such as more accurate risk profiling, whilst also enabling shippers to have a real-time view of the status of their shipment as it progresses towards its destination. In May 2019, the first ever Saudi shipment that tracked end-to-end using this blockchain solution was a Saudi Arabian Basic Industries Corporation (SABIC) shipment sent from Dammam to Rotterdam in the Netherlands.

And Riyadh Municipality, in partnership with Elm, one of Saudi Arabia's leading IT companies, worked with IBM to develop a strategy for the adoption of blockchain across the municipality's many services. This was to identify a broad range of blockchain applications to support and accelerate the realisation of the country's Vision 2030. This culminated in the development of an inspection data-sharing platform using blockchain to address systemic challenges and inefficiencies in the way that various business inspections are performed.

MENA'S POSITION?

If 2018 was the year of experimentation, 2019 was the year we saw increasing numbers of real-world companies derive value from user cases. Every day, some new network is going live or some milestone has been achieved. Is blockchain a mature market phenomenon or is it something that is also delivering value in the so-called emerging markets? And if the latter, where does the MENA region stand in that adoption?

Whereas once, we would have looked to the mature markets for exemplars and leadership in new technologies, we



"If 2018 was the year of experimentation, 2019 was the year we saw increasing real-world companies derive real-world value from real-world user cases."

are seeing, increasingly, that the mature markets are looking to the MENA region when it comes to blockchain adoption. This is especially true within the government sector.

REGIONAL FORERUNNERS?

The Dubai government was one of the first to recognise the transformational potential of blockchain, launching a range of initiatives culminating in the establishment of a blockchain strategy. This also applied to the implementation of the Dubai Blockchain Platform to help entities accelerate their adoption of the technology. The emirate has gone on to implement several blockchain-based user cases and is now the subject of worldwide interest as a leading example of how the public sector, in particular, can create value using the technology. The UAE, at a federal level, has also defined the Emirates Blockchain Strategy 2021, which lays out how 50% of applicable transactions will be transformed.

It is not just the public sector that is leading in regional adoption. The Abu Dhabi National Oil Company (ADNOC) announced a successful effort last year to prove the usefulness of blockchain in addressing challenges around the tracking of hydrocarbons through their internal supply chain. By doing so, they opened up future possibilities to change the way in which stakeholders obtain visibility into the operational and financial performance of operating companies.

WHAT'S NEXT?

Nonetheless, these initiatives are not exhaustive. As we progress into 2020, there will be more governments, more companies and more new businesses and business models created around blockchain. As with the early days of the internet, we would not have

imagined the immense value that it would ultimately create. Likewise, with blockchain, it is impossible to predict how it will transform the business of government, trade and other industries and organisations. However, we can be certain of one thing: with the progress made thus far and the direction set by our governments, the MENA region will lie at the heart of this future.



50%+

of surveyed C-level respondents expect the sharing economy to transform their business models.



\$1.2trn

is the estimated global value of capital being reallocated to launch new platform business models by a third of organisations.



1,600+

executives across eight industries revealed that more than 60% of the early adopter organisations surveyed expect to have a blockchain network in production by 2020.

Source: IBM Institute for Business Value Survey



Our digital future? Bolder and braver

As we enter a new decade, we are staring at a bolder, braver and more technologically advanced world. The most creative will be the most rewarded.

BY MASTERCARD MENA



The lines between the digital and physical are blurring and the gears of the 4th Industrial Revolution are rapidly shifting. But as the digital ecosystem envelops and advances our daily lives, economies must keep pace with digital growth if they are to remain globally competitive. In the Middle East and Africa, a region home to over 1.4 billion people, this is particularly true given the large emerging economies and their potential for exponential development. But what critical steps can be taken to realise their ambitions and what exactly is at stake?

BEST NEXT STEPS?

Statistics show that moving away from cash dependencies is one of the fastest ways for economies to grow. Cash comes with inherent costs that are all too easily hidden out of sight and

circulated without full accountability. This is hugely challenging, especially in the developing world, where corruption and fraud can thwart efforts of economic empowerment and financial inclusion.

So, providing greater access to safe, secure and affordable methods of electronic payments is critical and has the potential to reduce costs and fuel broad-based economic growth. In Saudi Arabia, for example, domestic payment network, mada, uses Mastercard's Payment Gateway Services technology to make payments safe, simple, and smart, thereby enabling 30 million Saudi mada cardholders to shop online.

