KABi INSIGHTS

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THE WAY FORWARD IS TOGETHER

Artificial Intelligence and Humans

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KABi INSIGHTS

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This issue includes:

DATA SCIENCE IN HIRING

Big Challenges and Big Opportunities

'Data is the new oil' seems to be the cliché echoing everywhere in recent years, with businesses trying to collect and harness data to gather valuable insights. In recent years, the field of 'Data Science' has been gathering traction with businesses perceiving it to be an enabler that helps them understand their customers better. Data science is a discipline that uses algorithms and complex techniques to interpret large sets of data to deduce useful information that could be help in creating business value.

THE ROI ON EMBEDDING DATA SCINCE IN BUSINESS

Several companies around the globe have been investing heavily into data science and artificial intelligence with the belief that their investments would reap rewards in the long run. They believe that data science would hugely improve their quality of decision-making by making them data-driven and removing biases. There is also a huge scope for data science in the areas of forecasting and planning. Industries like Telecom, Hospitality, Banking and Financial Services, and Aviation have been proactive in exploring data science to enhance their operations.

While the focus of these businesses in the initial phase of adoption was to use data science in areas such as finance, where there is an extensive number crunching, it has slowly shifted to exploring possibilities in areas such as human resources management, especially hiring. In a rapidly evolving corporate environment, recruiters need to be on their toes to hire the right talent. In doing so, companies have been spending plenty of resources. Despite all their efforts, the success ratio of finding the right candidates continues to be low. Data science is an area that has been redefining the operating models of different businesses across the scale and has the potential to solve some of the

challenges that recruiters face. Filling specialized positions involve large amount of data sifting to screen candidates that cater to the exact requirement. The speed and accuracy at which data science techniques could do them would save manual efforts and avoid errors. One major challenge that recruiters have been facing over the years is eliminating the biases involved in the process of recruitment. Many of these biases are unconscious and unavoidable. A data-centric approach could be a possible solution for this problem.

APPLICATIONS OF DATA SCIENCE

Data science could potentially have several use cases in recruitment across different phases. Automation of voluminous tasks is one of the key advantages of AI and data science. Typically, most resumes that are received for a vacancy do not meet the minimum criteria for the role. Eliminating them could be easily automated using data science tools. Data science techniques have advanced so much that they can even analyze the sentiment of candidates towards the job. Screening of mails and resumes for positive and negative words will help to find the mindset of candidates. By reducing voluminous tasks and shortening their turnaround time, recruiters could focus on qualitative tasks and reduce the overall time taken for closing a vacancy.

Recruiters are often left with the data provided by candidates in their resumes. Background verification usually kicks in only after a candidate is selected. However, with the help of data science, past records such as the candidate's social media activity, feedback from previous employers could be easily traced to enable recruiters take more informed decisions.

Acceptance rate of offers is another area that could be improved through data science. When the best candidate refuses the offer, it renders the cost spent on the candidate meaningless and keeps the position vacant for a longer period. Improving compensation and benefits based on competitor data, gauging the interest of candidates applying for the interview will improve acceptance rates of offers rolled out.

WHAT DOES IT MEAN FOR RECRUITERS IN THE GCC?

From a GCC context, data science has a lot of scope for implementation. As GCC countries have been looking to diversify away from oil and shift their focus to developing themselves as knowledge-based economies, there has been a strong push to improve business conditions so that foreign companies enter into the region. One key aspect that companies look for while entering new markets is the availability of talent. While there have been incentives for companies operating in the region, there are also key challenges pertinent to recruitment such as skill mismatch and workforce nationalization. Considering these factors, hiring becomes a tricky proposition in the GCC when compared to other parts of the world. Companies need to rely on expats to fill certain roles. Considering the limited leeway available for hiring expats due to tightening conditions, recruitment needs to be spot on for these companies if they want to find the right fit for the roles they wish to fill. The usage of artificial intelligence and data science could be beneficial in the sourcing and screening phase to pick the best candidates who satisfy the prerequisites. Although the adoption of data science and AI in the GCC has not become mainstream yet, its usage continues to grow with several organizations exploring the option.

CHALLENGES FACED BY DATA SCIENCE IN RECRUITMENT

Data science in the area of recruitment is still at its infancy and has a few wrinkles that need to be ironed out. The primary reason for data science to be used in hiring is that traditional processes of recruitment involve a lot of subjectivity. This means that there are several subjective variables involved in judging a candidate. For

CASE STUDIES

Large investments into developing Data Science tools and techniques have already started and some companies have started seeing noticeable benefits already. Whether they have achieved break-even is another question altogether, but efforts are continuously being taken to refine these techniques and find different ways of using them.

Google, being a tech-giant, has used data science to great effect in examining issues related to HR. The same applies to recruitment as well, where they use data from millions of applicants to find the right fit for the role based on four broad parameters. These parameters are general cognitive ability, emergent leadership, "Googleyness" (a combination of intellectual humility, conscientiousness, comfort with ambiguity, and evidence of taking courageous or interesting paths in your life), and role-related knowledge. Using analytics, Google has been able to reduce the ideal number of interviews on an average for each role from ten to five. This has saved several hours of time and brought down recruitment costs sizably. Data science has also been used in the form of algorithms that review the rejected applications, helping the company to identify and consider talents who would have otherwise been rejected through traditional screening techniques.

jetBlue

JetBlue Airways is a non-tech related player that has put data science to good use in its hiring process. They used the results of customer data analytics to tailor their process of hiring flight attendants. Their notion of hiring flight attendants who were 'nicer' to customers was proved wrong. Instead, customers preferred attendants who were more 'helpful'. Their helpfulness made up for their quality of 'not being so nice'. This insight helped recruiters to select the right candidates for the role.

instance, recruiters want to hire 'excellent performers' or 'out-of-the box thinkers', whose definition varies from organization to another, making it hard to quantify. Finding whether an individual would be a good fit for a role is not as straightforward as predicting when a part needs to be replaced in a car. The element of subjectivity makes it hard for data scientists to find predictive variables. Consequently, data scientists end up building their algorithms based on data points that are easy to collect instead of the ones that accurately judge the fitment, making the process more inefficient than it earlier was.

Several algorithms are also based on posts, opinions and views that have been shared by candidates in social media platforms. Collecting data from these sources may be permitted from a legal perspective, but the ethics of the process becomes questionable. In addition, the circumstances under which they were posted would also skew its usefulness in the context of hiring.

Another challenge faced by recruiters is that the algorithms used for screening the candidates are generally based on historical data. A candidate's traits during one's past may not necessarily determine his future behavior. A study conducted by Amazon states that a hiring algorithm developed by their team assigned lower scores to female candidates – as male candidates have historically performed better. As they were unable to find a solution to this problem, the company stopped using this algorithm.

WHAT DOES IT HOLD FOR THE FUTURE?

Artificial intelligence and data science have been rapidly evolving in recent times and are being successfully used in various fields. However, with big opportunities come big challenges. There is undoubted potential for data science to be applied in the field of recruitment, but a lot of work needs to be done to make this a successful partnership. At this early stage, there have been several cases around the world that have shown that data science could be very helpful in the sourcing and screening phase, saving recruitment time and cost. The flaws observed in the current stage could be smoothened in due course through process enhancements. However, phases such as engagement and interviews still need a lot more manual intervention. With smart usage, data science could easily be a game changer for recruitment both in the short and long term.

