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Dear Readers,



The next couple of years promise to be interesting ones in the Middle East. This will be when the essentials of digital transformation kick off. Data privacy issues have led key vendors to announce their intentions to host their datacentres at various locations across the GCC, including Saudi Arabia and UAE, kick starting from 2018 and 2019 onwards. As these vendors driven cloud datacentres begin operations and regional enterprises begin their data migrations exercises, from their on-premises private clouds

to single tenant or multi-tenant hosted public clouds, we will have formally entered the global club of public cloud applications.

Low latency and success in scalability and availability, inside these datacentres, will drive interest amongst eco system vendor partners, in building localised data lakes. These will themselves drive various use cases across IoT, Industrial IoT, smart cities, open data platforms, artificial intelligence and big data, proof of concepts and so on.

In our cover feature, we write that SAP is the first multi-national, enterprise application software provider to go live on a cloud datacentre inside Saudi Arabia. This datacentre is part of a wider Digital Hub, which includes: an open digital platform supporting entrepreneurship, co-innovation with customers, partners; ecosystem to leverage cloud solutions; and localisation to support the Government's vision into digital transformation. This Hub is available for organisations in Saudi Arabia, Middle East, and globally.

"In Middle East and North Africa, our medium-to-long term game plan is to be the leading cloud company of choice for Middle East's public and private sectors. We have launched cloud datacentres in Saudi Arabia and UAE, with customers that have already gone live on their solutions," says Ahmed Al-Faifi, Senior Vice President and Managing Director, SAP Middle East North.

Using the SAP Digital Hub, organisations can adopt opex-friendly and scalable cloud solutions for 25 industries and 12 lines of business. Customers can start their journey of digital transformation by leveraging solutions running on the SAP HANA in-memory database and SAP Cloud Platform, which are available on the SAP cloud datacentre. SAP will be offering its latest cloud ERP solutions, such as the SAP S4HANA Cloud, on its SAP public cloud datacentre.

Another interesting announcement comes from Gartner's Daryl Plummer, who spells out the technology disruptions that businesses may not see coming. The key here is for technology and business heads to work together in first identifying such threats and then going further learning how to work together in responding to these disruptive cycles. "The virtual nature of digital disruptions makes them much more difficult to deal with than past technology-triggered disruptions."

Read about similar interesting trends in blogs by Oracle's Ahmed Adly, Dimension Data's Paul Potgieter, ServiceNow's Chris Pope, Teradata's Islam Zeidan, Sage's Sam Tayan, and Centra Hub's Nisith Naik. However - Ask what is the impact of your transformation today, by Chris Pope, ServiceNow, remains the Editor's Pick, amongst other blogs.

Read-on in this last issue of 2018 and best wishes into 2019.

Arun Shankar
arun@gecmmediagroup.com

HOW ANALYTICS CAN BOOST BUSINESS PROFITABILITY

Data scientists are brought in by businesses to find solutions to problems including failures and hidden opportunities, explains Islam Zeidan at Teradata.



ISLAM ZEIDAN,
General Manager UAE and
MEAD, Teradata.

KEY TAKEAWAYS

- A 1% saving in costs can add to substantial profits at the end of the year.
- The objective is not to build complex models increasing the challenges faced by end-customers.
- By finding solutions to a business challenge, data scientists can be enablers in financial productivity.
- Nature of the team is fluid and changing based on the demands of the project.
- While focusing on tackling bigger problems, solutions for many of the smaller problems seem to fall into place.

In today's digital world of cloud, mobility, analytics and data, the focus for both business and consumers is to find answers to their problems. Just building a solution or buying devices and applications, without coming up with an answer, in the shortest possible time and most economical manner, will sooner or later prove meaningless and futile.

While there are myriad number of such tools available, selecting the right tool, for the right problem and for the right data, will only lead to a favorable outcome. The objective of any data scientist is therefore to be successful in finding the right solution based on the business expectation of the end-customer.

The objective is not to build complex models and complex solutions increasing the challenges faced by end-customers. By finding a solution to an end-customer's business challenges, data scientists can be enablers in their financial productivity. Even a 1% saving in direct costs can add to substantial profits at the end of the year.

Other than finding solutions and reducing complexity, data scientists also focus on two other objectives. One is building and planning for failure as a natural part of the process of finding a solution. Data scientists learn from failures, but because the processes are of much smaller scope, their impact on time and cost is also minimised. This is referred to by data scientists as AnalyticOps.

The other objective is to broaden the efforts to find a solution to a particular problem into other areas as well. Often while looking for a solution to one problem, solutions for other areas can also be discovered along the way.

So, while data scientists may have a particular objective and may be fixated on finding that solution, in the shortest possible time, there are other opportunities and discoveries that may present themselves, that can be tackled along with the primary objective.

Data scientists focus on the problem in its entirety and the adjacent ecosystems that influence the parameters defining the problem. By focusing on the cause and effect of the problem and its solution, it is easy to see other factors that can be modelled along with the primary problem and its solution.

Data scientist teams that work with businesses to find solutions to their problems, are often cross functional teams that leverage each other's skills at various points of time during a project. Hence the nature of the team is sometimes fluid and sometimes changing based on the demands of the project as it progresses.

While focusing on tackling the bigger problems, solutions for many of the smaller problems seem to fall into place, much faster and easier, than if they were attempted singularly, one by one. ■

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FIVE TRANSFORMATIONAL DRIVERS FOR HUMAN RESOURCES

Digital technologies, artificial intelligence, cloud, mobility, are influencing the nature of the human resource function in organizations today, explains Sam Tayan at Sage.



SAM TAYAN,
Managing Director, Sage
Middle East.

Multiple industries around the world have witnessed significant modernisation transformation in the last few years with the integration of new and advanced software. As new technology continues to reshape human resource management across industries, here are a few of the trends that are transforming human resource and payroll:

1 DIGITAL TECHNOLOGIES

Human resource's digital push is two-fold. On the one hand, it has the challenge of transforming its operations to ensure they are

innovative and adaptive; on the other, human resource processes need to be modified to be more automated and data-driven. Such changes will only be successful if they are supported by colleagues at all levels of an organisation, right up to the C-suite.

2 EMPOWERING EMPLOYEES

Using employee self-service portals, staff can now manage many of their own human resource processes such as applying for leave, managing expense claims and changing personal details such as banking and next-of-kin information. This not only frees up human resource professionals time, but allows it to be employed in areas that require more strategic thinking and human intervention.

3 TO THE CLOUD

According to Deloitte's 2018 human resource technology disruptions report, only 39% of large companies and 49% of mid-sized companies are on the cloud, although that number is expected to rise in the coming years. While cloud-based solutions are not new, there has been an increase in their usage by human resource departments, especially in the recruitment process.

With the implementation of cloud-based technology, it is no surprise that the requirement for data security has been amplified. Through the increased use of software encryption and cybersecurity measures, employees can be

reassured of the protection of their sensitive data on the cloud.

4 ARTIFICIAL INTELLIGENCE

Artificial intelligence continues to reinvent traditional human resource functions through improvements in app-based capabilities, auto-generated information and machine learning. Organisations need to reconsider their structure in order to maximise the value of both employees and machines. According to Deloitte's 2018 Global Human Capital Trends, 74.5% of people in the Middle East consider artificial intelligence, robotics and automation as important.

Artificial intelligence technology has improved decision-making processes, employee experiences as well as task completion. We expect this trend will continue to accelerate and affect the human resource and payroll industry in the years to come, especially with the use of virtual and augmented reality.

5 MOBILE USAGE

The growing shift towards the cloud has also resulted in an increased need for smart device applications to support the capabilities. Mobile devices are used for almost everything and now human resource managers are finding new ways for applications to support the same capabilities that a desktop does. Payroll management solutions have the advantage of being regularly upgraded, straightforward and easily accessible from any smart device. ■



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HOW REGIONAL SMES CAN BOOST THEIR INNOVATION

Public cloud applications, whether for human resources, CRM, finance or supply chain have the ability to boost the innovation and competitiveness of small and medium enterprises, explains Nisith Naik at Centra Hub.



NISITH NAIK,
CEO Centra Hub.

In every country, small and medium enterprises are the backbone of employment, productivity, innovation and growth. However, there is much more to the role and balance of SMEs in any country and specifically to the region. As such, the key differentiators between these SMEs within their industries is driven by their adoption of technology which drives digital transformation and business process automation, ultimately boosting their topline and bottom line.

Traditionally, adopting technology by SMEs has followed a start and stop approach. Various factors are known to be responsible for these prolonged hiccoughs. Most SMEs are run through organic home-grown operating models and may or may not have been exposed to cutting-edge technologies. The level of technology adoption is also dependent on their technology awareness.

At a macro level, high costs of investment in information technology solutions, lack of skilled human resources or high costs of salaries, limited returns from business, cash flow limitations, lack of confidence in technology investments or lack of innovation culture may have previously limited the extent of technology adoption by SMEs. More specific limitations can drill down to the lack of local customisation and lack of vertical specific solutions.

However, with the ongoing emphasis on digital transformation and digital readiness with vertical specific operations solutions for

all businesses across the region and the globe, the adoption of information technology solutions can no longer be ignored.

On the flip side, consumerisation of technology driven by platforms such as cloud, mobility, analytics, social media, and availability of solutions on a subscription basis, has been responsible for enhancing the ease-of-use and effectiveness of technology and increasing its availability outside the technology department.

Whether the business user is looking at customer related analytics, typically a CRM solution; or for sell-through and sell-out information, typically a SCM solution; or for payroll, tax and compliance requirements across geographies, typically an HR solution, they are now available as cloud hosted solutions.

Cloud hosted solutions allow SMEs to select the solution of their choice that best meets their market specific requirements. Moreover, there is no more need to make upfront capital investments in hardware and software. By selecting a cloud hosted solution, SMEs can pay-as-they-use, thereby reducing the challenges of raising investments and risking technology lock-in and obsolescence.

Going forward technology and the costs of investing in technology are not going to be inhibitors for the growth and development of SMEs. On the contrary, they are now enablers that have the ability to transform SMEs from goliaths of the past into nimble and agile sprinters of the future. ■

KEY TAKEAWAYS

- Adopting technology by SMEs has followed a start and stop approach.
- Most SMEs are run through organic home-grown operating models and may not have been exposed to technologies.
- Level of technology adoption is also dependent on technology awareness.
- Specific limitations can drill down to lack of local customisation and lack of vertical specific solutions.



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MOVING FROM AUTOMATION TO AUTONOMOUS

The cost of keeping the lights on in the database department has created the autonomous function combining AI and other tools, explains Ahmed Adly at Oracle.



AHMED ADLY,
Senior Director, Cloud Computing
Leader, Oracle MENA.

Humans are now generating an estimated 2.5 quintillion bytes of data every single day, with more data being created in the past two years than in all of human history. Managing this growing flood is complex and the task comes with a high level of responsibility. Unplanned downtime costs businesses approximately \$260,000 per hour and the average expense of a data breach topping \$3.5 million. Today's digital business requires a new approach.

IT budgets are getting eaten up by the complexity of managing data manually. Businesses are having to spend as much as three-quarters of their total database management cost on labour, with the focus being on mundane administration and operational tasks rather than high-value work.

The reliability of the systems needed to support today's 24x7 business is hard to ensure. On average, companies are suffering almost 100 hours of database downtime per year as a result of human error, causing the business to bleed \$7,900 every minute.

Security continues to pose a threat. The Oracle and KPMG Cloud Threat Report, 2018 found that only 14% of respondents felt able to effectively analyse and respond compared to the majority 75-100%.

Businesses continue to be held back from accelerating at the speed of innovation due to the excessive amount of time spent on manual management, despite the fact that even a 10% increase in data accessibility translates into an additional \$65.7 million in net income.

The key to overcoming these hurdles lies in the use of artificial intelligence, machine learning and automation. Particularly when combined together they will let businesses manage and get value from their information more easily, effectively, and with less effort. One technology in particular unlocking new levels of value is the autonomous database.

Automation in IT is not new. There has long been a desire to let the machines work on their own. Right from the start of the Internet era and dawn of devices in the early 2000s, machine learning and automation have been used to help databases self-tune, undertake fault diagnostics for faster fault resolution and expand the performance, scalability and availability of databases, on demand.

More recently, cloud computing has helped data base administrators manage

SELF-REPAIRING IS ALSO MORE RELIABLE, SINCE THE TIME FROM RUNNING DATABASE TILL CRASH IS ON AVERAGE 4.2 SECONDS.

AN AUTONOMOUS DATABASE SYSTEM CONSTANTLY REGULATES ITS OWN OPERATION, ENSURING PROCESSES ARE RUNNING SMOOTHLY.

information with more ease and speed and for reduced up-front cost.

And the pace of change is continuing. With artificial intelligence and next generation cloud services becoming established the autonomous database has arrived. Embracing these core traits of being self-driving, self-securing and self-repairing it offers availability, performance, and security, helping to eliminate human error.

With a self-driving system that uses built-in machine learning algorithms to manage itself, businesses can lower costs and increase productivity whereby manpower can be optimised and resources can be deployed to higher value tasks. Most organisations do not patch immediately. So, the ability to be able to patch immediately gives better peace of mind.

