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CONTENTS

34-38

COVER STORY

WILL ROBOTS BECOME MAINSTREAM LIKE SMARTPHONES

CADD Emirates: Pandemic making hospitality early adopter for robots

Herriott Watts: Robots will become as mainstream as smartphones, Wi-Fi

Lenovo: Building the next generation of high technology robots

Milagrow: Using robots to transform home cleaning and living

Jacky's: Robots are new technology opportunities for channel

Review: Double 3 Robot, Substituting your presence at work with a robot

Review: Temi Robot, Building your home assistant that can also entertain



05

EDITOR'S PREFACE

08-12

OPINION

14

EVENTS

16-23

USE CASES

24-27

RESEARCH

06-07

INNOVATION
GALLERY

PEOPLE AND ROBOTS IN VIRTUAL FACTORIES



29-32

TRANSFORMATION
CHAMPIONS

Network International:
Efficiency where employees can
create robots

Software AG: Evolution of
business process management
systems

54-59

INDUSTRY COMMENTS

60

PEOPLE

62-63

LOOKING GLASS



1-3-5 Intelligent Network O&M Ensures Zero Interruption

Huawei CloudFabric leads Data Center Networks into the Intelligence Era.



Autonomous Driving

Intelligent Experience

Super Capacity



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ASIMOV'S LAWS OF ROBOTICS

The global community continues to be challenged with vaccines, mutations, travel corridors, and movement and interaction of humans. Looking back into the seventies, one of the most forward-looking science fiction writers of the previous decade, Isaac Asimov wrote the novel *Naked Sun* and also conceptualized the three laws of robotics.

Asimov visualized a society where there is no more human face to face interaction. Everything is managed by robots and the three laws of robotics governed the design, safety and behavior of robots and humans. Today, humankind still has a way to go to reach that advanced level of development, but we are making progress.

In this month's edition we get a hands-on feel of two robots made available for operational review by Jacky's Business Solutions, a leading exclusive distributor of robotic solutions in the GCC. The Double 3 robot has been boosted by the growth of offsite, remote workers. It is the first step towards a robotic substitute of human presence in the office workplace. It is easy to use and quite powerful in its functionality and simplicity.

Temi Robot on the other hand blends two important innovations into one. The first is the ability to communicate and broadcast video and audio feeds and Internet content. The second is the ability to create interactive routines and allow Temi to learn from them.

Taking advantage of the growing interest in robots, Jacky's Business Solutions is offering both business and consumer robots around specific use cases. It is offering solutions through Softbank's Pepper, Pudu, Double Robotics, and Temi.

According to Jimmy Joseph at CADD Emirates, robots are being adopted in hospitality for information sharing, food and beverage, in-room delivery, with some far eastern countries taking the lead. Joseph differentiates the three leading form factors.

Continuing innovation in the field of robotics and successful use cases are going to cyclically fuel their adoption. Says Prof Dr Tadhg O'Donovan at Heriot-Watt University Dubai, robots will become as mainstream as smartphones, Wi-Fi. Although humanoids are one of the smallest groups of service robots currently, they have the potential to become the industrial tool of the future. Taking this challenge forward, Lenovo is now bringing in the latest computing and sensory devices into robots. Previous limitations of industrial robots were mobility, sensors, and single task, which is changing with computer vision and deep-learning, says Dr Chris Cooper at Lenovo DCG.

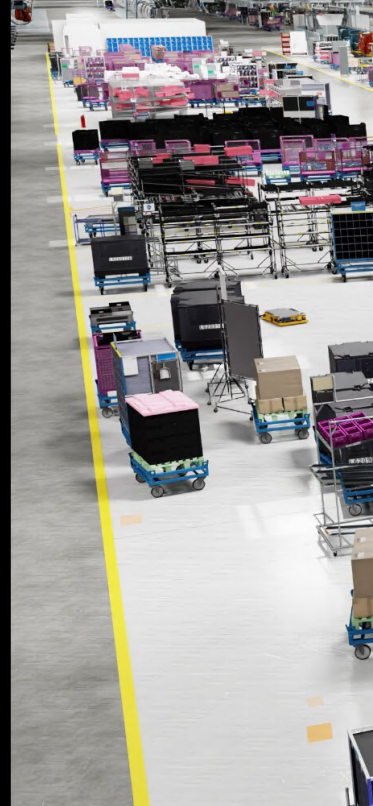
In this month's transformation champions section, Vimal Dev and Rashida Rauf at Network International explain how this payment solution provider has implemented robotic process automation, empowering teams to drive the change. They point out that an automation-first mindset does not come from top-level executives. Automation-first mindset comes from employee ability to correct inefficiencies with automation.

Turn these pages for more exciting details on transformation and innovation. We wish our readers a blessed Eid Mubarak celebration as we move into the summer season of 2021.

Arun Shankar
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PEOPLE AND ROBOTS IN VIRTUAL FACTORIES

BMW does personalised manufacturing at a massive scale and their operations are among the most complex in the world. In this vision of future factories, people and robots work together, engineers collaborate in a shared virtual space, and the factory is simulated with photorealistic detail. BMW and NVIDIA have a new approach to planning complex manufacturing systems, by using Omniverse cloud platform.





AGILITY, INNOVATION, SAFETY KEY TO SUCCESS IN POST-PANDEMIC ERA

Businesses need to make technological investments their priority to face the current economic uncertainty, writes Alok Sharma of Shycocan.



ALOK SHARMA,
CEO, Shycocan Corporation.

A path-breaking technological innovation is a virus attenuation device

The Covid-19 pandemic sent shockwaves through the business community and forced many businesses to either scale back their operations or stop them altogether. From this pandemic three priorities shall emerge for industries, namely, agility, digital adoption, and safety.

This challenge is even higher for SMEs that represent more than 94% of companies in the UAE, employing about 86% of the country's private sector workforce, according to the

Ministry of Economy. Helping SMEs ride out the pandemic is critical as well as to help them tackle the longer-term challenges that they will face envisioning a next normal for doing business.

One of the best ways for businesses to face the current economic uncertainty is to realign their roadmaps by making technological investments their priority.

On digital adoption remote working, collaboration tools and AI can help SMEs in finding solutions to complex business problems in a more human-like fashion. AI is poised in helping SMEs with AI chatbots, customer engagement and supply chain management amongst others. As per a Gartner analysis, within the next 5 years, 50% of the decisions will be based on AI: opting it over simple verbal interactions.

Every company in the world has large amounts of data at its disposal. The real value of data comes from being able to interpret it through data analytics and use your analysis to make strategic decisions. Analytics will help uncover actionable insights that can allow a business to solve a problem or identify a problem it did not even know existed. These analytical tools will become an extremely important skill for the 21st century business leader.

The global industry specially SMEs also must work towards ensuring safety of their employees especially in functions where teams need to work from company premises like manufacturing, supply chain, or operations. It is now certain that there is a need for a new category of

Agility, innovation, and safety shall be the corner stones of success over the next decade

devices specialised to protect us from viral attacks.

One such path-breaking technological innovation is a virus attenuation device, for example, Shycocan that can help businesses reopen with confidence to both, employees and customers. The innovative technology has been developed to address viral attacks and pandemics.

It is intended to physically disable the homing mechanism on the virus. It releases a high concentration of environmentally safe photons by exciting a proprietary superalloy. The photons emanate electrons when bombarding bulk surfaces and suspended particles in confined environments.

This electron cloud actively disarms air and surface transmission of the Coronavirus family. Such technologies will help create safer zones in homes, healthcare facilities, grocery chains, places of worship, residential, corporate environments to fill unmet needs.

The next decade will truly be for ones who are ready to evolve and adapt in a constantly changing climate. Agility, innovation, and safety shall be the corner stones of success over the next decade. For businesses, revolutionising the offerings and assuring the safety of its stakeholders will be the new norm. ■

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and simplify the path
to the hybrid cloud



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BUILDING DIVERSIFIED INVESTMENT PORTFOLIO IN AN UNCERTAIN ECONOMY

Richard Dunbar of Aberdeen says that companies whose profits are closely linked to the fortunes of the economy will fare well.



RICHARD DUNBAR,
Head of Multi-Asset Research at
Aberdeen Standard Investments.

KEY TAKEAWAYS

- The most likely scenario is that global economic growth will be well above its average rate for the next three years.
- The virus and the rollout of the vaccine still colour all economic views.
- For those of us trying to build portfolios, this is a complex situation and there are many factors to consider.

The virus and the rollout of the vaccine still colour all economic views and put huge uncertainty around them. However, we think the most likely scenario is that global economic growth will be well above its average rate for the next three years. There are three main reasons behind this positive outlook.

The first is the roll-out of vaccines, which should allow restrictions on activity to be progressively lifted, especially in the second half of the year. However, the roll-out is going better in some countries than others, and this will be of benefit to some companies quicker than others.

Second, there is a very large amount of spare capacity in the global economy. So as those people that have been made unemployed find new work, and companies get back up to speed, it could take a while before wages and prices increase.

Third, central banks will be happy to keep interest rates low, while governments will be wary about raising taxes too quickly in case, they derail the economic recovery.

The economic growth picture noted above is a positive one. However, we should again note its dependence on a vaccine rollout. As we have already seen in both the developed and developing world, this rollout is very variable. Its progress will be watched carefully by investors.

One of the other concerns occupying investors now is the prospect of rising prices in the short term. However, we are not concerned by this and think any rise in prices

We will continue to take profits in investment grade corporate bonds

will prove temporary, due to the spare capacity in the economy. Inflation should drop back below most central banks' targets by the end of this year.

Against this backdrop, we see a continued supportive environment for share prices. The plentiful economic and profits growth already noted, suggests that companies whose profits are closely linked to the fortunes of the economy will fare well.