THE GIST

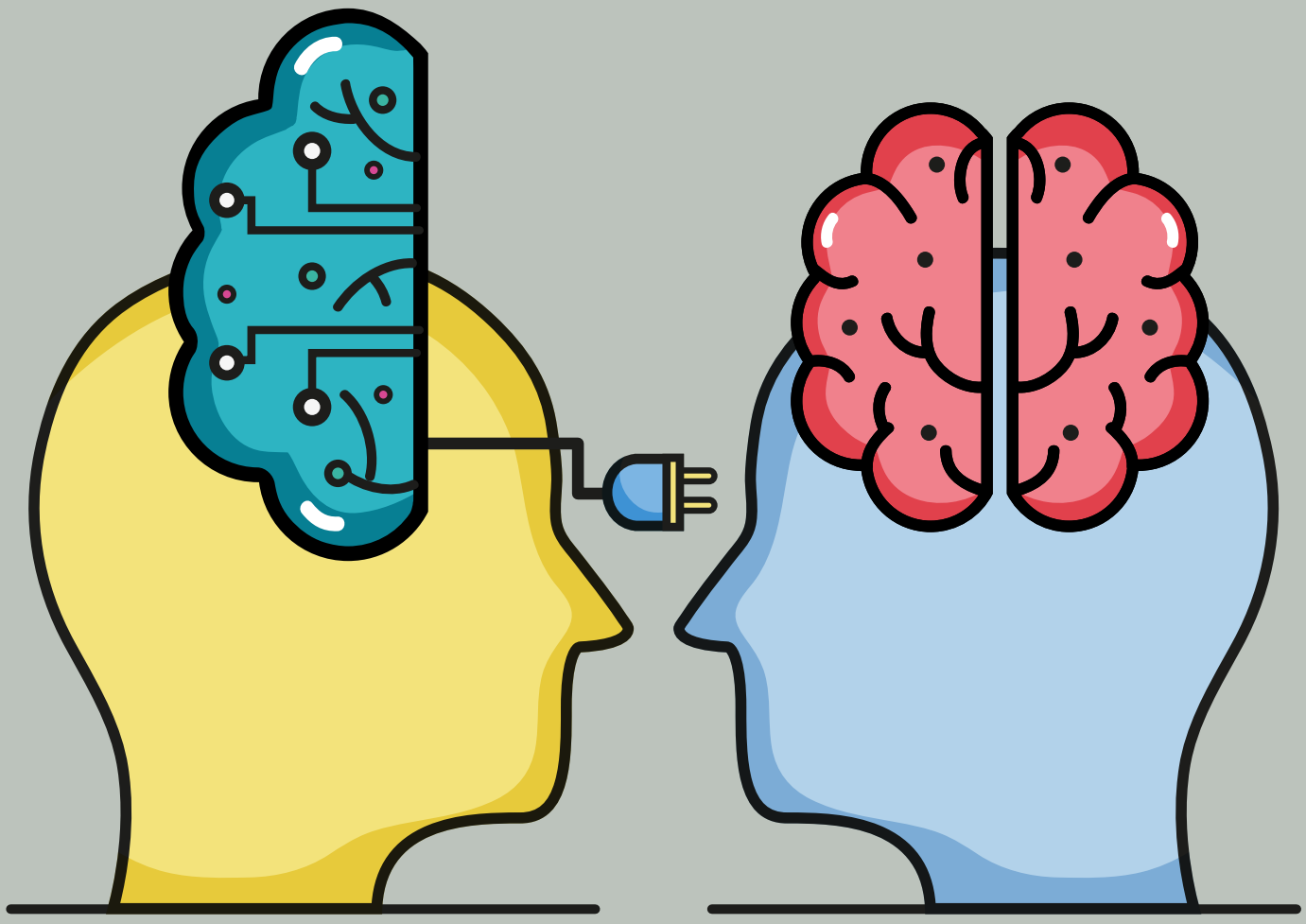
Data is The New Oil
In recent years, the field of 'data science' has been gathering traction with businesses perceiving it to be an enabler that helps them achieve their organizational goals more efficiently, by using algorithms to process large sets of data to deduce useful information that can help in creating business value

Exposing Recruitment to Data Science
The screening of large number of resumes is one of the pain points faced by recruiters. The application of data science through AI algorithms can help streamline recruitment via enabling AI screening tool to shortlist candidates efficiently without human bias.

Recruitment Via Algorithms is Shaping Up
Although there are certain challenges with regards to finding the best fit using AI algorithms, this subject matter has advanced considerably as data scientists are building algorithms based on voluminous amounts of resumes and job data that can eventually yield the desired results.

THE WAY FORWARD IS TOGETHER

Artificial Intelligence and Humans



THE GIST

Replacement of Humans

AI algorithms have shown that they are more efficient than humans in performing certain tasks but haven't necessarily replaced humans. Instead, they have altered the way in which tasks used to be performed by either complementing them or augmenting their capabilities.

A Collaborative Approach

Human intervention could enhance the ability of AI-enabled machines and others where the intervention of AI could improve the performance of humans. A collaborative approach could redefine the way how tasks could be performed and benefit organizations in the long run.

Humans and Algorithms

AI is undoubtedly a boon for HR management, helping HR professionals optimize recruitment. There are pitfalls in relying completely on AI for accomplishing certain tasks, but over these can be perfected as there are still areas where a human oversight is required.

One of the biggest fears that traditionalists had when they witnessed the emergence of Artificial Intelligence (AI) was that it would slowly replace humans at their jobs due to better efficiency. It has been nearly a decade since mainstream adoption started and it is safe to say that the notion has proven to be only half-true. AI has shown that they are more efficient than humans in performing certain tasks but haven't necessarily replaced humans. Instead, they have altered the way in which tasks used to be performed by either complementing them or augmenting their capabilities. Several companies around the globe that have adopted AI, in some form or the other, have concluded that the best usage of AI would not be replacing humans to short-term gains for improving productivity, but to work in tandem for qualitatively better outcomes.

Despite rapidly breaking boundaries, there are certain areas that human intelligence is still required for AI to work better.

Despite rapidly breaking boundaries, there are certain areas that human intelligence is still required for AI to work better. Both AI and human capabilities have their own strengths and weaknesses. By leveraging each other's strengths, many complex tasks have been accomplished, especially in areas such as Human Resources Management (HRM) that involves a comparatively greater human touch. There are several situations where human intervention could enhance the ability of AI-enabled machines and others where the intervention of AI could improve the performance of humans. A collaborative approach could redefine the way how tasks could be performed and benefit organizations in the long run.

AI-ENABLED SYSTEMS ASSISTED BY HUMANS

Chatbots are one of the most common applications of AI. They are being used to automate tasks pertinent to several HR-related functions such as recruitment, employee engagement, employee feedback, etc. Chatbots use Natural Language Processing ("NLP") technology to understand human language, context and tone better so that their responses are similar to that of conversing with a real person. For example, recruitment involves screening the profile of several candidates. These candidates might have a few questions before they would want to apply for a role. In many cases, these questions are repetitive but voluminous depending on the number of applications received for a single role, making them an ideal use-case for chatbots. However, AI has its own limitations and it is still in the development phase. There could be challenges for the chatbot in understanding the context or slang that the applicant uses. In these cases, an amount of manual intervention would be ideal to train the chatbot so that it keeps up with the changes in human behavior. This would be one case where a small amount of human intervention would assist the working of an AI-enabled system.

At the end of the day, AI systems are also prone to errors. In an area such as HRM, there is always an emotional connect involved, as the discipline primarily deals with humans and not something abstract. There have been several cases where AI systems have miserably failed by not being emotionally correct. Due to the nature of AI, which is to be driven by data and not emotions, it is open to exhibit discrimination against a certain group of applicants or employees. There might be cases where a certain profile of people who work in an organization might exhibit certain sets of characteristics. Using this data as a guideline, AI systems could easily reject such candidates or assign lower scores to them based on past data without realizing the sensitivity of doing so. This could result in the organization facing huge backlash for an unintentional machine-based mistake. Therefore, the emotional angle of a decision would be better represented when the an AI-enabled system has a human assistance.

HUMANS ASSISTED BY AI-ENABLED SYSTEMS

A key challenge that HR professionals have been trying to solve is the removal of biases in their decision-making process. One way of doing so would be making the decisions more data-oriented. Providing the right set of data at the right time would be a place where AI-enabled systems could highly benefit humans. Job interviews are

an area that could benefit from this approach. While the screening and filtering phase is data-intensive and could be automated, interviews often require a personal touch. Besides, the number of candidates who reach the interview phase is much lower than the number of candidates who apply for a job. With the assistance of machine learning, voice recognition and NLP, the interviewer could receive data-points and insights that could help in selecting the right candidates. One could perform competency analysis, cultural fitment and personality analysis of candidates using these technologies. While selecting candidates completely based on these data metrics could be a little farfetched and error-prone, they can be effectively used to aid the judgement of the interviewer.