Self-repairing, is also much more reliable. The time from running a database till crash is on average 4.2 seconds! With this in mind it is easy to see that only a machine could identify and react quickly. With an autonomous database the system constantly regulates its own operation, ensuring processes are running smoothly. This reduces planned and unplanned downtime, which can cost businesses up to 0.2% of revenue.

Imagine, all those minds, currently dedicated to tuning, patching, securing and managing databases, applied to more valuable activities, such as

improving data architecture, securing external data sources, and otherwise ensuring the business is making the best possible use of data, which is increasingly becoming the coin of the realm.

But as with any new development, there is often a first mover advantage. As Forrester predicts, businesses that use artificial intelligence, big data and the Internet of Things to uncover new business insights will steal \$1.2 trillion per annum from their less informed peers by 2020.

Getting early value from technology that is available now has the potential to be worth more than the same amount in the future, because of the advantage it will give users in the present time.

Early automation went some way towards freeing up database administrators from the practice of drawing straws to see who would stay in over the weekend or work late on patches. Engineered systems made massive strides forward in terms of speed to market, extensively shortening set up times, as well as speed to insight.

As more data continues to be generated each day, there will be even more pressure on businesses to make the most of the data available. Database management will be more crucial than ever before, and emerging technologies like autonomous will soon become the norm as they help businesses boost innovation and financial gains – without boosting costs. ■

KEY TAKEAWAYS

- Businesses continue to be held back due to excessive amount of time spent on manual management.
- A 10% increase in data accessibility translates into additional \$65.7 million in net income.
- With self-driving system using machine learning algorithms, businesses can lower costs, increase productivity.
- One technology in particular unlocking new levels of value is the autonomous database.
- With artificial intelligence and cloud services becoming established the autonomous database has arrived.



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We're in a new world: data is now a strategic asset, and enterprises will need data-centric strategies to succeed and thrive. So it's time to re-think IT infrastructure from the bottom-up.

REASONS WHY CIO BEST SUITED TO DRIVE TRANSFORMATION

A CIO is best suited to integrate digital technologies and transformation across the organisation, explains Paul Potgieter at Dimension Data.



PAUL POTGIETER,
Managing Director UAE,
Dimension Data.

Much has changed since the first products were sold online in the 1990s. Not only are features like inventory visibility, product reviews and package tracking, table stakes, retailers are now focused on more strategic initiatives that will give them competitive advantage in the future, such as providing a unified experience throughout the customer's journey and utilising artificial intelligence to offer personalised experience and streamline operations.

The traditional role of the chief information officer in the past was to lead the team that kept the lights on in the IT department, building the IT strategy, and reporting to the management on how well the IT department was servicing the rest of the organisation. With the adoption of cloud and mobile technologies by organisations and the increasing profile of cybersecurity threats, all this began to change.

Advances and improvements in cloud, mobility, big data, analytics, are now paving the

way for organisations to rebuild themselves digitally. And along with the organisation's structure being influenced by digital transformation, the role of the CIO is also being rapidly transformed.

The most significant change around the CIO is the definition of how they would create business value, lead the change needed within the business and shift to a transform state whereby the business could capitalise on the benefits of digital technology forces. Digital transformation has thrown up the pressing requirement for the CIO to act as a change agent across the entire organisation.

And this change needs to be associated with an enhanced business value for the organisation that is reflected through gains in bottom-line metrics.

However, no CIO can fool themselves that an increased business value for the organisation is a one-person, executive job. Rather the CIO is now under increased pressure to work collaboratively with all heads of business, to convince them about the need to work collaboratively around technology, while driving enhanced value across the entire organisation.

The metrics of this success, now linked to the CIO's job role, are increasingly being associated

CIO CHALLENGES ARE LESS ABOUT COMPLEXITIES OF TECHNOLOGY AND MORE ABOUT GETTING BUSINESS FUNCTIONS INTEGRATED.

with improvements to the organisation's bottom line. In this respect, the CIO is not alone, and joins the ranks of other senior management executives, who head various types of business sales operations.

But marks a departure from the past, where the CIO was primarily accountable on the role out of information technology projects and assets inside the IT department, rather than the business benefit accrued by the organisation.

On the flip side, traditional parameters around the performance of the IT organisation are still in place. The CIO still remains in-charge and accountable for the IT department and the roll out of technology across the organisation. But the real basis for their performance is now creating value for the organisation and collaborating with the rest of the organisation.

The reason for this radical shift is that digital technologies like Internet of Things, cloud, mobility, analytics, have the capability to dramatically transform organisations. They help align businesses with digitally savvy customers, create net new revenue models, and offer huge insight for cost reductions, streamlining of operations, productivity improvements, and opportunities for return on investment.

And there is no other executive in the organisation better placed to lead this initiative than the CIO.

The challenges for the CIO are therefore less about the complexities of technology, and more about getting business functions integrated into the framework of digital technologies. And it is not a one-way street, where only the CIO rides the wave.

Business function heads have to work collaboratively with the CIO to get their teams to adopt and start appreciating the possible

gains from digital technologies.

Increased collaboration between the CIO and business heads around digital transformation will provide immediate benefits for the organisation as it begins to appreciate the cost benefits of the cloud and new revenue opportunities from customer analytics. In essence the CIO is now essentially responsible for orchestrating the symphony of digital transformation across the organisation.

The CIO now needs less, but more broad skilled technology partners, to help manage this organisation orchestration. Internal technical and IT skills still remain essential, but the emphasis is more on an understanding of business, ability to work with diverse people and groups, business intelligence, and business analysis.

While the IT department typically accounts for 1% of an organisation's staff, it also accounts for 18% of the training budget.

On a final note, CIOs may also find themselves inadequately equipped to manage many of these challenges and will need to quickly adorn additional management feathers to their proverbial Sunday hats. This includes mastering change management, working with people and effective communication, self-improvement and the ability to make decisions.

Rather than dilution of the role of the CIO, digital transformation is hugely enhancing and revitalising the position. The simplistic reason – for a digital business, technology is in fact the business itself. ■

KEY TAKEAWAYS

- It is not a one-way street where only the CIO rides the wave.
- Business heads have to work collaboratively with the CIO to get their teams to start appreciating possible gains.
- No CIO can fool themselves that an increased business value for the organisation is a one-person executive job.
- The CIO is now responsible for orchestrating the symphony of digital transformation across the organisation.
- The IT department accounts for 1% of an organisation's staff and also accounts for 18% of the training budget.
- Rather than dilution of the role of the CIO, digital transformation is enhancing the position.



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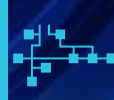
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ASK WHAT IS THE IMPACT OF YOUR TRANSFORMATION TODAY?

Are there enough ways to generate meaningful benefit from your transformation investments today rather than tomorrow, asks Chris Pope at ServiceNow.



CHRIS POPE,
Vice President Innovation,
ServiceNow.

Unless you have been living under a disconnected rock, you will know that the Internet of Things has developed to become a new substrate layer of web-driven intelligence that is helping to connect our world. A crucial factor for organisations looking to channel IoT is the need to create new business models. New operational frameworks must be customised to the needs and requirements of the machines and people populating the IoT ecosystem.

We have reached a few watershed moments with IoT already. We know that the initial years saw too many products developed with inadequate—or non-existent security provisioning. The security debate will always be there, but services have now come to the fore in terms of how we lock down data in the IoT.

People, users and sometimes wearers of technology will now be central to the debate going forward. The fact that people will

be carrying wearables so much more means we will know a lot more about the status of every individual in every situation.

Let us think of possible future scenarios. For example, there may never be a standard health insurance policy needed anymore, because insurers will know more about people from the get-go. Users will really just pay for what they consume, leading us to a more consumable future.

But none of these advancements are possible unless we have access to a system of action that allows us to leverage the information coming out of the IoT in the first place. To put it another way, all the IoT things are useless, unless you can drive action from the information and alerts that they generate.

As we look to use this new system of action, we can point it towards the specific components of IoT that we are actually interested in. If you think about all the devices and data out there as the IoT universe, then there is a tighter orbit around your own organisation's personal IoT universe.

The term desired outcomes might sound a little strange, but it is easy to put them into context. From a health-tracking wearables standpoint, a user would typically have a variety

THERE IS ACCEPTANCE THAT AI WILL CHANGE EVERYTHING IN TEN YEARS' BUT LITTLE APPRECIATION OF HOW IT COULD IMPACT BUSINESSES RIGHT NOW.

NEW OPERATIONAL FRAMEWORKS MUST BE CUSTOMISED TO THE NEEDS AND REQUIREMENTS OF THE MACHINES AND PEOPLE POPULATING THE IOT ECOSYSTEM.

of desired outcomes including, for example, a target heart rate, blood pressure, weight and so on. Any diversion from desired outcomes might cause the user to change their exercise regime, alter their diet and perhaps ultimately visit the doctor.

Cars are another good example—desired outcomes for car use would include fuel consumption per gallon, performance and the need for week-to-week maintenance. In the EU for example, if a driver shares their streamed dash cam data with an insurance company which recognises that driver's safety, then the driver may be rewarded with a lower insurance premium.

In this last example, the scope of our desired outcomes has widened, but we will fail to benefit from them unless a system of action is put in to place, in this case to provide the service of a lower premium. Without the system of action, the driver drives safely, the dash cam records it and sends the data onward, the insurance company gets to identify safe drivers and perhaps also accident blackspots, but the safe driver gets no reward.

I think this ability to act now, element of how we interact with IoT data was brilliantly expressed by Chris Mazzei, in his role as EY Global Innovation Technologies Leader and Global Chief Analytics Officer. He said, "There is an acceptance

that AI will change everything in ten years' time, but little appreciation of how it could, and should, impact businesses right now."

So, as we move forward in to 2019, and more and more devices become connected, we are seeing the same challenges that have been experienced across enterprise IT now appearing in the world of IoT, especially Industrial IoT.

This reality is especially prevalent if we look at how we want to manage the functionality of IoT devices. We need to be able to understand how devices are performing relative to each other while also providing the requisite level of security for each device. This is not just about managing the break-fix elements of the IoT. It is about analysing the data to optimise business processes and drive new business models.

There are huge data lakes created by IoT and we know that. As businesses become truly digital, they will discover that they know more clearly what they want to get from the universe of data that is being created, enabling them to more intelligently ask the right questions in the first place.

They will know what the desired outcomes are and thus what questions to ask to drive their system of action into decision-making, paving the way for a truly consumable IoT from end to end. ■

KEY TAKEAWAYS

- A crucial factor for organisations looking to channel IoT is the need to create new business models.
- Initial years saw too many products developed with inadequate or non-existent security provisioning.
- Security debate will always be there, but services have now come to the fore in terms of how we lock down data in the IoT.
- We need to be able to understand how devices are performing relative to each other.
- It is about analysing data to optimise business processes and drive new business models.
- All the IoT things are useless unless you can drive action from the information and alerts that they generate.
- As businesses become digital, they will discover that they know more clearly what they want to get.

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Audi partners with Porsche to launch 12 all-electric vehicles by 2025

With the electric powered Audi e-tron GT concept a four-door coupé is making its debut as a show car. The volume-production counterpart is set to follow in around two years. The next electric Audi is being launched, following in the footsteps of the Audi e-tron SUV and the Audi e-tron Sportback slated for 2019. This time with a flat-floor architecture that provides for exciting proportions and a low center of gravity. The performance subsidiary Audi Sport GmbH is responsible for subsequently transforming the car into a volume-production model.

434 kilowatts, 590 hp system power, that is an impressive figure for the potential of the all-electric drive. Separate electric motors are fitted to the front and rear axles. In both cases these are permanently excited synchronous motors. They put down the torque onto the road via all four driven wheels – naturally the new Audi e-tron GT concept is also a genuine quattro. An electric quattro to be precise, since there is no mechanical link between the front and rear axle. The electronic control system coordinates the drive between the axles as well as between left and right wheels. That means optimum traction and just the desired amount of slip.

The battery in the Audi e-tron GT concept can be charged in several ways: using a cable which is connected behind the flap in the left front wing, or by means of contactless induction with Audi Wireless Charging. Here a charging pad with integral coil is installed permanently on the floor where the car is to be parked, and



Audi Group with Ducati and Lamborghini, is one of the most successful manufacturers of automobiles and motorcycles.

connected to the power supply. The alternating magnetic field induces an alternating voltage in the secondary coil fitted in the floor of the car, across the air gap. With a charging output of 11 kW the Audi e-tron GT concept can be fully charged conveniently overnight.

Wired charging is much faster as the four-door coupé is

fitted with an 800-volt system. This substantially reduces charging times compared with conventional systems that are currently in use. Thus, it takes around 20 minutes to recharge the battery to 80% of its capacity, once again providing a range of more than 320 kilometers 198.8 mi WLTP. The e-tron GT concept can, however, also be recharged at charging points with lower voltages, providing the driver with access to the entire charging network.