For those of us trying to build portfolios, this is a complex situation and there are many factors to consider. Our House View portfolio maintains a bias to quality shares and bonds that pay a reliable yield.

Within equities we favour a mix of global developed market equities. In bond markets, we continue to favour high yield bonds, but would have a slight increased preference for developed market bonds over emerging government debt. The former offer better value after recent weakness.

We will continue to take profits in investment grade corporate bonds. While issuers continue to trade satisfactorily and defaults on bond payments are low, further price rises seem unlikely.

Putting all this together, the importance of careful diversification comes to the fore, and building a portfolio that can survive the bumps in the road we can see, but also, more importantly, those that we will not. ■

GCF **Reboot**

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WELLNESS

NUTRITION

ENGAGE

EXPLAINABLE AI CAN LEAD TO MORE ACCURATE RESULTS

Sid Bhatia of Dataiku writes why explainable artificial intelligence is crucial for sustainable adoption.



SID BHATIA,
Regional Director – Middle East,
Dataiku.

KEY TAKEAWAYS

- The responsible use of AI leads to good business for private enterprise.
- Exposing the algorithm as part of the results dashboard is a natural next step for AI solutions.
- Medical providers across the region have already begun to weave AI into their strategies.
- The ability to deliver noticeable value, untainted by error, or other negative elements is surely the goal of AI.

As far back as 2017, analyst firms like Deloitte and PwC's Strategy& were chronicling GCC governments' digital transformation programmes. The region is pinning its economic hopes on artificial intelligence, AI, and associated technologies. If AI is to be our future partner in innovation, we must trust it. And to trust it, we must be candid about its inner workings.

Yet, enterprises from the Levant to North Africa are willing to let advanced algorithms make decisions on their behalf. So-called black-box AI can lead to bad decisions, with little post-mortem capability that would allow stakeholders to determine points of failure. To generate trust in such systems, we must expose the path between data and actionable information or indeed action itself, as is the case in fully automated architectures.

Middle East enterprises are subject to growing regulatory burdens. The regional FSI sector, hungry for growth opportunities, could face serious problems if regulators cannot question decisions made because of black-box AI. Denied loans, varying credit limits and even fees need to be penetrable.

Another industry in growth mode, and similarly subject to scrutiny by Gulf regulators, is healthcare. Medical providers across the region have already begun to weave AI into their strategies, but it is not hard to imagine why transparency will be important in establishing smart tech as a mainstay in medical care. Human analysis of findings is essential for accuracy. Indeed,

many machine-learning models require human-expert feedback to fine-tune accuracy and become viable in production environments.

Think of the black box's opposite as explainable AI or white-box AI. If we can answer questions as to how an AI system reached its conclusions, we can drive vital debate on the direction some technologies are taking and how those paths can be redirected towards more positive, trusted outcomes.

The responsible use of AI leads to good business for private enterprise. It leads to more desirable social impact for governments. The ability to deliver noticeable value, untainted by error, prejudice, or other negative elements is surely the goal of AI.

Given the suspicion that automation faces globally for its potential to supplant human workforces, it is hard to imagine a surge in AI adoption that will not be accompanied by an intensification in regulatory requirements. Under such circumstances, black-box systems will wither on the vine.

Exposing the algorithm as part of the results dashboard is a natural next step for AI solutions. Metrics such as weights, numeric values applied to data to denote the relative importance of one observation over another, should be on full display. Mathematical models are improving all the time and user interfaces are continually being improved to deliver broader views to end-users on the processing of data.

Collaboration between enterprises will also be vital. Open data platforms that allow the honing of models based on the experience and information-gathering of different contributors will lead to greater democratisation and more accurate results. ■

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Global CIO Forum joins The 100 Million Meals campaign with Each One, Feed One

Global CIO Forum and GEC Media Group with their Each One, Feed One initiative join The 100 Million Meals campaign which aims to provide food parcels for disadvantaged individuals and families across 20 countries in the Middle East, Asia, and Africa during Ramadan. The initiative is launched via YallaGive,

the first licensed online donation and crowdfunding platform in the Middle East.

Global CIO Forum and GEC Media Group believe that it is their utmost obligation to the world and the community that has nurtured us, to give back what it deserves.

The 100 Million Meals campaign

aims to raise AED100 Million to provide 100 Million meals for disadvantaged individuals and families. The campaign aims to unite people from all over the world towards combating hunger and malnutrition.

The 100 Million Meals campaign actively contributes to achieving the second of the UN Sustainable Development Goals that aims to end hunger, achieve food security, and improve nutrition by 2030. The campaign aims to create the biggest social community from the UAE to the Arab world and establish a solid support network of businessmen, companies, and the public to empower the vulnerable.

The campaign also encourages the public to adopt a humanitarian cause, particularly fighting hunger and foster the values of giving across all society segments and encourage the public to help people in need.



Global CIO Forum arranges Iftar meal boxes for healthcare workers

To reinforce its commitment towards giving back to the society, Global CIO Forum has kickstarted its Corporate Social Responsibility event, Ramadan 30*30. The event was held in partnership with Zulekha Hospital, Almarai and SmartLife. In the holy month of Ramadan, Global CIO Forum distributed Iftar meal boxes at Zulekha Hospital in Dubai. The beneficiaries included over 200 healthcare workers.

Global CIO Forum believes that companies that are socially responsible and strong advocates of

community involvement have higher levels of engagement. Research shows that demonstrating social responsibility in the community is a key driver of employee engagement.

The yearlong CSR activities will be pathbreaking and live-touching programmes that will not only create a sustainable life for other members in the community, but also foster avenues for growing and co-existing.

Global CIO Forum's CSR programme involves economic, social, and environmental sustainability initiatives. The

CSR pillars include education, meal distribution, plantation, recycling, clean-up, energy and water conservation.

Commenting on the event, Ronak Samantaray, Co-Founder of Global CIO Forum said that as a socially responsible company, they believe in giving back to the society. It is essential to fulfil their duty to the people of the community especially in tough times like the current pandemic, he added. The healthcare workers have been on the frontline in fighting the war against Covid-19 and they wanted to start their CSR activities with them, Samantaray said. The philosophy involves taking small steps towards making the lives of our community better, he concluded.

The Global CIO Forum's mission is to represent IT Executives and CIOs globally. Currently working in META region and with expansion plans globally, the Global CIO Forum is a non-profit community of CIOs and IT leaders whose mission is to facilitate networking, sharing of best practices and executive development, and to collaborate on issues faced by the CIOs and IT executives.



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Schneider Electric to supply electrical solutions at Sharjah Waste to Energy

Schneider Electric has been awarded the contract to supply a range of electrical solutions at the Sharjah Waste to Energy facility, the first of its kind in the UAE.

The company will supply and install the facility's medium-voltage gas-insulated switchgear and EcoStruxure Power SCADA Operation, PSO software, which will provide real-time situational awareness of the plant's electricity network and ensure the power systems are optimised and performing safely. The software will also protect the system

through built-in cybersecurity features.

The waste-to-energy, WTE, plant is owned by Emirates Waste to Energy Company, a joint venture between Bee'ah, the UAE's leading sustainable environmental services company, and Masdar, one of the world's leading renewable energy companies. French industrial company CNIM, a European leader and reference for the design and build of WTE plants, is contracted to build, and operate the facility, located within Bee'ah's Waste

Management Centre in Sharjah, UAE.

The Sharjah Waste to Energy facility will process 37.5 tonnes of non-recyclable solid municipal waste per hour, diverting over 300,000 tonnes from landfill each year in support of the UAE's waste management goals. The facility will generate up to 30 megawatts of electricity, which will be supplied directly to the Sharjah Electricity and Water Authority's, SEWA grid, and will power around 28,000 homes.

The plant will be compliant with global standards of environmental safety and sustainability. It will also displace almost 450,000 tonnes of CO2 emissions per year and save the UAE 45 million cubic meters of natural gas per year.

The waste-to-energy process converts waste into heat, which is then recovered through a boiler to produce steam that drives a turbine generator to produce electricity. Bottom ash is discharged and deposited into storage, and converted into usable recycled materials, and the flue gas is treated through stringent air pollution controls. The remaining steam is pushed through an air-cooled condenser to transform it into water that is reused within the plant.

AVEVA wins Frost & Sullivan Award for its Manufacturing Execution System

AVEVA has announced that it has been recognised with the Frost and Sullivan Product Leadership Award for its Manufacturing Execution System, MES, for Food and Beverage, F&B. This best practice award is bestowed on companies that consolidate or grow their leadership position by continuously innovating and creating new products and solutions that serve the evolving needs of their customers.

AVEVA was recognised for its success in enabling F&B manufacturers to digitally transform their operations to achieve higher productivity and enhanced manufacturing flexibility and quality while reducing the cost of regulatory compliance in a complex environment.

Citing AVEVA's approach as customer centric, the report states that AVEVA offers a model driven MES solution that combines the traditional advantages of an MES with a new digital workflow management approach to integrate people, processes, and businesses. AVEVA was also given recognition for delivering enhanced efficiency, capturing work procedures in digital workflows and relevant user experience models in contrast to competitors in this space that provide only standalone MES software.

The unique selling point of AVEVA's MES is its out-



of-the-box connectors for both plant and enterprise applications, which provide greater flexibility to customers in terms of integrating the MES into their entire business. While competitors' platforms are designed to integrate only with their proprietary systems, the AVEVA System Platform is vendor-agnostic, working with any competitor's programmable logic controller, PLC, remote terminal unit, RTU, programmable automation controllers, IIoT devices and general IT applications.

SITA optimises passenger processing with biometrics at Istanbul Airport

SITA, the technology provider for the air transport industry has announced results of its biometric-enabled Proof of Concept designed to support a low-touch passenger experience and optimise passenger processing at Istanbul Airport, IGA.

The six-month trial showed a 30% reduction in boarding times and increased satisfaction of participating passengers and airlines, as well as reducing risks associated with Covid-19 thanks to the low-touch passenger journey.

