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JUNE 2019

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Mansoor Almarzooqi, MDC BMS

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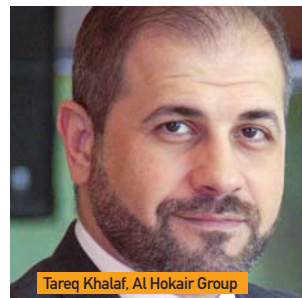
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Dear Readers,



Busy and growing roads, seaports, and airports are a key indicator of a country's economic activity. Many of today's airports and seaports were built decades ago, especially the ones in the West. The ports in the east, notwithstanding the current cycles of recessionary trade slumps, need to invest in expansion today, to meet the demand levels of a decade from now. Investments run into billions of dollars and countries of the GCC have been able to plan and invest in this, in the past.

Moving forward, technology will be a very important factor, to be included in any large scale, mega visitor and mega scale projects. Selection of the right technology and the right use cases, will hugely and dramatically raise customer satisfaction levels, deliver break through productivity, and create entirely new and innovative foundations to build visitor experiences.

In our cover feature, Richard James, Managing Director of Saudi Arabia's Gulf Stevedoring, an operator of three out of nine seaports in Saudi Arabia, describes his key pain points and how digital technologies have made vast improvements to their operations. A classic use case is the new, single window EDI clearance now provided by Gulf Stevedoring. This has cut down by days the amount of time taken to move a container from the port.

James points out that, the faster containers are moved from the port, the more ships that can be berthed in the same time. More ships mean more throughput, better satisfaction for the shippers, and more revenue for the government customs and port operator. What a classic win-win use case this is, provided by the removal of a very archaic and cumbersome document processing machinery

A key underlying factor in any future mega visitor experience, will now always be, the efficient roll out of latest digital technologies. The more innovative and forward looking are the use cases, the more likely they will generate faster and better returns in the future. One such recent announcement is from global cabling vendor R&M. It is rolling out thousands of kilometres of structured cabling for Istanbul's New Airport. This airport is the first in the world to be fully digitised with its security, communication and IT functions based on a network provided by R&M.

A staggering number of end points at this airport have been planned on this network, including 9,000 surveillance cameras, 3,000 card readers, and 5,000 Wi-Fi access points. While the hardware centric end points are stunning, what is more exciting is the range of use cases that can be built on such an intelligent network – for passengers, visitors, operational staff, operators and security.

For more about disruption and transformation, turn the packed pages of this month's BT.

Best of reading and do write back.

Arun Shankar
arun@gecmmediagroup.com

BLENDING MORAL, ECONOMIC BENEFITS IN TRANSFORMATION

Employees can be influential in driving a social cause when business benefits are visible, explains Professor David Mayer at University of Michigan.



DAVID MAYER,
Professor of Management and
Organisations at University of
Michigan, Ross School of Business.

Employees often care about social issues and use their organisation as a vehicle to foster social change. Yet, despite commonly communicating through economic language, speaking up about morals can be more effective when the issue is framed to fit the company's values and mission. The findings suggest that this approach works because it elicits feelings of anticipated guilt and motivates managers to devote resources and

promote issues that benefit society.

Researchers conducted a series of surveys and an experiment to test when and how moral language could be successful in selling social issues. They defined success as when an employee influenced his or her manager to spend time, money, resources and attention to address a social issue.

One survey asked 141 working adults to report times when they spoke to management about an important social issue. Participants were then asked to respond to questions about how they framed their argument.

Almost half of the participants had done this before and were most successful at getting buy-in from their managers when they focused on morality and when they framed the issue as fitting in well with the organisation's mission and values. Another survey involved 88 employee-manager pairs to further study how such arguments about social issues are delivered and perceived.

Employees reported if they used values to help sell the issue, if they made a business case and if they fit their argument to the company's mission, while managers rated the employee's persuasiveness and if the organisation responded positively by then advocating for that social issue.

As in the prior survey, the researchers found that when employees used moral language that fit with the organisation's mission, supervisors were more likely to devote attention, time,

money and other resources to the social issue. However, if the employee used economic language or moral language alone, it was not as effective.

Using moral language without drawing explicit links to the organisation's values might backfire because it highlights the irrelevance of the issue to the organisation's core agenda. Another experiment asked 170 adults to imagine they were supervisors at a manufacturing company and one of their employees shared an idea about incorporating a green technology.

Participants then read both business and moral arguments for adding the green technology and were asked to rate the persuasiveness of the employee.

Interestingly, when framing the issue as being of an economic benefit yielded better results than when it was framed as a moral issue. Perhaps the participants made their decisions based on their beliefs about how managers should make decisions, that managers should always be thinking of the bottom line.

Mayer believes this research may provide support for the idea that social change within companies can come from the bottom up rather than the top down.

It was the lower-level employees who tried to make change, and many were successful. This may provide employees inspiration in the future that they can be influential within their organisation, especially if they address an issue that fits within the company's values and mission. ■



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TRANSFORMING LIFE CYCLE OF ASSET, PLANT MANAGEMENT

New technologies are helping plant managers balance cash flow, investment priorities, asset life cycles, schedules, explains Sameer Makhija at Infor.



SAMEER MAKHIJA,
Account Director, IMEA Asset
Management Solution, Infor.

Many manufacturing plants in the Middle East, like their international counterparts, consist of a wide assortment of assets patched together like a colourful quilt. The machinery and equipment can range from highly advanced robotics to outdated legacy solutions, stretched past their normal life expectancy.

Plant engineers must make these disparate assets integrate and perform as one, which can be a challenge, especially when lean budgets, escalating market demands and conflicting strategies add to the complexity. Modern enterprise asset management solutions help plant engineers and maintenance teams step up their processes and make effective asset management part of

the overall enterprise strategy.

Here are seven ways modern solutions help plant management:

#1 RELIABILITY

Reliable plant operations can become a differentiator. Customers will notice that orders are always on-time, as ordered, and with unwavering product quality. These are unusual characteristics in some industries.

#2 STREAMLINING ROUTINE

Technology helps streamline and automate basic tasks, such as scheduling routine inspections and maintenance, tracking parts and materials used so inventory is accurate. When the basics are covered easily, personnel have time to focus on more advanced questions such as diving into analytics.

#3 PLANNING CASHFLOW

Using risk assessments and condition assessments, managers will be able to project future needs and calculate related costs, including replacement parts or any outside special services or contractors that may be needed. With data easily accessible, managers can evaluate replace versus repair decisions and factor in the cost of down-time.

#4 PREDICTING THE FUTURE

Business Intelligence solutions with Artificial Intelligence contain powerful predictive capabilities, using algorithms and data science to

identify patterns in data points and project next likely outcomes. Users can explore what if scenarios and obtain forecasts of likely costs and likely demands.

#5 PRIORITISING INVESTMENTS

This glimpse of future investment needs can be juxtaposed against projected cash cycles also taking into account forecasts for shifting demand. Managers can then prioritise major capital investments when funding and political backing is in place. Plans for stop-gap, bare-minimum fixes may be needed when funds are limited.

#6 PROVIDING EARLY WARNINGS

Managers will be able to use predictive analytics to identify early some potential critical issues so that adequate preparations can be made, including having necessary parts or back-up equipment on standby.

#7 MEETING COMPLIANCE

Managers should be alert to such issues as: ADA accessibility, building code compliance, OSHA or EPA mandates, or workforce or public safety issues. Non-compliance can be costly. It can also jeopardise safety or hurt brand equity.

A new mindset helps companies change the focus from reactive to prescriptive. With advanced solutions in place, managers can take a holistic approach to plant maintenance and a long-term view of managing assets. ■

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HOW AI CAN BE USED TO ENHANCE CUSTOMER EXPERIENCES

Gartner's Jessica Ekholm gives five tips on how to introduce artificial intelligence technologies to enhance customer experience.



JESSICA EKHOLM,
VP Analyst, Gartner.

Better customer experience, which leads to improved customer satisfaction, loyalty and advocacy, is a goal across many organisations. A good understanding of customers is the first step toward an excellent customer experience, and leveraging artificial intelligence can help accelerate this understanding.

The areas where artificial intelligence can help include sales and marketing. Artificial intelligence tools offer white-space analysis for sales and can recommend immediate action on opportunities.

In marketing, artificial intelligence-powered solutions enable organisations to generate highly personalised messages at a scale that could not have been achieved using humans alone.

A five-step methodology for how application leaders can use artificial intelligence to get faster, real-time understanding of customers.

#1 CUSTOMER EXPERIENCE STRATEGY

Before looking into what artificial intelligence can do, you must have a customer experience vision and strategy in place. If there is not one already, take an active part in crafting one. Application leaders should lead the customer experience initiative together with a dedicated customer experience leader, or a customer service or customer relations lead, or the chief marketing officer.

#2 MAP CUSTOMER JOURNEYS

Map and analyse current customer journeys to understand the touchpoints and experiences that customers have with your brand — from discovery, presales, sales, customer service and beyond. A better understanding of how customers experience a brand provides the foundation on which artificial intelligence can be used to improve customer journeys and benefit the business.

#3 GET FAMILIAR WITH AI SOLUTIONS

Your organisation may already have a wealth of valuable data

from current customer experience tools, customer service and sales reps, social media, Net Promoter Scores and Customer Effort Scores. However, most of this data fails to reveal rich real-time customer insights.

By using artificial intelligence technologies, it is possible to categorise, organise and analyse customer data in real time, whether to analyse the written or spoken word, and ultimately understand customer sentiment.

#4 BUILD OR BUY

Application leaders must decide whether to build or buy an artificial intelligence solution. Decide if there is enough skills and budget to create it in-house or if your organisation is better off buying a customer experience AI solution.

When buying a solution, focus on how well the vendor prioritises and how well they handle critical customer-understanding issues. Ensure the vendor will focus on this area through proofs of concepts or pilots.

#5 TRACK AND MEASURE SUCCESS

Measurement is the only way to answer the question – is it working? Find the metrics and key performance indicators to track the success of an AI customer experience initiative. Aim for early quick wins, initiatives that can be tracked easily and have the ability to show success or failure fast, to build momentum for future initiatives. ■



عيد مبارك

EID MUBARAK

TRANSFORMING BUSINESSES FOR WHAT CUSTOMERS WILL WANT

It is possible to use automation to build better customer experiences making them frictionless and personalised, explains Mai Youssef at Canon.



MAI YOUSSEF,
Corporate Communications and
Marketing Services Director,
Canon Middle East.

According to Gartner, customer experience, more than products or solutions, is the new battlefield for business, with 81% of marketers saying that by 2020 they expect to be competing mostly or completely on the basis of customer experience. However, with customer expectations constantly rising, businesses continue to fall behind.

Forrester's Global Customer Experience Index continues to find that most companies are rated as poor or very poor, year on year. Even the organisations that scored good in 2017 either fell in 2018 or did not improve. In order to future-proof their business, organisations need to be asking themselves not what do customers want, but what will customers want.

Technology, without a doubt, the platform on which most of our future is built, is key to divining what customers of today will want tomorrow, and what yet-unimagined requirements tomorrow's customers will have. Disruptive businesses like Netflix realised this early on and created intelligent algorithms that were able to predict and recommend what customers might want to watch next.

In the past, introducing new technology involved the arduous installation of expensive, on-premise equipment. However, new technologies such as automation, Internet of things, and artificial intelligence are allowing businesses

to become more agile and increasingly able to deliver the seamless, personalised, and real-time experience that represent the future of customer experience.

While technology is now able to deliver, organisations still need to ensure that their processes, and even mindsets, are geared towards ensuring a frictionless, personalised, and real-time experience for customers.

FRictionless

A frictionless experience means an effortless one and, for a customer today, effortless means being able to interact with a business whenever and however they would like. Businesses delivering a seamless, consistent experience across all communication channels build customer confidence, which is crucial for encouraging loyalty and ensuring retention.

But in today's fast-paced world, a customer journey includes an increasing number of touch-points, and manual intervention is not only a drain on time, but also leaves businesses open to unnecessary and costly errors. This reality has made the introduction of automation increasingly crucial.

Incorporating automation into manual processes provides businesses with a wealth of benefits, from increased efficiency and reduced costs, to freeing up employees for more business-

critical work. With the integration of artificial intelligence, automation in customer engagement can deconstruct vast amounts of data to automate entire workflows and learn as they go. The resulting automation will drive efficiency and cost saving, whilst ensuring that customers are delivered a flawless experience.

Emirates NBD, a leading UAE bank, now uses a virtual assistant called Eva to interact with customers. Eva can engage callers in conversation to solve or direct their issues. Whenever the system can't resolve an issue, it turns the caller over to a human customer-service representative and then monitors that interaction to learn how to resolve similar problems in the future.

PERSONAL

Personalisation has become the ultimate marketing buzzword over the last five years, and has become even more critical in this digital age, in which consumers have unlimited access to competing products and services.

However, curating these cultivated experiences requires a very time and resource-intensive process. Businesses must continually track interactions with their brand in order to build a clear view of a customer's preferences and deliver relevant, personalised offerings.

Artificial intelligence is increasingly being integrated into the future of customer experience thanks to its ability to provide intelligent, data-driven recommendations. Artificial intelligence finds patterns in an overwhelming number of data points, makes recommendations and then learns and adapts based on the resulting customer response.

A customer entering a website for the first time will have no existing history, but with artificial intelligence, every click and action is fed in to its algorithms, which identifies countless factors to make

a recommendation. With every further interaction, the artificial intelligence will begin to build and strengthen its ability to recommend.

Whilst we are only just starting to see the benefits of artificial intelligence in customer experience, by 2025 it is expected that 95% of customer interactions will be aided by artificial intelligence.

REAL-TIME

It is predicted that the average response time to customer queries and complaints is about 12 hours, which is 11 hours longer than customers expect. Digital technology and social media have become such an intrinsic part of everyday life that we expect to experience the same real-time communication when we speak to a business, as we do in any other context.

IoT enabled devices are driving this real-time revolution forward, by offering businesses immediate insight into a customer's experience with their brand and the opportunity to improve and tailor experiences. In the retail industry, for instance, stores are equipped with beacons that pickup signals from customers mobile devices as they walk past, allowing them to send targeted discounts or ads at the most relevant time.

In conclusion, organisations need to constantly keep in mind that the age of the customer is not just a passing phase. Today, emerging technologies are proving to be the key to getting one step ahead of rapidly evolving customer needs. Automation, artificial intelligence, and IoT provide an exciting opportunity for businesses to invest in the seamless, personalised, and real-time experiences that will continue to transform and define the customer experience. ■

KEY TAKEAWAYS

- Customer experience, more than products or solutions, is the new battlefield for business.
- 81% of marketers say by 2020 they expect to be competing mostly or completely on the basis of customer experience.
- With customer expectations constantly rising, businesses continue to fall behind.
- Forrester's Global Customer Experience Index continues to find that most companies are rated as poor or very poor, year on year.
- Organisations need to be asking themselves not what do customers want, but what will customers want.
- Average response time to customer query is about 12 hours, 11 hours longer than customers expect.
- Organisations need to keep in mind the age of the customer is not just a passing phase.