The Audi e-tron GT concept show car, a highly dynamic coupé with a low floor, is debuting at the Los Angeles Auto Show 2018. The technology in this automobile was developed in collaboration with Porsche; the design and character of the e-tron GT concept are packed full of unmistakable Audi DNA. The project will be developed into volume-production models by the end of 2020. Initial deliveries will be made to customers in early 2021. ■

KEY TAKEAWAYS

- Audi Group with Ducati and Lamborghini, is one of the most successful manufacturers of automobiles and motorcycles.
- The required drive energy comes from a lithium-ion battery with an energy content of more than 90 kWh.
- This takes up the entire underfloor area between the front and rear axle with its flat design.
- The advantage of this design is the car's extremely low center of gravity.

Nutanix revamps platform for multi-cloud orchestration and IoT edge management

Nutanix successfully completed its .NEXT 2018 annual EMEA summit for end users and channel partners in London. The event included key note presentations by Dheeraj Pandey, Co-Founder and CEO, Nutanix; Sunil Potti, Chief Product and Development Officer, Nutanix; Ben Gibson, Chief Marketing Officer, Nutanix; Rajiv Mirani, CTO Cloud Platforms, Nutanix; and Steve Poitras, Principal Solution Architect, Nutanix, amongst others. The event drew attention to various products from the full Nutanix stack of cloud products including Prism, Beam, Xi, Calm, Flow, Era, Leap, Frame, Epoch, Xi IoT.

Dheeraj Pandey, Co-Founder and CEO, Nutanix, delivered a wide-ranging key note on many strategic aspects of cloud computing and cloud adoption. Pandey touched on a number of topics including making big things small, atomisation of personal computers, atomisation of enterprise computing, achieving the invisible together, data sovereignty, data gravity, how do you move the cloud to data rather than data to the cloud, and not to be at the mercy of the laws of physics. Laws of physics mean that the edge is more important than the network.

“As we move into the multicloud world, a fundamental challenge for all businesses is running IT applications seamlessly across platforms,” commented Pandey post the event. “It has been our mission since we were founded to make infrastructure invisible to our customers so they can focus on their applications, not where the applications reside.”



DHEERAJ PANDEY, Co-Founder and CEO, Nutanix, (left) delivered a wide-ranging key note on many strategic aspects of cloud computing and cloud adoption.

Nutanix's Chief Product and Development Officer, Sunil Potti pointed out that hyperconverging infrastructure, also termed by Potti as honest hyperconvergence, is giving way to hyperconverging clouds. The innovation around servers, compute, storage, networking, virtualisation also

called sheet metal innovation did not involve innovation in software till now. This needs to be applied to software now. When you apply the same logic to hybrid cloud you get a different view of software in a world of multi-cloud.

What is a hybrid cloud? The hard part of hybrid cloud is not in the control pane but in merging data and control together. Clouds have to go where data is, you cannot bring data to clouds. Fundamentally, Potti believes there is a whole set of new opportunities in front of Nutanix. These opportunities exist in the world of multi-clouds, from public clouds, private clouds and also new type of clouds like core clouds, edge clouds, extended clouds, distributed clouds.

The innovation that is required is about converging, control plane and data plane. That is essentially the road map for Nutanix's enterprise cloud platform. The enterprise cloud does not just mean the private cloud. It means everything that the enterprise connects to independent of location, and independent of form factor. ■

KEY TAKEAWAYS

- Hybrid cloud is no longer considered a stopping point in the journey toward public cloud.
- Companies need to understand how they are using infrastructure no matter what platform and from a single view.
- Beam provides visibility so customers can make informed decisions about their infrastructure.
- Beam will provide customers with cost visibility into Nutanix software licenses.
- Xi IoT platform delivers local compute, machine inference, data services to perform real-time processing at the edge.

Metis Management joins KoreConX, IBM blockchain enabled security token protocol



NAYEF SHAHIN, Founder and Managing Partner at Metis.

KoreConX, an all-in-one platform for companies to manage business activities, is partnering with Metis Management Consultancy, a UAE-grown consultancy firm focused on providing services to SMEs in the MENA region. The company will become part of KorePartner's Ecosystem, a group of selected companies that works closely with KoreConX to ensure that small and medium enterprises have all the elements they need to thrive.

In addition to providing businesses with an all-in-one solution for their management pain points, KoreConX also developed its own fully-compliant Security Token Protocol, using IBM's Hyperledger Fabric, a permissioned blockchain. Using KoreConX's platform, companies are able to issue their security tokens, tokenised and digitised securities and raise capital in multiple jurisdictions.

"Blockchain plays a crucial role in everything that we do at KoreConX. Dubai is taking this technology to the next level, by planning to make the city fully powered by blockchain

by 2020," said Edwin Lee, Director of MENA Region, KoreConX. "Dubai is the place to be when advancing into new technologies and Metis is the company that shares our high standards when it comes to providing companies with the best advice."

In UAE, SMEs account for over 90% of private enterprises and contribute to nearly 47% of Dubai's GDP and 52% of its workforce. It is, therefore, a top priority this sector has access

to cutting-edge knowledge, technology, and funding.

"We always strive to provide companies with high-quality consulting services and access to the latest tools" said Nayef Shahin, Founder and Managing Partner at Metis. "It is only natural to partner with KoreConX, a team with a deep understanding of compliance, securities regulations and the only one to create a protocol that is fully tracked on chain through their transfer agent service."

Metis Management Consultancy is part of the KorePartner ecosystem, a group of selected broker-dealers, secondary market platforms, capital markets platforms, lawyers, compliance, investor relations, accounting, and marketing firms that support the KoreConX security token protocol and adhere to KoreConX governance standards. KoreConX's KorePartners are from around the globe and bring the necessary expertise that a company will need to launch a fully compliant security token in multiple jurisdictions.

KoreConX is a highly-secure permissioned blockchain ecosystem for fully-compliant tokenised securities worldwide. To ensure compliance with securities regulation and corporate law, the KoreConX all-in-one, AI-based blockchain platform manages the full lifecycle of tokenised securities including the issuance, trading, clearing, settlement, management, reporting, corporate actions, and custodianship. KoreConX connects companies to the capital markets and secondary markets facilitating access to capital and liquidity for private investors. Metis Management Consultancy is a SME business advisor consultancy in the region. ■

KEY TAKEAWAYS

- Metis Management Consultancy is part of the KorePartner ecosystem that support the KoreConX security token protocol.
- KoreConX has developed its fully-compliant security token protocol using IBM's Hyperledger Fabric.
- Using KoreConX's platform companies are able to issue tokenised and digitised securities and raise capital.

ADNOC uses IBM blockchain to build pilot integrating oil and gas production chain

The Abu Dhabi National Oil Company announced its successful collaboration with IBM, piloting a blockchain-based automated system to integrate oil and gas production across the full value chain. The groundbreaking system provides a secure platform for the tracking, validating and execution of transactions at every stage, from production well to the end customer. According to ADNOC, using blockchain technology will reduce the time it takes to execute transactions between ADNOC's operating companies and significantly increase operational efficiencies across its value chain. It will also improve the reliability of production data by enabling greater transparency in transactions.



ABDUL NASSER AL MUGHAIRBI, ADNOC Digital Unit Manager.

The industry-leading project was announced by Abdul Nasser Al Mughairbi, ADNOC Digital Unit Manager, at the recent World Energy Capital Assembly, in London. At the event, ADNOC shared its ambitions and early successes in embedding blockchain and other advanced technologies, including artificial intelligence, across its business to enhance operational efficiency, drive profitability and unlock new value from oil and gas resources to seize the opportunities created by Oil and Gas 4.0.

Al Mughairbi said: "We believe this could be the first application of blockchain in oil and gas production accounting anywhere in the world. It demonstrates how ADNOC is leveraging innovative partnerships to unleash the power of technology and creative thinking to enhance efficiencies and deliver greater performance. Blockchain is a game-changer. It will substantially reduce our operating costs by eliminating

time-consuming and labor-intensive processes, strengthen the marketing and trading of our products, and create long-term sustainable value that will ensure that ADNOC delivers on its 2030 smart growth strategy."

ADNOC's blockchain pilot has provided a single platform that tracks the quantities and financial values of each bilateral transaction between ADNOC's operating companies, automating the accounting process. For example, as crude oil makes its way from the production well to the refinery, or the export terminal, all quantities are accounted for on a daily basis along with the associated monetary values. Other products included in the blockchain application are gas, condensates, natural gas liquids and Sulphur. These products are exchanged between ADNOC's operating companies and exported to customers overseas.

Zahid Habib, IBM's Chemicals and Petroleum Solutions Vice President, said: "With this pilot, ADNOC takes a massive leap forward in asset provenance and asset financials, which, in its simplest terms, enables the ability to track irrefutably, every molecule of oil, and its value, from well to customer."

As the blockchain application is expanded, it will eventually be linked to customers and investors, providing seamless integration among stakeholders. This enhanced clarity and transparency will reduce inherent business risks and consequently enhance the attractiveness of ADNOC Group as an investment partner. ■

KEY TAKEAWAYS

- Blockchain will reduce the time it takes to execute transactions between ADNOC's operating companies.
- Blockchain will significantly increase operational efficiencies across the value chain.
- Blockchain will improve the reliability of production data by enabling transparency in transactions.
- Blockchain can track every molecule of oil and its value from well to customer.
- This unlocks the potential to digitally reinvent ADNOC's hydrocarbon value chain.
- This adds a dimension to data visualisation in the Panorama Digital Command Centre.

Egypt's Ibnsina Pharma adopts Infor to improve warehouse, business intelligence

Infor, a provider of industry-specific cloud applications, announced that Ibnsina Pharma, one of Egypt's largest distributors of pharmaceutical products, has invested in Infor EAM, Infor d EPM, Infor M3, Infor SCE Warehouse Management System, and Infor OS to help unify and integrate its business processes across its developing operations.

Ibnsina Pharma, a major healthcare solutions provider in the region, has been growing steadily through supply chain services, importation, and distribution of health care products in the private and government sectors. It has the second-biggest share of the Egyptian market in the industry and operates a chain of 55 wholesale pharmacy stores across the country.

Ibnsina Pharma chose Infor's industry-specific solutions to help streamline its business operations across the organisation, generate strong financial reports, achieve operational efficiency, integrate with other technologies in the supply chain and implement best practices for better control of processes. It ultimately plans to migrate the application to the cloud.

"In recent years, technology has revolutionised the healthcare industry, and by default the pharmaceuticals industry. Technology-enabled solutions such as trackers, biosensors, and wearables are the way of the future and the pharmaceutical industry will need to embrace



AMRO KHORSHID, IT Director,
Ibnsina Pharma.

digital transformation to support all new updates associated with the rising population and the emergence of new chronic diseases," said Amro Khorshid, IT Director, Ibnsina Pharma.

From a supply chain perspective, Ibnsina Pharma expects to produce

more robust and consistent monthly sales forecasting and replenishment planning cycle with Infor's warehouse management system. Additionally, Ibnsina Pharma will have greater visibility and speed of information sharing across all its supply chains, with greater collaboration between its customers and suppliers and allowing for better decision-making throughout the overall supply chain. Overall, Ibnsina Pharma expects to see an improvement in data processing for more effective results.

Ibnsina Pharma expects to benefit from Infor d EPM's modern intelligent business and financial performance management capabilities, which will help drive its overall business performance with more agility. With greater business insights from Infor d EPM, Ibnsina Pharma will be able to make more informed decisions across its organisation. Infor d EPM will enable the company to modernise data processing and enrich decision-making with advanced analytics and planning capabilities, self-service dashboards, and social collaboration.

Infor OS platform helps provide integration between the company's systems, delivering a unified user experience and organisation-wide real-time insights, providing the information required to drive Ibnsina Pharma's business. As component parts of Infor OS Infor ION and Infor Ming.le, will also help Ibnsina Pharma maximise real-time visibility.

With Infor EAM, Ibnsina Pharma will have access to advanced capabilities for tracking, traceability, audit trails, calibration processes, document control, and secure electronic records and signatures to meet company compliance needs and improve the efficiency of its business processes. ■

KEY TAKEAWAYS

- Ibnsina Pharma expects consistent monthly sales forecasting and replenishment planning cycle with Infor's warehouse management
- Ibnsina Pharma will have greater visibility and speed of information across its supply chains
- Greater collaboration between customers and suppliers for better decision-making across the supply chain

Tranzone implements advanced warehousing management solution from Infor



MOHAMMED MALEK, Head of IT at Tranzone.

Infor, a provider of industry-specific cloud applications, announced that SNS an Infor global partner and a provider of consultancies and solutions for supply chain management, has successfully managed a deployment of Infor SCE Warehouse Management System at Tranzone Pharmaceutical warehouse in Jebel Ali, Dubai. Tranzone is a subsidiary of Banaja Holdings operating a state-of-the-art 3PL warehouse in Jebel Ali Free Zone. Tranzone has partnerships with leading pharmaceutical companies around the world.

Offering a one-stop approach to its customers, Tranzone services

include warehousing storage, inventory management, as well as purchasing and re-invoicing to distributors, all at one state-of-the-art location. Considering the requirements to handle and monitor more than 10,000 pallets within three different storage areas depending on item categories, as well as the ability to manage the complexity of pharmaceutical fulfilment, the need for a best-of-breed WMS solution became a must.

In addition to implementing the Infor SCE solution, SNS consultants worked on reengineering the warehouse operational flows with the objective of streamlining the

inbound and outbound activities.