Training and development is another aspect of HR that would entail the usage of AI to assist humans. The insights provided by AI systems by capturing the interests, sentiments, strengths and weaknesses of employees will allow HR professionals to tailor their training programs and career path plans to better suit the individual employees. This would help in reducing attrition and increase the morale of employees to perform better.

The perception of rewards and recognition vary from individual to individual. Each person is motivated differently. Therefore, clubbing them together and offering them the same benefits would not be the best way to improve employee satisfaction levels. Employee survey analysis and sentiment analysis would help organizations optimize their compensation and benefits by targeting the right group of employees with the right package. In addition, compensation analytics using AI techniques could be used to identify market trends and ensure compensation levels are in line with industry standards.

IBM's predictive attrition program

IBM's HR department has developed and patented a "predictive attrition program" that was developed along with Watson, its proprietary AI system. The program analyzes various data points that cause attrition among employees and predicts employee flight risk. It would also prescribe actions for managers to engage their employees. IBM's management has stated that its program is 95% accurate in predicting workers who are planning to quit their jobs. IBM's CEO Rometty also stated that the AI system has saved IBM nearly USD 300 million in retention costs.

One of the internal findings from the program suggested that people in HR and other management roles are likely to remain when compared to employees who are part of sales or quality control. Despite some insights thrown by the program seeming obvious – like people who work longer hours, people who are rewarded less and people who are into sales jobs are more likely to leave, the program finds ways to quantify these variables and provide recommendations for the management to take actions.

Source: CNBC, IBM

WHAT DOES THE FUTURE HOLD FOR THIS COLLABORATION?

AI is undoubtedly a boon for HR management, helping HR professionals optimize recruitment, improving employee experience and bringing down employee engagement to an individual level. There are pitfalls in relying completely on AI for accomplishing certain tasks. These shortcomings can be improved over time but cannot be perfected as there are still areas where a human oversight is required. In the same way, the decision making process of humans have been largely improved through the insights provided by AI. Rather than replacing humans at their jobs, AI has enabled humans to enhance their skill-sets and perform better. HR professionals have started reskilling themselves to work in tandem with AI and channeling their efforts much more into tasks that require greater human involvement.

The potential of AI is vast, but there needs to be a rethink on how organizations approach AI. Learnings obtained from several organizations that are ahead in the AI adoption curve suggest that a collaborative approach between humans and AI would be the best way forward as each possesses a unique skill-set that is hard to replicate by the other. We may also witness the transformation of the roles and responsibilities held by HR professionals as organizations start embracing AI. New roles such as AI auditor, human experience strategist and AI bias expert may emerge with traditional HR tasks being taken over by AI enabled systems. Therefore, it would be best suited for companies to formulate a strategy that entwines AI and human intelligence so that they could embrace technology and use it effectively.

CASE IN POINT

CASE 1

IBM'S AI TOOLS FOR HR

IBM's Talent & Transformation service, introduced by IBM's Global Business Services Group offers a range of new talent and workplace transformation solutions that enable companies to embrace opportunities and overcome challenges that are associated with AI and automation.

It is proven that the implementation of Artificial Intelligence (AI) can augment employees' skills, redefine tasks, and increase productivity, but it needs adequate training and development. IBM uses AI personalization to guide its employees, gauge their flight risk and use bias reduction capabilities to identify the biased practices in the recruitment process.

IBM is a pioneer in deploying products in the cognitive field with its Watson Solutions. IBM's Talent & Transformation service, introduced by IBM's Global Business Services Group offers a range of new talent and workplace transformation solutions that enable companies to embrace opportunities and overcome challenges that are associated with AI and automation. IBM's technology includes new services, AI tools and related training initiatives. Companies including Citizens Financial Group and Ernst and Young are engaged with IBM Watson talent solutions.

IBM's talent solutions offer a range of products that can be purchased individually or as a package. They are as follows:

1 WATSON RECRUITMENT:

Watson recruitment assesses an organization's history of employment and external data sources to identify the key features and attributes necessary for performing a role successfully. It then utilizes AI to identify and shortlist the most suitable candidates for the position, avoiding any form of human error or bias.

2 WATSON CANDIDATE ASSISTANT:

Watson candidate assistant is considered to be a new cognitive career advisor system. It thoroughly examines and reviews the employment and educational

background and experience of the applicant, infers skillsets and matches the candidate to the right openings that are best suited according to their profile along with recommendations that would have never surfaced with the traditional applicant tracking systems (This is what BLOOVO Machine Learning Algorithms do!).

3

WATSON CAREER COACH:

Watson Career Coach acts as a virtual coach by providing career guidance and recommendations to the employees. This is especially utilized by those employees who are looking for navigating career roles within the same company. Watson career coach infers employees' skills, interest and eminence and provides personalized advice regarding the career path and choices. Employees get the option of raising questions regarding their career, receive suggestions and feedbacks, and recommendations about various career option that could be a good fit to them.

4

WATSON TALENT FRAMEWORKS:

Watson talent frameworks set the definition for competencies and skills that are in demand for a successful talent strategy. It also understands the particular needs of the organizations and caters to it by developing a workforce customized to the specific industry and requirements.

5

ADVERSE IMPACT ANALYSIS (AIA):

The Adverse Impact Analysis utilizes Watson AI to analyze, identify and solve unconscious bias that exists across an organization's employment mode and history. This includes any kind of discrimination with respect to gender, race, age, education and previous employment that would adversely affect the diversity and wellbeing of the organization.

6

IBM AI SKILLS ACADEMY:

The IBM AI Skills Academy offers a set of educational and training programs that will help businesses plan, build and apply strategic AI initiatives throughout the enterprise like evaluating AI roles and skills, building the necessary skills and creating an organizational structure in support of AI strategy. Courses including deep learning, machine learning, applying algorithms, open source technologies and data visualization makes sure that the business decisions are based on data driven analytics.

7

IBM GARAGES:

IBM garages help organization develop agile practices, test ideas and scale solutions. IBM experts collaborate with clients to develop new ideas, test them and decide to proceed or discard with them. Ford Motor Company, Travelport and McLane are prominent companies working with IBM Garages.

CASE 2

COMMERCIAL BANK OF DUBAI UTILIZES AI SERVICES FROM GLINT

HR teams often lack the time, resources and technology to gather insights from employees and take effective action on the data collected. This tool generate real-time alerts for employee populations that are at risk for increased attrition, decreased performance, or modifications to key performance indicators.

Commercial Bank of Dubai (CBD) has grown over the years into a progressive and modern banking institution in the GCC region, with a strong financial and management structure, and loyal and increasing customer base to its credit. At present, CBD is one of the leading banks in Dubai and provides a wide range of retail and commercial banking products and services to its customers.

As the financial industry is rapidly evolving, banks are required to become more digital in their products and service offerings. In order to respond to the changing demands, the employees must be fully engaged and dedicated to the idea of a high performance culture. Utilizing Glint's people success platform offers the technology to generate capability within CBD to understand the employee experience and take the right actions to improve the employee engagement and performance.

Glint's AI-for-HR delivers real time intelligence that enable organizations to make impactful Human Resources decisions. HR teams often lack the time, resources and technology to gather insights from employees and take effective action on the data collected. This tool generate real-time alerts for employee populations that are at risk for increased attrition, decreased performance, or modifications to key performance indicators. This tool has the potential to assess millions of data points from disparate sources of data while predicting key business outcomes such as turnover, performance, customer satisfaction, sales etc. Glint's machine learning learns and adapts to each organization and team's unique requirements and continuously updates itself as new information flows into the system.

The use of Glint ensures that CBD gets the real time employee data that can be used by the top level management to get a holistic view of the organization's capacities, insight to foresee any issues before they arise and the direction to take the necessary actions. ■

AI AND THE CHANGING ROLE OF HR

Digital Transformation is Becoming an Integral Part of the NEW "Organization"

THE GIST

1. The role of HR today is expanding to assist business' strategic growth by providing inputs on high level business guidance and leadership in redefining the future of work.