The intuitive biometric solution allowed airline agents to easily enrol passengers on the existing SITA Flex common-use check-in counters. Once enrolled, passengers were able to simply scan their

face at every step of the way, from security check, lounge access, and boarding, without having to touch any surfaces.

The PoC conducted with Turkish Airlines involved the use of sophisticated biometric technology across multiple touchpoints. These included a common use terminal, CUTE, for Smart Path enrolment, an iValidate gate verification point where passengers gain access to the gates, IGA lounge access verification, and boarding gate verification.

Safety and operational efficiency have become critical factors for airports and airlines to emerge from the pandemic according to the latest SITA IT Insights report.



HANI EL-ASSAAD,
President - Middle East, India and Africa,
SITA.

As passengers return to the skies, new health-focused processes such as PCR test verification present operational challenges to reduce congestion at airports.

Mouwasat Medical selects Honeywell Forge asset and energy solution

Honeywell has been awarded a contract for the installation of integrated building management systems across all Mouwasat Medical Services, MMS, hospitals. The contract, which supports the Saudi Arabia's focus on advancing the country's healthcare sector, will enable MMS to optimise its energy usage and building maintenance across its six hospital locations in the country.

Honeywell's contract is part of MMS' digital-first approach and involves the deployment of the company's Honeywell Forge enterprise performance management solution to enable better management of assets. This includes:

- Honeywell Forge Energy Optimisation, which autonomously and continually optimises a building's internal set points across hundreds of integrated assets – constantly evaluating weather, occupancy levels, tariffs, time of day and other data – and makes adjustments every 15 minutes to improve a building's HVAC system for peak efficiency, without compromising occupant comfort. It can increase comfort performance and improve energy savings by double digits. The solution also provides intuitive dashboards as well as full visibility of energy performance across all six MMS buildings and facilities in Saudi Arabia.
- Honeywell Forge Digitised Maintenance, which changes the way buildings and assets are maintained through a proactive maintenance process of curated recommendations. Using sensors and system integration to analyse building controllers and mechanical assets, intuitive dashboards provide near real-time insights to track building performance and reduce unplanned reactive work on building systems.
- In addition to the Honeywell Forge solutions, Honeywell will also integrate proprietary and third-party systems across the six MMS locations, including its Enterprise Buildings Integrator, EBI, building management system to improve building system control, and a portfolio of security and fire alarm systems to maximise occupant safety.



GEORGE BOU MITRI,
VP and General Manager, Honeywell
Building Technologies, META.



Dubai-born CAFU launches drone assisted planting of 1M Ghaf trees

Dubai-born CAFU has taken strides in its strategy towards becoming carbon neutral, starting with the ground-breaking Ghaf Tree Seed Project to plant a million Ghaf seeds in the UAE desert to combat climate change.

The pioneering technology and car services company made two major announcements held at drone training institution Sanad Academy. It has completed two rounds of planting with over 10,000 seeds in the desert this year using its cutting-

edge drone technology and first-of-its-kind planting mechanism designed by the CAFU engineers in the region.

Last year, the team at CAFU went through a rigorous R&D process to test optimal germination of the Ghaf seed in the harsh desert landscape, which shed light on certain requirements such as the need for a seedball mixture with the right ratio of nutrients to help the seeds germinate, and that these seedballs needed to be planted to a depth of 1

centimetre below the ground.

CAFU's team of engineers and technology experts have designed and developed a pioneering in-house pressurised air mechanism built into the drone, which shoots the seedballs to the required depth, while also geotagging the location to track its progress. So far, the team have undergone two rounds of planting in the Mleiha Desert and expect germination over the coming months.

PETRONAS selects AVEVA's Unified Cloud to boost high speed data sharing

Petroleum Nasional Berhad, PETRONAS, has partnered with AVEVA to provide a modern enterprise solution that promotes integration across the entire value chain.

PETRONAS selected AVEVA Unified Supply Chain in the cloud to enable simplified business processes and deeper collaboration, while reducing value leaks and sustaining productivity. The AVEVA solution will provide easy data management to deliver a single source of crude oil information that is easily shared across different teams and locations.

The modern and intuitive software will eliminate the requirement for specific coding, drastically reducing the learning curve delivering high-performance computing and advanced data processing that will enable PETRONAS to run complex planning models at speed using the latest cloud technology.

AVEVA solutions have helped more than four PETRONAS refinery and petrochemical sites improve safe operations while finding the best utilisation for feedstock. The technology also ensures the resulting production plan matches the real plant optimisation and reduces the gap between planning and scheduling, as well as actual refinery operations.



HARPREET GULATI,
SVP, Planning and Operations
Business Unit at AVEVA.



ION installs ultra-fast electric vehicle charging stations in Abu Dhabi

In response to growing demand for electric vehicle infrastructure, ION, the UAE-based sustainable transportation joint venture between Bee'ah and Crescent Enterprises, has installed high-power, ultra-fast charging stations with a total capacity of up to 350KW, on Yas Island, Abu Dhabi.

Capable of charging electric vehicles, EV, through a connection to a user interface unit, the stations can supply combined charging system, CCS, EVs. Through its compatibility with all manufacturers, the stations also solve a common issue with EV charging infrastructure by catering

to all types of e-vehicles including buses.

Another major benefit of the ION stations is its offer of the fastest charging times in the UAE, fully charging vehicles in less than 15 minutes on average and reducing user waiting time drastically. They are 25 times faster than a traditional home charger which only supplies up to 7 KW. Featuring less cable work, the stations are also cost-effective and reduce carbon footprint. A forthcoming announcement will be shared when the stations is officially open to accept customers.

ION is fast-tracking the

development of electric transportation in the UAE and has achieved significant milestones within a few short years since its launch. Within Abu Dhabi, ION manages on-demand electric transportation in Masdar City, matching residents to a fleet of electric vehicles and autonomous electric shuttles through a mobile app.

ION also recently concluded a successful pilot trial of the NAVYA shuttles in the University City of Sharjah as well as launching Sharjah's first network of public electric vehicle charging stations. In partnership with NAVYA, ION is promoting the use of shared autonomous transport to the MENA region.

In response to the Covid-19 pandemic, ION's electric vehicles and drivers have been deployed, pro bono, for the transport of Sharjah Medical District's doctors to facilitate home visits and Covid-19 testing. ION's electric fleet are also utilised for medicine logistics services by University Hospital Sharjah for fast and efficient deliveries.

Tabadul cuts truck waiting time on King Fahd Causeway

A pilot scheme that used the latest smart technology to process trucks on the King Fahd Causeway between Bahrain and Saudi Arabia is to be rolled out permanently after trucks were able to cross the bridge 12x faster than before. The huge gains will boost trade in a year when Bahrain is already expecting to see billions of dollars flowing back into Bahrain economy once the Causeway reopens and tourists return.

The pilot scheme has been running since January 2020, and the Causeway authority has now signed an MoU with Saudi Arabian platform provider Tabadul who will be responsible for rolling the scheme out to all cargo



traffic on both sides of the border. The platform will allow drivers to book appointments with customs authorities in both Bahrain and Saudi Arabia, making the crossing process much more efficient and facilitating swifter trade between the two countries.

This announcement is the latest in a package of transformational decisions taken to improve the movement of goods between Bahrain and Saudi Arabia. In the last year, the Bahrain Customs Authority automated data collection and installed AI-scanners that allowed shipment inspections to take place before cargo reached the border.

Throughout 2020, the customs authority has also overseen the expansion of the Authorised Economic Operator programme – an MoU between Bahrain and Saudi that facilitates faster processing for AEO-awarded companies – benefitting many large multinationals like Mondelez and Arla who are using Bahrain as their regional hub.

The developments on the Causeway follow the opening of a new terminal at Bahrain International Airport as well as big investments in technology at Bahrain Logistics Zone, the Bahrain International Investment Park and the Khalifa Bin Salman Port.

Huawei supplies five intelligent systems in ARCFOX Alpha-S HI

The first vehicle integrated with Huawei's intelligent automotive solution was launched at the 2021 ARCFOX Brand Night and New Product Launch in Shanghai. The ARCFOX Alpha-S HI is the first mass-produced vehicle featuring autonomous driving for urban roads and is being billed as a new global benchmark for autonomous driving.

Huawei is a provider of new components for intelligent vehicles that works closely with car OEMs through the Huawei Inside model to build high-quality intelligent vehicles. This model offers OEMs a brand-new digital architecture for intelligent vehicles, more than 30 intelligent components, and five intelligent systems – Intelligent Driving, Intelligent Cockpit, mPower, Intelligent Connectivity, and Intelligent Vehicle Cloud.

The ARCFOX Alpha-S HI is the first premium intelligent electric vehicle co-branded with Huawei Inside, HI. Through partnerships such as the ARCFOX Alpha-S HI, Huawei has promised to use its 30-plus years of experience in ICT to help OEMs build better intelligent cars and drive China's automotive industry to evolve in new cutting-edge areas such as intelligent and autonomous driving.

The ARCFOX Alpha-S HI will be the world's first commercial vehicle with autonomous driving for urban roads thanks to Huawei's full-stack automated driving system, ADS. The car will be able to navigate itself through busy urban terrain, high-speed roads, and parking lots.

It will be able to recognise and analyse a full array of road features

from traffic lights to oncoming traffic. From there, the vehicle can operate without instruction to any situation from going straight, turning, and stopping for pedestrians or other objects, to navigating on- and off-ramps and unprotected turns.

For example, at intersections without left turn waiting areas, it is able to adjust its route to turn left safely based on analysis of oncoming traffic and other vehicles turning left. In addition, the ADS comes equipped with self-learning technologies to constantly self-evolve, increasing its intelligence based on actual experience to become the ideal driver.