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CAN A THIRD-PARTY SUPPLIER BRING DOWN AN ORGANISATION

Yes, says BeyondTrust's Morey Haber, since suppliers of vendors have privileged security access to the IT organisation and can be compromised.



MOREY HABER,
Chief Technology Officer and
Chief Information Security
Officer, BeyondTrust.

Realising that most large organisations today have sophisticated security defenses, bad actors are beginning to target third-party vendors, as a means to gain access to an enterprises' network. In fact, in 2018, over 11 significant breaches were caused by exploitation of third-party vendors and according to Carbon Black's 2019 Global Incident Response Threat Report, 50% of today's attacks

leverage what they call, island hopping, where attackers are not only after an enterprises' network, but all those along the supply chain as well.

IT administrators, insiders, and third-party vendors need privileged access to perform their roles, but this should not mean ceding control of the IT environment to them. Organisations typically allow vendors to access their networks to perform a variety of different functions. However, this privileged access should be secured to the same or higher extent as the organisation's internal privileged users. Neglecting to do so will create a weak spot in your organisation's security that is ripe for exploit.

Because organisations typically use IT products and software solutions from a variety of vendors, IT is tasked with the enormous burden of having to secure remote access for these vendors, so that they may provide maintenance and troubleshooting for their products. As a consequence, organisations are faced with the dilemma of having to provide the needed access while also guarding against malware and bad actors entering through third-party connections.

Given that third-party vendors are an integral part of most organisations' ecosystem, something that is not going to change anytime soon, there are seven steps you can take to exert better control over third-party vendor network

connections and secure remote access.

#1 MONITOR AND EXAMINE VENDOR ACTIVITY

First, it is imperative to scrutinise third-party vendor activity to enforce established policies for system access. You want to understand whether a policy violation was a simple mistake, or an indication of malicious intent. You should implement session recording to gain complete visibility over a given session. And finally, you should correlate information so that you have a holistic view that enables you to spot trends and patterns that are out of the ordinary.

Here are some ways to approach monitoring:

- Inventory your third-party connections to understand where these connections come from
- Look for firewall rules that permit inbound connections for which you are unaware
- Perform vulnerability scans on your external-facing hosts to search for services that are listening
- Validate your enterprise password security policies apply to accounts on inbound network connections
- Implement policies and standards specific to third-party issues, and use technical controls to enforce them
- Monitor for security deficiencies and then address them

50% OF TODAY'S ATTACKS LEVERAGE ISLAND HOPPING, WHERE ATTACKERS ARE TARGETING THOSE ALONG THE CHAIN.

#2 LIMIT NETWORK ACCESS

Most of your vendors only need access to very specific systems, so to better protect your organisation, limit access using physical or logical network segmentation and channel access through known pathways. You can accomplish this by leveraging a privileged access management solution to restrict unapproved protocols and direct approved sessions to a predefined route.

#3 APPLY MULTIPLE INTERNAL SAFEGUARDS

As with other types of threats, a multi-layered defense is key to protecting against threats arising from third-party access. Apply encryption, multi-factor authentication, and a comprehensive data security policy, amongst other measures.

#4 EDUCATE YOUR INTERNAL AND EXTERNAL STAKEHOLDERS

On average, it takes about 197 days for an organisation to realise that it has been breached. A lot of damage can be done in 197 days. Educate across the enterprise and continually reinforce the message that the risks are real.

#5 CONDUCT VENDOR ASSESSMENTS

Your service-level agreement with third-party vendors should spell out the security standards you expect them to comply with, and you

should routinely review compliance performance with your vendors. At a minimum, your vendors should implement the security basics, such as vulnerability management. You should also enforce strong controls over the use of credentials, always with a clear line-of-sight into who is using the credential, and for what purpose.

#6 AUTHENTICATE USER BEHAVIOR

Vendor and partner credentials are often very weak and susceptible to inadvertent disclosure. Therefore, the best way to protect credentials is to proactively manage and control them. You can do this by eliminating shared accounts, enforcing onboarding, and using background checks to identity-proof third-party individuals that are accessing your systems.

#7 PREVENT UNAUTHORISED COMMANDS

One step you want to take is to broker permissions to various target systems using different accounts, each with varying levels of permission. You should restrict the commands that a specific user can apply, via blacklists and whitelists, to provide a high degree of control and flexibility. To this end, use a privileged access management solution, enable fine-grained permission controls, and enforce the principle of least privilege.

Vendor access is often inadequately controlled, making it a favored target of cyberattackers. By layering on these seven steps, you can exert better control over third-party access to your environment and make significant progress toward reducing cyber risk. ■

KEY TAKEAWAYS

- One step you want to take is to broker permissions to various target systems using different accounts, each with varying levels of permission.
- You want to understand whether a policy violation was a simple mistake, or an indication of malicious intent.
- You should implement session recording to gain visibility over a given session.
- Correlate information so that you have a holistic view that enables you to spot trends and patterns out of the ordinary.

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WHY A DIGITAL MINDSET IS REQUIRED FOR TRANSFORMATION

Graham Waller at Gartner spells out six digital mindset traits that can help top executives drive transformation initiatives successfully.



GRAHAM WALLER,
Distinguished VP Analyst,
Gartner.

On one side of digital business is the incumbent marketplace player, who prefers to invest only in a solid business case and focuses on predictability over speed and innovation. On the other side is the digital-era market disrupter, who believes in innovation to win big while managing risk by failing fast and prefers to focus on innovation and speed over predictability.

Two types of CEO mindsets emerge as the business world shifts to be more influenced by digital business. CEOs, CIOs and other executives understand a shift in business is necessary to adapt to the changing world, but may fail to realise how important their own mindset is to the success of the transition. While the world is moving forward at breakneck speed, the core beliefs wired into our brains often are not.

The leader's mindset provides a frame of reference that affects how they hear, interpret and act on information, which in turn affects how the company operates. Successful disruptive digital leaders are able to transform themselves to transform the company.

Six mindset traits can help you gauge your digital dexterity against those of a successful disruptive digital leader.

#1 THRIVE DESPITE UNCERTAINTY

While an incumbent marketplace

player might be frozen or flail in the face of digital era the uncertainty, a disruptive digital leader understands and embraces the idea that uncertainty is inevitable. Instead of expending energy trying to change that, these leaders explore what is technologically possible, how changes will disrupt the markets, and the risk-reward tradeoffs.

However, embracing uncertainty does not mean throwing caution to the wind as far as sound decisions of fiscal accountability. It does mean establishing a plan that allows for change and evolution, and does not create a fallacy of fake predictability.

#2 BREAKTHROUGH BUSINESS OUTCOMES

Since traditional incremental thinking runs the risk of irrelevance in the digital world, leaders should focus on ideas that leapfrog ahead. Digital leaders are visionary when it comes to the technology frontier, but all decisions are still rooted in fiscal discipline and overall enterprise mission.

This demands a risk-tolerant mindset — future technologies are volatile and user adoption difficult to predict. But a true digital leader is driven by the challenge and potential for creating net-new business value by harnessing breakthrough technology.

TWO TYPES OF CEO MINDSETS EMERGE AS BUSINESS SHIFTS TO BE MORE INFLUENCED BY DIGITAL BUSINESS.

KEY TAKEAWAYS

- CIOs already cite access to needed skills such as data science as the top barrier to success.
- At the top of the list for successful digital leaders is hiring and unleashing the best digital talent.
- Embracing uncertainty does not mean throwing caution to the wind as far as decisions of fiscal accountability.
- Establish a plan that allows for change and does not create a fallacy of fake predictability.
- Traditional incremental thinking runs the risk of irrelevance in the digital world.
- Leaders should focus on ideas that leapfrog ahead.
- Digital leaders are visionary when it comes to the technology frontier.
- All decisions are still rooted in fiscal discipline and overall enterprise mission.
- Future technologies are volatile and user adoption difficult to predict.

#3 EXPLOIT DIGITAL LEVERS

It is easy to get distracted by glitzy new technologies pursued for technology's sake. Digital leaders look beyond these distractions, seeking to master the underlying digital-era competitive levers. The goal should be to secure a position as a leader in areas such as platform-based business model economics or turning data into customer value via artificial intelligence. Select levers most critical to sustaining or growing your competitive advantage then focus on making it a core competency of the company.

#4 START, EXPERIMENT, LEARN

Incumbents might prefer to wait until technology-enabled breakthroughs are proven, while a digital leader's mindset is that stalling due to uncertainty means another company will have already seized the opportunity. Digital leaders understand well-grounded strategic bets based on expected business outcomes and digital levers need to be the focus of the company.

#5 CULTURE OF TRUE CREATIVITY

These CEOs will take a Start-Experiment-Learn-Iterate approach as a pathway to a breakthrough solution instead of waiting for clarity before proceeding. With certain disciplines, such as lean startup, minimum viable product and data-evidence-based experimentation, companies can harness experimentation as a path to new value while mitigating downside risk.

#5 INNOVATION CULTURE

In a digital era, rich in disruption, companies must be able to innovate faster than their competitors. To encourage innovation at the needed velocity, digital leaders establish a culture of true creativity. They visibly champion this belief at every level from new hires to the board room, actively role-modelling a culture that encourages risk taking and discovery.

Companies that are risk-averse will be too slow to innovate, as employee thinking and actions remain bogged down in traditional industry rules. On the other side, companies that encourage speed and embrace the learning from inevitable failures along the way are much more equipped to succeed in the digital world.

#7 CHERISH DIGITAL TALENT

CIOs already cite access to needed skills such as data science as the top barrier to success. At the top of the list for successful digital leaders is hiring and unleashing the best digital talent. They understand that those with engineering, science and data skill sets will become some of the most prized assets in the digital era.

Top-notch talent may be motivated by something other than just financial rewards, and digital leaders are astute at creating a compelling sense of purpose to attract and reward talent. Certain companies allow key talent to work on preferred projects, and might even let them select their own manager. Top talent also benefits from working at a company that understands the digital world and allows them to succeed in it. ■



HOW BOSCH IS DISRUPTING AVIATION BY CRASHING PRICES OF SENSORS IN FLYING TAXIS

With traffic jams a common occurrence in the world's cities, frustrated drivers sometimes find themselves looking to the heavens for a little help from above. A few years from now, the skies could in fact offer a tangible solution. The Boston Consulting Group predicts that people around the world will take 1 billion flights in air taxis in 2030, once sharing services have also established a presence on fixed routes above the ground. What is more, most of those air taxis will be capable of operating

without a pilot. Bosch is working on sensor technology to make these flights safe, comfortable, and convenient.

To help it achieve this goal, Bosch has discovered a gap in the market. Conventional aerospace technology is too expensive, bulky, and heavy to be used in autonomous flying taxis. However, modern sensors that are also used for automated driving or in the ESP anti-skid system could have the potential to bridge this gap. That is why a team of engineers has combined dozens of sensors to

create a universal control unit for flying taxis.

Featuring Bosch sensors already in use in production vehicles, the universal control unit is designed to ensure the ability to determine the position of the flying taxis at all times, allowing them to be controlled with precision and safety. Acceleration and yaw-rate sensors that accurately measure the flying vehicles' movements and angle of attack, for example, provide the necessary data.

Unlike current sensor systems



Marcus Parentis, Head of Technology at Bosch, in charge of the control units behind the electric light aircraft.



Bosch sensor box for flying taxis is equipped with acceleration sensors that measure the movements of the aircraft.

in the aerospace sector, some of which cost tens of thousands or even several hundred thousand euros, Bosch can make use of its solution for a fraction of the cost. That is because the company uses production tested sensors that Bosch has already been developing and manufacturing for the automotive industry for many years. What is more, the Bosch sensors are especially small and lightweight. Flying taxi manufacturers can easily install the Bosch sensor box into their air vehicles using the plug-and-play principle.

Flying taxis offer a new way of avoiding traffic jams in major cities: by taking to the air. That makes them an additional alternative for getting from A to B quickly in tomorrow's urban areas. Compared to today's means of transportation,

flying taxis save time on trips of 10 kilometers or more, with a maximum range of up to 300 kilometers.

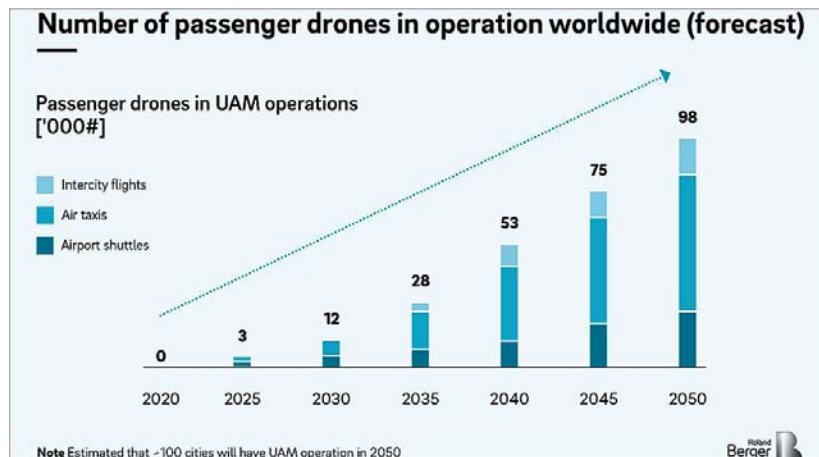
MARKET SIZE FOR AIRBORNE TAXIS

The market for flights using electric air taxis in cities is set to see substantial growth in the years ahead. Test flights are scheduled to begin in cities such as Dubai, Los Angeles, Dallas, and Singapore in 2020. Experts expect commercial operations to begin in 2023. Although pilots will probably be on board at first, the light aircraft could start flying autonomously over the roofs of major cities as early as 2025, controlled by staff on the ground. By that time, roughly 3,000 flying taxis will be in operation worldwide, according to Roland Berger. That number will increase to 12,000 by

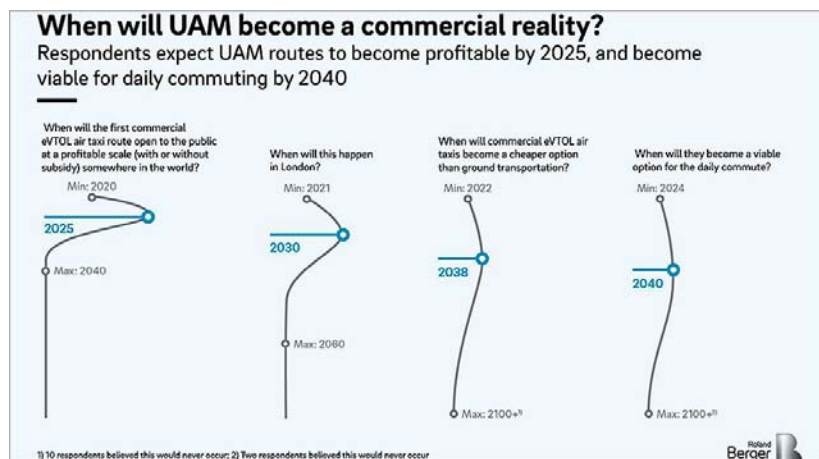
2030, with just under 100,000 flying taxis taking to the skies by 2050.