2. The nature of work and business-employee relationship have to be redesigned to get the right use of AI. This will help HR in prioritizing where it should invest in changing the talent acquisition process and reshaping the learning initiatives in the future.

3. In the future, HR departments that get the mix of technology and human involvement just right, are more likely to succeed. While HR leaders focus on optimizing and getting the right combination of human and automation, a new era for HR is emerging; one that requires leaders and teams to get accustomed to artificial intelligence while reimagining the role of HR to be much more human, personal and intuitive.

The role of HR has broadened over the years from just recruitment of employees to more active involvement at the top level management of an organization. The contribution of human resources executives in planning and strategy formulation has become as important as advancement in technology or business leadership. The importance of Artificial intelligence (AI) has been growing rapidly, seeping through every new process and revolutionizing how we work. In the changing times, HR professionals will have to quickly absorb the latest advancement in technology and the transforming nature of work, while their own profession undergoes profound transformations.

A new HR formula

The role of HR today is expanding to assist business' strategic growth by providing inputs on high level business guidance and leadership in redefining the future of work. HR has to be the agent that drives the change by supporting the organization to transform from a traditional and rigid structure to a new agile organizational system. HR should work towards synching culture with business goals by designing programs that produce an engaging workplace, content employees, retain talent and ensure diversity.

HR should be the bridge that fills the gap between human aspects and the rapid digitalization, and simultaneously assist in strategizing a balanced roadmap for the way we work. HR leaders should come forward to initiate and strike the right conversations with management so as to build a successful path for a promising future.

The human resources management sector globally is projected to reach USD30bn by 2025. Advancements in IT, predictive analytics, AI and machine learning in HR functions is enabling the HR professionals to perform traditional practices with greater ease and lower time span. According to a survey by KPMG, nearly 59% of the survey respondents believe that the strategic importance of HR functions will grow.

Artificial intelligence (AI) gives HR an opportunity to leverage the technology to automate the low-value repetitive tasks and focus more on strategic growth. Day-to-day HR tasks usually involve significant proportion of time spent on employees' onboarding procedures, responding to employees' queries, handling payroll, organizing appraisals etc. Saving time in these areas can help HR teams to step up and empower themselves to do more creative and strategic work towards the success of the company. The biggest challenge that the HR industry face today is time management which can be solved using AI.

Transferring responsibility

With the gradual empowerment of line managers to oversee their own HR transactions due to budget constraints and enhanced technology, there has been a shift in direct responsibility for employees to managers and away from HR. In this regard, cloud-based solutions such as Workday are becoming more and more user friendly. Self-service may become the biggest push in talent management in the coming years and HR might be forced into more of a partnership kind of role.

Employee-centric designs under the workforce umbrella

The nature of work and business-employee relationship have to be redesigned to get the right use of AI. This will help HR in prioritizing where it should invest in changing the talent acquisition process and reshaping the learning initiatives in the future. For example, if the priority is agility in the organization then HR can invest in talent support and AI tools that assist employees in moving swiftly and freely between projects and automate many processes thus minimizing the barriers to workforce agility. According to G2 Crowd's report, HR will be driving the change wherein businesses will increase their spending on employee engagement by 45% in 2019.

The HR role in the effective and efficient running of an organization is growing in importance and is now expected to have a deeper understanding of AI-powered tools and data to make the right decisions and create and maintain a productive and ethical workplace. HR

can focus on building an inclusive workforce experience comprising of employees with varied skills that can lead to an improvement in teamwork and productivity. HR must also get familiar with future capabilities and create a continuous learning process. One of the changes in an HR role has been the proactive use of data to retain employees based on factors such as work location, salary and skillsets among others. For instance, IBM has developed a decision support tool that uses AI and machine learning techniques to quantify the importance of various risk factors to retention of employees while respecting the privacy of its employees. HR can subsequently utilize the output to enhance the employee experience and ensure the longevity in the tenure of most valuable employees.

According to a KPMG survey, HR is now realizing that automation of high volume and repetitive tasks saves a significant proportion of an employee time, who can now shift their focus on high-value tasks such as enhancing performance, improving competitiveness and efficiency that would create more business opportunities. HR leaders now have an opportunity to lead the future of work rather than working behind the scenes. HR should evolve as a function that is at the forefront of understanding the key cultural characteristics that could drive a more productive work environment, how people can be more engaged and how it can truly merge the human capabilities with advancement in technology.

It is the time that HR starts looking at the broader perspective of the whole business that would include internal as well as external factors related to business and thus create an HR strategy that would most suit the business. Achieving this would require an in depth understanding of the organization's core business model and the implications of its strategy on the future of the business which is something very few HR professionals have been able to master. For instance, an organization whose business model is specialized in providing low-cost goods may require an altogether different fundamental strategy as compared to the organization that relies on leading-edge innovation.

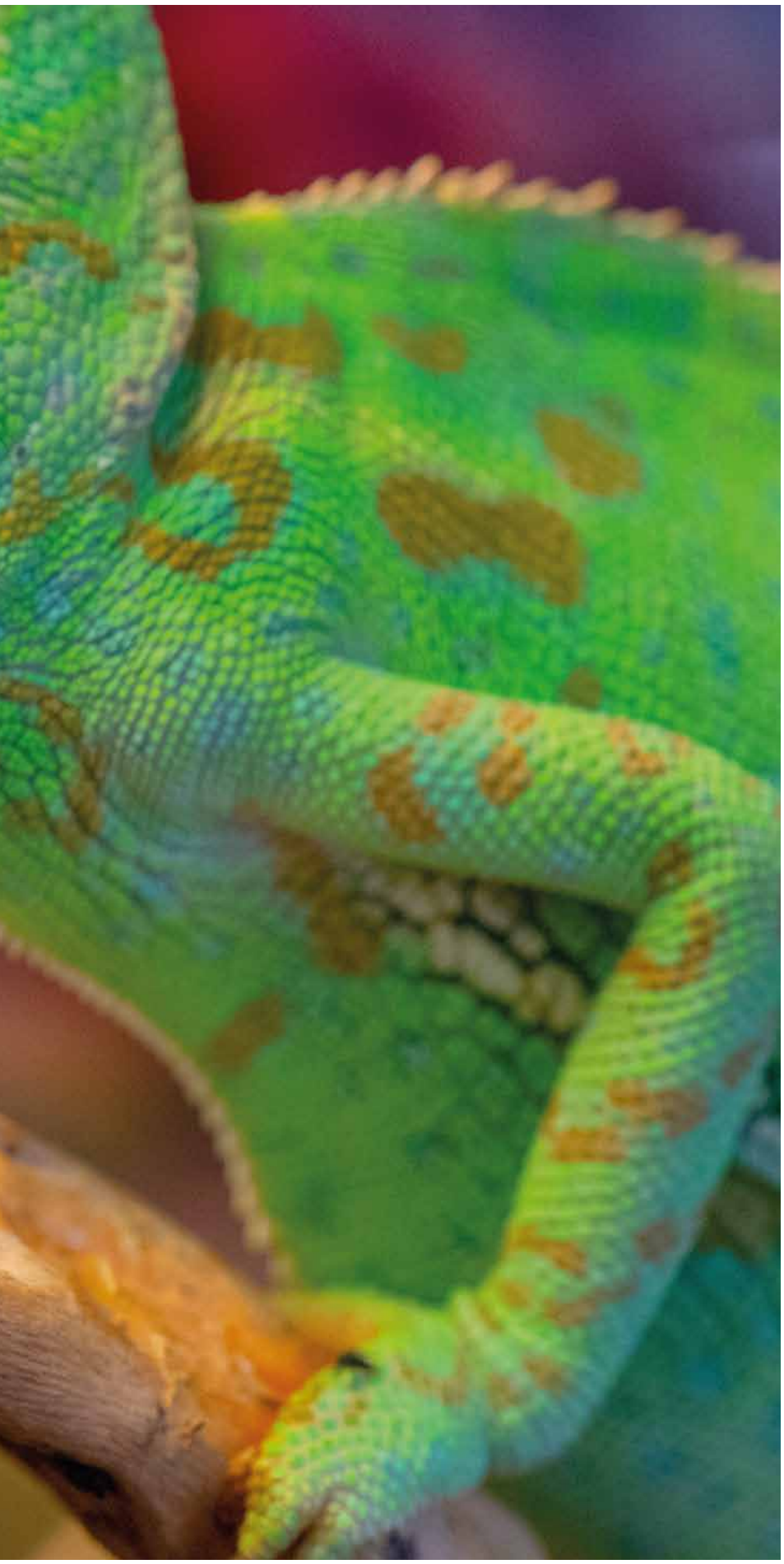
Areas where AI is being used to improve workforce management decisions

Organizations in the GCC region have been proactive towards adopting AI, and increasing number of companies across sectors are considering to elevate HR to a more strategic role and rely from their inputs for crucial decision making on most optimal ways to adopt latest technology and efficient management of people, who are the most valuable assets in any organization.