This full-stack ADS was specifically adapted to China's complex roads and transportation systems to provide users with a better driving experience across all scenarios.

Huawei has been researching artificial intelligence applications for nearly ten years, with their current autonomous driving algorithms entering development five years ago. This decade of research has produced a trifecta of technologies perfect for an ADS – super full-stack algorithms, a super data lake, and supercomputing and sensing devices.

The ADS will also support continuous optimisation and

iteration through over-the-air updates to provide users with new and exciting features and to keep up with quickly evolving urban use cases.

During the upcoming Auto Shanghai 2021, the ARCFOX Alpha-S HI will be available for attendees to experience autonomous driving in dense urban areas.

The ARCFOX Alpha-S HI is equipped with HarmonyOS and a large HD display for premium interconnection between what Huawei calls "1 + 8 + N" scenarios. By bringing together smart cockpit units with users' other devices, these technologies allow services like navigation, video, music, and voice to be seamlessly switched between the car and other devices, making driving easier and more enjoyable. These latest technological advances turn your car into your phone, enabling seamlessly connected video calls and more while driving.

The ARCFOX Alpha-S HI also comes equipped with new power technologies that are going to change the game for new energy vehicles. The exclusive AI-powered, high-voltage flash charging power domain solution Huawei has created by leveraging their 30-plus years of experience in power electronics means that cars no longer need to be left charging for hours at a time.





Huawei and BAIC launch ARCFOX Alpha S series Smart Car with HarmonyOS

Huawei and BAIC's new energy brand Jihu together launched the first smart electric ARCFOX Alpha S series at Shanghai Auto Show. The series contains two variants, the regular Alpha S version and the Alpha S HI version. Furthermore, both the models are subdivided into two – the basic version and the high-end version.

The entire series accents Huawei's fast charge technology. A single charge of 10 minutes will increase the battery life by 197 kilometres. It is equipped with a smart temperature-controlled lithium-ion battery pack.

Alpha S can be fully charged in 1.5 hours by AC slow charging and in 7 hours by 20kW AC slow charging. Furthermore, Huawei's DC fast charge can fully charge the vehicle in 15 minutes. In addition, the car also supports wireless charging with an exceeded charging efficiency of 92%.

The battery support for 93.6kWh and the three alternatives of NEDC, New European Driving Cycle, 525km, 603km, and 708km. All the spotlight

of the newly launched car is grabbed by Huawei Inside, which works on Huawei's self-developed Harmony OS. The OS creates the interaction between the smartphone and the car system.

To date, the changes in the application of Harmony OS smart cockpit have touched the two digits. Furthermore, the company is also planning to add more. The 20.3-inches 4K car screen takes from the driving position to the autopilot position, supports the multi-gesture operation, screen switching, and more.

As far as the voice interaction is concerns, HI-supported models in the ARCFOX Alpha S series features voice recognition function. It also supports, when the network is disconnected.

The Kirin 990A in-vehicle chip can be reached up to 800 TOPs computing power and supports 5G network. The HI basic version has a computing power of 400 TOPs and the high-end version has a

computing power of 800 TOPs.

The Alpha S HI has support for three-level of autonomous driving including the NCA mode, ICA+ mode, and ICA mode. Talking about the NCA mode autopilot driving, it realises point-to-point automatic driving through the preinstalled map in the car.

As of now, the map is available for some selected areas, which covers Beijing, Shanghai, Guangzhou, and Shenzhen. The users are required to enter the location only and activate the cruise lever under the steering wheel.

PRICE LIST

- Starting price of the regular model is 251,900 Yuan.
- Highest price of the regular model is 344,900 Yuan.
- Basic HI autonomous model pre-sale price is 388,900 Yuan.
- High-end HI autonomous model pre-sale price is 429,900 Yuan.



Hospitals within Abu Dhabi use electronic medical records connected to Malaffi

Malaffi, the region's first Health Information Exchange, HIE, platform, one of the key initiatives of the Department of Health – Abu Dhabi, DOH, has announced that 95% of hospitals within Abu Dhabi that use Electronic Medical Records, have connected their systems to Malaffi. Malaffi now safely and securely connects a total of 1,075 public and private facilities across the Emirate.

Malaffi allows the meaningful, real-time exchange of important

patient health information between healthcare providers, creating a centralised database of unified patient records. This marks a significant step towards bringing the Emirate of Abu Dhabi closer to its goal of connecting all of Abu Dhabi's healthcare facilities later in 2021, with all hospital EMRs expected to be connected in the coming months.

This milestone means that over 35,000 doctors, nurses and other members of care teams have access to Malaffi and are able to make

better-informed, more efficient and safer decisions thanks to access to important medical information, such as patient visits, medical conditions, allergies, procedures, lab results, radiology reports and medications, collated from 37 different EMR systems.

Since launch, we have witnessed significant participation and interest from the medical community, including the Emirate's largest healthcare groups such as SEHA, Mediclinic, Mubadala Health, NMC, VPS and UEMedical.

In a survey of Malaffi users, reduction in duplication of laboratory and radiology investigations, as well as prevention of allergic reactions, were noted among the most valuable benefits of Malaffi. Other benefits recognised by the medical community included Malaffi's role in improving the speed of diagnosis, supporting clinical decision-making, and reducing medication duplications and errors, together with improving efficiency of the healthcare system.

Pivoted energy sector generating 2-10% production improvement: AVEVA CEO

AVEVA, a global leader in industrial software, driving digital transformation and sustainability, highlighted how the acceleration of digital is transforming the energy industry in a post-pandemic landscape. AVEVA CEO Craig Hayman is championing the rapid digital evolution of the energy sector to drive transformative change, as workers have been forced to adapt new digital tools for remote work, the status quo has clearly been disrupted.

Digital innovation through the use of predictive analytics to better anticipate the future, data to better inform current decisions in the here and now, and digitisation and automation to deliver cost efficiencies and speed is driving renewed growth energy organisations globally. Organisations that have pivoted to digital successfully, are already generating up to 2-10% improvement in expanded production and up to 30% savings in cost.

PwC's 2020 Digital Operations study for energy: Oil and gas report found that the main barriers of the implementation of changes provided by digitalisation are due to limited knowledge sharing, 77%, insufficient digital training, 74%, and a lack of digital talent, 72%. Regarding the lack of digital talent, 2019 data from oil and gas companies, collected by KPMG, found that chief information officers feel there are skills shortages in business analysis, 47%, big data/analytics, 41%, artificial intelligence, 37%, cybersecurity, 35%, and enterprise architecture, 33%.

Industrial technology is key to realising a more resource-efficient value chain and will support circularity as well as enable the transition to renewables and low-carbon energy. Digital tools, powered by human insight, can leverage integrated data and analytics to realise the energy company of the future more quickly and efficiently and that is why AVEVA is working with leading EPCs and owner-operators to make efficient, intelligent operations a reality.



CRAIG HAYMAN,
CEO, AVEVA.

Etihaad starts trial of IATA Travel Pass from Abu Dhabi to North America



Guests travelling with Etihad Airways, from now until 31 May from Abu Dhabi to Chicago, New York, Washington and Toronto, will be the first to trial the IATA Travel Pass app to easily manage their travel health credentials.

To participate in the trial, guests simply download the IATA Travel Pass app from the Apple App Store and book an appointment with Life Diagnostics at Sultan Bin Zayed the First Street or BioGenix Labs at Masdar City. At the clinic, guests inform reception they are participating in the IATA Travel Pass trial and should be ready to show their passport and mobile device with the IATA Travel Pass app downloaded. Once the test result is ready, travellers will

be able to view it on both the IATA Travel Pass app and through the testing clinic's own digital platform.

The IATA Travel Pass will enable Etihad's guests to create a 'digital passport' to receive Covid test results and verify they are eligible to undertake their journey. Importantly, IATA Travel Pass will keep passengers in control of their data and facilitate the sharing of their test with airlines and authorities for travel. It will also make it convenient for passengers to manage travel documentation throughout their journey.

Guests participating in the IATA Travel Pass pilot will benefit from priority queue access at Life Diagnostics and Biogenix Labs for their PCR test, faster check-in at the airport and a free 90MB Wi-Fi voucher to use in-flight. Guest who do not wish to participate in the trial can continue to follow the existing method of sharing PCR test results with Etihad by presenting a printed copy of their results at check in.

Emirates NBD's blockchain enabled platform E20. partners with MoniMove

Emirates NBD, is partnering with award winning fintech platform MoniMove to complement the bank's E20. digital business bank initiative that aims to empower entrepreneurs, startups, SMEs and other businesses in the UAE. The partnership is aligned to Emirates NBD's digital strategy as the bank continues to lead innovation in digital banking in the region and actively participate in the tech startup ecosystem.

The alliance will enable Emirates NBD's SME clients to execute their local and international transactions seamlessly on an innovative supply chain management platform where they will gain flow-on benefits by saving time, mitigating operational risks and reducing costs. Launched in 2019, MoniMove provides



ABDULLA QASSEM, Group Chief Operating Officer at Emirates NBD.

visibility across the entire supply chain from ordering to invoice payment, spurring collaboration and enhancing trust among all stakeholders to boost business credibility.

By integrating with E20., users transacting on the MoniMove platform will achieve a high level of transparency and credibility

providing the bank with visibility on their end-to-end transactions and interactions with suppliers. With detailed reports and analysis issued by MoniMove, Emirates NBD can periodically assess an SMEs' behaviour and build credit profiles that would increase the bank's lending appetite to SMEs.

The platform is blockchain enabled to secure transactions and facilitates paperless and cashless interactions for the entire ecosystem. Moreover, it offers innovative tools to guarantee the rights of both buyers and suppliers, while helping to eliminate the parallel economy and foster financial inclusion. These values are further enhanced by Protiviti Middle East Member Firm, MoniMove's operator in the UAE and a leading global consulting firm with strong expertise, credentials in the areas of technology, finance, banking, blockchain, risk, compliance and business transformation.