Formal economies that embrace digitisation can experience a reduction in corruption, a decrease in the flow of black money and an increased scope for enhanced monetary policies.

NEW DIGITAL PARTNERS?

Although the rise of societies that embrace digitisation is a key element in revolutionising the way we make payments, so is helping businesses to grow and encouraging financial inclusion around the globe. The MENA region still has a long way to go. Today, the vast majority of transactions in the MENA region continue to be made in cash and 86% of adults remain unbanked, according to the WEF. This presents a tremendous opportunity to leverage innovative technology and positively impact the lives of millions of people through financial inclusion.

This is certainly the case with Mastercard's collaboration with the Ministry of Social Solidarity in Egypt. The partnership has initiated a government disbursement model for social benefits through mobile wallets. And in the UAE, we've partnered with Expo to be the Official Payment Technology Partner, supporting the UAE's vision to be an innovative and digitally advanced society. Partnerships with companies that have a deep understanding of the local environment are crucial for



"Payment companies are no longer just talking about the role of emerging technologies. Now they are leveraging them to create actionable benefits."

ongoing innovation that delivers digital solutions to empower communities. Although digital technologies and data insights are powerful tools, it is only by bringing together public, private, and civic partners that digitisation becomes a true enabler to transportation, education, healthcare, and affordable financial services that ultimately create better, safer, and more sustainable economies.

DIGITAL KNOWS NO BORDERS

Driven largely by the MENA region's burgeoning tech-savvy youth population and consumer desires evolving into demands, the payments and technology sectors also have other unique avenues to create conducive opportunities that empower citizens and businesses. Innovative digital payments technologies are now enabling entrepreneurs to sell their goods online globally. This has disrupted the concept of geographical boundaries, as secure and instant online payments are enabling entrepreneurs to expand into markets that would have simply been

inaccessible earlier. Not only does this bring prosperity, it drastically levels out the playing field.

Moreover, disruptions in technology are pushing traditional and non-traditional payment companies to evolve their business models. They are no longer just talking about the role of emerging technologies, such as AI and blockchain, but leveraging them to create actionable, value-generating strategies to enhance business performance and benefit societies.

As digitisation becomes the norm and the world becomes more connected, it's only natural for payment solutions to adapt. Consumers, businesses and governments will all reap the benefits as the electronic payments landscape becomes more efficient. We must take an all-rounded approach by implementing the right infrastructure, frameworks, technologies and most importantly, the enthusiasm to work together. It's not a simple task, but the ultimate reward is accelerated growth and an economy prepared for the future.



1.5%

of GDP is what cash can cost any economy per year.



50bn

devices will be connected to the Internet by 2020.



86%

of adults in the MENA remain unbanked.

Sources: MasterCard Advisors' Cashless Journey White Paper; World Beyond Cash; Cisco IBSG; WEF

Angels on the hunt for unicorns

How hi-tech is being used to identify potential investment and assess valuations in the startup market.



BY ORHAN BAYRAM
Co-Founder & CEO, Angel Effect, Turkey

Digital technology is dominating both ends of the investment spectrum. The biggest targets of global investment flows are in hi-tech, like the well-known listed companies, such as Apple and Google, as well as the multi-billion dollar hi-tech startups in Silicon Valley and elsewhere. But at the same time, the tools and

techniques of investment – the conduits through which these global investment funds are channelled – are becoming automated and digitalised. Investment is sought by angel investment platforms and crowdfunding, assets are assessed via automated processes, with money-flows directed via paperless transactions.

ONES TO WATCH

Angel investment platforms are one of the fastest-growing parts of the investment market. They aim to match best fit startups with appropriate angel investors, typically by plugging into a pool of early-stage investment opportunities or network of experienced angel investors, who have a track record in this kind of finance, and who have expertise in identifying opportunities in the booming startup environment.

The beauty of an internet-based approach to startup finance is that it can go global very quickly. Pools of venture capital and angel investment networks in the MENA region, for example, can reach high potential investment opportunities

in Europe or North America, using digital processes and intelligent technology to control evaluation and assessment, as well as portfolio management.