Consultants from Morgan Stanley estimate that the market for flying taxis could even reach Euro 1.35 trillion, \$1.5 trillion by 2040, extending beyond the United States and southeast Asia to include large and medium-sized cities in Germany as well. In regions such as the Ruhr valley, the Frankfurt Rhine-Main metropolitan region, and the Munich, Augsburg, Ingolstadt metroplex, they have the potential to significantly speed up travel over short and medium distances.

Depending on the concept and number of passengers carried, a flying taxi will cost around Euro 500,000. As a result, automated and electric air vehicles offer advantages, especially for sharing



Source: Roland Berger



Source: Roland Berger



Flying taxi manufacturers can install Bosch sensor box into air vehicles using the plug-and-play principle.

solutions. Still, a flying taxi costs far less than a comparable helicopter equipped with today's technology. That is why it is important for suppliers to provide reliable technology that is not only lightweight and easy to install, but

also offers an economic advantage compared to traditional aerospace technology.

TECHNOLOGY BEHIND THE SCENES

The sensor box is equipped with MEMS sensors. The

abbreviation MEMS stands for microelectromechanical systems. Bosch developed the first MEMS sensors for vehicles over 25 years ago. In vehicles, they supply control units with data about whether the car is currently braking or accelerating, and lets them know the direction in which the vehicle is traveling. The Bosch sensor box for flying taxis is equipped with acceleration sensors that measure the movements of the aircraft.

Built-in yaw-rate sensors measure the flying vehicle's angle of attack, while magnetic field sensors gauge its compass heading. The package also includes pressure sensors, which use barometric pressure to measure altitude and dynamic pressure readings to determine the vehicle's current speed.

Bosch is in contact with a wide range of players in this field, from air taxi manufacturers to start-ups that are looking to build air vehicles and provide sharing services. As with any new technology, there is currently a multitude of different concepts on offer. At the present time, it is hard to say which concept will come out on top. Bosch's plug-and-play control unit fits in any flying vehicle.

"The first flying taxis are set to take off in major cities starting in 2023, at the latest. Bosch plans to play a leading role in shaping this future market," says Harald Kröger, President of the Bosch Automotive Electronics division.

"Through our Bosch solution, we aim to make civil aviation with flying taxis affordable for a wide range of providers," says Marcus Parentis, Head of Technology at Bosch, in charge of the control units behind the electric light aircraft.

Bosch's Marcus Parentis also believes in the growing market opportunities. "We are talking to air taxi manufacturers from the aerospace and automotive industries, as well as with start-ups that build air vehicles and are looking to provide sharing services," says Parentis. "The question is not whether flying taxis will become reality, but when." ■

Abdul Latif Jameel recognised for transformation across 100 Saudi Arabia sites



(Left to right) Abdullah Jan, SAP Head of Customer Office, Saudi Arabia; Mazyad Gharzeddine, SAP Senior Account Executive; Nawaf Al Zahrani, ALJ IT General Manager; Onder Mete, ALJ IT Director; TR Balakrishnan ALJ CFO; Faisal Abdalla, ALJ Vice President; Peter Aberle, ALJ COO; Elma Potgieter, Britehouse Regional Executive; Frank Forndron, SAP Head of Customer Success EMEA South.

Abdul Latif Jameel Motors, together with their SAP implementation partner, Britehouse, has been awarded a prestigious international prize for a digital transformation programme that has overhauled performance at one of Saudi Arabia's leading automotive distributors, improving efficiency and customer service across the business.

Since its launch in mid-2018, the new system has significantly improved performance and efficiency, and internal processes, including but not limited to reducing vehicle sales delivery

KEY TAKEAWAYS

Execution

- The project was conducted as a 3-in-the-box project, Abdul Latif Jameel Business, Abdul Latif Jameel IT, Britehouse project members.
- The project introduced new IT infrastructure replacing 30 legacy systems in five subsidiaries across 100+ sites in Saudi Arabia.

Cash

- The new system has reduced vehicle sales delivery and customer order conversion durations by over 50%.

lead time and customer order conversion time by over 50%. The project was delivered from the Abdul Latif Jameel Motors project office in Jeddah, Saudi Arabia, and was conducted as a 3-in-the-box project, comprising of Abdul Latif Jameel Business, Abdul Latif Jameel IT and Britehouse project members.

Implemented in partnership with SAP specialists Britehouse, the project saw Abdul Latif Jameel Motors introduce a new unified IT infrastructure to replace over 30 legacy systems in five subsidiaries, leading to strategically integrated

300 STAFF, 140 CONSULTANTS WERE INVOLVED IN THE INITIATIVE, WHICH TOOK OVER 1.5 MILLION WORKING HOURS TO COMPLETE OVER 22 MONTHS.

operations and management processes across more than 100 sites in Saudi Arabia. More than 300 staff and 140 consultants from Britehouse were involved in the flagship initiative, which took over 1.5 million working hours to complete over 22 months.

The JSAP programme, which went live in mid-2018, won the Gold Award for Business Transformation in the SAP Quality Awards, presented at a special ceremony in Heidelberg, Germany. The initiative, one of the biggest SAP projects ever undertaken in the automotive distribution sector, outcompeted entries from across Europe, the Middle East and Africa to become the first Saudi company to win the Gold Award in the category.

The panel of judges, made up of international industry experts, commended Abdul Latif Jameel Motors for their management of the change process and the strong team and corporate culture developed around JSAP, which they said had helped overcome the many challenges of the complex project.

Hassan Jameel, Deputy President and Vice Chairman of Abdul Latif Jameel, said, "We are constantly striving to improve the business and JSAP was a centre piece of these efforts. It was an ambitious and challenging project and a real test of our ability to implement a complex and transformative

initiative – one we have passed with flying colors. The award is a recognition of the tremendous effort, commitment and perseverance of all involved."

Elma Potgieter, Regional Executive for Britehouse in the Middle East, and responsible as Programme Director for the Abdul Latif Jameel project, said: "We are extremely proud of our client, Abdul Latif Jameel Motors and are honoured to have been on this journey with them as the implementation partner. This was a remarkable project, with a remarkable team." ■

THE PANEL OF JUDGES COMMENDED ABDUL LATIF JAMEEL MOTORS FOR MANAGEMENT OF THE CHANGE PROCESS.

Siemens includes Dubai in six city Atlas of Digitalisation



Visitors to the Atlas of Digitalisation can interact with each city and explore its data.

Siemens has launched a new web-based application which reveals the readiness and potential of six major cities to embrace digitalisation and develop new ways of living, working and interacting. The Atlas of Digitalisation is based around the interconnected themes of Expo 2020 Dubai – Mobility, Sustainability and Opportunity – and assesses how the fourth industrial revolution has already impacted urban life around the world, and the potential it could have in the future.

Data from 21 indicators has been analysed by Siemens together with Signal Noise, part of the Economist Group, in Dubai, Los Angeles, London, Buenos Aires, Taipei and Johannesburg to produce a Digital Readiness Score. The analysis considers areas such as smart electricity and transport systems, Internet connections and digital governance services. The score reveals the current level of maturity of each city's digital infrastructure, and its preparedness for a connected future.

The analysis also takes into account areas such as innovation, greenhouse gas emissions and time spent in traffic to give the cities a Digital Potential Score, indicating

where there is opportunity to grow digital capabilities to transform society and economy. Together, the Readiness and Potential scores illustrate the different capacities each city already has, and where they can develop to effect change and growth.

The Atlas recognises Dubai's advanced implementation of digital technologies in areas such as smart metering, online connectivity, mobility and smart government, and initiatives such as Smart Dubai which are supporting its ambition to be the happiest city on Earth. It also identifies potential for digitalisation to positively impact areas such as renewable energy, which Dubai is already addressing via its clean energy strategy.

While each city is unique, they all share one characteristic – their ingenuity in using digital technologies to make infrastructure more efficient and productive, and to address challenges such as air pollution, congestion, population growth and natural hazards.

With the integration of data gathered and analysed by the Internet of Things, a city's underlying infrastructure can be monitored, managed and improved; a transformation referred to as City

KEY TAKEAWAYS

Strategy

- The Atlas aims to inspire new thinking on the global journey to the digital City 4.0.
- The Atlas identifies digital readiness and potential for six cities.

4.0.

The Sustainability, Mobility and Opportunity themes are identified by Expo 2020 Dubai as having the power to build partnerships, inspire progress and develop our future cities. Siemens is Infrastructure Digitalisation Partner to Expo 2020 Dubai and will use digital solutions to connect, monitor and control buildings at the site using MindSphere, the cloud-based operating system for the Internet of Things. It will power the collection and analysis of data for intelligent decision-making, supporting Expo 2020 Dubai's targets for energy efficiency, comfort, safety and security, and potentially inform the future of smart cities around the world. ■

Pure Storage flash helps Mubadala's MDC transform datacentre storage

Pure Storage, announced that MDC Business Management Services, a shared services company that provides support for IT, finance, procurement, facility management and HR for the larger Mubadala Group, has recently selected Pure Storage's modern technology to cover production, non-production, disaster recovery and remote-site operations.

With Pure Storage serving as the foundation of its data centre infrastructure, MDC BMS can focus IT resources on business-oriented tasks, rather than storage management. This has improved performance of business-critical applications, giving their clients real-time access to the data they need to make investment decisions that will ultimately shape the future of the business.

MDC BMS runs 16 apps on 1,500 virtual servers, each is mission-critical and performance-intensive but the legacy spinning disk-based storage solution inhibited MDC BMS from delivering optimal performance to Mubadala and non-Mubadala clients. The transition to Pure's 100% NVMe technology has enabled MDC BMS to ensure instantaneous response times for all these critical apps. In addition, with Pure Storage, the MDC BMS team can launch new apps in just a few seconds, as opposed to the days it would take with the legacy storage infrastructure. This has had a marked positive impact on IT staff's efficiency and productivity.

Another benefit of Pure Storage's solution is the ease with which it can be maintained. Through Pure, a cloud-based management tool, the MDC BMS team can oversee the



MANSOOR ALMARZOOQI,
CIO, MDC BMS.

entire infrastructure from a single point, receiving rich views and alerts in real time. Upgrades, which were cumbersome with the legacy solution, have also been simplified with Pure Storage's Evergreen business model. Pure Storage has also empowered MDC BMS to reduce total cost of ownership – a key performance indicator for the business – via savings in rack space and power consumption.

"Mubadala Group's vision is all about the transformation of society and the laser-focused investments that make that happen," said Mansoor Almarzooqi, CIO, MDC BMS. "Our investment in Pure Storage is rooted in our recognition that we all now live in a digital world. Timely, accurate information and the confidence in the safety and security of that information are vital components of a successful enterprise. Because of the dedication and innovation of Pure, and our own team, we can make faster, better decisions that ultimately allow us to grow our asset base."

Detailing the Pure advantage, Nalluri Subba Rao, Senior Vice President of Infrastructure and Operations, MDC BMS, said, "There is a misconception in the market that disk storage is cheaper than all-flash. But per terabyte, flash is actually cheaper because of the data reduction feature that Pure has built into their storage solutions." ■

KEY TAKEAWAYS

Strategy

- With Pure Storage in the data centre MDC BMS can focus IT resources on business tasks.
- There is a misconception in the market that disk storage is cheaper than all-flash.

Execution

- Spinning disk-based storage inhibited MDC BMS from delivering optimal performance to clients.

Cash

- Transition to Pure's 100% NVMe technology enabled MDC BMS for instantaneous response times.
- With Pure Storage, MDC BMS team can launch new apps in just a few seconds.



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MDS helps certify and transform teaching in 5 UAE schools using Apple platform

MDS Computers Technical Systems, MDS CTS, Apple Solution Expert for Education in the UAE, has been the fulcrum of change in the UAE's education sector by successfully deploying Apple's products to transform teaching and learning. Currently, the company is working with over 100 educational institutes and training centres with five of these schools being recognised as Apple Distinguished Schools. MDS CTS has also been leading an Inclusive Learning Initiative, which aims to offer students with special needs the opportunity to become active independent learners by utilising accessibility features embedded into Apple Devices.

In addition to transforming the teaching and learning experiences in education, MDS CTS has also supported five UAE schools on their journey to achieve the Apple Distinguished School recognition. These schools are centres of innovation, leadership and educational excellence that use Apple products to inspire creativity, collaboration, and critical thinking.

MDS CTS is an Apple Authorised Service provider for all Apple products in the UAE. MDS CTS is a part of MDS UAE, which was established in 1982 to serve the country's fledgling IT industry. MDS UAE is a part of the Midis Group, one of the largest IT Groups in the region with a turnover of approximate \$4.0 billion and 4,500 employees.

"MDS CTS has over 15 years of experience in delivering Apple solutions to schools in the UAE and we are proud of our contribution in transforming education in the



ROGER KAKHIA,
EVP, MDS Computers Technical
Systems.

region. As an Apple Solution Expert for Education, MDS CTS has been working closely with educational institutes to understand their unique challenges and provide customised solutions, ongoing support and various services to meet their requirements. From education strategic planning sessions to technical services and professional learning for teachers. We have demonstrated that we have the experience, expertise and deep understanding of technology integration needs in the education sector," said Roger Kakhia, EVP, MDS CTS.

"MDS CTS has been our partner in our digital transformation journey, with their continued technical and professional learning services, we have transformed our learning environment and changed the way our students learn, and our teachers teach. Our school has been recognised as an Apple Distinguished school, where our staff and students demonstrate how best practices in learning and teaching are continuously innovating with Apple technology. Through a wide range of educational tools and programs, our students have personalised their learning experience, which has led to a marked improvement in performance and grades. The interactive nature of these digital tools has made learning immersive and fun, and has motivated and inspired our students to innovate and go beyond the scope of traditional learning," said Emma Hannon, Director of Digital Learning and Innovation, Sheikh Zayed Private Academy of Boys. ■

KEY TAKEAWAYS

- MDS CTS has supported five UAE schools to achieve the Apple Distinguished School recognition.
- MDS CTS is an Apple Authorised Service provider for all Apple products in the UAE.
- MDS CTS is a part of MDS UAE, which is part of the Midis Group, with turnover of approximate \$4.0 billion.

Bahrain's auction portal Mazad selects Infor cloud to integrate transactions



TALAL AL ORAIFI,
CEO of Mazad.



MOHAMED SATER,
Head of Information Technology at
Mumtalakat.