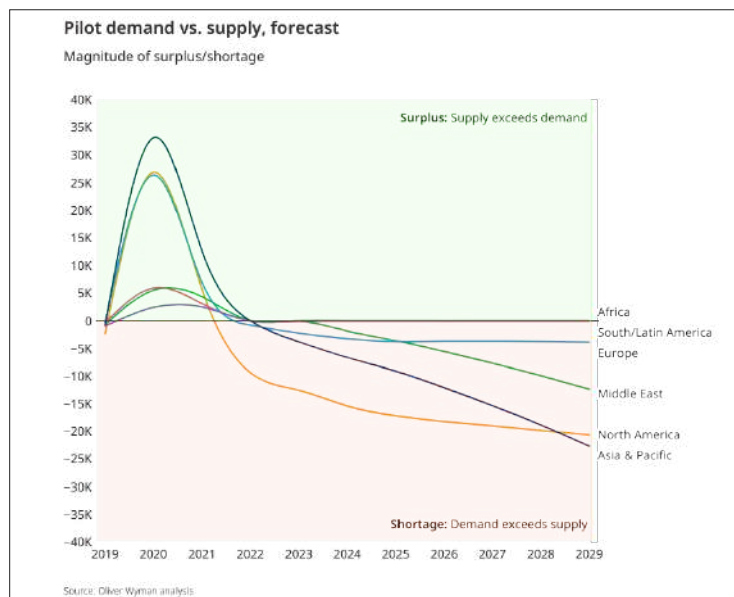
Middle East airlines need to prepare for pilot shortage, Oliver Wyman

The Covid-19 pandemic has stalled a historical global pilot shortage but steps already need to be taken by airlines to ensure pilot supply does not fall short again, according to findings by Oliver Wyman, a global leader in management consulting.

Until 2020, securing a pipeline of new pilots has been a primary concern for airlines around the world due to rising retirements, high financial barriers to entry and rapid airline capacity growth amongst others, according to Oliver Wyman. However, with the onslaught of Covid-19, passenger airline travel grinded to a halt and corresponding demand for pilots plummeted.

In line with World Pilots' Day, which will be celebrated on April 26th, the Oliver Wyman findings have revealed that although pilot shortage in the Middle East is not likely to emerge until the middle of the decade, it is expected to steadily grow again through to 2029. Moreover, as a traditional net importer of pilots, growth in this region may impact other regions' supply.

Although Middle Eastern airlines continued to invest in local training during the downturn, the



overall capacity for organic growth is limited. The region also suffers from an ageing workforce with 20% of pilots older than 55 years, which will drive further retirements in the coming years.

Some steps that airlines can take in preparation for the impending pilot shortage include reducing pilot demand by rethinking crew operations, thereby reducing the total pilots required, while driving down costs in the process. Reinforcing the pipeline by continuing to invest in training programmes and engaging the workforce will also be helpful in addressing the shortage, while creating job opportunities in the region, according to Oliver Wyman.

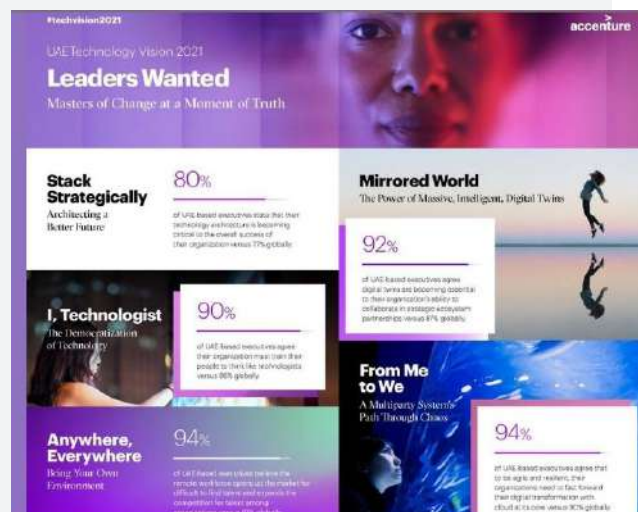
Those who use technology to master change define future, Accenture

According to the Accenture Technology Vision 2021, technology was a lifeline during the global pandemic – enabling new ways of working and doing business, creating new interactions and experiences, and improving health and safety. Technology forever changed expectations and behaviours and created entirely new realities across every industry.

As companies shift from reacting to the crisis to reinventing what comes next, the boldest, most visionary leaders – those who use technology to master change – will define the future, says the 21st annual report from Accenture, predicting the key technology trends that will shape businesses and industries over the next three years.

The report, Leaders Wanted: Masters of Change at a Moment of Truth, outlines how leading enterprises are compressing a decade of digital transformation into one or two years. According to Accenture research, relying on a strong digital core to adapt and innovate at lightning speed, leaders are growing revenues 5x faster than laggards today, versus only 2x faster between 2015 to 2018. The result is a wave of companies racing to reinvent themselves and use technology innovations to shape the new realities they face.

Accenture surveyed more than 6,200 business and technology leaders from 27 countries, including the UAE, for the Technology Vision report. Globally, 92% report that their



organisation is innovating with urgency and call to action this year, while in the UAE, the sense of urgency is even higher at 96%. And while 91% of global executives agree that capturing tomorrow's market will require their organisation to define it – in the UAE, it is a solid five points higher, amounting to 96%.

Shaping the future will require companies to become masters of change by adhering to three key imperatives. First, leadership demands technology leadership. The era of the fast follower is over – perpetual change is permanent. Tomorrow's leaders will be those that put technology at the forefront of their business strategy.

Digital transformation using cloud, 5G, AI to continue in 2021, Software AG

Software AG recently released the global Situation Report based on responses from IT Leaders on their views around digital transformation investment strategies. The global Covid-19 pandemic served as a dramatic backdrop for a year of innovation and digitalisation in businesses around the globe. Almost all IT directors surveyed said their company went through digital transformation efforts in 2020, and they expect it to continue in 2021.

The research highlighted some priorities and assumptions that companies have in common, and some areas where opinion is divided on the best way forward.

IT leaders were unanimous in their belief that digital transformation is expected to accelerate significantly over the next few years with entities set out to continue investing across

data and analytics, quicker processes, customer experience and integration. The predicted growth is attributed to technology implementation strategies in line with goals that include cost efficiency, customer experience, security, employee safety and environmental policy.

The interviewee companies strongly believed that their IT infrastructure and business is resilient, with a split in companies that considered to diversify their technology portfolio and those that preferred consolidating on technologies. A large majority of experts also stated that innovation will play a key role and technologies such as Cloud computing, 5G, Integration, IoT will be vital in tackling challenges as economies move towards a more digital future.

In terms of the beneficiary of



RAMI KICHLI, Vice President, Gulf and Levant, Software AG.

digital investments, customers, employees and 'the business' were all cited as top priority. Simultaneously IT leaders also predicted customer expectations to rise in the next year, given the digital shift new technologies have caused, resulting in a new kind of modern customer.

Mastercard finds \$900 Billion was spent on e-retail globally in 2020

As Covid-19 kept consumers around the world at home, nearly everything from groceries to gardening supplies was purchased online. According to Mastercard's latest Recovery Insights report, this amounted to an additional \$900 Billion being spent in retail online around the world in 2020. Put another way: in 2020, e-commerce made up roughly \$1 out of every \$5 spent on retail, up from about \$1 out of every \$7 spent in 2019.

For retailers, restaurants and other businesses large and small, being able to sell online provided a much-needed lifeline as in-person consumer spending was disrupted.

Roughly 20-30% of the Covid-related shift to digital globally is expected to be permanent, according to Mastercard's Recovery Insights: Commerce E-evolution. The report draws on anonymised and aggregated sales activity in the



Mastercard network and proprietary analysis by the Mastercard Economics Institute. The analysis dives into what this means by country and by sector, for goods and services, and within countries and across borders.

In the UAE, increase in online consumer spending was primarily driven by a 21% YoY jump in the number of online shops, in addition to a 44% YoY jump in the number of high-volume eCommerce trading partners from 2019 to 2020.

While the digital transformation has been neither universal nor consistent – due to geographical, economic, and household differences – the report uncovers several key overarching trends:

- Grocery and discount store

digital gains look sticky: With new consumer habits forming and given the low pre-Covid user base, we anticipate globally that 70-80% of the grocery e-commerce surge to stick around for good.

- Global International eCommerce rose 25-30% during the pandemic: With infinitely more choices at their fingertips, consumer spending on international e-commerce grew around 25-30% year over year from March 2020 through February 2021.
- Consumers increase their e-commerce footprints, buying from up to 30% more online retailers: Residents in countries like Italy and Saudi Arabia are buying from 33% more online stores, on average, followed closely by Russia, 29%, UK, 22%, and the UAE, 21%.



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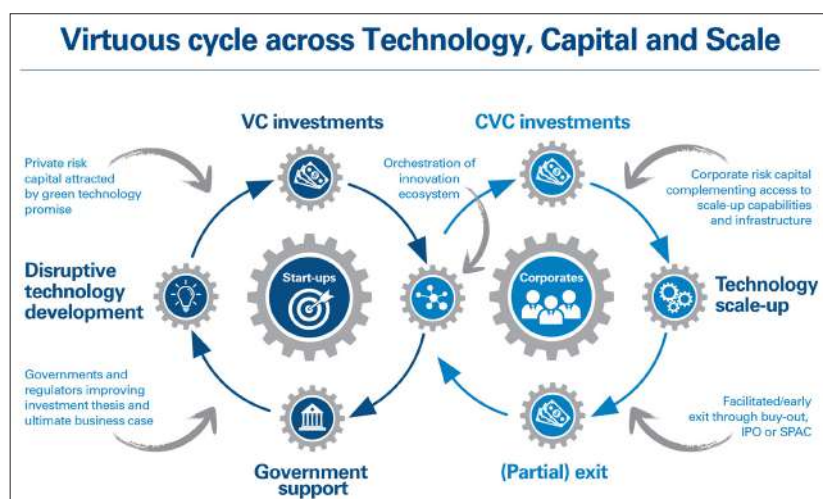
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Arthur D Little in its report advises companies to pursue green investment

In pre-pandemic times, progress towards transformational change remained remarkably slow, despite climate change and sustainability rising higher than ever before on large companies' strategic agendas. Although Covid-19 may have temporarily pushed climate change off daily newsfeeds, 2020 was a year in which political ambitions towards addressing climate change started to look much more robust.