The startup ecosystem is global, from San Francisco to Shanghai via Europe, Turkey and the MENA region. There are potential “unicorn” startups – firms that have the potential to eventually come to public markets or be sold to trade buyers – at a valuation of \$1 billion or more (the definition of a “unicorn”) – in every part of the world. It is the job of the “angel network” – a group of senior advisers and counselors – to find them. The business dreams of finding another WhatsApp, for example. The social media messaging system had only 55 employees when it was bought by Facebook in 2014 for \$19 billion, one of the largest values for the acquisition of a venture capital-backed company in history.

It is an increasingly competitive universe, and there is a lot more money now chasing startups than ever before. The Vision Fund, the biggest ever private equity investor, has more than \$100 billion at its disposal. It has changed the venture capital business with its emphasis on hi-tech, cutting edge investment, with big ticket numbers being paid to companies in the later stage of the process. But there is still value to be found – you just have to look in the right places and at the different stages of the startup.

MULTIFACETED MENA

The scene in the MENA region is interesting and variable. The Arabian Gulf, for example, is a dynamic business geography, and has deep pools of capital, and has produced some of the biggest success stories in the startup world with the likes of Careem and Souq, which sold for a combined \$3.8 billion to western trade rivals, according to the companies. But, because of the mature nature of the startup business there, Gulf valuations tend to be high.

There is greater value to be had in Turkey, where valuations have not yet reached the levels of the Gulf. The Turkish startup ecosystem is very promising and will become more so depending on the national economy. The Turkish government has thrown its weight behind a policy of digital transformation. This has probably been most enthusiastically embraced by the financial industry, and there is great potential in this sector, especially in the MENA region. While China and other Asian countries went for



“The startup ecosystem is global, from San Francisco to Shanghai via Europe, Turkey and the MENA region. There are potential “unicorn” startups at a valuation of \$1bn or more.”

cashless payment systems at the very beginning of the digital revolution, cash is still king in the MENA.

This is surprising to some degree. Many countries in the MENA region, especially the Gulf, have a comparatively high level of internet penetration and mobile usage.*

But there has been a resistance to using non-cash for financial transactions in the region, perhaps because of social conservatism. It is basically an issue of trust. The technology is now so advanced that customers can be assured that the systems in place are trustworthy and dependable. Platforms like blockchain will resolve that issue for good.

Perhaps another issue is a fear of the power of big data, which has been a constant theme in much of the discussion of the digital transformation and which applies to MENA as much as anywhere else in the world. But again, many in China and South East Asia – the early adapters to digital transactions – have overcome this fear.

The adaptation cycle – the readiness of an economy and a society to adopt and utilise new techniques – has shortened significantly in the past decade. The regulatory world is catching up with the speed of digital transformation. Now, people just have to feel more secure.



\$100bn+
is available for technology startups.



\$3.8bn
was the combined trading value of Careem and Souq.com when they were acquired by Uber (2019) and Amazon (2017), respectively.



1,150
deals representing investments valued at \$228 million from 68 major angel groups.

Sources: Deloitte: A Middle East Point of View Report, 2018; WEF 2018; World Bank 2018

*Source: WEF



Science fiction is transforming into reality

AI has moved from the realm of science fiction to science reality. We must all keep pace.

BY DR. JASSIM HAJI
President, Artificial Intelligence Society of Bahrain



Over the next two decades, advances in robotic technology, digitalisation and data science will change many of the most fundamental aspects of our daily lives, and transform economic relations between individuals, corporations, and governments. That transformation has the potential to be profoundly beneficial for humanity, but it also presents big challenges.

The transformation cuts both ways.

In just one area – cybersecurity – billions of dollars have been invested by corporations, and by government to protect themselves against digital attacks by AI foes. In 2004, the global cybersecurity market was worth \$3.5 billion – and in 2017 it was expected to be worth more than \$120 billion. Cybersecurity Ventures predicts global spending on cybersecurity products and services will exceed \$1 trillion cumulatively

over the five-year period from 2017 to 2021.¹ The AI “warriors” seem to be one-step ahead of the digital industry.

The term AI was coined in the US in the 1950s, but it is only in the past decade that it has moved beyond visions of Frankenstein monsters and Terminator robots. Now AI is at the heart of the 4IR, the symbiosis of technology, data science and digital communications that will affect our way of life as much as the agricultural, manufacturing and electronic revolutions of the past.

As it has developed, the concept of AI has itself changed significantly. What began as the creation of smart machines to help human beings in some of the more humdrum tasks they have to perform, has turned into the production of smart machines that make decisions on behalf of humans.