With the new upgraded solution Tranzone can run advanced put-away processes, mixing Euro and Standard pallets in fixed width locations across the entire facility. The Infor SCE Warehouse Management System allows Tranzone to track its stocks at various levels including production dates, expiry dates, countries of origin, and batch numbers, from receiving to shipping.

All transactions and data are captured in the warehouse using wireless handheld devices enabling fast processing and minimum data entry errors. The 3PL billing module was implemented and configured with complex billing contracts to calculate storage rates based on pallet count, location utilisation, as well as various handling charges.

“Infor SCE has many new features that will help us increase our operational efficiency, increase our teams’ productivity and provide more visibility to our management on the operations,” said Mohammed Malek, Head of IT at Tranzone. “It was a great step forward for Tranzone to upgrade its Warehouse Management System to Infor SCE. This advanced technology will be an advantage for Tranzone in order to maintain its place at the top in providing high quality 3PL services for healthcare in the region.”

“Implementing the Infor SCE solution for pharmaceutical products knowing the direct impact on people’s well-being is a challenge by itself” said Simon Kosseifi, Senior Manager at SNS. “I take the opportunity to thank both Tranzone and SNS teams for their professionalism and hard work”.

Tranzone is 100% subsidiary of Banaja Holdings. Banaja Holdings plays an integral role in assessing and controlling international associations and investments across the MENA region, and together with Banaja represents a wide range of multinational, pharmaceutical and healthcare companies. ■

KEY TAKEAWAYS

- SNS consultants worked on reengineering the warehouse operational flows with objective of streamlining inbound and outbound activities.
- With the new solution Tranzone can run advanced put-away processes mixing Euro and Standard pallets in fixed width locations.
- Infor SCE WMS allows Tranzone to track production dates, expiry dates, countries of origin, batch numbers, from receiving to shipping.
- 3PL billing module was implemented with complex billing contracts to calculate storage based on pallet count, location utilisation, handling charges.

University of Bahrain improves student collaboration and access to course materials

Building on an existing strategic roadmap that aligns with Bahrain's Vision 2030, University of Bahrain announced the successful implementation of a transformational ICT project with Dell EMC. With a pivotal role to play in the country's national transformation agenda, the university deployed Dell EMC's Virtual Desktop Infrastructure, cloud and hyper converged infrastructure solutions to meet the institutional needs for efficiency, performance and scalability. By leveraging these industry solutions, the university also aims to become a technology-driven institution that fosters future-ready entrepreneurial minds to shape a sustainable economy, central to the national vision.

As a prominent higher education institution in the nation, University of Bahrain faced a number of challenges associated with a traditional and siloed infrastructure that hindered the performance of critical applications, workflows, impacted employee efficiency and lacked the flexibility or agility to meet future expansion needs.

With around 30,000 students, the university was looking to establish a world class learning environment and therefore needed a truly integrated infrastructure that was capable of meeting its ambitious growth needs, securing its data and minimising the administrative and managerial challenges associated with operating separate infrastructures located at the main campus and two remote campuses.

In line with its own transformation plan, to contribute to the development of a knowledge based society in Bahrain and enable human potential through

the creation of a state-of-the-art learning environment, the university needed a solution that would help realise their digital future and enable the students to chart their own path to workforce readiness.

To meet this end, the university deployed Dell EMC's market leading VDI solution, VxRail, Dell Switches and Wyse thin client to accelerate their journey to IT and digital transformation. This set of integrated and automated transformational technology solutions have enabled the university to deploy new virtual machines that intelligently allocates available resources across the IT ecosystem to enable anytime, anywhere remote access to applications, course materials and other critical information securely. This has resulted in an increase in workflow productivity,



SOHAIB ALABDI, Head of Information Network and Infrastructure Section at University of Bahrain.

employee efficiency, enhanced archiving and backup and storage optimisation.

Sohaib Alabdi, Head of Information Network and Infrastructure Section at University of Bahrain: "Innovation, digitisation and entrepreneurial spirit is important in shaping a nation's economy. To this purpose, we at University of Bahrain believe that institutional success means driving innovation at every level, embracing advanced technology and ensuring our students are future-ready. Therefore, we were looking for a trusted advisor and have partnered with Dell EMC. Through this partnership, we aim to turn UOB into a future-proof and world-class hub for transformation, enterprise and innovation and chart our path to realise one of the primary objectives of the Bahrain's Economic Vision 2030 – the creation of a sustainable and knowledge-based economy and society." ■

KEY TAKEAWAYS

- The University has optimised application storage by 40% and enhanced data archiving and backup by 60%.
- The University deployed Dell EMC VDI solution, VxRail, Dell Switches, Wyse to accelerate their digital transformation.
- The university has deployed new virtual machines to enable remote access to applications, course materials, critical information securely.
- Resulted in increase in workflow productivity, employee efficiency, enhanced archiving and backup and storage optimisation.

Siemens contracts Accenture to develop analytics solutions using robotic process

Siemens AG has awarded Accenture a five-year technology and services contract to run and maintain several of its digital managed services for data analytics and business intelligence. The new project, part of a firm-wide digital and IT transformation effort at Siemens, represents a significant expansion of the ongoing collaboration between the two companies.

Accenture will also apply its artificial intelligence capabilities to develop data analytics and business intelligence solutions and services. As part of the contract, Siemens has transferred to Accenture a skilled team of Siemens professionals responsible for the data analytics and business intelligence services of its corporate IT group.

- Siemens is accelerating its digital transformation with help from Accenture's support for data analytics and business intelligence services around:
- Development and support of initiatives for Siemens' for data analytics and business intelligence infrastructure
- Establishment of new agile ways of working in the data analytics and business intelligence space that will help drive innovation
- Development of new analytics services
- Creation of solutions and services to automate basic data analytics and business intelligence tasks through robotic process automation

"We have selected Accenture because of the firm's renowned excellence in data analytics and business intelligence, its global delivery capability, and our longstanding, collaborative working



relationship," said Dr Helmuth Ludwig, CIO of Siemens. "We need strong partners who can help us drive our digital transformation, and I look forward to working with the Accenture teams on this important engagement."

Patrick Vollmer, Managing Director at Accenture who leads its Industrial Equipment business in Austria, Switzerland, Germany and Russia, said, "We are very proud of this extension of our



DR HELMUTH LUDWIG, CIO Siemens.

KEY TAKEAWAYS

- Siemens has awarded Accenture a five-year technology and services contract.
- Run and maintain digital managed services for data analytics and business intelligence.
- Significant expansion of ongoing collaboration between the two companies.
- Accenture will apply its artificial intelligence capabilities to develop data analytics and business intelligence solutions.

relationship with Siemens and about the trust that its business intelligence leadership has put in us. We are also excited to be taking over Siemens' high-performing business intelligence team, whose deep industry skills and insights will further strengthen our own BI capabilities. With their trust and help, we are in an excellent position to take Siemens BI services to the next level and improve our position around analytics and BI for German industrial companies."

With this new agreement Siemens and Accenture will continue and expand their relationship around BI that has been built over the last 20 years. ■

Emergency solar energy production and management solution from Schneider



Villaya Emergency is a solar microgrid solution combining Schneider and start-up technologies.

During a humanitarian crisis, electricity is often difficult to access. Schneider Electric, a digital transformation vendor of energy management and automation, is launching Villaya Emergency, a solar microgrid solution ready to use in any situation thanks to a system combining Schneider Electric technologies and the expertise of innovative start-ups.

Villaya Emergency from Schneider Electric, is a containerised mobile solar microgrid solution designed for ease of use in any humanitarian emergency. The system produces a minimum of 10 kilowatts peak of electricity – enough to power a village, a health center or individual group areas in refugee camps – thanks to a system of easy-to-use and easy-to-move photovoltaic panels. The entire solution is fitted into a standard shipping container for fast, easy transportation or relocation to anywhere worldwide.

Born from discussions between UNHCR experts and managers of Schneider Electric's Access

to Energy program, Villaya Emergency meets all critical needs of relief specialists. "Its main benefit is easy installation in less than half an hour after delivery," said Olivier Jacquet, in charge of the Emergencies, Refugees and Conflicts team at Schneider Electric. "Villaya Emergency can be handled by an on-site operator without any specific training nor requiring any specific maintenance."

KEY TAKEAWAYS

- Villaya Emergency is a solar microgrid solution combining Schneider and start-up technologies.
- A monitoring system enables users to check battery status, energy production, consumption levels, at any time.
- The data can be captured and sent by GSM, 4G, satellite using EcoStruxure Microgrid Advisor.
- System managers can monitor and visualise in real time their worldwide installed base.

Another advantage is the solution's robustness: "We have made sure the system can operate in extreme heat and can be installed or dismantled as needed without any damage."

As a longer lasting and more robust solution in the long term than traditional electricity generators, Villaya Emergency requires a larger initial investment but offers a higher ROI from the third year. Schneider Electric teams are working on new business models, such as rental and leasing, which could improve access to this new offering.

Villaya Emergency includes an inverter and a battery developed by Schneider Electric for tropical environments. The functional unit can transform direct current into alternating current, can operate in temperatures of up to 45°C without any performance drop, with a maximum operating temperature of 60°.

A comprehensive monitoring system enables users to check battery status, along with energy production and consumption levels, at any time. The data can be captured and sent by GSM, 4G or satellite, and analysed thanks to EcoStruxure Microgrid Advisor. It consists of an application for EcoStruxure for Energy Access, an affordable, flexible and open platform that improves the profitability and performance of electric microgrids. With this technology, system managers can monitor and visualise in real time their worldwide installed base.

The solution also integrates innovations by partner start-ups, such as FZSONICK's hot sodium nickel chloride batteries that can operate at high temperatures. The batteries are free of toxic or environmentally harmful materials, they are maintenance free with high cycling, discharge characteristics and are unaffected by ambient temperatures between -40 to +60°C. ■

Marwa Marble automates inventory and supply chain using Epicor ERP



FADI KHOURY, COO Marwa Marble.

Epicor Software, a global provider of industry-specific enterprise software, announced that Marwa Marble, one of UAE's marble and granite suppliers, has chosen the global enterprise resource planning solution, Epicor ERP. The company selected Epicor ERP to enable business transformation and support the organisations' ambitious growth plans.

By completely automating inventory management for over 90,000 square metres stock of stone, Epicor ERP will enable the Marwa Marble team to significantly reduce hours spent on physically inspecting and counting inventory, and avoid human error. Tighter inventory control also means that the organisation will be able to better manage suppliers' costs and quality, reduce material wastage, and increase frequency and accuracy of stock-takes. This is expected to have a direct positive impact on the company's bottom line.

Commenting on the factors that set Epicor ERP apart from the competition, Fadi Khoury, Chief Operating Officer at Marwa Marble

said, "In our industry, business growth and for that matter, our very viability, hinges on our ability to manage inventory. This is only magnified given our unique business model where, unlike our competitors, that purchase stone

based on project needs, we choose to keep vast quantities of marble and granite in stock. As such, it was essential that the solution we selected, had a robust supply chain management module. Epicor ERP is widely recognised as the leading ERP platform in our industry, primarily because of its industry-specific functionality and ease of integration and use."

"Moreover, rather than requiring us to change our business processes to adapt to the solution, Epicor ERP can be easily customised to fit our unique business needs. It is also worth noting that to date, we have received technical and sales support from Epicor and their local partner, Index Infotech. This is going a long way in ensuring a smooth change management journey, something that is critical to the success of any ERP implementation."

"Like several other sectors in the region, the stone industry is advancing at a rapid pace, driven in large part by evolving customer buying cycles and digital transformation. So in parallel to sourcing the finest quality stone and employing and retaining strong talent, it is imperative that our back-end systems meet latest industry-standards."

Hesham El Komy, Regional Vice President, MEAI at Epicor Software, concluded, "A recent study we conducted found that 40% of industry professionals agree that digital transformation will offer them strong opportunities for future growth. Modern ERP is fast becoming one of the foundations for digital transformation in manufacturing by functioning as the fabric that connects people, processes and data in an intelligent and strategic manner." ■

KEY TAKEAWAYS

- The stone industry is advancing at a rapid pace driven in large part by evolving customer buying cycles and digital transformation.
- A recent study conducted found 40% of industry professionals agree that digital transformation will offer opportunities for future growth.
- Unlike competitors that purchase stone based on project needs, Marwa Marble keeps vast quantities of marble and granite in stock.

By automating inventory management for over 90,000 SQM stock of stone, Epicor ERP will significantly reduce hours spent on counting inventory.



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AUDIT TRAILS FOR BANKS USING BLOCKCHAIN

Blockchain solutions built to create transaction audit trails can co-exist with legacy solutions, as seen in a recent implementation by Tech Mahindra for a large public sector bank in India.

Tech Mahindra is a provider of digital transformation, consulting and business re-engineering services and solutions. It recently announced an initiative with Telecom Regulatory Authority of India to create a distributed ledger technology-based solution. Based on blockchain technology and built on Microsoft Azure the solution aims at mitigating the issue of unsolicited commercial communication in India. The intersection of cloud and blockchain is a new way of monitoring and enforcing compliance throughout an ecosystem.