According to David Jones (CEO of Talent Enterprise), HR is more and more becoming about employees and implementing ways that best support these resources and less about policies. This is gradually changing the priorities on how talent should be attracted, assessed, acquired and retained in organizations across the GCC.

In the future, HR departments that get the mix of technology and human involvement just right, are more likely to succeed. While HR leaders focus on optimizing and getting the right combination of human and automation, a new era for HR is emerging; one that requires leaders and teams to get accustomed to artificial intelligence while reimagining the role of HR to be much more human, personal and intuitive.

The role of HR has broadened over the years from just recruitment of employees to more active involvement



at the top level management of an organization. The contribution of human resources executives in planning and strategy formulation has become as important as advancement in technology or business leadership. The importance of Artificial intelligence (AI) has been growing rapidly, seeping through every new process and revolutionizing how we work. In the changing times, HR professionals will have to quickly absorb the latest advancement in technology and the transforming nature of work, while their own profession undergoes profound transformations.

KNOWLEDGE ECONOMIES & AI

Benefits of Artificial Intelligence for Knowledge Workers

THE GIST

1 Providing knowledge workers with AI-integrated applications will be crucial to drive up the performance level and improve productivity, according to a survey of executives by Forbes.

2 Further, knowledge workers often make critical business decisions that are time-sensitive and require interpretation of data. Artificial intelligence could prove to be differential in cumbersome and time-consuming tasks that require collection of documents, or identifying patterns or making sense of the large data sets.

3 AI can also augment knowledge workers by providing a wide range of tools to enhance the natural intelligence quotient thereby complementing the knowledge worker's human capabilities.

Over the past several decades, there has been a significant replacement of work through automation. Right from machines doing the heatvy-lifting to handling repetitive tasks, organizations are increasingly able to deploy more man hours towards higher-value and productive tasks. Similar to how the machines have changed the way we work, the latest technologies powered by Artificial Intelligence ("AI") are increasingly being used at the workplace complimenting the knowledge worker (personnel who are involved in research, discovery, drawing insights and applying it in the decision making process). Practically, the primary focus of AI has shifted to equip knowledge workers with the tools and information that are required to complete their tasks faster and with greater efficiency.

According to Gartner, augmentation of AI is expected to generate a business value of USD2.9 trillion and reduce the working hours by up to 6.2 billion in 2021. Providing knowledge workers with AI-integrated applications will be crucial to drive up the performance level and improve productivity, according to a survey of executives by Forbes.

SHIFTING FOCUS OF AI TOWARD KNOWLEDGE WORKERS

Currently, IT departments are at the forefront of leveraging the AI into the work process. However, by 2020, business unit heads, knowledge workers and top level management will witness the fastest shift towards more active utilization of AI and related technologies. The game-changing benefits of AI for knowledge workers will include security, automation in data collection activities and streamlining the work flow. According to data provided by LinkedIn, approximately 30% of knowledge workers would like to be equipped with superhuman intelligence as a super power. However, enhancing their creativity and strategic contribution triumphs over superhuman intelligence with 44% of those surveyed stating creativity as the primary skill they would like to acquire, which is also the most sought after soft skills by companies in 2019.

Source: Forbes Insights | Figures depict number of executives' agreeing with the statement (as % of total)

79% AI and related tech are transforming knowledge workers' workflow & tools

84% AI streamlines processes and enables knowledge workers to be more creative and stimulate more thought provoking tasks

Time consuming and complex tasks such as research and discovery form a crucial aspect of what a knowledge worker does can therefore be simplified through automation. Further, knowledge workers often make critical business decisions that are time-sensitive and require interpretation of data. Artificial intelligence could prove to be differential in cumbersome and time-consuming tasks that require collection of documents, or identifying patterns or making sense of the large data sets. A large proportion of knowledge workers are of the opinion that their old tasks are rapidly being replaced by new work profiles that require them to undergo training and acquire new skills through on-the-job learning. Amongst many others, AI is also a powerful tool that is capable of providing information that may be hard to get for knowledge workers, with more simplicity and thus improve understanding.

AI can be useful to identify micro skills of various

employees who are engaged in similar tasks to increase efficiency and expertise. AI can subsequently update its database automatically as and when an employee acquires a new skillset. Further, as employees become more knowledgeable, the system may assign more complex problems to more skilled workers. For instance, HP was able to witness a sharp improvement of 40% in resolving queries at first contact and a 50% reduction in the number of calls transferred in its customer support center due to the adoption of AI cognitive platform for computing that analyzed previous call data instead of less efficient queue-based systems to route customer calls. The new platform determined each support agent's micro skills and success rate on specific type of requests to divert calls.

Further, with concerns surrounding cyber security mounting globally, there has been an increase in the usage of instruments by various organizations to collect data at different time points to analyze threats. These techniques may often fail to incorporate the knowledge of experts in the field, such as motive of breach, exposure to risks and other threats as the integration of data from various sources may not be possible. However, over the years, various institutes have been trying to analyze and integrate these multiple complex variables. For example, a cyber security expert's understanding behind a cyberattack are being explicitly integrated with the system from the very beginning. The combination of vital human knowledge with other data sources from machines and networks is increasingly gaining prominence to develop more effective cyber security defenses mechanism.