Infor, a global vendor in business cloud software specialised by industry, announced that Mazad BSC, subsidiary of Bahrain Mumtalakat Holding Company, Bahrain's sovereign wealth fund, has selected various solutions from Infor. These include Infor CloudSuite Facilities Management, Infor OS, Infor CloudSuite Industrial, Infor Mongoose Framework to unify and integrate management of government assets.

The organiser of Bahrain's online and offline auctions, Mazad was established in April 2017. Designed to facilitate market growth, efficiency and revenue optimisation, Mazad organised the Kingdom's first private vehicle registration number plates auction, achieving record auction returns. The revenue from its first auction, which was conducted in collaboration with UAE-based Arabian Auctions,

reached \$4.56 million. Today, the Bahrain-based entity also organises online and offline auctions of government assets.

The system is due to go live in 2019. Under the deal, Infor will provide Mazad BSC with a SaaS platform. Aligning with the Bahraini government's strategic relationship with Amazon Web Services AWS, Mazad BSC chose Infor's industry-specific solutions to help digitise and optimise operations to reach new levels of efficiency and streamline complex processes. The Infor applications were chosen for their user-friendly interface that can be easily adapted based on current needs, effective cost management, and long-term asset value.

- Infor OS
- Infor ION
- Infor Ming.le
- Infor Mongoose

- Infor CloudSuite Facilities Management
- Infor CloudSuite Industrial solutions

Talal Al Oraifi, CEO of Mazad, said: "Operational efficiency is critical to our success, leading us to seek the most suitable digital solutions and technology partner for our business. With its user-friendly software products, we are confident that Infor will help optimise and streamline our many processes. This is in line with our adoption of the Government of Bahrain's Cloud First Policy, which saw us migrate to the AWS cloud."

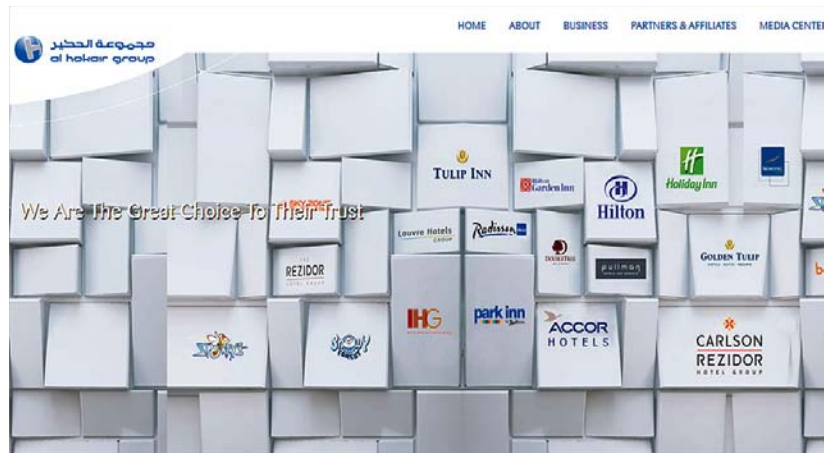
"Supporting the Bahraini government's digital transformation strategy, we wanted an end-to-end software-as-a-service offering with an emphasis on enterprise asset management," explained Mohamed Sater, Head of Information Technology at Mumtalakat. "It was important for us that the technology vendor we chose had a flexible offer based on the AWS cloud, and we chose to work with Infor because of its proven AWS-based cloud solution and its track record in EAM. We look forward to a successful partnership as we overhaul our in-house applications and move facilities management to the cloud."

"With Bahrain having the foresight to create a strategic data centre with AWS in the region, Infor is placed to support government and private-sector companies to leverage the power of cloud solutions," said Jonathan Wood, General Manager, IMEA, Infor. "We are delighted to support Mazad BSC as it builds a strategic business in Bahrain, and we look forward to future co-operation opportunities with innovative businesses in the Kingdom." ■

Capillary's AI CRM solution helps transform Saudi Arabia's Al Hokair Group



TAREQ KHALAF,
CIO of Al Hokair Group.



Al Hokair Group's projects have expanded to include 91 entertainment centres, 35 hotels in Saudi Arabia and UAE.

Al Hokair Group, Saudi Arabia's tourism, hospitality and entertainment group has partnered with Capillary Technologies' AI-driven CRM solutions to upscale its customer engagement initiatives. Capillary Technologies is a cloud-based software solutions provider that enables retailers to intelligently engage with their customers. The solution will help Al Hokair analyse its data to enhance customers experience, elevate engagement levels and facilitate a richer understanding of consumer behavior along with their interaction with the brand at various touch points.

Al Hokair opens around 10 to 15 new entertainment parks every year, in addition to launching new brands to offer customers a wholesome experience. With changes in Saudi Arabia's social conditions Al Hokair strives hard to stay relevant. As part of its efforts, Al Hokair are preparing to open cinema halls across the country in the coming years. The group is also expanding its operations in other parts of the world including Egypt, Turkey and Spain.

Al Hokair Group was started in 1975 with the aim of investing

in entertainment and hospitality under the leadership of Sheikh Abdulmohsin Al Hokair. Over five decades, the group's projects expanded to include 91 entertainment centres and 35 hotels in Saudi Arabia and UAE. The group continues to develop its tourism investments to deliver the best of what top global companies offer by attracting expertise and establishing partnerships that increase ROI and which adds value in the fields of entertainment and hospitality.

Capillary has been actively involved in spearheading CRM and AI driven solutions to transform customer engagement in different sectors, and to create a seamless omnichannel presence for some of the biggest brands in the market. It offers a robust partner and customer service channel to support consumer facing businesses in major global markets. Capillary will power Al Hokair's complete customer journey and experience with its AI-powered solutions, from analysing data and managing customers' lifecycle effectively to enhancing the customer experience through personalisation.

"We are pleased to have Capillary Technologies on board as our

technology partner at a time when technology drives business success," said Tareq Khalaf, CIO of Al Hokair Group. "We are looking to achieve a substantial growth of revenue using Capillary's solution. The hospitality industry is witnessing a revolution in technology usage over the years as everything depends on how fast it is adopted, and how useful it is in engaging with and retaining your customers. Without technology we do not see the possibility of being consumer ready. Data is playing an important role in business decision making and in line with our organisational growth plans, we are leveraging our data combined with artificial intelligence to enhance our customers experience by offering the right value at the right time, and through the right channel."

Nitin Kaushal, President and General Manager for EMEA at Capillary Technologies, says, "We are excited to partner with Al Hokair to offer a range of AI driven solutions to help them adapt to a culture of enabling and empowering their customers with convenience and value-added services. We facilitate the use of data and technology to understand their customers' needs better." ■



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 SEAGATE

250 laser projectors from Christie to illuminate Al Wasl dome at Expo 2020



Christie will use more than 250 of D4K40-RGB projectors to create scenes on Al Wasl Plaza's surface.

T rue-to-life visuals and a rich sea of colour will illuminate Expo 2020 Dubai and create spectacular scenes on Al Wasl Plaza's iconic dome, thanks to award-winning global audiovisual technologies firm Christie. As Expo 2020's newly appointed Official Displays and Projection Partner, Christie will showcase its breakthrough laser projection technology, including using more than 250 of its D4K40-RGB projectors to create life-like evolving scenes on Al Wasl Plaza's giant 130-metre-wide projection surface, which can also be seen from above.

Christie's groundbreaking innovations have featured in Hollywood blockbusters and at major sporting events. Regarded as setting the gold standard for display and projection technology, Christie will supply and manage all display screens across the Expo site, contributing to an exceptional Expo experience for the millions of visitors expected to attend.

Christie Digital Systems is a global visual and audio technologies company and is a wholly-owned subsidiary of Ushio, Inc Japan. Consistently setting the standards by being the first to market some of the world's most advanced projectors and complete system displays, Christie is recognised as one of the most innovative visual technology companies in the world.

KEY TAKEAWAYS

- Christie will use more than 250 of D4K40-RGB projectors to create scenes on Al Wasl Plaza's surface.
- Christie has operated across the UAE and Middle East from its Dubai office since 2007.
- Expo 2020 Dubai expects to attract 25 million visits between 20 October 2020 and 10 April 2021.

Christie operates in more than 20 countries, and has operated across the UAE and Middle East from its Dubai office since 2007. The firm has installations across world-class events, retail centres, classrooms and movie theatres, and operated at the World Expo in Shanghai in 2010.

Expo 2020 Dubai expects to attract 25 million visits between 20 October 2020 and 10 April 2021, with about 70% of visitors projected to come from outside the UAE – the largest proportion of international visitors in the 168-year history of World Expos.

The first World Expo to be held in the Middle East, Africa and South Asia MEASA region, and the largest event ever staged in the Arab world, will bring together more than 200 international participants, including countries, corporations, multinational organisations and educational institutions, to explore Expo's theme of Connecting Minds, Creating the Future.

Ahmed Al Khatib, Chief Development and Delivery Officer, Expo 2020 Dubai, said: "We aim to create an unrivalled experience at Expo 2020 and spectacular visuals on the giant Al Wasl Plaza dome will be an iconic part of this. Christie is a trailblazer in this field and we anticipate an array of memorable displays across the Expo site thanks to Christie's innovative technologies."

Bryan Boehme, Executive Director, Global Sales and Business Development, Christie, said: "The Christie D4K40-RGB pure laser projector is a powerhouse of technology and will wow the world with its unrivalled, rich and crisp visuals that raise the bar in image quality, making sure Expo 2020 welcomes the future in the most unforgettable and magical way." ■

Audi initiates virtual reality training to prepare for regional launch of e-tron



Audi Middle East is developing an application for car body experts that allows them to experience the Audi e-tron as a 3D model.

Audi Middle East is pioneering virtual reality training for their dealer network in readiness for electrification and the arrival of e-tron in the region. The virtual technology allows realistic, safe learning of highly sensitive technologies such as the high-voltage battery. With the launch of the first all-electric series model from the four rings, new challenges are also facing Audi Middle East's sales and service organisation.

Audi service technicians can now practice on the heart of the new e-tron: the high-voltage battery in a virtual space. In these process training courses, they learn step by step how to open the battery, change a switch box or change a battery module. The technicians are optimally prepared for the new model even before its market launch. In addition, employees and dealer staff can get to know the new, highly sensitive technology in virtual space without any risk, and can determine the training speed

themselves.

The virtual reality training for service technology is based on a modular solution that utilises synergies with other parts of the company. Standard interactions such as gripping components are already pre-programmed, and existing design data such as for the battery can be imported into existing environment templates. This reduces production and development costs and makes the use of virtual reality in series production affordable.

Audi Middle East is also pioneering the development of an application for car body experts in car dealerships that allows them to experience the Audi e-tron as a 3D model in real size via a tablet. Animations then show the service technicians the individual repair steps in detail. All Audi's training content is available to service partners worldwide in a cloud-based knowledge database and can be accessed flexibly as required.

Technical training at the Audi Training Center has recently been taken to the next level with the introduction of a virtual reality training area, where technicians can do several exercises to learn about battery maintenance and care. The Audi Middle East Training Centre in Dubai Airport Free Zone is one of the first in the world to host virtual reality training during 2019. In addition to technical training, the Centre will facilitate management and product training courses for over 600 delegates in the region per year.

The Audi Middle East Training Centre, located near to Dubai Airport Terminal 2, has been established since 2006. A team of qualified trainers are responsible for training dealer staff in the region every year. Audi sales staff and technicians participate in a variety of practical courses during the year that take place at their dealerships, in Germany at the company headquarters in Ingolstadt and at the Audi Training Centre in DAFZA. ■

KEY TAKEAWAYS

Strategy

- Audi training is available to partners worldwide in a cloud-based knowledge database.
- Audi Middle East is developing an application for car body experts that allows them to experience the Audi e-tron as a 3D model.
- Augmented reality, the fusion of the real and virtual worlds, is also in preparation.
- Virtual technology allows learning of sensitive technologies such as the high-voltage battery.

R&M supporting 9000 CCTVs, 3000 readers, 5000 WiFi APs, at Istanbul airport



ERSIN INANKUL,
CIO and Deputy General Manager at
Istanbul New Airport.



Istanbul Grand Airport is the largest airport in the world to be fully digitised based on a network provided by R&M.

Some of the world's most advanced and secure airports rely heavily on the latest IT systems. A great deal of pioneering work in this field is being carried out by Istanbul Grand Airport, which became operational this year. It is the largest airport in the world and also the first airport in the world to be fully digitised with its security, communication and IT functions based on a network provided by R&M.

For Ersin Inankul, CIO and Deputy General Manager at Istanbul New Airport, one of the key factors for selecting R&M was that the cables would guarantee outstanding signal transmission and eliminate interference for decades. The other key criteria were the delivery reliability, security and cost-effectiveness of the R&M products. Owing to their modular design, the cabling systems can keep pace with the expansion of the airport and can be expanded modularly in just a few simple steps.

In the first phase of construction, R&M supplied 5,400 km of copper cabling and 3,270 km of fibre-optic cabling. Installation also required fibre-optic distribution cabinets, patch panels as well as 115,000 connector ports. Special requirements also needed to be fulfilled in each area, such as a color-coding system.

R&M outfitted the airport's data centre with the Netscale solutions, which is the fibre-optic management platform with the world's highest connection density of up to 120 ports per rack unit in a 19-inch rack. The R&MinteliPhy digital management and monitoring system was also installed. This system automates the monitoring and operation of the data network from a central location and can detect any unsolicited changes to the infrastructure or attempts to tamper with the connectors in real time.

The cabling is designed for a lifetime of 25 years and

unconditional reliability, and R&M has provided a guarantee for this. The airport wants to provide travelers, logistics companies and airlines with a guarantee of 99.982% reliability Tier III class. Up to 200 million passengers are expected to use the airport every year in the long term. The recently opened first section of the airport processes 90 million passengers every year. Three additional construction phases will be completed over the next 15 years.

"The quality of the R&M cabling system ensures that we can run 9,000 surveillance cameras and 3,000 card readers in real-time with confidence that they will be protected against any transmission interference or loss. We are also connecting 5,000 Wi-Fi access points, giving the airport a full-coverage WLAN. These access points will be trouble-free and fail-safe. The cabling also connects the ICT infrastructures for customs, the security staff and the police force," added Inankul. ■

Sharaf Electronics to retrofit 15,000 lights at Dubai Airport saving \$1M+ annually



Sharaf Electronics is tasked to complete the project within a year and a half.

Etihad Energy Services Company, Etihad ESCO announced the signing of an agreement with Sharaf Electronics for the implementation of the lighting retrofit project at three terminals of Dubai Airport. The project will replace over 15,000 outdoor and indoor lights with latest energy saving LED lights, resulting in about AED 5 million annual savings every year, for next seven years for the airport. In addition, the project supports Dubai Airport's vision of environmental sustainability.

As an accredited ESCO company with Regulatory and Supervisory Bureau, RSB for electricity and water in Dubai, Sharaf Electronics is tasked to complete the project within a year and a half. With over 8,500 outdoor lights, including high mast lighting and 7,000 indoor lights, latest lighting technologies from Europole and Sylvania will make Dubai Airport a front runner in energy efficient lighting in the world.