Recently the Telangana State Information Technology, Electronics and Communication department signed an MoU with the Tech Mahindra to launch India's first blockchain district in the state of Telangana. The Blockchain District will be a centre of excellence, an incubator for technology and process development, to foster growth of Indian blockchain start-ups and companies. Tech Mahindra is a founding member of the Blockchain District and will provide technology assistance to the incubators in the district.

"Blockchain has the potential to transform business and disrupt the way goods are produced, marketed, purchased and consumed. Blockchain brings transparency and traceability in all businesses. Leading organisations across sectors and geographies are evaluating the technology and are experimenting through pilots in a defined and controlled environment. 2018 and 2019 are the years that will see blockchain pilots going live," elaborates Ram Ramachandran, General Manager and Head Enterprise, Tech Mahindra Middle East and Africa.

Tech Mahindra is also positioned in the 5G landscape with its strengths in mobile networks, IT, cloud and enterprise applications. Tech Mahindra is currently engaged with multiple service providers globally on their network transformation journey. Driving collaborative disruption across access, core, OSS and enterprise networks, Tech Mahindra is committed to enable service providers to run their networks better.

Tech Mahindra was recently appointed to design a blockchain solution for one of the largest public sector banks in India. Tech Mahindra identified blockchain as



a possible disruptive technology that can impact the banking sector and related IT systems at large. The Bank invited Tech Mahindra blockchain competency to identify a process where blockchain can create value and bring in benefits. The process and the use case identified was – audit trail over cross border remittance transactions and implementation of



Transactions updated on blockchain and reports generated from there are available in real time.



RAM RAMACHANDRAN,
General Manager and Head Enterprise,
Tech Mahindra Middle East and Africa.

blockchain to capture and track transaction status and information through the payment gateway.

In order for the solution to be implemented the existing environment had to be considered. The Bank did not have a mechanism to capture real-time audit trail for remittance payments through its remittance corridors. The Bank wanted to ensure that a blockchain solution can co-exist with legacy systems and deliver results as expected. The solution implemented for a remittance corridor would need to be replicated for rest of the corridors

There were a number of process limitations that needed to be taken into consideration. The current remittance process had to go through a series of checks and supervisory approval after being initiated by the maker officer. It was cumbersome to track the current status of the transaction and identify the current stage of transaction in the work flow. There was no clear visibility date and time stamps for audit events that have been captured in disparate databases that store transaction level information. The data requirements were critical, as they were needed to resolve any potential issues that may crop up during transaction processing.

An audit trail solution is a cross domain requirement, since there are multiple systems that do not interact with one another leading to a gap in the data sharing between participants in a business process. An audit trail solution

Tech Mahindra able to demonstrate that a blockchain solution can complement legacy solutions.

helps to streamline the data from various participants and various systems and put it in a synchronised manner across systems for the benefits of all participants.

The solution developed by Tech Mahindra for the public sector bank in India required a transparent and easy cross-border funds transfer with immutable audit trail meeting the above criteria. Other specifications included, custom web application to simulate remittance process with different users; audit data and transaction data captured and stored in blockchain using smart contracts; web application to view blockchain captured transaction and audit data based on roles and rights; Finacle, Bancs and PSG events mimicked programmatically. The solution was developed and deployed on Hyperledger Fabric platform v 1.0.

The business outcomes from the Tech Mahindra blockchain solution included immutable record of audit transactions, single view of transaction data from multiple systems available in near real time, modular solution for other transaction corridors, data generated can

be used for statutory audits and regulatory reports, and business process incorporating blockchain and legacy systems working in tandem in a live production environment.

By implementing this solution, Tech Mahindra is creating an immutable and real time trail of all transactions. The bank is able to see all transactions in all phases of the transaction submission, whether first level approval, second level approval, or a completely approved transaction. All transactions put up on the blockchain are authenticated by blockchain and also visible to all participants. This provides a high degree of trust in the transactions available on blockchain. Transactions updated on blockchain and reports generated from there are available in real time and also considered immutable and trustworthy.

The solution is among the first blockchain solutions in India to go live in a real time production environment. With this solution, Tech Mahindra has been able to demonstrate that a blockchain solution can complement legacy solutions, exist in prevailing security ecosystem, and offer expected benefits to the Bank. The blockchain solution has been introduced in an audit trail solution to derive real time updates on audit data. It provides custom made reports in line with regulatory requirements available in real time.

The solution can be replicated across similar solutions and remittance corridors, not just within a bank, but across banks. The process can be replicated across multiple inward remittance channels of a bank and is therefore a replicable solution that can be utilised across channels. Tech Mahindra has used variants of this solution in other proof of concepts across various domains.

The remittance solution with audit trail once implemented in corridors involving intermediate banks is expected to bring in a lead time saving to the tune of 25% to 30% over existing process. The standardisation achieved through blockchain, would allow auditors to verify large number of transactions in a short span of time. This would free up the time spent on auditing, which can be utilised on more complex situations which require high quality attention. ■

KEY TAKEAWAYS

- Dashboard: IT audit trail and status update dashboard for cross border remittances on demand for users.
- Easy-archival: Usual data storage systems can be leveraged for archiving purposes and integrity of data can be easily proven.
- Forward-looking: Intermediaries banks and financial entities would be onboarded on blockchain and transactions will happen on the platform itself.
- Packageable: The solution can be packaged as a modular solution for cross-border transaction audit purposes and can be applied to other corridors.
- Security: All records are permissioned and only authorised personnel can view them.

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LEADING TRANSFORMATION IN SAUDI ARABIA

With high profile initiatives like SAP public cloud datacentre and SAP Training and Development Institute, solutions like HANA and Leonardo, the global vendor is setting the bar for transformation in Saudi Arabia.

Since 2016, the Kingdom of Saudi Arabia has taken initiatives to rebuild its political, economic, and technology blueprint. In that year, the Cabinet of the Kingdom of Saudi Arabia approved the announcement of Saudi Arabia's Vision 2030, constituting a road map to take the country forward for the next 15 years. The National Transformation Programme, which is also part of Saudi Arabia's Vision 2030, defines the road maps for individual government entities. Saudi Arabia's Vision 2030 seeks to take the Kingdom of Saudi Arabia to the next level of economic prosperity, delinking from its dependence of an oil-led economy.

The information and technology industry in Saudi Arabia has not lagged behind in these initiatives, according to global ERP, IoT and digital transformation vendor SAP. Saudi Arabia continues to be SAP's largest market in the Middle East, with both public and private sector organisations adopting digital transformation. Over the past year, the first Saudi government entity migrated their business systems to the SAP cloud datacentre. Across Middle and North Africa, SAP's six largest industries are oil and gas, utilities, public sector, retail, passenger travel, leisure, and banking.

"With industry expertise that touches more than 70% of the world's business processes, SAP is well positioned to deliver tangible progress towards transformation strategy, without jeopardising daily business operations. Customer success is based on having a strong digital core and an easy-to-use system that supports innovation,

integration, and scalability. Digital cores that integrate future technologies are the foundation for digital transformation across organisations, cities and countries," says Ahmed Al-Faifi, Senior Vice President and Managing Director, SAP Middle East North.

On the business side, over 70% of digitally-leading organisations in MENA are investing in artificial intelligence and machine learning, big data and analytics, and cloud in 2018, according to the SAP and Oxford Economics Digital Transformation Executive Study. Digital leaders tend to gain market share and competitiveness.

PRODUCTS AND SOLUTIONS

"Across the Middle East, we are seeing strong demand for our SAP Leonardo digital innovation system, which can integrate emerging technologies such as artificial intelligence, machine learning, blockchain, cloud, and the Internet of Things to drive new digital business models," says Ahmed Al-Faifi, Senior Vice President and Managing Director, SAP Middle East North.

SAP is the first multi-national, enterprise application software provider to go live on a cloud datacentre inside Saudi Arabia, which is the centerpiece of its four-year, SAR 285 million investment plan in the Kingdom. The datacentre is part of a wider Digital Hub, which includes: an open digital platform supporting entrepreneurship, co-innovation with customers, partners; ecosystem to leverage cloud solutions; and localisation to support the Government's vision into digital transformation. The Digital Hub is available for organisations in Saudi Arabia, Middle

KEY TAKEAWAY

70%

DIGITALLY-LEADING ORGANISATIONS IN MENA ARE INVESTING IN AI, MACHINE LEARNING, BIG DATA AND ANALYTICS, AND CLOUD IN 2018.



Ahmed Al-Faifi, Senior Vice President and Managing Director, SAP Middle East North.

East, and globally. There is strong demand in nearby markets such as Bahrain and Kuwait.

“In Middle East and North Africa, our medium-to-long term game plan is to be the leading cloud company of choice for Middle East’s public and private sectors. We have launched cloud datacentres in Saudi Arabia and UAE, with customers that have already gone live on their solutions. Our datacentres are open to organisations not only in the country, but also across the region and worldwide,” continues Al-Faifi.

Using the SAP Digital Hub, organisations can adopt opex-friendly and scalable cloud solutions for 25 industries and 12 lines of business. Customers can start their journey of digital transformation by leveraging solutions running on the SAP HANA in-memory

database and SAP Cloud Platform, which are available on the SAP cloud datacentre. SAP will be offering its latest cloud ERP solutions, such as the SAP S4HANA Cloud, on its SAP public cloud datacentre.

MARKET SEGMENTS

Across the Middle East’s private sector, oil and gas, banking and finance, manufacturing, and distribution are seeing adoption of digital solutions over the past year. One of the biggest trends in the Middle East has been the digital transformation of the government and public sector. There is strong demand inside Middle East and North Africa for SAP’s digital business solutions running on SAP HANA in-memory platform, and SAP S4HANA real-time business suite, SAP C4HANA customer experience

solution, and SAP Leonardo digital innovation system.

In Saudi Arabia, 83% of IT decision-makers agree that cloud is important for integrating artificial intelligence, machine learning, Internet of Things, and blockchain to scale innovations in Intelligent Enterprises and Smart Cities, according to YouGov. The same report shows that 66% of organisations plan to accelerate their cloud-based digital transformation journey in 2019, with 59% planning to increase cloud spend in 2019.

As Smart Cities, such as Saudi Arabia’s path breaking NEOM, advance in their vision and development, there is demand across connected transportation and autonomous vehicles, blockchain in manufacturing and

SAP's Training and Development Institute has generated in-country value of \$59 million in the Kingdom of Saudi Arabia, and \$151 million across MENA.

supply chain, immersive human resources and talent development. Smart Cities that adopt these technologies can drive diversified economic growth, enhance citizen happiness, attract top talent, and enhance global competitiveness. According to a recent SAP study on Smart Cities, all participants ranked the ability to access current information, via any device, as very important, as well as the ability to pay for services using contactless payment options.

Underlining SAP's support for the Saudi government to digitally transform, SAP continues to deliver on its Memorandum of Understanding with the Saudi Government. SAP is exploring how to integrate the SAP Public Cloud Datacentre into the planned Saudi Government Cloud.

Globally, SAP is exchanging best practices in Smart Cities from its Future Cities programme, with examples such as:

- Buenos Aires, Argentina's 30,000 connected storm drains
- Cape Town, South Africa's Emergency Policing and Incident Command Centre
- Nanjing, China's Smart Traffic for 7 million residents

DRIVERS AND INHIBITORS

In the Middle East, digital transformation is being driven by both top-down government and ground-up initiatives by Middle East C-suite executives. The recent government transformation initiatives include Saudi Vision 2030, New Kuwait 2035, Bahrain Economic Vision 2030, and Pakistan Vision 2025. While C-suite executives have launched digital transformation plans to optimise costs, assets, staffing in order to transform customer experiences and drive new digital revenue growth. Digital transformation is a top business priority for Middle East organisations, and is amongst

the top-three drivers for future revenue in all industries and companies of all sizes.

Globally, 84% businesses say digital transformation is critical for their survival in the next five years. However only 3% have completed company-wide transformation efforts, according to a recent SAP and Oxford Economics study. Amongst the early adopters, 85% have higher market share, 80% have higher profitability, and expect 23% more revenue growth.

Whilst majority of Middle East organisations understand the importance of digital transformation, the biggest challenge is change management and educating the end-users how to achieve successful digital transformation. Amongst CEOs worldwide, 72% see the next three years as more critical than the past 50 years for their industries. At the epicenter of all this is how to leverage digital innovations to transform customer experience.

Organisations need to identify and work closely with the specialised channel partners that can understand the business needs, identify the right technology solutions that can meet those business needs, exchange skills so that organisations can become more self-sufficient, and continually refresh the systems and benchmark against KPIs.

SKILLS DEVELOPMENT

"Innovation is at the core of SAP's business in the rapidly-digitising Middle East and North Africa, and even more so in the Kingdom with Saudi Vision 2030 and NEOM Smart City driving government-led innovation. The Middle East's organisations have the vision and the appetite for innovation to be global digital business leaders," says Al-Faifi.

Across Middle East and North Africa, SAP is supporting young talent development and workforce of the future through its Training and Development Institute and Next-Gen for Universities, along with Digital Skills for Today for coding across the EMEA region.