THE MOVE TOWARDS BIG DATA

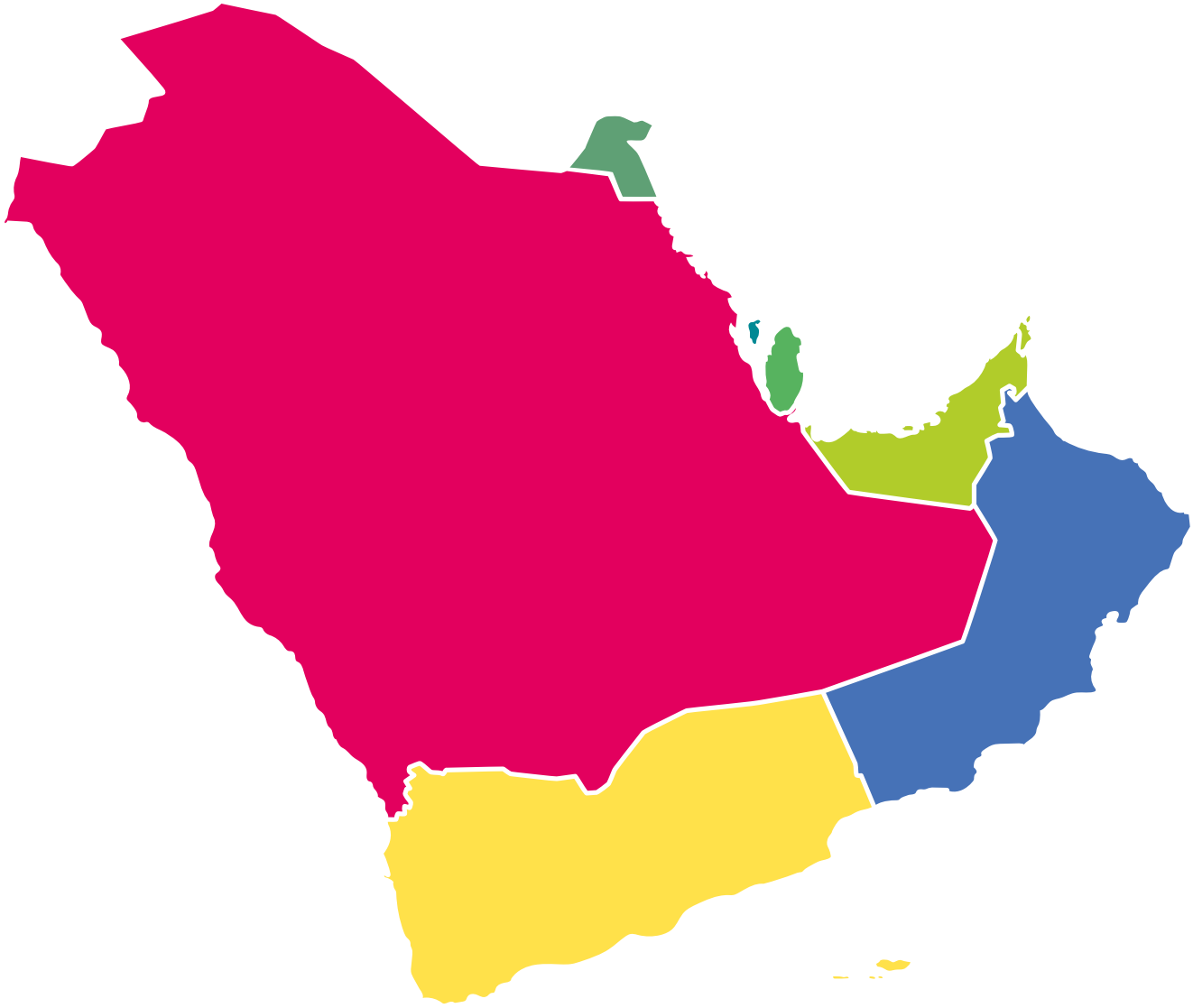
Many AI techniques that are based on deep machine learning usually require large data sets in order to identify patterns and develop system. However, a work field that has relatively scarce experts may not have sufficient amount of data to train and develop a system. As we move ahead in the future, we may witness more top down AI techniques that are data-efficient and therefore will be able to capture and map a workers' expertize.

At the macro level, the contribution of AI-driven growth in economies will be derived from enabling labor and capital to be used more effectively rather than replacing them. AI can also augment knowledge workers by providing a wide range of tools to enhance the natural intelligence quotient thereby complementing the knowledge worker's human capabilities. For companies with high sunk costs, the use of analytics and advanced machine learning can reduce factory downtime and thus significantly improve capital efficiency. Augmentation and empowerment of knowledge workers is a key focus of AI strategies in the GCC due to the high demand of white collar jobs in the region that requires highly skilled workforce along with large youth unemployment base.

According to a survey carried out by Citrix in the UAE, nearly 47% of the respondents believe that AI will assist in performing highly complex tasks, while another 35% of the respondents are of the opinion that AI and robotics will do away with repetitive tasks and free up time to allocate on more important tasks. The growing use of AI and robotics in the workplace will allow creativity to take the driving seat which remains among the few things that are exclusive to humans that can't be automated (at least for now!). With the rise in workplace becoming more and more intelligent due to greater emphasis on strategic aspects, knowledge workers and organizations together can drive innovation to be more productive. The outlook for AI in the GCC region is bright which encourages more companies to adopt and implement the latest technological advancements and equip their knowledge workers, one of the most valuable assets for a company, to remain competitive in the market.

AI ADOPTION IN THE GCC REGION – A NEW HOPE

Are GCC Governments AI-ready?



THE GIST

1 Across the GCC region, spending on AI and digitization has been growing with increasing number of government partnerships. The key catalysts of AI in the GCC are high percentage of youth in the demography who are generally more tech savvy, high penetration of mobile and growing data usage and governments' aim to transform their countries into knowledge-based economies.

2 GCC governments have launched several AI strategies to drive optimization across all levels of their economies as means of moving up the technology adoption ladder & to take a global spot when it comes to AI adoption.

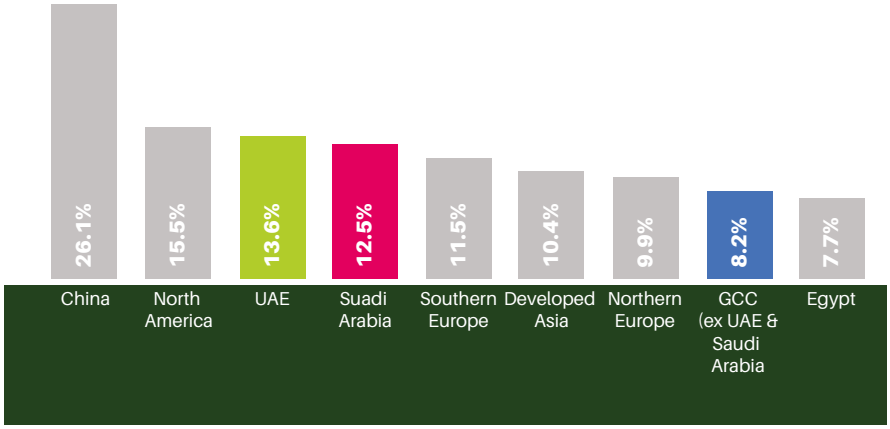
3 Innovation in the private sector and more government collaboration with the private sector could be the key in successful completion of projects.

Sometimes termed as the fourth industrial revolution, the global shift towards Artificial Intelligence (AI) and advanced technologies is well recognized by the governments and businesses across the GCC region. Adoption of AI and its associated technologies by various businesses is expected to result in increased productivity, and the GCC region could stand to a value of USD277 billion to its economy by 2030. This translates to the GCC region accruing 1.8% of the total benefits of AI globally. By 2030, AI contribution to the UAE's GDP is expected to be USD96 billion, USD135 billion for Saudi Arabia, while it is estimated to be USD46 billion for rest of the GCC countries combined, which includes Kuwait, Qatar, Bahrain and Oman.

AI CONTRIBUTION TO THE UAE'S GDP BY 2030

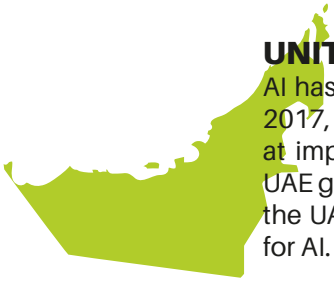
- USD135 billion
- USD96 billion
- USD46 billion

AI CONTRIBUTION TO GDP BY REGION/COUNTRY, 2030



Across the GCC region, spending on AI and digitization has been growing with increasing number of government partnerships. The key catalysts of AI in the GCC are high percentage of youth in the demography who are generally more tech savvy, high penetration of mobile and growing data usage and governments' aim to transform their countries into knowledge-based economies.

Microsoft Gulf has indicated that it looks forward to building strategic partnerships, initiatives and collaboration with GCC governments and technology companies in the region and will continue to help the region in adopting AI and driving digital transformation across all industries with a shared understanding of the ethical and societal implication of AI.



UNITED ARAB EMIRATES

AI has become an important part of the UAE government's strategic plans. In 2017, the government launched the Artificial Intelligence strategy that aimed at improving efficiency across all sectors and strengthening the position of UAE globally. HH Sheikh Mohammed Bin Rashid Al Maktoum, Prime Minister of the UAE appointed Omar Bin Sultan Al Olama as the maiden Minister of State for AI. The Minister stated that the strategy aims to boost cooperation and

develop partnerships between governments, federal and local entities, international companies and startups and make a positive impact by finding effective and innovative solutions.