KEY TAKEAWAYS

Strategy

- Typical airport lighting projects are governed by strictest standards of quality and energy consumption.

Execution

- Latest lighting technologies from Europole and Sylvania will make Dubai Airport energy efficient.

Cash

- Retrofitting existing conventional lighting in a building with LED can result in 40-50% energy savings.
- Smart control systems with efficient luminescent technology allow significant savings.

People

- Sharaf Electronics is tasked to complete the project within a year and a half.

LED is the future of lighting. Retrofitting an existing conventional lighting in a building with LED lights can result in 40-50% energy savings. Smart control systems together with significantly efficient luminescent technology allows to achieve significant savings. Typical airport lighting projects are governed by strictest standards of quality and energy consumption.

Etihad ESCO is a DEWA venture that was established in 2013 to make Dubai's built environment a leading example of energy efficiency. Etihad ESCO aims to create viable performance contracting market for energy service companies by auditing and proposing energy conservation measures to major building contractors, developers, bringing Dubai closer to the achievement of its sustainability goals.

Ali Al Jassim, CEO, Etihad ESCO, said: "To begin with, putting together the project in place was a challenge, as not only had the lights to meet Dubai Airport's highest quality standards but also must guarantee long-term high energy savings. Sharaf Electronics team worked with several vendors to meet the exacting standards to our satisfaction. We wish them success in executing the project. The project will turn Dubai Airport into a leading model of energy efficiency in the emirate."

Nilesh Khalkho, CEO Sharaf Electronics, said: "It is a prestigious project for us and start of a new journey. As a local group we are committed to giving something back to the society and energy is one of the areas where we would like to contribute. In this journey forward, we will be retrofitting the leading Dubai International Airport. Hopefully we will continue this journey of executing many more projects for Etihad ESCO." ■

Synology leverages transformation to launch RackStation with snapshot technology

Growing use of the Internet and high-speed connectivity is driving the demand for effective storage and backup solutions. According to the latest figures from IDC, Central and Eastern Europe, Middle East and Africa region recorded a growth of 7.5% YoY in 2018 Q4. The external storage market is strongly supported by refresh cycles and large-scale digital projects run by governments across Middle East and Africa.

Leveraging this regional sentiment to invest in reliable, cost effective, and forward-looking storage solution for medium enterprises, Synology launched its RackStation RS819, the first RackStation in the Value Series with snapshot technology in the Middle East. The RS819, is a compact and scalable 4-bay rackmount NAS with snapshot technology support. It has been designed ground up for business workgroups to effectively manage, share, synchronise, and back up data.

According to IDC's latest forecast, the Middle East, Turkey, and Africa region will see annual spending on digital transformation cross the \$25 billion mark in 2019. Further, this spending is only going to increase over coming years as more and more organisations experiment with transformative technologies such as robotics, artificial intelligence, and Internet of Things in a bid to spur innovation and revolutionise customer experience. 89% of organisations in the Middle East and Africa now view digital transformation as being central to their corporate strategies, according to IDC.

RS819 runs on DiskStation



NICK JHENG,
Regional Manager Middle East at
Synology.

Manager, an advanced and intuitive operating system for Synology NAS devices, with various applications

offered to enhance work productivity. Synology has received numerous media accolades, topping the mid-range NAS category in TechTarget's storage solution survey and winning PCMag Readers' Choice eight years in a row.

Founded in 2000, Synology creates network-attached storage NAS, IP surveillance solutions, and network equipment that transform the way users manage data, conduct surveillance, and manage network in the cloud era.

Says Nick Jheng, Regional Manager Middle East at Synology, "Rapid adoption of digital transformation technologies including cloud, analytics, big data, machine learning, amongst others, is drawing attention to the need to have cost effective, scalable, efficient storage solutions with inbuilt backup and replication technologies. Synology's latest NAS solution is built with a compact footprint and uses a state-of-the-art 64-bit quad-core CPU with expandable storage capacity up to 112 Terabyte. Medium sized enterprises can benefit significantly with the range of compute and storage capabilities inbuilt into the RackStation RS819."

"For growing business workgroups on limited budgets, setting up an effective data protection and backup plan is sometimes not their first priority, leading to catastrophic losses in case of server failure," said Michael Wang, Product Manager at Synology Inc. "RS819 is our first RackStation in the Value Series, using the new 64-bit quad-core CPU, to support snapshot technology, bringing easy data protection solutions." ■

KEY TAKEAWAYS

Strategy

- Growing use of the Internet and high-speed connectivity is driving demand for effective storage and backup solutions.
- The external storage market is supported by refresh cycles and digital projects run by governments across Middle East and Africa.

Execution

- According to IDC, CEMA region recorded a growth of 7.5% YoY in 2018 Q4 in external storage.

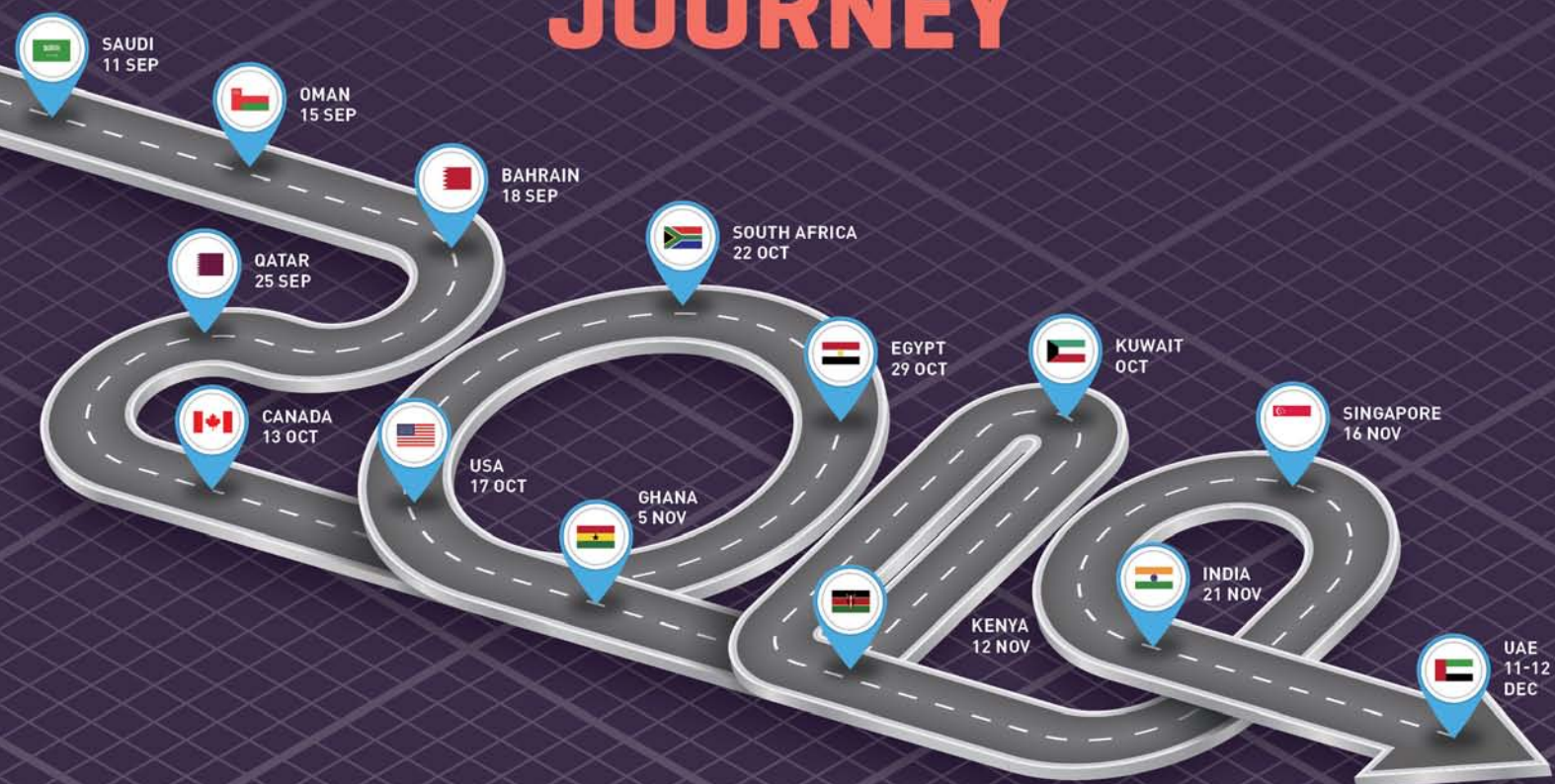


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VISIONARY STEPS TRANSFORMING SEAPORT OPERATIONS

Managing operations across a portfolio of cargo and container shipments and seaports is putting enormous demands on technology efficiency to cope with growth.

BY: ARUN SHANKAR

Saudi Arabia based port operator; Gulf Stevedoring manages port operations in three out of nine ports in Saudi Arabia. This includes Jeddah Islamic Port on the west coast of Saudi Arabia, Jubail Commercial Port and Jubail Industrial Port also called King Fahd Industrial Port, on the East coast.

In November 2017, Richard James took over as Managing Director of Gulf Stevedoring in Saudi Arabia. One of his key objectives was to ramp the volume of general cargo trading, which is more challenging than container management and liquid bulk. Out of the three ports under Gulf Stevedoring, Jeddah Islamic Port and Jubail Commercial Port handle containers and general cargo. Jubail Industrial Port manages the liquid bulk cargo, which includes deep draft tankers berthing alongside a deep-water extension and pumping in and out of liquid bulk cargo.

"In terms of port operations, liquid bulk cargo is much simpler operation for us, compared to containers," points out James. "Container cargo involves trucks, cranes and storage, which is why we are so keen to have a good terminal operating system. This has always been a big focus for us."

Gulf Stevedoring is now upgrading its Navis terminal container management system to N4 across all the three ports. "The wish list of IT systems is that we are wanting to upgrade to the latest versions on everything," he adds.

Since 2017, when James took over as Managing Director, he has focused on four key technology pain points to alleviate as a requisite to scaling the operations to meet demands of growth.

THESE ARE:

- Frequent downtime announcements due to server hardware upgrades
- Integration of applications and databases to give a dashboard view of operations
- Business continuity and disaster recovery for port operations
- Single window clearance for customs transactions

DOWNTIME

One of the most vexing issues for James in the past was the continuous and frequent announcements of downtime in operations due to hardware upgrades. During the course of the last eight years spent by James at the helm of operations in Sharjah and now in Saudi Arabia,

he remembers the notifications announcing downtime on a Friday, or at midnight or overnight.

As a non-IT specialist, James found these interruptions frustrating from a business point of view as well as highly expensive to complete.

All that changed with the switch over to hyper-converged server infrastructure. Following a comprehensive evaluation of hyper-converged solutions from a number of vendors, the team at Gulf Stevedoring decided on Nutanix Enterprise Cloud with implementation in two phases.

The first phase involved installation of a primary Enterprise Cloud cluster in the Gulf Stevedoring data centre, followed by virtualisation of as many server workloads as possible, then subsequent decommissioning of the legacy hardware once the new software and client workloads were fully operational.

The replacement of legacy servers in the data centre with digital transformation enabled hyperconverged infrastructures made a big impact on the bottom line, according to Richard. "What we have implemented within the last two years, has really given us a boost and from a management point





RICHARD JAMES,
MANAGING DIRECTOR, GULF
STEVEDORING CONTRACTING COMPANY.



HOSSAM EL-MASRY,
INFORMATION TECHNOLOGY MANAGER
AT GULF STEVEDORING.

of view is really valuable,” he says. The hyperconverged infrastructure is easier to manage and configure with software tools, and does not require to be taken offline through downtime maintenance, as much as the legacy infrastructure.

“We wanted a solution that would deliver linear scalability to handle predicted rapid growth in container traffic,” explains Hossam El-Masry, Information Technology Manager at Gulf Stevedoring. “We were also looking for ability to upgrade and manage the infrastructure without any downtime or impact in any way on the level of service provided to staff and customers at the ports we manage.”

INTEGRATION

As the top executive of Gulf Stevedoring, one of James’ primary

requirements is to get a holistic picture of his operations across the three ports. “One key thing for me in my position is that I want overall visibility to hand. We can have a lot of good systems but they are of little use unless they can be summarised by way of a dashboard or having the data readily available to analyse.”

James needs the ability to slice and dice operational data, in ways best known to his position. Some of the parameters James would like to use includes, export volumes, types of container equipment, critical paths, bottlenecks, amongst various others. “From my point of view as a user of technology, if you cannot bring all the data together, then it ceases to be useful.”

BUSINESS CONTINUITY

The operations of Gulf Stevedoring

FORWARD LOOKING TECHNOLOGY GOALS

As the organisation responsible for management of three major port container and bulk terminals in Saudi Arabia, Gulf Stevedoring Contracting Company is fully committed to supporting the government’s Saudi Vision 2030 agenda for economic diversification.

In order for port management specialist, Gulf Stevedoring Contracting Company, to meet its commitment to the ambitious Saudi Vision 2030 agenda for economic diversification, it has been making significant changes to its technology profile.

INFORMATION SECURITY AND PRIVACY

- Address regulatory requirements, technology advancements, risks
- Safeguard information wherever it resides
- Provide higher levels of systems accessing assurance
- Ensure that authorised users understand and follow security responsibilities

CONTINUITY OF OPERATIONS

- Ensure continuous availability of

essential systems

- Mitigate risks associated with data centers
- Reduce reliance on legacy applications
- Cope with country digital transformation plans
- Integrate with stake holders

INFORMATION MANAGEMENT

- Enable data access, sharing and integration
- Create analytics to respond to business scenarios

- Use data analysis to support decisions

IT SERVICE DELIVERY

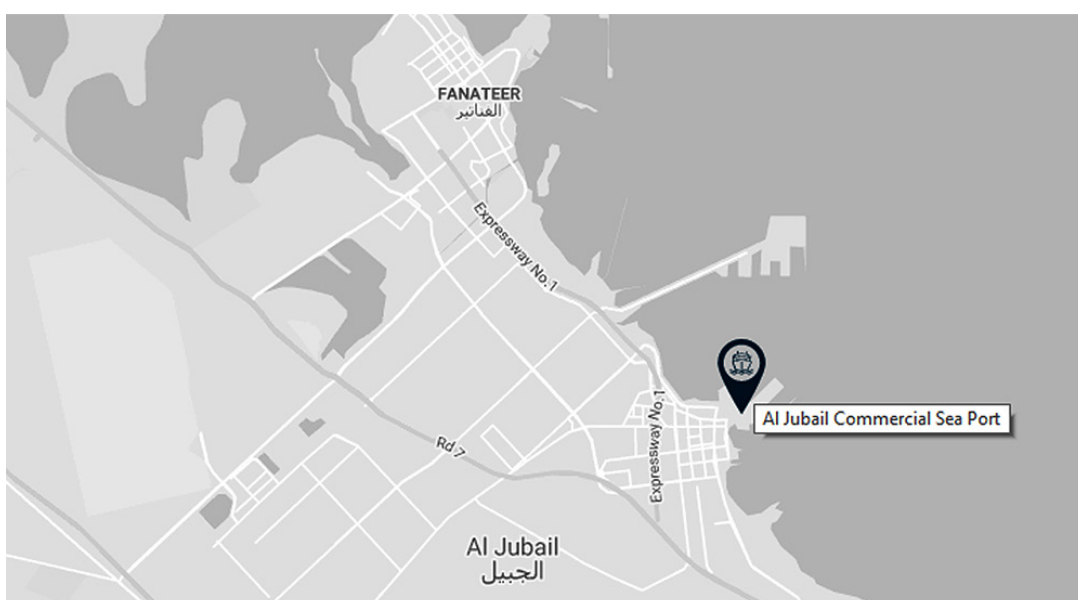
- Deliver scalable IT capabilities more rapidly to respond to business needs
- Increase the cost-effectiveness of Information Technology service delivery
- Integrate and align Information Technology services with Gulf Stevedoring services

are spread across the width of Saudi Arabia, from the Arabian Gulf on the Eastern side to the Red Sea on the Western side. This wide physical divide creates a geographic isolation of sorts, that favours deployment of a disaster recovery and business continuity replicated site.