SAP's innovation mindset includes leveraging developments from the following:

- SAP Co-Innovation Lab network, which facilitates project-based co-innovation across the partner and customer ecosystem
- SAP Next-Gen innovation community for SAP Leonardo that connects innovators with the world's largest enterprise ecosystem

KEY TAKEAWAY

SAP IS THE FIRST MULTI-NATIONAL, ENTERPRISE APPLICATION PROVIDER TO GO LIVE ON A CLOUD DATACENTRE INSIDE SAUDI ARABIA.

- SAP Innovation Center that provides a working environment conducive to free thinking with the flair and agility of startups

Optimising Smart Cities and smart nationwide development requires partnerships between the public, private, and academic sectors. This brings together public sector vision, private sector expertise, global best practices, and the academic sector's experience in training young talent for the workforce of the future.

"We are continuing to align SAP with government transformation visions and Smart City initiatives to transform the economy, society, and environment, and to enhance people's daily lives. We are continuing to get closer to our customers, expand the breadth and depth of our channel partners, and partner with educational institutions to integrate technology into the curriculum," adds Al-Faifi.

SAP's Training and Development Institute is committed to supporting the workforce of the future and the next generation of digital talent in the Middle East. Since launching in 2012, TDI has generated an in-country value in Saudi Arabia of \$59 million, and \$151 million across Middle East and North Africa.

SAP's Young Professional Programme has graduated 498 participants in Saudi Arabia with 99% of them successfully finding career placement. SAP's Dual Study Programme is providing students with the opportunity to take major-specific SAP trainings and certification during academic years, across 5 universities in Saudi Arabia, 12 in MENA region, with a total of 837 students in the MENA region participating in the programme.

In the Next-Gen programme, which supports youth with purpose-driven innovation, connecting companies with the academic world, there are 35 Next-Gen for Universities in Saudi Arabia. Prince Sultan University has both a Next-Gen Chapter and a Next-Gen Hub, and King Abdulaziz University also hosts a Net-Gen Hub.

Next-Gen Chapters collaborate and connect to SAP's global Next-Gen programme network of nearly 3,600 educational institutions in 116 countries. Worldwide, there are 135 Next-Gen Labs and Hubs with SAP educational partners

SAP's top end-users in Saudi Arabia

There is strong interest in digital transformation inside Saudi Arabia, where SAP is co-innovating with public and private sector organisations. The 2018 SAP Quality awards recognise this trend and the following end users:

- Saudi Arabian Monetary Authority, Awqaf Suleiman Al Rajhi, EA Juffali and Brothers, Global Beverage Company as leading digital innovators in Saudi Arabia.
- Al-Rajhi Investments, the real estate and hospitality investment arm of Awqaf Suleiman Al Rajhi Holding, and channel partner NTT Data Middle East deployed SAP SuccessFactors to drive talent development.
- Sulaiman Bin Abdul Aziz Al Rajhi Charity Foundation, the charity foundation of Awqaf Suleiman Al Rajhi Holding, and Alwatania Information Systems, an IT transformation company of AWQAF, deployed SAP Business One solution across 13 branches in Saudi Arabia to enhance process efficiency and monitoring of financial transactions.
- Conglomerate EA Juffali and Brothers digitally transformed its companies, with channel partner Saudi Business Machines deploying SAP's enterprise resource planning, GRC, and business intelligence solutions.
- Global Beverage Company, the manufacturer and distributor of Berain bottled drinking water, launched its Tarabot digital transformation project, centered on SAP ERP solutions on the SAP HANA in-memory platform.

and customers, along with 100 Next-Gen Chapters. SAP aims to have at least one Next-Gen Chapter, Hub, and Lab in each MENA country.

Digital Skills for Today, which recently rebranded from Refugee Code Week, is helping to reduce the region's digital skills gap and support youth job creation. SAP joined forces with United Nations, Galway Education Center, ReBoot Kamp, Re:coded, and more than 50 other partners to create one of the world's largest coding initiatives, training 16,201 people across Middle East, North Africa and Europe in coding. SAP has also partnered with One Million Arab Coders initiative to support 1 million Arabs in becoming professional software developers. ■

KEY TAKEAWAY

84%

BUSINESSES
SAY DIGITAL
TRANSFORMATION IS
CRITICAL FOR THEIR
SURVIVAL IN THE NEXT
FIVE YEARS GLOBALLY.

SECURING THE DIGITAL TRANSFORMATION JOURNEY

Organisations starting their digital transformation journey tend to move security down their list of priorities with delayed and expensive consequences.



At its core, digital transformation helps tackle the traditional business challenges with digital technologies, such as mobility, cloud, IoT. In the early days of digital transformation, companies had pursued growth and innovation at the expense of security. They decided that security should not slow down digital transformation, and could be attended to at a later time.

This approach has led to some cybersecurity issues and even data breaches. In recent years, many enterprises have taken on a balanced approach – they try to incorporate security into their digital plan in the early stages.

“At Trend Micro, we believe there is another crucial piece to the digital transformation roadmap – security. We believe that approaching digital transformation with both urgency and caution should be the way to

move forward,” says Paul Hidalgo, Cloud Business Development Manager AMEA, Trend Micro.

Cloud adoption is definitely one of the biggest key drivers of digital transformation. Synergy Research said in early 2018 that cloud computing market in the Gulf Cooperation Council was worth \$180 billion in vendor revenues and would grow by 24% a year. However, compared to other regions, GCC’s spending on cloud services is still one of the lowest across the world.

And this is partially due to the fact that there is currently a dearth of cloud service providers located in the region. A lack of cloud-specific



PAUL HIDALGO,
Cloud Business Development
Manager AMEA, Trend Micro.

regulations locally also means confusion and difficulty in meeting compliance goals for companies.

However, opportunities abound. Being late to cloud adoption is not all that bad. For one, GCC is able to leapfrog technology and avoid some of the mistakes the other more adventurous regions were not able to. Secondly, both Microsoft and Amazon have committed to opening their first dedicated datacenters in the Middle East by 2019. “We expect cloud adoption to ramp up after that,” continues Hidalgo.

Another key driver for business transformation is the increasing availability of specialised knowledge and services in the market. For one, companies should start learning and looking into urgent cybersecurity matters, such as hybrid cloud security and network defense. Threats taking advantage of the cloud and the network will inevitably rise as cloud adoption gathers steam.

CLOUD VULNERABILITIES

First and foremost, the threats and vulnerabilities encountered in the cloud environment are the same as those in the on-premise environment. The reason is that both cloud and on-premise run on software, and software has vulnerabilities.

“One of the biggest misconceptions about cloud is that it is less secure than its on-premise counterpart. This is not true,” explains Hidalgo.

Cloud security operates on a different model from on-premises security. In this model, cloud service providers, such as AWS or Microsoft Azure, protect the infrastructure, physical servers, power, cooling, networking, and who has access to the datacenters.

“However, this does not mean the customer’s job is done. They need to be responsible for everything that is in the cloud, including data, applications, and operating systems. Any business thinking of adopting the cloud needs to be aware of this security model,” adds Hidalgo.

Secondly, they need to make sure that the security solutions they use are made for the cloud environment. This will eliminate compatibility issues and provides better protection. Thirdly, companies need to automate their security. Cloud is all about automation and accelerating deployment, and security needs to move at the same speed. These are some of the things, companies need to deal with as they transition to cloud.

IoT VULNERABILITIES

IoT as a category encompasses many aspects of segmentation, such as connected homes and cities, connected cars, wearables, sensors deployed in the industrial environment monitoring different parameters of the machines, to name a few.

The biggest danger about IoT devices is that they often come with default passwords that do not get changed even after deployment. This makes them vulnerable to hacking. IoT devices also have too many hardware constraints, making sophisticated security implementation difficult.

And they also cannot install or deploy security software after they have been shipped to the market. This means the only way to fix any security issue is to go through firmware updates. ■

Trend Micro solutions

PROTECTING THE CLOUD

Trend Micro Deep Security solution is made for the physical, virtual, cloud, and hybrid environments. Integrated with cloud platforms such as AWS, Microsoft Azure, and VMware Cloud, Deep Security is easy to use and provides a centralised platform for managing all cloud workloads. It also prevents data breaches and ensures business uptime. In addition, Deep Security helps companies meet major compliance requirements, and provides audit reports and compliance status.

When customers migrate from on-premise servers to the cloud, they often do not know or cannot decide at once how many servers will be moved. In this case, they will benefit from a more flexible solution. Customers who are using AWS can easily get Deep Security as a Service from AWS Marketplace. With agile security built for the cloud, it can secure workloads in minutes and features a usage-based pricing.

Trend Micro’s Deep Security enables security policies to be automatically applied, maintained, and scaled across the cloud environment, allowing IT administrators to easily manage the workloads.

PROTECTING IOT NETWORKS

Trend Micro has a full-range of protection to secure IoT, including the edge, network, and cloud. For network and edge layer protection, Trend Micro IoT Security is a built-in IoT security software that monitors and protects IoT devices from potential risks, such as data breaches and ransomware attacks. Trend Micro IoT Security can be integrated or pre-installed in IoT devices during the product development cycle. It works with IoT devices, mobile apps, web apps, and IoT gateways. On top of IoT security, companies should also implement security solutions for the network and cloud layers.

USING SITE24X7 DASHBOARDS IN DIGITAL OPERATIONS

Site24x7 provides digital organisations easy to understand dashboards to monitor their extended multi-cloud and network operations.

With digital transformation projects being implemented at a faster pace, Site24x7 aims to provide a full stack monitoring solution from the cloud. Site24x7 now supports more than 100 locations around the world for its Internet services monitoring. Elastic search-based log management from the cloud helps consolidate logs from servers and applications for quicker performance troubleshooting and outage detection.

With most IT departments spending a majority of their time on repetitive, manual maintenance tasks, Site24x7's IT automation tools automatically orchestrate incident remediation for public, private, and hybrid cloud environments.

Site24x7 has become a comprehensive platform covering all aspects of monitoring a business application and its entire infrastructure. Site24x7 strives to cover other aspects that will empower DevOps teams to start using the product much earlier in the software development life cycle.

"We plan to focus on cost analysis and management for various cloud platforms to help IT teams better manage cloud spending and lower IT management costs. We will also cater to the needs of public cloud users and help them transparently communicate service statuses to their customers," elaborates Srinivasa Raghavan, Product Manager, Site24x7.

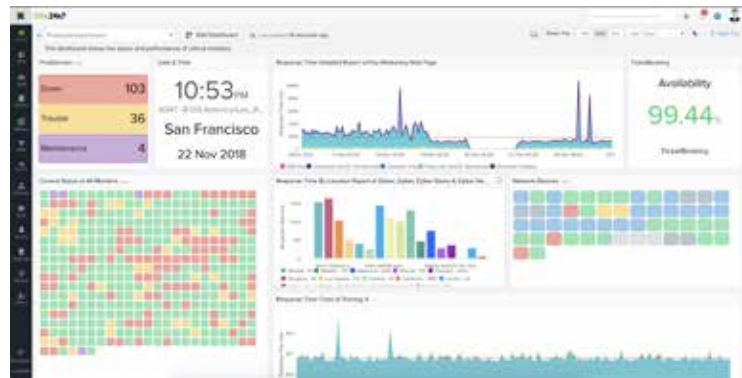
AI DASHBOARDS

For artificial intelligence to work, the data that is fed into the system must be accurate and should cover all aspects of a problem definition. The breadth of monitoring in Site24x7 spans from servers, public clouds, virtualisation, networks, applications, end-user experience, and websites.

With the introduction of artificial intelligence-powered Microsoft Azure

monitoring, Site24x7 gives DevOps and IT teams a holistic view of their IT infrastructure. Site24x7 Azure monitoring enables IT teams to manage over 100 Azure products in near real time using the Azure Monitor REST API, giving IT teams actionable alerts and helping them reduce resolution time and gain visibility into their Azure infrastructure.

This wealth of data puts Site24x7 in a unique position, offering the smartest artificial intelligence for operations. In the future, Site24x7 will automate corrective actions based on what an operator typically



With SaaS-based applications driving productivity, there is a need to monitor the public cloud infrastructure to help DevOps teams know when outages occur.



SRINIVASA RAGHAVAN,
Product Manager, Site24x7.

does inside the product.

To aid viewing data across various technology platforms and domains, Site24x7 released customisable dashboards to give users a complete view of data across various technology platforms and domains. “Our new Layer 2 Maps automate network discovery for traditional enterprise networks,” explains Raghavan.

MULTI-CLOUD

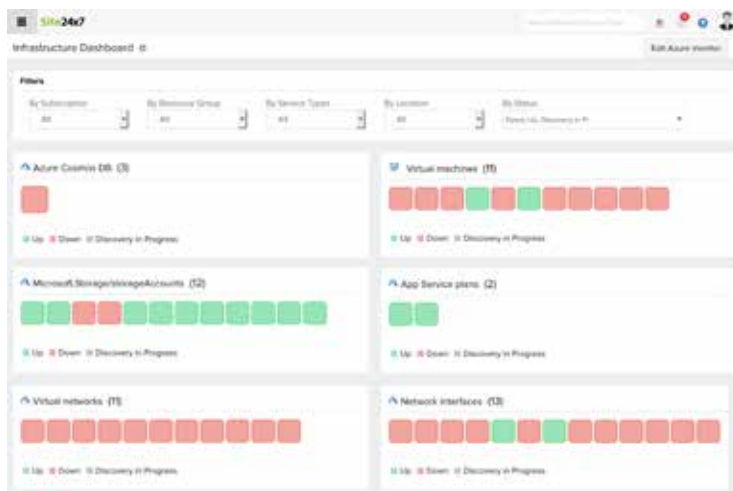
With SaaS-based applications driving productivity, there is a need to monitor the public cloud infrastructure to help DevOps teams know when outages occur. Site24x7’s End User Experience Monitoring and Real User Monitoring proactively monitor and track user behaviour in near real time from around the globe.