WORK OF THE FUTURE?

What will employment look like in this brave new world of AI? More routine functions will cease to be performed by humans, with intelligent machines taking over many of the jobs currently performed by low-paid and under-skilled workers.

There is a challenge for the MENA region in this regard. Some countries of the Arabian Gulf, for example, have subsidised employment for their nationals in manual or “routine” sectors, and these are just the kind of jobs that are likely to vanish as AI technologies become more widespread.

In the US, the past decade has seen the number of AI machines employed double across the industrial sector, and there are now two robots for every 1,000 humans working in industrial processes, like car assembly and, according to the World Economic Forum², with the most in technologically sophisticated California.

But it will not make sense to replace all these mundane jobs with AI products. Robotics work well in manufacturing processes, but less so in-service industries. A robot can help produce a motor car but is not as good as a human when it comes to stacking a supermarket shelf.

There are big implications too for global economic development. Experts expect the gap to widen between the developed West and the less emerging economies of some parts of Asia, Africa and South America.

Global migration patterns will also be affected. Currently migrants come from developing countries to do lower-skilled jobs in places like Europe and North America, but if these jobs are replaced by robot workers, a vital source of aspiration – and remittances – will be reduced and may even disappear.

This is when strategy and direction are required for the forthcoming 4IR

transformation. Academic institutions focused on the STEM disciplines – science, technology, engineering and mathematics – will be at a premium, rather than academic certificates. In the Middle East, governments and educational policymakers have been promoting STEM skills, especially for women, in their academic institutions. According to UNESCO, 34-57% of STEM graduates in Arab countries are women, which is much higher than in universities in the US or Europe.³

A NEW DIMENSION OF POTENTIAL

The next generation of quantum machines – which can act millions times faster than today’s computers – will take that to another level. But it is not simply a revolution in technology. It will need new professional skills from data scientists, algorithm writers, mathematicians, and businesspeople to ensure it is managed efficiently. In the MENA region, several countries have made big advances towards smart cities and smart governments and have institutionalised AI in government ministries and academia.

The region has been an early adopter of AI techniques and methods. In Saudi Arabia, the NEOM project – a \$500 billion plan to create a hi-tech urban community in the north western desert – is probably the biggest single AI project in the world. The UAE was the first country in the world to appoint a minister responsible for AI affairs.

Much of the work on these projects will be done by large global technology companies, but there will inevitably be technology transfer involved, adding to the AI skills of economies in the region; this includes Bahrain, which has a trained and well-educated workforce

as part of its young and digitally aware demographic.

The AI Society of Bahrain was launched in an attempt to capitalise on the potential the country has in AI, which could offer better value for money than existing AI hubs in the UAE and Saudi Arabia.

While all eyes are on NEOM and the big projects in the UAE and elsewhere in the Gulf, Bahrain has the opportunity to become a regional centre for AI research and development, with significantly lower costs compared to other hubs.



\$500bn

is the estimated cost of NEOM in Saudi Arabia, the world’s biggest AI project.



2

robots are being used per 1,000 workers in the US in 2018.



increase in global value of remittances in 2018 to \$689 billion.

Sources: Deloitte: A Middle East Point of View Report, 2018; WEF 2018; World Bank 2018

1. Source: Cybersecurity Ventures Market Report <https://cybersecurityventures.com/cybersecurity-market-report/>

2. Source: WEF: Industrial robots are bringing jobs back home but not for low-skilled workers <https://www.weforum.org/agenda/2019/06/industrial-robots-are-bringing-jobs-back-home-but-not-for-low-skilled-workers>

3. UNESDOC <https://unesdoc.unesco.org/ark:/48223/pf0000231519>

AI experts gain momentum

AI will be deeply ingrained in every part of every day life very soon. Regional pioneers in this space offer coveted guidance.



INTERVIEW WITH SH. ALI BIN ABDULRAHMAN ALKHALIFA
Deputy CEO, Resources & Information Affairs and Chair of
the AI Academy, Bahrain Polytechnic Academy of
Artificial Intelligence

What is the mission of the Bahrain Academy of Artificial Intelligence?

Bahrain Polytechnic serves Bahrain and the wider Gulf region by offering technical and applied professional education, short courses, applied research, and consultancy services whilst adopting the internationally known problem-based learning approach (PBL). Our mission is to produce work-ready graduates, equipped with the necessary 21st century skills before entering today's corporate world – be it local, regional or international labour markets.