Within the UAE, Dubai is at the forefront of AI adoption. It has multiple strategies in place including Smart Dubai strategy, Dubai 3D Printing Strategy and Dubai Autonomous Transportation Strategy among others. The Smart Dubai 2021 strategy aims to transform the city by optimizing all the resources and integrate services in daily life while protecting people and information . The Smart Lab in Dubai, the first of its kind, will provide training to over 200 government employees and private sector officials to implement AI and cognitive computing in their respective fields. The lab will gradually also open for researchers, students and public. Director-General of Smart Dubai Office, Dr. Aisha Bishr stated that they want to replace call centers and help parents choose schools for their children using cognitive computing. The Dubai 3D Printing Strategy initiative will use the emerging technology to reduce cost in multiple sectors, most notably construction and medical sector in Dubai and promote UAE as a leading hub of 3D printing technology by the year 2030 . The Dubai Autonomous Transportation Strategy, a conjunction between the Dubai Future Foundation and Dubai's Roads and Transport Authority aims to transform 25% of transportation in Dubai to autonomous mode by 2030. This will involve an estimated 5 million trips daily with a saving of AED22 billion annually. As part of the strategy, 'Dubai World Autonomous Transportation Challenge' was also launched to encourage the world's leading innovative companies, institutions and research & development centers to test the latest advances in this technology by providing transportations solutions and scenarios that are realistic and tailored for the streets of Dubai .

Further, Dubai Road & Transport Authority (RTA) as part of the Dubai Future Accelerators program is evaluating the feasibility of a Hyperloop, which is a super high-speed transport system with an estimated cost of USD6 billion at an average cost of approximately USD40 million per km. The first phase of the project, that involves the construction of a 10km track in Abu Dhabi, is expected to be in place by 2020. The Hyperloop system would considerably reduce the travel time between the destinations and has a low cost of implementation with an estimated recoup time of 8 to 15 years.

In 2017, Microsoft helped Dubai Electricity and Water Authority (DEWA) develop Rammas, a virtual assistant on the utility's website. Built using the natural language processing (NLP) on Microsoft's Cognitive Services platform, the chatbot can communicate in both Arabic and English. This has enabled DEWA to utilize its employees work hours to handle more complex customer concerns. In its first six weeks of operation, Rammas handled more than 87,000 enquiries and was well received by customers.

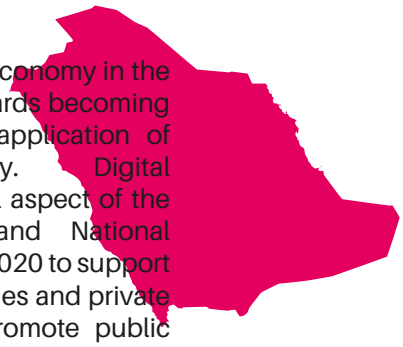
The UAE's commitment towards AI and its drive to adopt and develop latest technologies will help it to be the leader of Artificial intelligence in the region and the world. According to the Government Artificial Intelligence Readiness Index, the UAE has been ranked at the top in the entire Middle-East region with respect to its readiness to navigate advances in artificial intelligence. The Emirates was ranked fourth in Asia Pacific region behind Singapore, Japan and India while it was ranked 19th at global level.

GOVERNMENT ARTIFICIAL INTELLIGENCE READINESS INDEX, 2019

Country	Rank	Score
UK	2	9.069
USA	4	8.804
UAE	19	7.445
Qatar	42	6.035
Oman	59	5.321
Saudi Arabia	78	4.779
Kuwait	79	4.725
Bahrain	100	3.962
Egypt	111	3.492

SOURCE: OXFORD INSIGHTS

SAUDI ARABIA



Saudi Arabia, the largest economy in the GCC, is also working towards becoming a global leader in the application of AI-related technology. Digital transformation is a crucial aspect of the Saudi's Vision 2030 and National Transformation Program 2020 to support economic sectors, industries and private sector entities and to promote public private partnerships and thus reduce the country's dependence on hydrocarbons . Saudi Arabia could harness the technologies to improve public-sector efficiency, reduce its reliance on expatriate workforce and improve the

quality of its citizens' lives.

Saudi Arabia is set to transform the government services in smart cities. For instance, NEOM (which is a planned smart city that is expected to be completed by 2025 with an estimated cost of USD500 billion) will have integration of innovation into the city's infrastructure with autonomous vehicles and smart buildings. Mohammed bin Salman, Crown Prince of Saudi Arabia said "the smart city will allow for a new way of life to emerge that takes into account the ambitions and outlooks of humankind paired with best future technologies and outstanding economic prospects." Saudi Arabia also became the first nation ever to grant citizenship to a humanoid robot named 'Sophia'. The robot is imbued with AI and can recognize faces.

Saudi Arabia government is also looking at ways to increase the efficiency and effectiveness of the healthcare industry through IT and digital transformation. In order to realize this objective, it is targeting to increase the number of Saudi citizens with unified digital health record from 0 to 70% by 2020. This will provide access to accurate information whenever needed and will free up time to focus on more time sensitive and important tasks such as attending patients.

While the investment in AI has been growing in Saudi Arabia, backed by the government's vision to digitally transform the country, investment is currently largely driven through domestic sources, most noticeably from country's Sovereign Wealth Fund. To maintain the positive momentum in the transformation drive towards AI and digital technology, Saudi Arabia needs to promote international participation and bring in more foreign investments.

KUWAIT

Similar to other GCC nations, Kuwait as part of its New Kuwait 2035 economic diversification vision, has developed smart cities strategy that aims to integrate latest technologies into daily lives. Charles Nahas, General Manager, Microsoft Kuwait said: "The Government of Kuwait is ambitiously steering towards achieving the country's Vision 2035 of 'New Kuwait' with a strong focus on Digital Transformation."

Aligned with the New Kuwait Vision 2035 goals, Ministry of Electricity and Water partnered with Zain and SAP to deploy smart meters that will reach 800,000 electrical meters and 300,000 water meters to homes and organizations in Kuwait . These meters will record and transmit the data on water and electricity usage and the Ministry, residents and organizations will subsequently be able to access real-time utilities usage and billing data. The digitization will enable easy payment of bills and encourage sustainable usage of utilities by alerting consumers in case of high usage. The government aims to bring down the usage of water and electricity consumption per capita in Kuwait which is among the highest globally.

The Central Bank of Kuwait is also increasingly looking towards adopting latest technologies. Tariq Al Usaimi, recently appointed as the head of digital strategy for Kuwait Central Bank plans to bring in widespread change in the financial institution by investing in big data analytics, AI and overhauling the way it uses technology. The spending is set to boost the operational efficiency of the country's financial institutions.

While the focus has been shifting on investment to adopt AI, much more needs to be done by the governments to prepare the society to take advantage of potential disruptions from AI growth while mitigating the risks involved. New ways of effectively educating future generations and inspirational ways to use AI in classrooms are being identified. Customized courses and integration of AI courses into curriculum should be the primary focus of government to make the next generation employees future ready.

QATAR

Qatar is emerging as one of leading countries in the world in terms of acceptability and adaption of new technologies along with innovation and automation. It is ranked 42nd globally and 2nd among the GCC in the Government Artificial Intelligence Readiness Index (GAIRI). The IT market is witnessing one of the fastest growth rates that is expected to cross USD4.4 billion annually in 2021 . Qatar has shown strong commitment to developing their AI capabilities and has been investing heavily in new technology, with governments serving as initial consumers, stated GAIRI report by Oxford insights.

BAHRAIN

According to a report by Grant Thornton, emerging and frontier nations such as Bahrain are increasingly adopting latest technologies, which is playing a significant role in the growth and innovation strategy. Navneet Sharma, IT advisory director, Grant Thornton stated: "In Bahrain, the digital

transformation strategy is the way forward and state-of-the-art new concepts are on horizon to deliver new products and services." Data has become an imperative business intelligence tool across Bahrain and majority of government authorities in the Kingdom and private sector businesses are increasingly relying on it to make key strategic decisions.

OMAN

Oman too is undergoing a transition into a knowledge-based economy as outlined in its economic vision 2020. IT technologies, AI and digitization are the main focus of the transformation that will serve as the key enabler of achieving economic diversification. "Technologies such as AI, Blockchain, Internet of Things (IOT), Virtual Reality (VR) and the ability to employ these technologies are the key elements on which the country's abilities to achieve growth, progress and prosperity will depend", Dr. Salim bin Sultan Alruzaiqi, CEO of Information Technology Authority (ITA) stated. ITA estimates that the implementation of Artificial Intelligence projects, part of the eGovernment transformation initiative will result in savings of around USD47 million over a period of four years.