“In the cloud era, slow is the new down,” points out Raghavan.

Some enterprises use multiple clouds for redundancy. Others run workloads on-premises and in public clouds, thus making it hybrid. Site24x7’s capability to monitor hybrid cloud infrastructures help DevOps teams know when performance declines and manage the user experience of business-critical applications.

“We have designed the product to automatically monitor any new services supported by Microsoft Azure from Day 1. Likewise, our integration with Microsoft Teams highlights our close working relationship with Microsoft and our commitment to supporting their infrastructure,” explains Raghavan.

Site24x7 supports monitoring for Windows servers along with a number of



Azure monitoring enables IT teams to manage over 100 Azure products in near real time using the Azure Monitor REST API.

Microsoft Windows applications like SQL, IIS, Exchange, SharePoint, BizTalk, Active Directory, Failover Cluster, Hyper-V, and Office 365.

Site24x7 has added support for new platforms and services. This includes monitoring Node.js and PHP platforms for Linux and Windows in Site24x7 APM Insight, along with support for a host of AWS applications including Lambda, Elastic Beanstalk, Elastic Container Service, Elastic Block Storage, Elastic File System, ElastiCache, Redshift, Elastic Load Balancer, CloudFront, DirectConnect, VPC-VPN, API Gateway, SQS, and Kinesis Platform,” says Srinivasa Raghavan, Product Manager, Site24x7.

Site24x7 introduced Website Defacement Monitoring to ensure integrity and security of websites by offering hack detection and neutralising all defacements to keep business’ reputation intact. ■



CEOs TAKING CHARGE OF TRANSFORMATION IN UAE, OMAN

The fourth annual global KPMG CEO Outlook provides insights drawn from 1,300 CEOs representing a range of industries and sizes of business, across the world, including 50 CEOs from UAE and Oman.



The fourth edition of the KPMG CEO Outlook Survey finds that chief executives are generally optimistic about the economy and the growth opportunities that disruption and transformation offer.

NADER HAFFAR

CEO, KPMG Lower Gulf

In 2017, CEOs in the UAE and Oman were excited about the future: they saw technology-driven change as a significant opportunity to disrupt their sector. That optimism continues in 2018, with business leaders showing great faith in the economic environment, both nationally and globally.

That optimism, however, is tempered by a clear recognition that, in order to grow their businesses, they need to respond to an ever-expanding spectrum of complex challenges. CEOs still predict their businesses will grow in the coming year, though forecasts are slightly lower than last year. And in a further demonstration of optimism, unlike global counterparts, the majority say they do not need to hit growth targets before they start hiring new people.

It is not surprising in the current environment to see geopolitical issues taking on more importance to CEOs. Technology continues to command considerable attention – as an enabler, a disruptor and, with the threat of cyber-attacks, a significant risk.

Data privacy is also understandably

high on the CEO's agenda. And even with greater reliance on data-driven models and analytics to make decisions, most of the CEOs still rely on the value of their experience and intuition to make strategic calls for the future of their firms. Being a CEO in this period of profound disruption and opportunity poses immense personal and professional challenges.

The 2017 CEO Outlook found chief executives excited about the future: they saw technology-driven change as an opportunity to disrupt their industry. That optimism prevails in 2018, with CEOs showing great faith in the economic environment to grow their organisations. CEOs' optimism is now tempered, however, by concern regarding their potential exposure to three primary headwinds: geopolitical volatility, cyber security risk and demographic shifts.

ECONOMIC OVERVIEW

The UAE and Oman are key to both the Gulf Cooperation Council and the global economy, both in terms of trade and foreign direct investment. There are,

however, a number of challenges in the short term. The strengthening of the dollar during 2018 by 6% in Q2, after a weaker Q1 has created headwinds for the UAE and Oman, particularly for their non-oil sectors. The impact on the external competitiveness of the UAE economy will likely pose some challenges, particularly in the aviation and tourism industries, which are directly impacted by foreign spending. It could at the same time, however, offer advantages to residents in terms of remittances overseas and travel abroad.

The hospitality industry has been impacted, with average daily rates falling

by 9.7%, although a 7.2% increase in demand was also recorded. This may also be due to a significant increase in competition in recent years. It is possible that oversupply could be affecting ADRs. Similarly, in the food and beverage industry, supply is outpacing demand, at least in the short to medium term. This could lead to declines in profitability, even though consumers are generally eating out and spending more than the previous year.

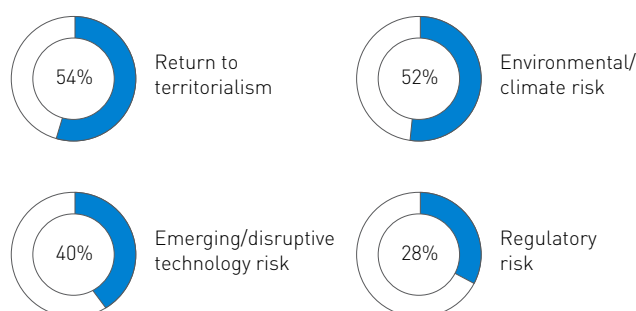
In the construction industry, subsidies for international companies such as export-guarantee schemes, particularly in China and Britain, may mean that it is more cost effective to hire foreign rather than UAE Omani contractors. The introduction of value-added tax VAT in the UAE on 1 January 2018 has also had an impact on the UAE economy. Inflation has risen to an estimated 4.8%, year-on-year, following implementation, although in the long-term VAT is expected to have a more positive impact on the overall economy.

In the short term, however, companies may be experiencing tighter margins and a squeeze on working capital, causing cash-flow and liquidity problems.

On the positive side, government reforms are set to ease the cost of doing business and attract new investors to the UAE. FDI continues to be important to the economy and showed an increase of 8% last year. It is expected that new laws allowing 100% foreign ownership of companies outside of free zones as opposed to 49%, previously may further encourage new investors. Visa reforms which may permit foreigners seeking work in the UAE to hold ten-year visas could also offer a further boost.



Proportion mentioning each threat (UAE/Oman)



Threats to growth, ranked first, UAE and Oman.

DIGITAL OPTIMISM

CEOs are optimistic about the sweeping changes that digital brings. The vast majority in the UAE, Oman, 98%, see technological disruption as more of an opportunity than a threat. Many consider it a personal responsibility to seize the competitive edge it offers. Over half, 54% the same figure globally, are actively disrupting the sector in which they operate, rather than waiting to be disrupted by competitors. That said, 54% versus 36% globally, say their organisation is struggling to keep pace with innovation, and nearly nine in ten, 88% versus

65% globally, believe the lead times for transformation often seem overwhelming.

To win the digital race, CEOs are taking close personal ownership of driving digital transformation. They recognise the power of data to personalise the customer experience, with eight out of ten 80%, versus 75% globally stating they are meeting or exceeding their customer expectations. They are embracing AI and the Internet of Things to reshape their businesses. They are taking on, as a personal responsibility, the obligation to protect data and earn the public's trust. And, as automation and AI have a reconfiguring effect on the workforce, CEOs are planning how to prepare their people for the age of the smart machine.

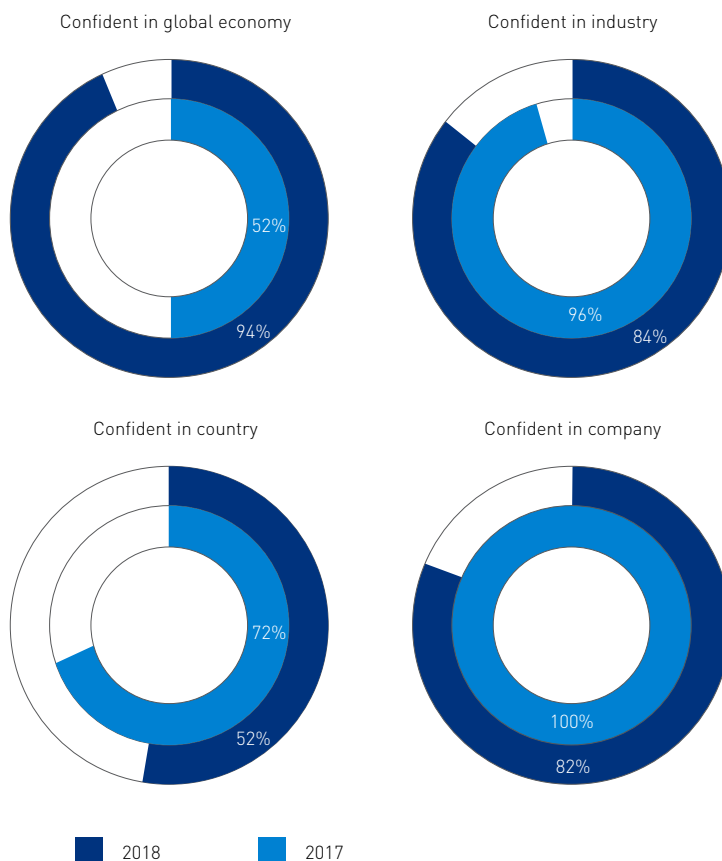
CEOs are increasingly keen on taking the digital reins to fundamentally transform their organisations: they recognise the need to be creative and agile in order to succeed in a business environment that is more and more digital, with an ever-increasing focus on enhancing customer experience to remain relevant and to grow.

Digital is integral to transformation today. The challenge will be to retain a human touch. When you talk about transformation, the assumption is that it is only digital. It is true that the current landscape is driving businesses to invest in technology and automation however the transformation of any business to evolve is not confined to digital. You need to create business value and ensure the human touch is not lost in the sphere of Big Data and AI.

In the digital age, CEOs are prepared to lead their organisation through a radical transformation of its operating model. In fact, over half of UAE 57% and 47% of Omani CEOs versus 71% globally, say this. As in so many areas of business today, American CEOs are most prepared to drive this transformative change, with nine in ten saying they are ready to step up to the plate, compared with over half, 54%, of UAE Omani CEOs. They are keen to be first movers, too: 86% of CEOs in the US and 54% in the UAE Oman, which is the same as the global average of 54% feel their organisation is actively disrupting the sector in which they operate.

DIGITAL EXPECTATIONS

Acting as champions of change, UAE,



Source: 2018 Global CEO Outlook, KPMG International

Confidence in three-year growth prospects, 2018 and 2017, UAE and Oman.

Omani CEOs are under the spotlight in terms of delivering results on technology investments – and expectations can be challenging. Over half, 58% versus 51% globally say their board of directors has an unreasonable expectation of returns on digital transformation investment. The largest challenge with getting a return on technology investment is the adoption of it. Once you have the technology, your people and processes have to evolve to leverage it. There is usually a lag effect, so adoption tends to be slower than planned.

Setting clear expectations will be critical, as CEOs recognise that a degree of patience is required. The lead times to achieve significant progress on transformation can seem overwhelming, as mentioned by one in nine local CEOs, 88% versus 65% globally. Leaders need to challenge

return on investment conventions by fundamentally rethinking how they view digital investments and how returns are measured. You cannot look at investments and returns as you did in the past. If you approach transformation by just digitising existing processes, you will only get marginal benefits. Leading organisations must completely rethink analogue system workflows, and even their entire business model, in order to get the most out of digital solutions.

When a business commits to digital transformation, it means making investments that in the short term may yield low ROI but pay off in the long run. It is important that a company invest in acquiring the right data to build its digital transformation upon. With the right data points, a relevant and engaging customer journey can be achieved and in return revenues increased.

A combination of quantitative and qualitative measures is needed to gauge the benefits. Quantitative measures have obvious value, but the competitive advantage of qualitative measures should not be underestimated. Although the direct benefit of putting investment dollars into AI for supply chain may only be visible in time, it would be shortsighted not to invest now. This is also important when attracting high-performance talent. The most attractive talent wants to be part of an innovative culture where cutting-edge approaches and technologies are being implemented.

CEOs recognise that customer data should be their most valuable asset, transforming their ability to personalise products and services. CEOs also know, however, that customer data comes with significant obligation: 51% in the UAE versus the 59% global average say protecting customers' data is one of their most important responsibilities. It appears less of an issue in Oman 27%, although that is still a higher proportion than in the Netherlands or Spain. If customer data is threatened by misuse or a security breach, the consequences for the company can be devastating and very public. CEOs in the US are particularly conscious of how difficult it is to earn trust in a digital world, with 89% saying that protecting customer data is a personal priority.

CEO optimism is now tempered by concern regarding their exposure to three primary headwinds: geopolitical volatility, cyber security risk and demographic shifts.