Arthur D Little, the leading management consultancy firm with the longest-standing presence in

the Middle East region, expounds this viewpoint in their latest report entitled *The Green Gambit: Investing for corporate strategic advantage in the post Covid-19 world*. The report assesses how the crisis has transformed the green investment environment and stresses that now is time for organisations to pursue bold green transformation strategies previously considered too risky.

As per the report's findings, industrial companies should be well-positioned to capture success in this direction and contribute to

the ecosystem as it addresses mega challenges based on three building blocks – winning technology on which breakthrough solutions critically depend, scale and scale-up capabilities to create lasting value, and capital to sustain rapid and successful development. Crucially, this cycle was far from perfect in pre-pandemic times but key players are now conducting comprehensive re-evaluations and pursuing new or improved strategies.

UAE and Saudi Arabia are prominent regional examples where green investments continue to yield positive outcomes. The UAE is expected to provide 50% of power needs from renewable sources by 2050 due to nuclear and solar power contributions, while Mubadala Investment Company, the Abu Dhabi National Oil Company, and ADQ recently finalised a Memorandum of Understanding to establish the Abu Dhabi Hydrogen Alliance. Moving forward, these partners will collaborate to build a substantial hydrogen economy at the national level and establish Abu Dhabi as a trusted leader of blue, grey, green and pink hydrogen in international markets.

UAE economy expanding medium term, Covid-19 hampers short-term, ICAEW

Middle East report for the first quarter of 2021, from Oxford Economics, predicts the UAE economy will continue to expand steadily over the medium term, but short-term recovery prospects have been hampered by Covid-19 restrictions.

The report, commissioned by ICAEW, observes that the UAE economy has been relatively disappointing since the start of this year, due to the government having to tighten restrictions in response to soaring Covid-19 infections. These restrictions have prompted a downward



SCOTT LIVERMORE,
ICAEW Economic Advisor and Chief
Economist at Oxford Economics.

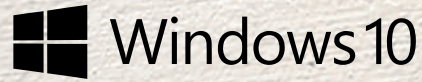
revision to Oxford Economics' UAE growth forecast for 2021, but GDP is predicted to grow by 5.5% in 2022, as both oil and non-oil sectors pick up again strongly.

According to the report, the UAE's non-oil GDP is expected to expand by 3.3% in 2021, down from 4.2% predicted three months ago. Given

the ongoing oil GDP slump, total GDP will be flat this year, after an estimated fall of 7.7% in 2020, the biggest fall in three decades.

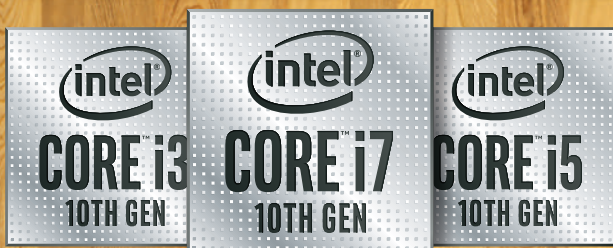
The report outlines that concerns over resurgent Covid-19 cases are weighing on business optimism. Despite an improvement in employment, it will be difficult for these gains to hold against the backdrop of weakening retail industry and recreation activity levels.

The travel and tourism sector, which accounts for approximately 16% of overall GDP in the UAE, will have a difficult first half of 2021 due to the new Covid-19 restrictions. The relative normality of day-to-day life in Dubai and the easing of travel restrictions such as an air corridor with the UK, led to a rebound in the tourist sector at the end of 2020 with hotel occupancy rising strongly, but it has since taken a hit.



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EVOLUTION OF BUSINESS PROCESS MANAGEMENT SYSTEMS

Vijay Jaswal of Software AG talks about the company's RPA tools and why customisation of solutions is crucial.

VIJAY JASWAL,
CTO, Middle East, and Turkey,
Software AG.



KEY TAKEAWAYS

- Software AG does not provide off the shelf products, but it customises solutions for customers.
- Most companies will not use RPA for end-to-end enterprise process automation but will use BPM instead.
- The RPA capability of the company is not created within, but through an OEM service.
- With RPA OEM, for instance, all applications are connected using webMethods integration capability.

Getting virtual robots to do mundane tasks in the background while the user focuses on more important ones is the next evolution of Business Process Management Systems, BPMS.

At Software AG, it is an intuitive process. The RPA capability of the company is not created within, but through an OEM service. Software AG has brought in an RPA specialist called Kryon Systems with these capabilities within their suite. It is a full functioning, full featured RPA tool from Software AG as OEM within the existing tools.

Software AG's core competence about process mapping, integration, and homogenising the whole process is still their vision. With RPA OEM, for instance, all applications are connected using webMethods integration capability. Added on top is a traditional BPM that automates the enterprise process.

If then, any segments of that process require robotic process automation, then Kryon's RPA capability comes into picture. Most companies will not use RPA for end-to-end enterprise process automation but will use BPM instead.

Therefore, RPA is plugged in as a module when required.

Software AG does not provide off the shelf products, but it customises solutions for customers. Think of it as a toolbox with various kinds of tools like integration, API Management, IoT and many more which are all ingredients for any kind of innovation needed for customised solutions.

For instance, in Germany, Software AG created an application for bed occupancy monitoring in the middle of the pandemic using IoT and integration. So, with the tools present, it depends on how they are bundled together for a specific use case application.

Traditionally, Software AG looked at large organisations with data silos, complex applications, and integrated process for data sharing. But with the demand for multi-cloud orchestration, security, and data uniformity, Software AG's tool can connect all of them together and it does not matter if the customer is on premise, on the cloud where its public or private or even if its hybrid.

For instance, the tool can connect an on-premise SAP installation to the cloud CRM system. It is equipped to connect across different platforms wherever they are installed. With the tools, webMethods iPaaS or webMethods MESH, the customer can have as many items as possible that show the data flow to identify the source of the data inflow.

The pandemic has accelerated digital transformation that many organisations were already on. In Dubai, many organisations are working towards achieving the Paperless 2021 vision, and these capabilities fit into this vision. Access to free-flowing data when needed depending on its purpose with the right level of security and governance is a part of this process. ■



NETWORK INTERNATIONAL

EFFICIENCY WHERE EMPLOYEES CAN CREATE ROBOTS

A leading regional payment processor has tackled process efficiency and merchant expansion by empowering employees with skills to begin robotic automation.

In the Middle East and Africa region, which traditionally has been oil-dependent, the adoption of automation is growing. It is driving increased focus on cost and operational efficiency across sectors. Drivers of digital payments in the region include rising mobile phone ownership, e-commerce sales, presence of payment operators and changing consumer preferences due to

Covid-19.

This trend is playing a role in the growth of tertiary service industries like e-commerce and digital payments. With nearly half of existing customers likely to increase online shopping in 2021, e-commerce and digital payments are going to see a rise. As cash payments become less common due to the pandemic, and as



(Left to right) Vimal Dev, Head of Digital and Platform; and Rashida Rauf, Lead Technical Product Owner, Digital and RPA, both from Network International.



Network International has been in business for more than 25 years with 80,000+ merchants and 200 financial institutions.

government policies take shape, mobile payments are here to stay.

With enterprises being challenged by Covid-19 pandemic, traditional processes and product lines are being reimagined. This evolution is leading executives to adopt automation that leverages bots to handle repetitive, human intensive tasks. Not only is this trend enabling enterprises to bridge supply and demand gaps, it is also empowering employees with new skills to add value.

Looking for opportunities around these trends, is Network International, which has been in business for more than 25 years. It has a network of 80,000+ merchants and 200 financial institutions spread across 50+ countries. It enables commerce across industries by providing payment products and services.

Network International is achieving its goals by leveraging automation to adapt to the changing shared services and outsourcing landscape in the region.

AUTOMATING PROCESSES THROUGH ROBOTS

While robotic process automation has been used to optimise costs, Network International is now expecting efficiency, accuracy and control. It is engaging employees, to be the biggest change driver.

By integrating automation in its processes, Network International is helping clients to enable mobile-based payments for their customers and merchants across channels. The company required standardised processes for efficiency. Network International opted to leverage robotic process automation as it recognised the impact that automation can have.

The journey began by leveraging automation for real-time processing of emails from merchants requesting for statements, pre-authorisation releases, refunds and sales, on a daily basis. The company initiated the automatic classification of these processes by bots; whereas earlier, employees had to manually identify what a customer was asking for.

Network International is now using RPA to manage account fulfilment requests and CRM process requests to offer efficiency benefits to its employees.

By the end of 2020, Network International's automation deployment had spread out to 70+ processes, including business and IT operations, and 150+ sub-processes in other geographies such as the UAE and Egypt.

With more than 120 bots in production at present, there have been visible results. There has been a 70% reduction in manual processing time and chargeback

It is moving forward with implementation of Automation Anywhere's IQ Bot to be used for document processing in Arabic.