Similar to other GCC nations, the governments of Qatar, Oman and Bahrain can plan to link the use of AI to their respective major strategic objectives. This approach could yield synergies right from the planning stage. Focus should also be on improving the experience for the customers while trimming down the costs. Innovation in the private sector and more government collaboration with the private sector could be the key in successful completion of projects.

THE SKILL PUZZLE

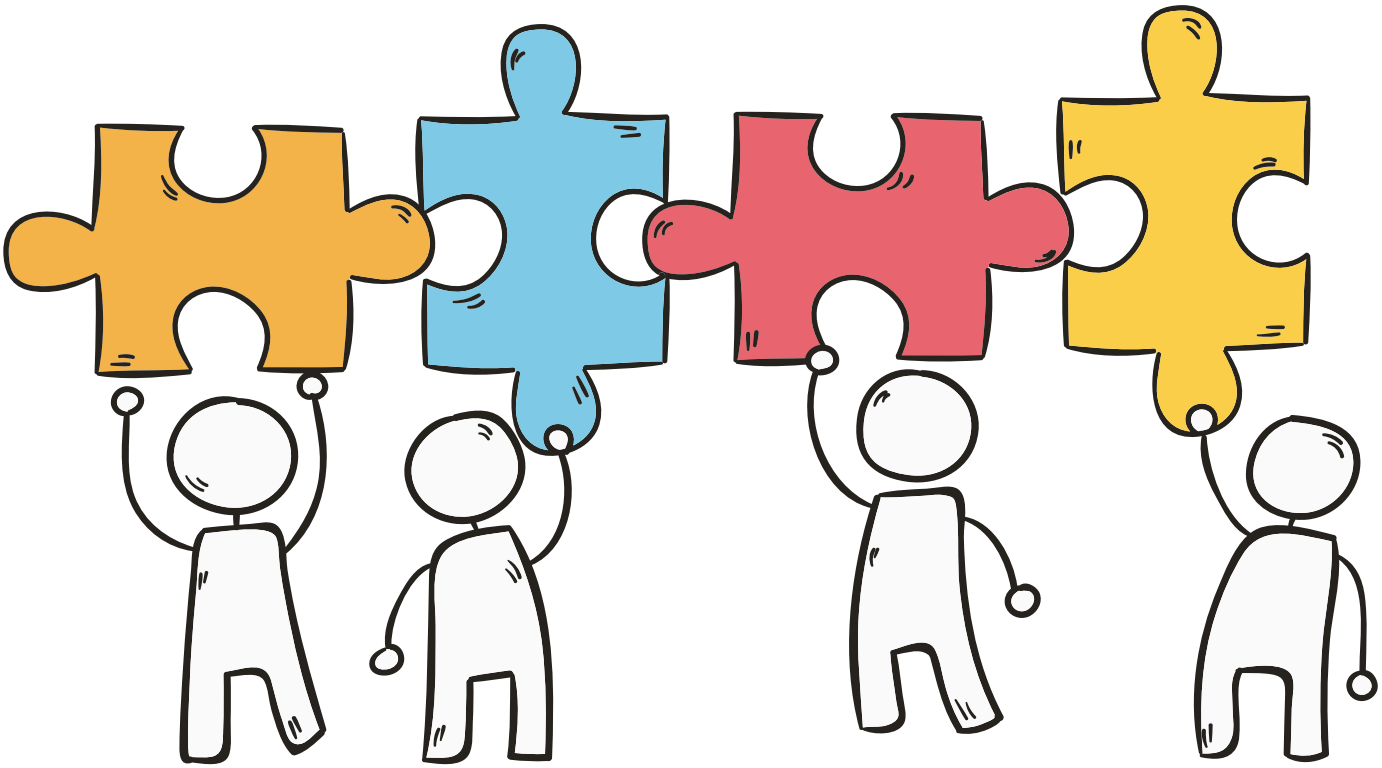
ALIGNING CANDIDATES' PROFILES WITH EMPLOYABILITY IN THE GCC

The need to get more and more nationals to work in the private sector is urgent in the GCC region. It is no longer sustainable to carry on with the earlier model of employing nationals in high-paying government jobs as it is becoming counterproductive for the public sector on the face of rising burden on budgets and a fight to remain competitive and efficient.

Not just the public sector, but the private sector is suffering as well, as they then need to rely heavily on expatriates to be a part of their workforce. Expatriates in the GCC workforce are estimated at 75 %, with UAE having the largest number of expat workers at 91 %. In 2018, nationals formed just 8% of the UAE workforce.

In the UAE, only 1% of the private sector workforce is made up of nationals, rising to a high of just 18% in Saudi Arabia[1]. The GCC region not only needs to create more jobs in the private sector to accommodate the rising number of nationals entering the labor market, but also ensure that they have the necessary skills required to thrive in the competitive environment.

Governments around the world are facing the dual challenges of high unemployment levels among the youth coupled with a severe lack of required skilled workers. In the GCC region, the case is even more problematic with youth unemployment already among the highest in the world, heightened further by the fast pace of population expansion. Youth unemployment rate is the highest in Saudi Arabia among its GCC peers at 24% as of 2016, according to figures from the International Labor Organization (ILO). Even in the UAE, where per capita income is high and the national population relatively small, the rate has reached 8%. Moreover, the social and financial incentives provided for nationals as they take up well-paying and secure public sector jobs have resulted in reduced motivation to develop skills necessary for the private sector and the experience that would help develop them. In



1 EY GCC education report: "how will the GCC close the skills gap"

2014, EY conducted a GCC-wide survey with over 1,000 GCC national students which showed that GCC students show an overwhelming preference for public sector jobs. This mindset has to change in order to stop the growing unemployment rate among the youth, so as to facilitate the successful diversification of the region away from its dependence on hydrocarbon revenues.

The International Monetary Fund estimates that, if the current share of nationals in the private sector remains as it is now, as many as 1.6 million nationals could enter the labor market in 2018, with only 600,000 private sector jobs generated to accommodate them[2]. As seen during the events of the Arab Spring, that a failure to address youth unemployment can put the economy at risks of unrest, political and economic instability. The GCC region has definitely recognized the importance of education and skills, as seen by the increased investments in schools, colleges and universities. However, it is hard to improve the outcomes due to the fundamental misalignment of expectations and requirements. Employers struggle to find the skills they need, especially at entry level with young people in schools, colleges and universities who are unclear about how and why they should enter the job market.

Over the years since the boom in the oil industry, history has observed a growing expatriate labor force in the six GCC nations. However, fast forward to 2018 with the inception of VAT and the increasing nationalization of workforce, companies have been finding it hard to recruit. The priority now should be to prepare and equip young individuals for the workplace before they become job seekers, ensuring alignment between education and training and employers' needs.

For the private sector entities who aim at engagement, there needs to be a greater involvement in the school, college and university levels, talking to students, offering advice and conducting workshops to help develop a curriculum more aligned with the current needs of the market. They can also collaborate within sectors to develop a clear,

adaptable set of needs to discuss with schools and the government, defining the technical skills, soft skills, behaviors, and attitudes that a graduate needs to possess before sitting for any recruitment process. They need to invest and develop job training platforms, work placements and internship programs so as to support and create apprenticeships for participating students.

For the education sector with focus on execution, they need to invest in a clear picture of the future business landscape to ensure that the national educational infrastructure is designed to fit the job profile of the future. With a focus on raising the quality of teachers, there needs to be an introduction of new approaches and techniques to teaching. Instrumental to the core curriculum is developing a balance of practical skills and academic understanding which are relevant to the current and future job market, with an integrating work experience. Enhancing curricular and extra-curricular opportunities should be prioritized to develop enterprise skills and mindset and engage with guardians to better assist the young student's career decisions.

Finally, for governments focused at enablement, there should be a directive and push through educational initiatives with a clear strategy and focus and provide incentives to the private sector to get more involved. They need to ensure that incentives are not distorted further by closing the gap between public sector pay with that of private sector benchmarks.■

2 Labor Market Reforms to Boost Employment and Productivity in the GCC, IMF Staff Policy Paper, November 2013.

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