CEOs who ensure solid data-handling procedures will be rewarded by customers. It is critical that companies implement rigorous data protection measures to ensure that information is used transparently and for explicit, lawful purposes. Robust security systems could be put in place to guard against leakage, misrepresentation or destruction.

DIGITAL SKILLS

As well as driving digital transformation and protecting customer data, CEOs are reconfiguring their workforces for a future where smart machines and people work together. Humans will continue to do jobs in high-touch segments such as the arts, social enterprises and entertainment, selling and marketing, where humans pull on people's heartstrings. But almost all blue-collar workers will be replaced by metal-collar workers, that is robots equipped with intelligence and super intelligence. They are no longer robots without brains, as they were in the past, they have become smart-robots.

For many CEOs, the long-term implications are positive: nearly nine in ten, 86%, CEOs in the UAE Oman say that AI will create more jobs than it eliminates. They are more optimistic than their global counterparts, 62%. Positives are likely to include greater job satisfaction through reducing the number of humdrum or complex chores and permitting more creativity.

AI and automation will drive significant efficiency improvements. New technologies are going to allow people to do a lot more with less. They will be able to focus on the important parts of our business, which are serving the customers, analysing the

KEY TAKEAWAY

BEING A CEO IN THIS PERIOD OF DISRUPTION AND OPPORTUNITY POSES IMMENSE PERSONAL AND PROFESSIONAL CHALLENGES.

data and making good decisions. Much of the mundane work will be taken care of by automation, AI and the use of data and digitisation. That should play a big role in making jobs a lot more interesting.

Positive or negative, AI demands a communications strategy and the need for personal reinvention and development. Business leaders need to arm the workforce for a new machine age of artificial intelligence and increased automation. AI and automation will have a significant impact on the way we work, so let us develop our workforces. With customer demands changing continually, and the technology landscape in constant flux, CEOs now see agility as the dominant currency of business.

But the quest for ever-greater agility does not mean they simply have to embrace data and intelligent technologies, at the expense of human qualities. CEOs are bringing their own acumen to bear, combining their experience and intuition with data-driven, predictive intelligence to spot new growth opportunities.

In a digital economy, where new technologies are constantly reshaping industries and business models, the ability to innovate quickly is a strategic imperative. In the survey, 68% of CEOs in the UAE and Oman versus 59% globally say that acting with agility is the new currency of business and that if they are too slow, they will go bankrupt. They are more likely to agree that growth over the next three years will be harder to earn, 44% compared with 28% globally, and half, 52% versus 39%, say they need to improve how they monitor market disruption. As customer demands change, it has become important for companies to act with agility. Agile actions mean that you can succeed or fail faster, both of which add to the health of the business.

CYBER THREATS

Cyber security is now an unavoidable topic in the boardroom, as increasing scrutiny is coming from governments and regulatory bodies. Digital innovation can create significant value across business models, customer experience and operations. But with greater connectivity comes increasing cyber vulnerability, and over half of UAE and Omani CEOs, 56%, believe that a

cyber-attack is now a case of when not if.

While the seeming inevitability of a cyber event crosses all borders, the threat is perceived to be greatest by American CEOs, with 68% versus the global average of 49% saying it is just a matter of time.

Cyber risk is a very big issue because as the technology changes, it opens up more loopholes. Many CEOs are concerned about the robustness of their defenses. Only about a third 36% of CEOs in the UAE Oman say they are prepared for a cyber-attack, compared with half 51% globally. They tend also to be less well prepared to identify new threats, 38% compared with 60% globally, or to manage stakeholders after an attack, 34%, versus nearly three-quarters 73%.

It is perhaps not surprising that almost three-quarters of UAE Omani CEOs, 72% compared with 55% globally, believe that cyber security specialists will be important in supporting their organisation's future growth plans. Data scientists are also seen as important by half of respondents, 52%, compared with 67% globally. Nearly half of CEOs surveyed, 48%, compared with 53% globally rank specialists in their existing workforce as being effective, while only a third 34%, compared with over half 55% globally say their data scientists are effective.

Cyber vigilance has become much more of an issue in the last year. Smart leaders are already making cyber preparedness a priority, from stress-testing the resilience of their systems to making sure they have the right people to handle an attack. Furthermore, they recognise the competitive edge this investment can bring: data is the currency of modern business and effective cyber security can unlock new business opportunities and enable digital transformation.

Cyber security threat is regarded as a cause of several risk factors, with four in ten CEOs, 38% compared with 22% globally, regarding operational risk as the most significant, followed by talent risk, 33% 19% globally and supply chain risk, 30% 31% globally. Robust cyber defenses are also critical to building confidence. Almost seven in ten, 68% compared with more than half globally, 55%, said that a strong cyber strategy is critical to secure trust with their stakeholders. ■

KEY TAKEAWAY

*ORGANISATIONS MUST
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SYSTEM WORKFLOWS
AND THEIR ENTIRE
BUSINESS MODEL IN
ORDER TO GET THE
MOST OUT OF DIGITAL
SOLUTIONS.*



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TECHNOLOGY DISRUPTIONS THAT BUSINESSES MAY NOT SEE COMING

Technology disruptions are taking on a virtual form making it more difficult for C-level executives to pick up explains Daryl Plummer at Gartner.



DARYL PLUMMER,
Vice President and
Gartner Fellow.

The ability to keep pace with technological change and consumer demand will push many European, Middle Eastern, and African businesses to breaking point in the next five years. While the era of cloud apprehension is almost over, the multi-cloud is a huge opportunity to innovate and stay ahead of the curve. It also presents a new dimension of strategic challenge. Cloud storage was an enormous and cost-effective step forward for both enterprises and consumers. That was just the tip of the iceberg. The challenges and possibilities have irrevocably cGartner has revealed digital disruptions that organisations may not be prepared for. These include several categories of disruption, each of which represents a significant potential for new disruptive companies and business models to emerge. “The single largest challenge facing enterprises and technology providers today is digital disruption,” said Daryl Plummer, Vice President and Gartner Fellow.

The virtual nature of digital disruptions makes them much more difficult to deal with than past technology-triggered disruptions. CIOs must work with their business peers to pre-empt digital disruption by becoming experts at recognising, prioritising and responding to early indicators.”

The digital disruptions CIOs may not see coming are:

REAL-TIME LANGUAGE TRANSLATION

Real-time language translation could, in effect, fundamentally change communication across the globe. Devices such as translation earbuds and voice and text translation services can perform translation in real-time, breaking down language barriers with friends, family, clients and colleagues. This technology could not only disrupt intercultural language barriers, but also language translators as this role may no longer be needed.

“To prepare for this disruption, CIOs should equip employees in international jobs with experimental real-time translators to pilot streamlined communication,” said Plummer. “This will help establish multilingual disciplines to help employees work more effectively across languages.”

NANOTECHNOLOGY

Nanotechnology is science, engineering and technology conducted at the nanoscale — 1 to 100 nanometers. Nanotech is used to create new effects in materials science, such as self-healing materials. Applications in medicine, electronics, security and manufacturing herald a world of small solutions that fill in the gaps in the macroverse in which we live.

“Nanotechnology is rapidly becoming as common a concept as many others, and yet still remains sparsely understood in its impact to the world at large,” said Plummer. “When we consider

applications that begin to allow things like 3D printing at nanoscale, then it becomes possible to advance the cause of printed organic materials and even human tissue that is generated from individual stem cells. 3D bioprinting has shown promise and nanotech is helping deliver on it.”

SWARM INTELLIGENCE

Digital business will stretch conventional management methods past the breaking point. The enterprise will need to make decisions in real time about unpredictable events, based on information from many different sources such as Internet of Things devices beyond the organisation’s control. Humans move too slowly, stand-alone smart machines cost too much, and hyperscale architectures cannot deal with the variability. Swarm intelligence could tackle the mission at a low cost.

Swarm intelligence is the collective behavior of decentralised, self-organised systems, natural or artificial. A swarm consists of small computing elements either physical entities or software agents that follow simple rules for coordinating their activities. Such elements can be replicated quickly and inexpensively. Thus, a swarm can be scaled up and down easily as needs change. CIOs should start exploring the concept to scale management, especially in digital business scenarios.

HUMAN-MACHINE INTERFACES

Human-machine interface offers solution providers the opportunity to differentiate with innovative, multimodal experiences. In addition, people living with disabilities benefit from HMIs that are being adapted to their needs, including some already in use within organisations of all types. Technology will give some of these people super abilities, spurring people without disabilities to also employ the technology to keep up.

For example, electromyography wearables allow current users who would be unable to do so otherwise to use smartphones and computers through

the use of sensors that measure muscle activity. Muscular contraction generates electrical signals that can be measured from the skin surface. Sensors may be placed on a single part or multiple parts of the body, as appropriate to the individual. The gestures are in turn interpreted by an HMI linked to another device, such as a PC or smartphone. Wearable devices using myoelectric signals have already hit the consumer market and will continue migrating to devices intended for people with disabilities.

SOFTWARE DISTRIBUTION

Software procurement and acquisition is undergoing a fundamental shift. The way in which software is located, bought and updated is now in the province of the software distribution marketplace. With the continued growth of cloud platforms from Amazon Web Services, Microsoft, Google, IBM and others, as well as the ever-increasing introduction of cloud-oriented products and services, the role of marketplaces for selling and buying is gathering steam.

“Establishing one’s own marketplace or participating as a provider in a third-party marketplace is a route to market that is becoming increasingly popular. Distributors and other third parties also see the opportunity to create strong ecosystems and customer bases while driving efficiencies for partners and technology service providers,” said Plummer.

SMARTPHONE DISINTERMEDIATION

The use of other devices, such as virtual personal assistants, smartwatches and other wearables, may mean a shift in how people continue to use the smartphone. CIOs and IT leaders should use wearability of a technology as a guiding principle and investigate and pilot wearable solutions to improve worker effectiveness, increase safety, enhance customer experiences and improve employee satisfaction. ■

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Global State of Operational Excellence

Key Findings

57.9%

of respondents have cited that **Operational Excellence methodologies are growing in popularity**. This supports the demand for process re-engineering and business transformation to adapt to new advanced technologies and customer demands.

THE TOP

3

key drivers of growth in Business Transformation & Operational Excellence are **rising customer expectations, a more competitive landscape, and the impact of digitalization** along the whole value chain.

53.1%

of respondents cited their top critical challenge within Operational Excellence remains squarely around **changing & improving the company culture**.

44.3%

of organization are utilizing Operational Excellence methodologies to achieve **Customers Delight**, which is now a front and center focus of Operational Excellence programs. Customers want **all the friction taken out of their customer journey**.

40%

of respondents have an **enterprise-wide Operational Excellence deployment program**.

23.2%

of respondents cited their top critical challenge was a **lack of leadership understanding and buy-in**. Without buy-in there will be no role models, no budget, resources and no commitment to a long-term program.

35.6%

of respondents cited their top critical challenge was **executing sustainable Operational Excellence projects**. One potential reason, was due to lack of full-time OE leaders and coaches at the business unit level holding people accountable to new project designs.

Global State of Operational Excellence

Survey

Open Responses

Insights

The Global State of Operational Excellence
Critical Challenges & Future Trends



Roadblocks Highlighted by Respondents

So what are some of the road blocks respondents to this report have cited...



"THE OLDER GENERATION ARE SET IN THEIR WAYS, AND STRUGGLE WITH CHANGE, AND IT IS MUCH HARDER TO TRANSFORM THEIR BELIEFS, THEY PREFER TO STICK TO THE OLD WAYS OF DOING THINGS."

"PROJECT LEADERS FOCUSING ON TOOLS AND NOT ON BEHAVIOR CHANGE"



"NOT HAVING A CORPORATE-LEVEL ENTERPRISE-WIDE DEDICATED CONTINUOUS IMPROVEMENT LEADER ENSURING THE ENTIRE ORGANIZATION IS FOCUSED ON A COMMON GOAL, AS OPPOSED TO UNHEALTHY INTERNAL COMPETITION."

"THE WHOLE ORGANIZATION / BUSINESS UNIT NEEDS TO BE INVOLVED, IF ALL ARE NOT INVOLVED IT WILL NOT PROGRESS."



"LEADERSHIP BUYING-IN AND SUPPORT FOR TRANSFORMATION ACTIVITIES IS CRITICAL. CHANGING THE THINKING AND CULTURE TRANSFORMATION FROM THE TOP FIRST, TO MAKE THEM REALISE THE NEED FOR CHANGE SO THEN THEY CAN DRIVE IT, AND PROVIDE RESOURCES, AND BUDGET."

"IF OUR CULTURE IS NOT ONE OF CONTINUOUS IMPROVEMENT AND RESPECT FOR INDIVIDUAL, ANY TOOLS OR PROJECT WE PUT IN PLACE WILL NOT SUSTAIN."



"IF YOU CAN'T GET THE PEOPLE BEHIND YOU, IT'LL BE VERY DIFFICULT TO DO ANY PROCESS RE-ENGINEERING."

"NO MATTER HOW GOOD YOUR CI PROGRAM IS, IF THE COMPANY IS NOT READY TO ADOPT AND TRANSFORM, IT WILL NOT FLY."



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