KEY TAKEAWAYS

- Network International enables commerce across industries by providing payment products and services.
- An automation-first mindset does not come from top-level executives.
- Automation-first mindset comes from employee ability to correct inefficiencies with automation.
- The journey began by real-time processing of emails requesting for statements, pre-authorisation, refunds and sales.
- Network International's automation has spread to 70+ processes, 150+ sub-processes, and 120 bots in production.
- There has been 70% reduction in manual processing time and chargeback requests are automatically processed.
- Training employees from the beginning was a turning point as it made employees feel empowered as change drivers.

requests are automatically processed now.

EMPLOYEES AND CHANGE MANAGEMENT

The company accelerated its RPA programme by getting employees involved from the beginning. This included a comprehensive training programme on how to build, run and manage bots. Trainings such as this obtained employee buy-in. It enabled the first set of business operations in the UAE to be automated within two months.

The company also assured employees through two-way communication from the leadership that RPA would not take away their jobs. It demonstrated the benefits of automation such as time savings and increased productivity. It also showcased benefits for customer experience that resonated with employees.

This is the first step in the democratisation of automation, which is where the evolution of automation is headed. For Network International, training and involving employees from the beginning was a turning point as it enabled adoption of automation and made employees feel empowered as change drivers. They were part of the process, and

not the outcome.

It is clear, if automation is only used by IT teams and a few select champions, its impact can be restricted. It may offer positive returns and productivity for some. However, to achieve the true potential of automation, democratisation is the key. By making automation skills easily accessible for employees, their personal and professional lives can be significantly uplifted.

The following are key takeaways that can help in the automation journey:

- Transform culture to encourage employee-initiated automation
- Grant every employee access to RPA education
- Encourage innovation through crowdsourcing

MOVING AHEAD

In 2021, finance and IT operations will continue to come under the purview of automation at Network International. The Operations Command Center team is conducting a proof of concept around the monitoring and processing of alerts. It is also looking to integrate automation to handle merchant onboarding processes.

Network International is also moving forward with the implementation of Automation Anywhere's IQ Bot, which will be used for document processing in Arabic.

The company has learned that an automation-first mindset does not come from top-level executives. It comes from empowering employees instead. Giving employees the ability to identify and correct inefficiencies with automation is the best way to achieve long-term objectives, while transforming the organisation. ■

INTELLIGENCE

WILL ROBOTS BECOME MAINSTREAM LIKE SMARTPHONES

With robots endowed with motion, speech, recognition, self-learning, their use cases are likely to make them as prolific as the smartphone with consumers.



JIMMY JOSEPH,
CADD Emirates



PROF DR TADHG O'DONOVAN,
Heriot-Watt University Dubai



DR CHRIS COOPER,
Lenovo DCG



ASHISH PANJABI,
Jacky's Business Solutions



LATE RAJEEV KARWAL,
Milagrow HumanTech

PANDEMIC MAKING HOSPITALITY EARLY ADOPTER FOR ROBOTS

Robots are being adopted in hospitality for information sharing, food and beverage, in-room delivery, with some far eastern countries taking the lead.

Robotics is an interdisciplinary sector of science and engineering dedicated to the design, construction and use of mechanical robots. Humanoid robots are robots that look like and or mimic human behavior. These robots usually perform human-like activities like running, jumping and carrying objects, and are sometimes designed to look like us, even having human faces and expressions.

Two of the most prominent examples of humanoid robots are Hanson Robotics' Sophia and Boston Dynamics' Atlas.

Humanoids are widely accepted in the hospitality industry for information sharing, food and beverage service and in-room delivery areas. During the recent pandemic, there are several hotels in the far eastern region managed their entire guest services using robots.

An industrial robot is an automatically controlled, reprogrammable, multipurpose manipulator programmable in three or more axes. The field of industrial robotics may be more practically defined as the study, design and use of robot systems for. The most used robot configurations for industrial automation, include articulated robots, SCARA robots and gantry robots.

Consumer robots are robots you can buy and use just for fun or to help you with tasks and chores. Examples are the robot dog Aibo, the Roomba vacuum, AI-powered robot assistants, and a growing variety of robotic toys and kits.





JIMMY JOSEPH,
Director hospitality EMEA
and India at CADD Emirates.

Brain-computer interfaces would enable some devices and machines to be controlled by your mind.

KEY TAKEAWAYS

- Humanoid robots are robots that look like and or mimic human behavior.
- An industrial robot is an automatically controlled, reprogrammable, multipurpose manipulator programmable in three or more axes.
- Consumer robots are robots you can buy and use just for fun or to help you with tasks and chores
- One challenge is to create bio-inspired robots, including a battery to match metabolic conversion.
- Another challenge is better power sources which let the robots operate wirelessly in unstructured environments.

USE CASES

Robots will play an important role in hospitality in guest facing departments providing information and guidelines. Also, due to the pandemic, there is a significant role for robots in food service industry. There are several hotels and restaurants are early adaptors of this technology and providing unmatched

Guest service experience.

Intelligent robots can give us a check-up with a simple stethoscope. They will interact with patients, check on their conditions, and evaluate the need for further appointments. Smart classrooms are another great performance platform for robots soon. Autonomous vehicles could be another extended arena for humanoids.

HOSPITALITY

Guest communication, information sharing, food and beverage delivery, food and beverage preparation, guest service delivery.

EDUCATION

This is aimed at the next generation of roboticists, for use at home or in classrooms. It includes hands-on programmable sets from Lego, 3D printers with lesson plans, and teacher robots like EMYS.

DEFENSE AND HOMELAND

Military robots include ground systems like drones; Endeavor Robotics' PackBot, used in Iraq and

Afghanistan to scout for improvised explosive devices; and BigDog, designed to assist troops in carrying heavy gear.

HEALTHCARE

Medical and health-care robots include systems such as the da Vinci surgical robot and bionic prostheses, as well as robotic exoskeletons.

FUTURE CHALLENGES

The first and foremost challenge is to create bio-inspired robots, including a battery to match metabolic conversion, muscle-like actuators, self-healing material, autonomy in any environment, human-like perception, and computation and reasoning. The next one is better power sources which let the robots operate wirelessly in unstructured environments, extracting energy from light, vibrations, and mechanical movement.

Moving to navigation in unmapped environments, future robots need to be able to operate in environments that are unmapped and poorly understood. Brain-computer interfaces would enable some devices and machines to be controlled by your mind. Brain-computer interfaces could be quite useful in augmenting human abilities in the future but developing the technology for wider adoption is the challenge.

Today most robots are providing extended support for services in an automated environment, mostly controlled by machines. In coming years, artificial intelligence, brain-computer interfaces and augmented reality will play a significant role in robots development making them capable of performing several close to human acts.

It is possible to foresee the usage of robots in hotel receptions, replacing the traditional human receptionist; restaurant entrances, placing the traditional hostesses; and in food delivery to restaurant tables, replacing the traditional servers. These robots are developed to understand the situations where are being deployed. ■



ROBOTS WILL BECOME AS MAINSTREAM AS SMARTPHONES, WI-FI

Although humanoids are one of the smallest groups of service robots currently, they have the potential to become the industrial tool of the future.

Over the last few years, collaborative robots, which in industrial contexts are built to safely work together with people in factory environments without the need for enclosed spaces, have begun

to surface. They are potentially more lightweight, algorithmically capable, and cost-effective robotic solutions as compared to classic industrial robots that are huge, bulky automated machines that usually operate inside

a cage.

The workplace of the future is likely to be an environment where humans and industrial robots will be working together to increase speed, efficiency and agility.



*PROF DR TADHG O'DONOVAN,
Head of the School of Engineering and
Physical Sciences, Heriot-Watt University
Dubai.*

KEY TAKEAWAYS

- Workplace of the future is likely to be where humans and industrial robots will be working together.
- The shift from vacuum cleaner robots to family companions represents the huge potential of consumer robotics.
- By automating tasks humanoid robots can be considered as a specific kind of professional service robots.
- As we forge ahead, the lines between various types of robots may become blurred.
- The meaning of what we regard as a robot is in a constant flux.
- The humanoid robot is not necessarily most efficient but plays an important role for social acceptance.
- Humanoid robots can complete any task a human being can, provided they have a properly defined path.
- The cost of integrating robotic automation into a manufacturing line is still high.

Consumer robots have been a part of popular culture for decades as we have been envisioning robots living alongside us at our homes to help us with household chores and to entertain and educate us. The shift from a market largely dominated by vacuum cleaner robots to one of personal assistants or family companions represents the huge potential of consumer robotics in the future.

Humanoids, that is robots with a human-like appearance made to mimic human motion and interaction are now being used for research and space exploration, personal assistance and caregiving, education and entertainment, search and rescue, manufacturing and maintenance, and healthcare.

By automating tasks in a way that leads to cost-savings and efficiency, humanoid robots can be considered as a specific kind of professional service robots.

As we forge ahead, the lines between various types of robots may become blurred. Even the meaning of what we regard as a robot is in a constant flux, as scientists and engineers continue to add more advanced features and capabilities.

The various categories of robot serve different purposes in society now and in the future. While the humanoid robot is not necessarily the most efficient for mundane or repetitive task, it plays an important role for social acceptance and integration.

Industrial robots are designed to efficiently and accurately perform repetitive tasks such as precision welding in an automotive production line or even dangerous tasks in environments that would not be safe for humans, including inspections on construction sites, defusing of bombs, and others.

Industrial robots are currently making breakthroughs in healthcare, agriculture, defence, mining and

automotive industries, besides manufacturing.

Humanoid robots can complete any task a human being can — provided they have a properly defined path. In the future, humanoids can be used for risky, distant space exploration missions in the future and closer to home, become daily companions to us in our daily lives.

While the cost of robot hardware has come down over the years, the cost of integrating robotic automation to a manufacturing line is still high. For SMEs with production processes that run at a smaller scale, a robot integrator is required to redesign and repurpose robot work cells to meet the conditions needed for performing new tasks. This can act as a barrier to the adoption of industrial robots.