During the roll out of the Nutanix cloud solution, the second phase required building of disaster recovery facility at the company's Jeddah Islamic Port location. This has been equipped with a second Enterprise Cloud cluster to be used for snapshot replication, backup and disaster



Jeddah Islamic Port is located in the middle of an international shipping route between east and west. The port lies on the Red Sea and is the principal port serving the holy cities of Mecca and Medina. 59% of Saudi's imports by sea are handled through this port. (Source: Saudi Ports Authority)



Jubail Commercial Port is characterised by proximity to mass production centres. Jubail Industrial Port or the King Fahd Industrial Port, Jubail, is located in close proximity to Jubail Industrial City. The port was designed for importing raw materials for local industries. (Source: Saudi Ports Authority)

recovery using tools included as standard in the Nutanix software stack.

“We have ports on two sides of Saudi Arabia, the widest part of the country – from Jeddah to Al Khobar, quite a stretch. To be able to have that backup in either location, means that in any big disaster you have another location that is not going to be hit hard. It is a reassuring thing for someone like me who is in charge of the business,” comments James.

SINGLE WINDOW

The process of export and import of trade at any landing port is a veritable jungle of documentation submission, approvals, multiple points of control, ambiguous payments, lack of transparency, and prolonged delays. Mostly all because, there is no single window of submission, clearance and payment at the majority of landing ports.

For Gulf Stevedoring, the delayed process of document clearances implies that containers or cargo at any of the seaports, cannot be moved without completion of the approvals. Standing containers and cargo means the destination ship cannot move, and the next ship cannot be berthed at the seaport. On the other hand, faster clearances of documentation, means that the destination ship can vacate its berth faster and the next ship can move into the same berth earlier, rather than later.

Gulf Stevedoring has now integrated its operations with Saudi Arabia’s FASAH platform. This is Saudi Arabia’s national platform which connects all government and private entities involved in cross border trade. Gulf Stevedoring now provides a single window clearance for electronic data interchange, EDI transactions of its customers. FASAH services are enabled by Tabadul, the integration partner.

For Gulf Stevedoring, the benefits however are much more. “The results of integrating our

systems with a single payment window, means everything moves a lot quicker. The dwell times, the length of time a container stays at a container port has been halved. If the average time a container spends at a port is halved, the capacity of the terminal is doubled,” explains James.

Investment in technology and digital transformation initiatives by Gulf Stevedoring has also helped it align with the objectives of Vision 2030. With its technology investments, Gulf Stevedoring is creating high profile, technology savvy, employment opportunities for Saudi nationals. Engaged Saudi nationals now manage Gulf Stevedoring’s single window of clearance, and are being trained to be part of the development and digitisation of Saudi Arabia. These are significant gains for the workforce of Saudi Arabia.

“Instead of people rubber stamping and shuffling paper in an office, you have higher paid, computer systems IT managers, who are interested in all sorts of

technology,” says James.

TRANSFORMATION

With regard to quantitative benefits of digital transformation, El-Masry says, “Not only have we saved on capital IT spending, we have also achieved a saving of around 15% in terms of operational expenditure. We have also been able to bring new developments online earlier than planned including recent major upgrades to our Navis N4 Terminal Operating System and EmPower employee performance management systems needed to cope with the extra container traffic expected going forward.”

James is content for such digital transformation projects to continue to be managed by El-Masry and the IT team. However, how such strategic technology initiatives fit into the overall business direction would continue to be directed by himself and the shareholders. “We will make sure that it is aligned with the direction where we are going,” he emphasizes ■

GULF STEVEDORING CONTRACTING COMPANY

Founded in 1985 as part of the GulfTainer group of companies, Gulf Stevedoring Contracting Company specialises in the management, operation and maintenance of seaports. The company is one of the leading operators in the port services sector, currently handling three projects in Saudi Arabia, the Northern Container Terminal at Jeddah Islamic Port; a container, bulk and general cargo handling terminal at Jubail Commercial Port, and 27 commercial berths at King Fahd Industrial Port, Jubail. In June 2019, Gulf Stevedoring will be adding King Fahd Industrial Port, Yanbu in cooperation with Red Sea Marine Services.

The number of operational sea ports in Saudi Arabia has reached nine, six of them are commercial, two are industrial ports, in addition to the Ras Alkhair mining port. Saudi Ports Authority guarantees the competence of its ports to support the national economy and to face challenges and changes confidently, accompanied with latest necessary technology to receive all types of marine transportations, in whatever state of development they are in.



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MANAGING SUCCESSFUL TRANSFORMATION IN REAL ESTATE

Azizi Group's Hashim Saeed covers the landscape of how to manage cultural changes during a transformation exercise and how to measure its success.



HASHIM SAEED,
Head of Information Technology, Azizi Group.

As Head of Information Technology at Azizi Group, Hashim Saeed is responsible for overseeing the overall IT operations across the organisation as well as setting up IT strategies and roadmaps, while providing direction, guidance and vision for the IT department. Azizi Developments is a valuable and admired real estate development company in the UAE. Azizi Developments extends its expertise in developing iconic master-planned communities in

Dubai.

Establishing a culture of innovation is one thing, while sustaining that culture is another. The way Azizi sustains a creative, exploratory culture is by rewarding employees. Having the employees motivated and empowered by the head of departments and with the authority they need, has made a dramatic improvement to the overall organisation.

“Digital transformation can

DIGITAL TRANSFORMATION METRICS MUST BE ALIGNED WITH MEASURING WHERE TRACTION IS ACHIEVED IN DIGITAL CAPABILITY.

KEY TAKEAWAYS

Strategy

- What is the end game for business heads in transformation?
- Digital transformation is an ongoing journey and not a destination.
- Digital transformation offers an opportunity for technology leaders to take a leadership role.
- Having business heads agreed on digital transformation is a golden opportunity for technology leaders
- Technology leaders are closest and most familiar with new technologies that are driving transformation.
- Digital transformation brings in a series of changes.

Execution

- Business heads need to have a clear picture of where they want to go.
- Technology leaders need to make sure; everyone understands what the end goal is and their role.
- Technology leaders must determine how to optimally structure their team to deliver business objectives.

be defined as a fundamental rethinking of how we use technology, people, processes to radically change business performance. We change the way we deliver value to customers. We have already started working closely with customers and getting them engaged through the use of technologies that enable them to view products, select them, book them, and pay using a secured customer portal,” explains Saeed.

Since digital transformation is an ongoing journey and not a destination, the role of the business heads is to have a clear picture of where they want to go. What is the end game for their transformation? Is it customer obsession, revenue growth, cost reduction, process improvement, greater competitive differentiation, accelerated innovation, increased market share, improved shareholder value, all of the above, or perhaps something more?

Depending on the business unit, the business heads should have strategies and roadmaps towards digital transformation, which eventually improves their business performance. These strategies must be aligned with the overall organisational strategy. They need to list down and prioritise them based on the importance and urgency in a

sequential manner. They have to work closely with the technology leader of their organisation to understand how technologies available in the market can help them achieve their business transformation objectives and dreams.

The business heads have to ensure that the digital transformation vision is shared with both internal and external entities, that they deal with, as this may introduce changes in the traditional style and approach of how things were done. The expectations must be set clearly and agreed prior to implementation else this may fail. Having business heads agreed on digital transformation is a golden opportunity for technology leaders as it is easier to proceed with technologies that support business goals.

Digital transformation offers an extraordinary opportunity for technology leaders to step forward and take a leadership role in helping their organisations leverage technology to automate more of the operations, address growing customer needs, break into new markets, and stay relevant for the long term. Technology leaders are the closest and most familiar with new technologies that are driving transformation, as well as have a unique view across the enterprise.

Their role is therefore to work closely with business heads to see the interdependencies that exist between organisational functions and business units. This distinct perspective allows them to identify opportunities for streamlining systems and processes and apply transformative business improvements.

In order for them to successfully drive digital transformation efforts, they need to overcome

MEASURING EFFECTIVENESS OF TRANSFORMATION IN REAL ESTATE

In the real estate industry, digital transformation metrics are required that span functions and can be measured on a continuous basis. These can include the following:

#1 OPERATIONAL IMPROVEMENT

Digital transformation is a continuous improvement initiative that changes mindsets and behaviors. These are difficult to measure. Operational metrics may include task automation, productivity, application performance that result in improved business performance.

Employees need to adapt to the changes and start using the tools that have been deployed. Adoption should be measured no less than weekly to gauge momentum.

#2 CUSTOMER EXPERIENCE

In order to look for signs of improved customer experience, we need to be able to measure how successfully customers can navigate across the ecosystems. Metrics to be used include share of voice, customer acquisition costs, customer lifetime value, retention rates. By using the Azizi platform, customers are able to view statements, available units, payment plans, make payments, payment status, receive campaigns and communicate directly within the platform.

#3 FINANCIAL IMPACT

Digital transformation leaders are held to growth targets. Measures are required to monitor progress on a daily or weekly basis. These should provide an indication of whether efforts are heading in the right direction. It is critical to look for financial measures that provide incentives for the enterprise to embrace digital change even though impact on revenue or margins does not happen overnight. Financial value of the efforts can be tracked by increase in productivity or revenue per employee.

CULTURAL CHALLENGES INVOLVE
MAKING CHANGES TO WORKSTYLES AND
TRADITIONAL BUSINESS PROCESSES.

a number of hurdles. Amongst the biggest is the cultural challenges associated with convincing organisational leaders and their teams to embrace digital transformation. This is particularly so since it involves making changes to workstyles and traditional business processes.

Technology leaders need to make sure; everyone understands what the end goal is and their role in making these changes. This starts with clearly communicating the vision for the digital transformation objectives across various roles and organisational teams. Once the digital vision has been shared with all stakeholders, the technology leaders must determine how they can optimally structure their team to deliver these business objectives. They may need to consider bringing in fresh talent from outside and continually building up the knowledge base of the internal team.

“Digital transformation brings in a series of changes. It is very important that we really think through leading indicators that will help us measure the impact of digital investments ahead of the actual impact on things like revenue and customer satisfaction,” points out Saeed.

Digital transformation metrics must be aligned with measuring where traction is achieved in digital capability versus the results achieved at the end of a transformation. This helps assess and refine transformation efforts continuously. Requisite measures to be used vary from industry and even by company. ■

By Arun Shankar.

WHY SECURITY MUST BE PART OF CUSTOMER SERVICE DELIVERY

Shailendra Singh must protect the organisation and employees, but more importantly must extend due diligence into the customer's workspace as well.



SHAIENDRA SINGH,
CISO at Capillary
Technologies.

assessing current risk profile, and defining action plans for any major security-oriented activities.

Regular operational reviews involve overseeing execution of action plans and activities such as client, external and internal audits, reviewing the performance of various departments on security metrics. Internal infosec activities include reviewing the progress of regular security operations along with mentoring and training of the InfoSec Team.

The most important and critical aspects of a CISO's job role in Capillary is to prioritise client assurance, rapidly respond to any security events and incidents, constantly evaluate risk profile of the organisation, maintain a watch of newer threats and adapt security activities to the changing organisational and technical environment.

DEMANDS OF DAILY OPERATIONS

The typical challenges faced by a CISO in large and medium enterprises are budgetary constraints since security technologies are quite expensive while the incremental benefit in risk mitigation may not justify such expenses. Organisations need the newest security technologies implemented, while prioritisation and implementation are practical roadblocks since resources available for these activities are limited and need to be utilised efficiently.

Finding a balance between having adequate levels of security while permitting ease of operations is another constant challenge. Higher levels of security tend to make it difficult to perform business operations conveniently and quickly.

The key skills required for an ideal CISO include a high level of understanding about the impact of security on business operations, possessing globally recognised security certifications which provide the necessary knowledge foundation, an ability to handle operations while also being capable of understanding technology, and a high degree of people management skills for handling internal and external stakeholders such as clients, internal management and external auditors.

DIGITAL TRANSFORMATION, PROS AND CONS

The use of digital innovation in eliminating manual effort, replacing traditional methods through the use of more efficient, operationally enabling and cost-effective methods and using newer technologies, which rely on digitising operations is one way to define digital transformation.

Digital transformation enables organisations to scale up their business multiple-fold without incurring the inherent cost of building additional capacity, which may be in the form of

As the CISO of Capillary Technologies, Shailendra Singh is responsible for the overall security function. This involves strategic planning, debriefing with senior management on critical security-related events, evaluating security posture,

KEY TAKEAWAYS

- A client who cannot be assured that their website is secure, cannot focus on their core functions of business.
- Ecommerce websites experience a higher probability of being attacked and the impact of a successful attack is much higher
- Higher probability and impact of attack increases the risk assessment score for an ecommerce platform.
- Finding a balance between adequate security while permitting ease of operations is another constant challenge.
- Higher levels of security tend to make it difficult to perform business operations conveniently.
- Digital transformation reduces the time it takes to evaluate and assess risks.
- Digital transformation reduces time-lag between risk identification and steps taken to mitigate those risks.

people, inventory, effort, time or resources.

Digital transformation as it has been implemented within the security function of Capillary, involves almost 100% paperless work, real-time collaboration with internal and external stakeholders, and the use of progressive security technologies to reduce our risks. In terms of opportunities, cloud technologies, mobility and IoT have increased the output from every single resource.

These resources are not only people assets, but also server architecture, local IT environment and mobile apps. Interconnected technologies seamlessly work towards serving clients in a more integrated and fluid manner, allowing for faster turnarounds and more effective outcomes.