The inauguration of the AI Academy follows the directives of His Highness Sh. Khalid bin Hamad Al Khalifa, First Deputy President of the Supreme Council for Youth and Sports and Chairman of Bahrain Olympic Committee, instructing

to accelerate academic specialisations that are related to AI in the educational system of the Kingdom of Bahrain. It aims to provide a platform to promote innovation and creativity capabilities of the youth in the field of AI. The academy is a partnership between academia, community, businesses, and government entities to ensure that the workforce is trained to meet the market needs to support Bahrain's economic growth. Since AI is an emerging trend in the IT industry and machine learning and data science are becoming fundamental elements that inform the strategic decision-making of businesses across all industries, our high priority goal is to provide ethical AI professional resources to meet the market expectations with the required skills.



How do you define AI?

Considering the majority of applications that utilise it, AI is a way to use the readily available high computational power. We can use it to analyse and interpret the ever-increasing vast amount of data that we receive from all the different sources, in order to detect patterns that the human brain would not be able to determine.

Is the new wave of AI different from the big technology advances of the past i.e. computers, telecommunications?

AI has widely impacted the modern world. As Professor Andrew Ng, co-founder of Coursera and Adjunct Professor of Computer Science at Stanford University, stated, AI is transforming the world in the same way as electricity changed our lives in the past in terms of transportation, communication, agriculture and healthcare. Moreover, AI is becoming omnipresent. We use AI every hour of the day – in our phones or tablets, wearable devices, smart TVs, cars and robots. We use AI when we search on the web, when we drive, when we shop and even when we make important life decisions. We use it to make important business decisions, to receive specialised medical healthcare, to automate production in manufacturing, to avoid hazardous situations, and so on. The applications and possibilities are endless.

Can AI ever supplant human intelligence?

AI is a significant element in automation procedures, therefore regarding communication interfaces, those should be natural and uncomplicated. While we still mostly use standard input devices for communicating with AI, there are advances in Computer Vision, Natural Language Processing and Brain Research that indicate that in the future we will be able to instruct machines using our speech, thoughts and body language. In many cases, AI has already supplanted human intelligence in given tasks and is widely used to make decisions. However, depending on the type of application, we have to carefully decide when to allow a machine to completely take over human decision-making.

How will it affect workplace practices?

Based on reported statistics, many businesses have started to employ AI. In fact, we were told by banking

“AI is becoming omnipresent. We use it every hour of the day – in our phones or tablets, wearable devices, smart TVs, cars and robots. We use AI when we search on the web, when we drive, when we shop and even when we make important life decisions.”

representatives that they were planning to adopt more AI technology. This will, in effect, reduce the reliance on having physical branches, therefore they must invest in upscaling their workforce to meet the demands of the market. There are various indicators of the intention of most of businesses to use AI in the coming years. This will result in job market changes, as many jobs will become obsolete through AI and automation. Of course, the new deployed AI-driven machines/bots will allow new types of jobs to arise that will relate to the configuration and operation of those machines. There will also be a shift from the existence of trivial type jobs to more creative and problem-solving types of jobs.

How will AI affect global economic relationships?

With the advancement of AI, it is rather difficult to predict how the world will evolve. Having justified the importance of AI above, it is expected to drive important economic development factors. For example, considering the application of AI in the automotive industry, the advancement of self-driving cars in a particular region of the world may widely affect global economics. There are many more applications that may have similar effects. Moreover, with the use of AI and automation layered over the internet, many services will be offered online, leading to a more widespread market.

Is AI a force for good?

With every technological advancement, there are ethical implications that need to be considered. While AI is becoming more and more powerful, we need to regulate it and make sure that it is used in an ethical way, thereby benefitting both society and the business community.



42% of the Bahraini companies that were consulted believe that their Information Communications Technologies (ICT) team require advanced training in business intelligence.



10

10 sought after digital skills include business intelligence, automation, data science, AI, and machine learning.



70%+

70%+ of companies prioritise people with professional experience rather than academic qualifications when hiring for an AI role, highlighting the emerging trend for professional certification acquisition.

Sources: The outcomes of a Skills Gap Workshop conducted by the Economic Development Board of Bahrain in collaboration with Bahrain Polytechnic in July, 2018.



Issued by:

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