Digital transformation reduces the time it takes to evaluate and assess risks. It also reduces the time-lag between risk identification and steps taken to mitigate those risks. The specific steps that need to be taken for risk mitigation involves decision-making about the available alternatives and their associate costs. An ideal security posture is achieved when all these activities are made more efficient through the implementation of digital transformation.

EXPOSING THE DIGITAL WORKSPACE

Digital transformation has increased the surface areas available to malicious elements for attacking us. While in an earlier era, the periphery of an organisation's network was the boundary where attacks could be stopped, this has changed now to an individual endpoint such as the computer of the employee. This means while earlier organisation's were required to protect the perimeter, now they need to focus on securing each individual employee.

Wide spread adoption of cloud technologies is another way in which the surface area has increased significantly. Organisations need to focus on protecting the cloud infrastructure and the communication channels in addition to the office network and employees. Availability of multiple modes of communication to employees has increased the various ways in which they can be attacked, whether it is email, mobile, chat or online storage solutions.

SECURING E-COMMERCE

An e-commerce platform of any company is a public-facing entity, which is not only a place for conducting business, but also a way to build and maintain a brand image. Consumers are increasingly adopting digital methods and shifting their purchasing habits from offline to online. This makes it a requirement for retail organisations to have an online presence, but this also makes them vulnerable to being attacked digitally. And since the impact of a successful online attack is instantaneous and widespread, the security focus on an ecommerce platform provider such as Capillary cannot be underestimated.

Ecommerce websites experience a higher probability of being attacked and the impact of a successful attack is much higher, both financially and on the brand image of the owner. A higher probability and impact of attack increases the risk assessment score for an ecommerce platform. A client who cannot be assured that their website is secure, cannot focus on their core functions of business. Capillary understands this need and focuses more intensely on ensuring security for its ecommerce platform. ■

By Arun Shankar.



ARE YOU READY FOR THESE TRANSFORMATION DISRUPTIONS

Gartner executives offer a glimpse into global and regional, opportunities and challenges, in the area of CEO functioning, government, organisational culture, digital twins, AI, cloud, and others.



(Left to right) Mark Raskino, Vice President and Distinguished Analyst at Gartner, Cathleen Blanton, Research Vice President at Gartner, Elise Olding, Research Vice President at Gartner, Benoit Lheureux, Research Vice President at Gartner, Daniel Stang, Research Vice President at Gartner, John Lovelock, Distinguished Research Vice President at Gartner, Michael Warrilow, Research Vice President at Gartner, Mikako Kitagawa, Senior Principal Analyst at Gartner.



MARK RASKINO,
Vice President and
Distinguished Analyst at
Gartner

CEOS HAVE SWITCHED THEIR FOCUS BACK TO TACTICAL PERFORMANCE AS CLOUDS GATHER ON THE HORIZON

Growth continues to top the list of CEO business priorities in 2019 and 2020, according to a recent survey of CEOs and senior executives by Gartner. The most notable change in comparison to last year's results is that a growing number of CEOs also deem financial priorities important, especially profitability improvement.

The annual Gartner 2019 CEO and Senior Business Executive Survey of 473 CEO and senior business executives in the fourth quarter of 2018 examined their business issues, as well as some areas of technology agenda impact. In total, 473 business leaders of companies with \$50 million or more and 60% with \$1 billion or more in annual revenue were qualified and surveyed.

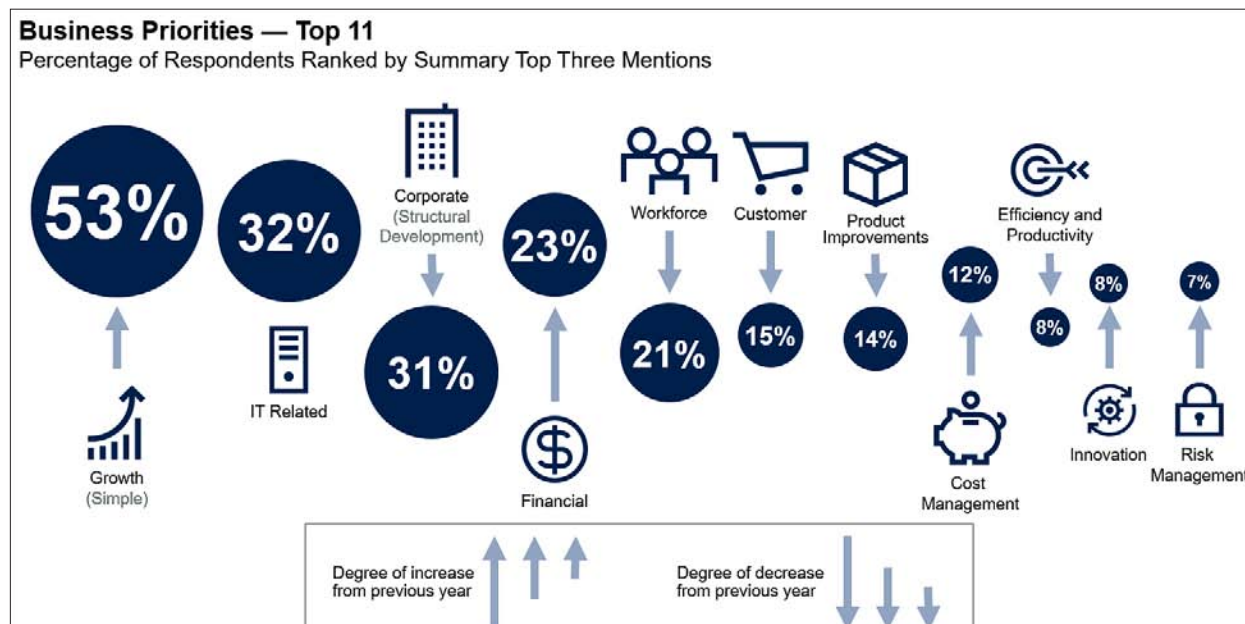
"After a significant fall last year, mentions of growth increased this year to 53%, up from 40% in 2018," said Mark Raskino, Vice President and Distinguished Analyst at Gartner. "This suggests that CEOs have switched their focus back to tactical performance as clouds gather on the

horizon."

At the same time, mentions of financial priorities, cost and risk management also increased. "However, we did not see CEOs intending to significantly cut costs in various business areas. They are aware of the rising economic challenges and proceeding with more caution — they are not preparing for recession," said Raskino.

The survey results showed that a popular solution when growth is challenged is to look in other geographic locations for growth. Responses mentioned other cities, states, countries and regions, as well as new markets would also include some geographic reach though a new market can also be industry-related, or virtual. It is natural to use location hunting for growth when traditional and home markets are saturated or fading. However, this year the international part of such reach is complicated and compounded by a shift in the geopolitical landscape. 23% of CEOs see significant impacts to their own businesses arising from recent developments in tariffs, quotas and other forms of trade controls. Another 58% of CEOs have general concerns about this issue, suggesting that more CEOs anticipate it might impact their businesses in future.

Another way that CEOs seem to be confronting softening growth prospects and weakening margins is to seek diversification, which increasingly means the application of digital business to offer new products and revenue-producing channels. 82% of respondents agreed that they had a management initiative or transformation programme underway to make their companies more digital, up from 62% in 2018.



82% agreed they had a transformation programme underway to make companies more digital, up from 62% in 2018.



CATHLEEN BLANTON,
Research Vice
President at Gartner

THESE FINDINGS DEMONSTRATE THAT LEADERSHIP HAS BECOME MORE COMFORTABLE WITH CLOUD DELIVERY MODELS AND MOVED AWAY FROM CONCERNS

The recent Gartner CIO survey shows that the transition to digital government is gaining momentum. It found that 53% of digital initiatives in government organisations have moved from the design stage to early stages of delivering digitally driven outcomes. This is up from 40% last year. Additionally, 39% of governments expect cloud services to be a technology area where they will spend the greatest amount of new or additional funding in 2019.

“These findings demonstrate that leadership has become more comfortable with cloud delivery models and has moved away from concerns regarding security and data ownership,” said Cathleen Blanton, Research Vice President at Gartner.

The move to digital business means that the IT organisation needs to adapt to new skills requirements.

KEY TAKEAWAYS

- Gartner predicts by 2023, over 80% of new solutions adopted by governments will be delivered using XaaS model.
- Adoption of XaaS models is increasing across all industries globally, primarily driven by cloud services.
- The model offers an alternative to legacy infrastructure modernisation and investment.
- It is a promising way to scale digital government, because it can provide small local offerings as well as nation-wide services.
- The XaaS model creates new challenges for government CIOs.
- Business units may turn less to the IT department as they are now able to acquire XaaS solutions without involvement of IT.

DEPARTMENTS
LACK KNOWLEDGE
TO NEGOTIATE
COMPLEX CONTRACTS
AND INDIVIDUAL
DEPARTMENTS MAY BE
ACQUIRING DUPLICATIVE
CAPABILITIES.

In many governments, roles of chief data officers and cloud architects are already present. However, it is worth noting that 38% of government respondents did not introduce any new roles in 2018 due to insufficient resources, skills and cultural issues. To adapt to new skill requirements, CIOs need to initiate a transformation process that results in new or changed roles.

In the future, government IT will also accomplish more diversified tasks than today. Public sector agencies will rely on government IT services to address inclusion, citizen experience and digital ethics. Those fields require new types of skillsets, such as researchers, designers and social scientists. Government CIOs must employ experts to model and explain how citizens and businesses will need to respond to regulations and policies, and what impact that will have on society, the economy and government revenues.

At the same time, government IT will need to assign new roles to support their digital transformation and introduce emerging technologies in diverse businesses and mission areas. As artificial intelligence and Internet of things technologies advance, machine trainers, conversational specialists and automation experts will slowly but certainly replace experts in legacy technologies.

Gartner predicts that by 2023, over 80% of new technology solutions adopted by governments will be delivered and supported using an anything-as-a-service, XaaS model. XaaS summarises several categories of IT, including those delivered in the cloud as a subscription-based service. It also encompasses managed desktop, help desk and network services, voice over IP and unified communications.



ELISE OLDING,
Research Vice
President at Gartner

A PARTNERSHIP WITH THE CHIEF HR OFFICERS IS THE PERFECT WAY TO ALIGN TECHNOLOGY SELECTIONS AND DESIGN PROCESSES

In an era of continuous change, a proactive and adaptive culture is a critical asset and CIOs will play a key role in establishing the right mindsets and practices. Gartner, predicts that by 2021, CIOs will be as responsible for culture change as chief HR officers CHROs.

“A lot of CIOs have realised that culture can be an accelerator of digital transformation and that they have the means to reinforce a desired culture through their technology choices,” said Elise Olding, Research Vice President at Gartner. “A partnership with the Chief HR officers is the perfect way to align technology selections and design processes to shape the desired work behaviors.”

The mission and values of an organisation usually fall into the remit of HR. The partnership between IT and HR

START WITH A SMALL, MOTIVATED USER GROUP AND USE IT TO SHOWCASE FAST WINS AND RESULTS.

can shed light on how IT can make technology and process design decisions that foster the intention of the desired organisational culture. Enterprise architecture can adopt principles that align to the cultural traits, and when business analysts design processes they can create them with the intended traits in mind. Hence, IT supports the way an organisation behaves in cooperation with HR.

However, culture change is a process. This means that there will be barriers to digital initiatives — in peoples’ mindsets and practices. A great way to jump-start culture change and enable adoption of new technologies and processes is the culture hack. Start with a small, motivated user group and use it to showcase fast wins and results.

A recent Gartner survey found that 67% of organisations have already completed culture change initiatives or were in the process of doing so. The reason for many of those initiatives was that the current culture has been identified as a barrier to digital transformation. In 50% of cases, transformational initiatives are clear failures and CIOs report that the main barrier is culture. The logical conclusion is that CIOs should start with culture change when they embark on digital transformation, not wait to address it later.

KEY TAKEAWAYS

- By 2021, 80% of enterprises will change culture as a way to accelerate digital transformation.
- Through 2022, 75% organisations with frontline diversity and inclusive will exceed financial targets.
- Gartner research shows that inclusion can improve performance by over 30% in diverse teams.
- There will be barriers to digital initiatives in peoples’ mindsets and practices.
- A great way to jump-start culture change and enable adoption of new processes is culture hack.



*BENOIT LHEUREUX, R
esearch Vice
President at Gartner*

RESULTS ESPECIALLY WHEN COMPARED WITH PAST SURVEYS, SHOW THAT DIGITAL TWINS ARE SLOWLY ENTERING MAINSTREAM USE

13% organisations implementing Internet of Things projects already use digital twins, while 62% are either in the process of establishing digital twin use or plan to do so, according to a recent IoT implementation survey by Gartner. Gartner defines a digital twin as a software design pattern that represents a physical object with the objective of understanding the asset's state, responding to changes, improving business operations and adding value.

"The results especially when compared with past surveys, show that digital twins are slowly entering mainstream use," said Benoit Lheureux, Research Vice President at Gartner. "We predicted that by 2022, over two-thirds of companies that have implemented IoT will have deployed at least one digital twin in

production. We might actually reach that number within a year."

This rapid growth in adoption is due to extensive marketing and education by technology vendors, but also because digital twins are delivering business value and have become part of enterprise IoT and digital strategies.

Digital twin adoption happens in all kinds of organisations. However, manufacturers of IoT-connected products are the most progressive, as the opportunity to differentiate their product and establish new service and revenue streams is a clear business driver.

A key factor for enterprises implementing IoT is that their digital twins serve different constituencies inside and outside the enterprise. 54% of respondents reported that while most of their digital twins serve only one constituency, sometimes their digital twins served multiple; nearly a third stated that either most or all their digital twins served multiple constituencies. For example, the constituencies of a connected car digital twin can include the manufacturer, a customer service provider and the insurance company, each with a need for different IoT data.

When an organisation has multiple digital twins deployed, it might make sense to integrate them. For example, in a power plant with IoT-connected industrial valves, pumps and generators, there is a role for digital twins for each piece of equipment, as well as a composite digital twin, which aggregates IoT data across the equipment to analyse overall operations.

Despite this setup being very complex, 61% of companies that have implemented digital twins have already integrated at least one pair of digital twins with each other, and even more 74% of organisations that have not yet integrated digital twins, will do so in the next five years. However, this result also means that 39% of respondents have not yet integrated any digital twins; of those, 26% still do not plan to do so in five years.

KEY TAKEAWAYS

- Gartner defines a digital twin as a software design pattern that represents a physical object.
- Objective of digital twin is to understand asset state, changes, operations, adding value.
- 54% say most of their digital twins serve only one constituency, sometimes digital twins served multiple.
- 39% of respondents have not yet integrated digital twins, 26% still do not plan to do so in five years.
- Digital twins are deployed in conjunction with other digital twins for related assets or equipment.
- True integration is still complicated and requires high-order integration and information management skills.



DANIEL STANG,
Research Vice
President at Gartner

ARTIFICIAL INTELLIGENCE IS GOING TO REVOLUTIONISE HOW PROGRAMME AND PORTFOLIO MANAGEMENT LEVERAGE TECHNOLOGY

By 2030, 80% of the work of today's project management discipline will be eliminated as artificial intelligence takes on traditional project management functions such as data collection, tracking and reporting, according to Gartner. "Artificial intelligence is going to revolutionise how programme and portfolio management leaders leverage technology to support their business goals," said Daniel Stang, Research Vice President at Gartner. "Right now, the tools available to them do not meet the requirements of digital business."

Providers in today's programme and portfolio management software market are behind in enabling a fully digital programme management office, but

Gartner predicts artificial intelligence-enabled programme and portfolio management will begin to surface in the market sometime this year.

Data collection, analysis and reporting are a large proportion of the programme and portfolio management discipline. Artificial intelligence will improve the outcomes of these tasks, including the ability to analyse data faster than humans and using those results to improve overall performance. As these standard tasks start to get replaced, programme and portfolio management leaders will look to staff their teams with those who can manage the demands of artificial intelligence and smart machines as new stakeholders.

Using conversational artificial intelligence and chatbots, programme and portfolio management and programme management office leaders can begin to use their voices to query a programme and portfolio management software system and issue commands, rather than using their keyboard and mouse. As artificial intelligence begins to take root in the programme and portfolio management software market, those programme management office that choose to embrace the technology will see a reduction in the occurrence of unforeseen project issues and risks associated with human error.





JOHN LOVELOCK,
Distinguished Research
Vice President at Gartner

IN 2019, BUSINESSES IN MENA ARE SET TO INCREASE THEIR IT SPENDING IN ALL SEGMENTS EXCEPT FOR THE DEVICES SEGMENT

Middle East and North Africa IT spending is projected to reach \$160 billion in 2019, a 1.8% increase from 2018, according to the latest forecast by Gartner. "In 2019, businesses in MENA are set to increase their IT spending in all segments except for the devices segment," said John Lovelock, Distinguished Research Vice President at Gartner.

The banking and securities industry are projected to total \$13.2 billion in 2019, the largest IT spending among 11 industries. It will also exhibit the fastest growth rate at 5% year over year. Banks in MENA must keep investing in IT in order to participate in the international banking system. The transportation, education and wholesale trade sectors are on pace to achieve growth of 1.0%, 2.4% and 2.8% this year

respectively, and are set to be the three industries achieving the weakest IT spending growth rates in 2019.

In the enterprise sector, organisations are increasing their spending on software, which continues to be the fastest growing sector in 2019. Nevertheless, despite the rapid growth of software as a service in the region 25.8% in 2019, the region is below the global average for the percentage of total cloud spending. The MENA region is not expected to reach the level of cloud usage that the United States had in 2017 until the end of 2022.

Software and IT services are projected to exhibit the strongest growth in 2019, with an 11.5% and 7.5% increase year over year respectively. Most organisations in the MENA region are paying off years of technology deficits, and implementing software systems that standardise and automate existing business processes. Only a few leading local organisations are overcoming technology hurdles, and moving more quickly toward artificial intelligence and digital business systems, and participation in digital business ecosystems.

Consumer spending in MENA has reached a tipping point. Consumers are on pace to spend \$532 million on upgrading or replacing their mobile phones in 2019, and expect to spend \$63.7 billion on mobile services in 2019, up \$1 billion from 2018.

Table 1. Middle East & North Africa IT Spending Estimates (Billions of U.S. Dollars)

	2018 Spending	2018 Growth (%)	2019 Spending	2019 Growth (%)	2020 Spending	2020 Growth (%)
Data Center Systems	4,893	6.0	4,995	2.1	4,874	-2.4
Enterprise Software	5,864	7.3	6,538	11.5	7,266	11.1
Devices	27,493	-3.6	26,881	-2.2	27,114	0.9
IT Services	11,045	4.5	11,871	7.5	12,783	7.7
Communications Services	108,099	1.2	109,992	1.8	111,333	1.2
Overall IT	157,395	0.9	160,277	1.8	163,369	1.9

Consumer spending in MENA has reached a tipping point.



MICHAEL WARRILOW,
Research Vice
President at Gartner

THE SHIFT OF ENTERPRISE IT SPENDING TO CLOUD-BASED ALTERNATIVES IS RELENTLESS, ALTHOUGH IT IS OCCURRING OVER MANY YEARS

28% of spending within key enterprise IT markets will shift to the cloud by 2022, up from 19% in 2018, according to Gartner. Growth in enterprise IT spending on cloud-based offerings will be faster than growth in traditional, non-cloud IT offerings. Despite this growth, traditional offerings will still constitute 72% of the addressable revenue for enterprise IT markets in 2022, according to Gartner forecasts.

“The shift of enterprise IT spending to new, cloud-based alternatives is relentless, although it is occurring over the course of many years due to the nature of traditional enterprise IT,” said Michael Warrilow, Research Vice President at Gartner. Cloud shift highlights the appeal of greater flexibility and agility, which is perceived as a benefit of on-demand capacity

and pay-as-you-go pricing in cloud.

More than \$1.3 trillion in IT spending will be directly or indirectly affected by the shift to cloud by 2022, according to Gartner. Providers that are able to capture this growth will drive long-term success through the next decade. Gartner recommends that technology providers use cloud shift as a measure of market opportunity. They should assess growth rates and addressable market size opportunities in each of the four cloud shift categories: system infrastructure, infrastructure software, application software and business process outsourcing.

By 2022, almost one-half of the addressable revenue will be in system infrastructure and infrastructure software, according to Gartner. System infrastructure will be the market segment that will shift the fastest between now and 2022 as current assets reach renewal status. Moreover, it currently represents the market with the least amount of cloud shift. This is due to prior investments in data center hardware, virtualisation and data center operating system software and IT services, which are often considered costly and inflexible.

The shift to cloud until the end of 2022 represents a critical period for traditional infrastructure providers, as competitors benefit from increasing cloud-driven disruption and spending triggers based on infrastructure asset expiration. As cloud becomes increasingly mainstream, it will influence even greater portions of enterprise IT decisions, particularly in system infrastructure as increasing tension becomes apparent between on- and off-premises solutions.

Table 1: Cloud Shift Proportion by Category

	2018	2019	2020	2021	2022
System infrastructure	11%	13%	16%	19%	22%
Infrastructure software	13%	15%	17%	18%	20%
Application software	34%	36%	38%	39%	40%
Business process outsourcing	27%	28%	29%	29%	30%
TOTAL	19%	21%	24%	26%	28%

More than \$1.3 trillion in IT spending will be directly or indirectly affected by the shift to cloud by 2022.



MIKAKO KITAGAWA,
Senior Principal
Analyst at Gartner

WE SAW THE START OF A REBOUND IN PC SHIPMENTS IN MID-2018, BUT DISRUPTION BY CPU SHORTAGES IMPACTED ALL PC MARKETS

Worldwide PC shipments totaled 58.5 million units in the first quarter of 2019, a 4.6% decline from the first quarter of 2018, according to preliminary results by Gartner. “We saw the start of a rebound in PC shipments in mid-2018, but anticipation of a disruption by CPU shortages impacted all PC markets as vendors allocated to the higher-margin business and Chromebook segment,” said Mikako Kitagawa, Senior Principal Analyst at Gartner.

While the consumer market remained weak, the mix of product availability may have also hindered demand. In contrast, Chromebook shipments increased by double digits compared with the first quarter of 2018, despite the shortage of entry-level CPUs. Including Chromebook shipments, the total worldwide PC market decline would

have been 3.5% in the first quarter of 2019.

The supply constraints affected the vendor competitive landscape as leading vendors had better allocation of chips and also began sourcing alternative CPUs from AMD. The top three vendors worldwide were still able to increase shipments despite the supply constraint by focusing on their high-end products and taking share from small vendors that struggled to secure CPUs.

Moreover, the constraints resulted in the top vendors shifting their product mix to the high-end segment in order to deal with the constraint — which, along with favourable component price trends, should boost profit margins.

Business PC demand remained strong throughout the first quarter of 2019 across most key regions. The PC refresh driven by Windows 10 has been a driving force of business PC growth over the past three years, but Gartner forecasts that 2019 will be the last year in which shipments will be impacted by this refresh. While PC shipment results in the first quarter of 2019 indicated that the business PC segment still showed strong demand, weak mobile PC results could be the indicator that the Windows 10 refresh has nearly peaked.

Preliminary Worldwide PC Vendor Unit Shipment Estimates for 1Q19 (Thousands of Units)

Company	1Q19 Shipments	1Q19 Market Share (%)	1Q18 Shipments	1Q18 Market Share (%)	1Q19-1Q18 Growth (%)
Lenovo	13,196	22.5	12,343	20.1	6.9
HP Inc.	12,826	21.9	12,727	20.7	0.8
Dell	9,989	17.6	9,841	16.0	1.5
Apple	3,977	6.8	4,078	6.6	-2.5
Asus	3,603	6.2	3,887	6.3	-7.3
Acer Group	3,322	5.7	3,829	6.2	-13.2
Others	11,610	19.8	14,671	23.9	-20.9
Total	58,523	100.0	61,375	100.0	-4.6

The PC refresh driven by Windows 10 has been a driving force of growth over the past three years, but Gartner forecasts that 2019 will be the last year in which shipments will be impacted by this refresh.

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ARE YOU REALLY COMPELLED TO TRANSFORM TO CLOUD

Transformation has a dual speed, almost non-existent till it hits and then the pace to the cloud is too late to catch up, writes Dave Russell at Veeam.



DAVE RUSSELL,
Vice President Enterprise
Strategy at Veeam.

We all know that software and infrastructure do not typically go away in the data centre. You very rarely decommission something and bring in all new gear or stop the application to completely transition over to something else. Everyone is in some sort of hybrid state. Some think that they are transitioning, and many hopefully even have a plan for this.

A major contributor to this type of procrastination is that changes that appear to be far off, arrive suddenly. The closing speed of transformation is the issue. Seldom do you have the luxury of time; but early on you are seldom compelled to decide. You do not sense the urgency.

A perfect example is the impact of the cloud on every business and every IT department. The big challenge is that organisations know they should be doing something today but are still struggling with exactly what to do. In terms of a full cloud strategy, it is often times very disaggregated. And while we are going on roughly a decade in the cloud-era, as an industry overall, we are still really in the infancy of having a complete cloud strategy.

When it comes to identifying a cloud strategy, a big challenge for IT departments and CIOs is that it used to be easy to peer into the future because the past was fairly predictable — whether it was the technology in data centres, the transformation that was happening,

the upgrade cycle, or the movement from one platform to another.

The way you had fundamentally been doing something in the past was not changing with the future. Nor did it require radically different thinking. And it likely did not require a series of conversations across all of IT, and the business as well.

But when it comes to the cloud, we are dealing with a fundamental transformation in the ways that businesses operate when it comes to IT: compute, storage, backup, all of these are impacted.

Which means organisations working on a cloud strategy have little, to no historical game plan to refer to. Nothing they can fall back on for a reference. The approach of, well this is what we did in the past, so let us apply that to the future, no longer applies.

Knowing what you have, knowing what your resources are, and knowing what to expect are not typically well understood with regards to a complete cloud transformation. In part, this is because the business is often transforming, or seeking to become more digital, at the same time.

With the cloud, you often have limited, or isolated experiences. You have people who are trying to make business decisions that have never been faced with these issues, in this way, before.

On top of this, data centre people tend to be very risk averse by design. There is a paralysis that creeps

BUSINESS IS OFTEN TRANSFORMING, OR SEEKING TO BECOME MORE DIGITAL, AT THE SAME TIME.

KEY TAKEAWAYS

- The closing speed of transformation is the issue.
- Seldom do you have the luxury of time, but early on you are seldom compelled to decide.
- Organisations know they should be doing something today but are still struggling with exactly what to do.
- A full cloud strategy, is often times very disaggregated.
- While we are roughly a decade in cloud-era, we are still in the infancy of having a complete cloud strategy.
- Transformation is happening all around us and inside of each organisation.
- IT department is trying to figure out a strategy and investigate the request and say, no.
- Now the IT becomes the department of no and is not being perceived as being helpful.
- You need to apply an engineering mindset; you learn more about a problem by trying to solve it.
- Business is often transforming, or seeking to become more digital, at the same time.

in. Well, we are not sure how we should get started. And people just stay in pause mode. That is part of why we see Shadow IT or Rogue IT. Someone says, Well, I am going to go out and I am just going to get my own SaaS-based license for some capability that I am looking for, because the IT department says they are investigating it.

Typically, what happens is the IT department is trying to figure that out, trying to get a strategy, investigate the request. But in the meantime, they say, no. Now the IT becomes the department of no and is not being perceived as being helpful.

To address this issue head on, you need to apply an engineering mindset. Meaning, that you learn more about a problem by trying to solve it. In absence of having a great reference base, with something that can easily be compared to, we should at least get going on what is visible to us, and that looks to be achievable in the short term.

Percolate that up, what is the effect of that? What does that actually mean? It means that the worst-case scenario is you have got an outcome of where the infrastructure operations people are increasingly viewed as less and less strategic going forward, because if you take this out to the extreme, you will end up being custodians of legacy implementations and older solutions. All while numerous other

projects are being championed, piloted, put in to production and ultimately owned, by somebody else; perhaps a line of business that is outside of IT.

The previous way of developing a strategic IT plan worked well in the past when you had an abundance of time. But that is no longer the case. Transformation is happening all around us and inside of each organisation. You cannot continue to defer decisions. IT is now a critical part of the business; every organisation has become digital and the cloud is touching everything. It is time to step up, work with vendors you trust, and move boldly to the cloud. ■

Key findings

Perceived role of HR today



According to HR executives, their function is most valuable to the organization with respect to:

Performance management



Learning and reskilling



HR executives believe senior leadership most value their function in its capacity for:

Performance management



Transformation (change) of the business



Thoughts on transformation



HR executives believe a change in the workforce is needed with respect to:

Workforce skills



HR operations



45%

of HR executives are very confident in the function's ability to transform as needed



SOURCE: KPMG LOWER GULF, THE FUTURE OF HR 2019 REPORT.

Outlook towards disruptive technologies



76%

of HR executives believe AI can drive significant value

However,



71%

of HR executives believe AI will eliminate more jobs than it creates– 14% of CEOs stated the same in our local 2018 CEO outlook report

Those tasked with preparing teams for disruption recognize AI's potential contribution to HR functions:



38%

have already started to introduce AI



48%

are looking to invest in AI over the next two years



88%

of HR executives feel that HR analytics prove the value of the function



52%

agree that their organization has effectively leveraged data to facilitate decisions



45%

*58%

are currently applying predictive analytics to drive HR strategies and insights

SOURCE: KPMG LOWER GULF, THE FUTURE OF HR 2019 REPORT.



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