While AI and machine learning are rapidly evolving, robots can learn from their experiences and continually improve their performance on future iterations or tasks. But robots fall far short of thinking for themselves and this is limiting, especially in terms of adding new capabilities or do anything other than the task for which they are programmed.

Although humanoids are one of the smallest groups of service robots currently, they have the great potential to become the industrial tool of the future. Companies such as Softbank Robotics have already created human-like robots to be used as medical assistants and teaching aids.

While robots are mainly found in automotive manufacturing at present, it is predicted that robots will also enter the electronics manufacturing sector to help with building complex things such as smartphones or microchips as industrial robots become smaller and more precise.

As the use cases for consumer robots continue to evolve, particularly for personal use, these will become more mainstream and an indispensable part of our lives just like smartphones and WiFi. ■

BUILDING THE NEXT GENERATION OF HIGH TECHNOLOGY ROBOTS

Previous limitations of industrial robots were limited mobility, sensors, and single task, which is changing with computer vision and deep-learning.



DR CHRIS COOPER,
General Manager, Lenovo DCG
Middle East and Africa, Lenovo DCG.

Lenovo has packaged computer vision into its Machine Vision Solution for Smart Manufacturing to inspect assembly line defects.

Lenovo unveiled its first in-house developed industrial robot, the Lenovo Daystar Robot at Lenovo Tech World in November 2020. Powered by Lenovo's industry-leading intelligent edge computing technologies, and mixed reality and computer vision technologies, the Daystar is a spray-painting robot, for industrial use, working autonomously or with a remote human operator.

The Daystar Robot uses 3D scanning to model its workspace, and simultaneous localisation and mapping technology to navigate it. It provides a 3D Video Stream that an operator can view through an AR headset. The worker can then control the robot, as if they were in the workroom spray painting in person.

The robot can remember each paint job, so in future, if the same work is required again, the robot can carry out the task autonomously. As a final step, the robot will perform painting quality inspection automatically by leveraging computer vision technology.

The robot is intended to replace human workers in production lines, restricted workspace, dangerous, radioactive and other toxic environments, thus greatly reducing the risk posed to human operators and improving operational efficiency.

Typical application scenarios include assembly lines, painting workshops, power line patrol and inspection scenarios, hot chambers for radioactive tests or operations at nuclear power plants, handling and treatment of nuclear waste, high-temperature and high-pressure

working environments etc.

Lenovo also has a range of robot vacuum cleaners, meant for consumer use in the home. The robot cleaners can be programmed via a dedicated app, so it can be set to clean different parts of the house on different days, and it can even empty its own waste bag. One of the main benefits, as shown by Daystar, is the ability to operate in restricted or dangerous workspaces.

Lenovo is a partner for UK-based AI researcher React Robotics, which is developing the DogBot, an autonomous robot that can execute tasks in high-risk industrial environments. DogBot, is a quadruped robotic helper which is being tested in construction environments, among others, where its advanced sensor allows it to carry out tasks such as build progress verification, managing site logistics and real-time sensor-data acquisition.

DogBot can support humans in high level tasks like inspections, but it can also carry out basic tasks, and even clean-up worksites, meaning human workers can focus on more complex jobs.

Lenovo has packaged computer vision and robotics technologies into its Machine Vision Solution for Smart Manufacturing to inspect assembly line defects. It has developed Esense, an automatic optical inspection solution using computer vision technologies.

Used in its China manufacturing plants, it makes it possible to accomplish the difficult job of detecting inner defects in mobile phones. These robotics solutions are

Used in Lenovo's China manufacturing plants, it makes it possible to detect inner defects in mobile phones.

not subject to fatigue or human error, so it is able to increase product quality by using them for quality control.

In the past, some of the limitations of industrial robots was that they were not mobile, had limited sensor capabilities, and were only suited for one task. Now with technology advances such as computer vision, and AI-enabled deep-learning, robots can perceive their environment, learn new tasks, and work much more effectively with humans.

The Daystar robot provides a 3D video stream to the human operator, from the Daystar augmented reality AR headset using a 5G network for real-time transmission of data. The robot's arm and camera are closely mapped to the movement of the human operator, to make this experience dynamic and life-like with a fast response time.

This level of advanced robotics requires intensive computing resources and data processing. Daystar for example, utilises Lenovo's Intelligent Edge Computing technology to enable its high-end capabilities.

As part of the spray-painting process, virtual machines are needed to support AR model rendering, while containers are needed to support painting, quality inspection, and other applications.

To meet these needs, multiple machines were traditionally put in place to run different virtualisation stacks. Lenovo's Hybrid Light-Weight Hypervisor technology, however, is capable of providing light-weight virtual machines and secure containers to host these applications on a single machine. This effectively increases system resource utilisation rate, while maximising the model-rendering performance, and message processing performance among different tasks of the robot.

Furthermore, painting quality inspection requires the deep learning network models to be compressed and deployed to the edge. Lenovo's model optimisation technology can realise fine-grained matching between model accuracy and computing capability.

Besides common defects, there are new types of defects that the robot has not encountered previously. The pre-trained models deployed from the cloud to the edge cannot deal with such problems. But through learning technology, these models are updated at the edge, so that the robot can learn to address new problems and expand new capabilities.

With the evolution and acceptance of new technologies like 5G and IoT, specifically industrial and commercial IoT, the opportunities for leverage of such offerings are continually growing. As 5G infrastructure proliferates in accessibility, so too will the use cases, and these in turn will be made available to SMEs and not just Large Enterprise clients.

This will be particularly relevant as the price points of the connectivity and the infrastructure solutions are reduced ■



BUILDING OPPORTUNITIES FOR CHANNEL AROUND ROBOTS

The usage of robots is built around use cases in specific market segments that are best addressed by specialised channel partners with domain knowledge of those markets.



ASHISH PANJABI,
COO at Jacky's
Business Solutions.

Role of channel partner remains important for selling into vertical markets.

Jacky's Business Solution is an exclusive distributor for robotic solutions in GCC. Its brand portfolio includes Pudu, Softbank Robotics, Double Robotics, and Temi. It has selected brands and products that reinforce use case where the robot is a co-worker or Cobot.

Pudu robots are being used for food delivery in the hospitality sector. Softbank's Pepper robot is targeted for education, government, retail, healthcare, telecom, and banking. Robots from Double Robotics are being used for telepresence in the work place, while a Temi robot can be set up to be a customised personal assistant.

There have been a number of drivers for the growing interest in robots. The first has been the pandemic, which has triggered the need for contactless solutions. The second is the push by regional governments for technology innovation. And the third is the falling prices for robots from \$100,000 to \$4,000.

For Jacky's Business Solutions the priority market segments are healthcare, government, and education. These are the areas of focus but that does not limit sales to other areas. For universities, Pepper and Temi have a rich software development kit allowing students to build applications in Android and Linux and other development platforms.

The role of channel partner still

Pandemic has triggered the need for contactless solutions.

remains important for selling into vertical markets. The channel partner understands those markets better than the manufacturer or the distributor themselves. Moreover, they understand the customer pain points and can select the most suitable solution to meet their requirements.

Products and use cases

The Pudu robot is easy to operate and requires matching its inbuilt tray to the restaurant table. The navigation is automatic with collision and obstacle avoidance. The robot can save multiple profiles of delivery and its usage saves human time and cost.

It can carry up to 10kg of items to be delivered at the restaurant table and can run for 24 hours with its inbuilt battery. In this process it reduces human presence inside the restaurant.

Softbank's robots can play various business roles including Brand Ambassador, Sales Associate, Lead Generator, Receptionist, Survey conductor, Edutainment, Service Provider, Loyalty Management, Adviser, Promoter, Interactive Kiosk.

Its inbuilt capabilities include Proactive Engagement, Speech

Pepper, Temi have a rich SDK allowing students to build applications in Android, Linux.

Recognition, Face Recognition, Touch Recognition, Autonomous Navigation, Speak Multiple Language, Creates Emotional Empathy, Natural body language, Gender identification, Approximate Age identification, and Real time communication.

Temi robots can play various roles in multiple areas including Customer care, Virtual class, Virtual Doctor, Sales promoter, Way finder, Kiosk on wheels, Office Assistant, Elderly care. It can help in corporate meetings, sales promotion, monitoring of vital signs, UVC disinfection, temperature measurement, order delivery, and queue management.

The Double 3 robot is a two wheeled robot, that is self-driving and self-balancing and creates a physical presence of the remote worker in the workplace. The display panel has a unified pan and tilt movement, while its user interface displays objects in mixed reality.

The setup is through a standard web browser, and no IT skills are required to manage it or to make it operational. It requires 2 hours of charging and is able to run for 4 hours of operation. ■

USING ROBOTS TO TRANSFORM HOME CLEANING AND LIVING



LATE RAJEEV KARWAL, Founder and CEO, Milagrow HumanTech. It is with regret and sadness we announce that post this submission, Rajeev Karwal passed away in India battling Covid-19. May his soul rest in peace.

Milagrow has a vast range of robots consisting of humanoids, healthcare, educational, lawn mowing, pool cleaning, duct cleaning, floor and window cleaning robots. Milagrow robots are used for industrial as well as domestic purposes. Floor cleaning robots have become the legitimate choice for domestic cleaning help and a prospective heir to the maids.

Robotic vacuum cleaners are used for floor, window cleaning purpose in the house.

Milagrow and its range of robotic vacuum cleaner and humanoids are the first look of the new world order. This is illustrating what humans would need the most in the times to come and why. It is accelerating a life where human intervention will be lesser, to do the daily household chores through its floor cleaning robots.

iMap Max needs a special mention as an innovative, top of the line product from Milagrow. It is the latest technology leveraging on deep learning and artificial intelligence. The beauty is that despite the product being the latest in technology, it is highly nuanced on the lines of human beings. iMap Max can wash its own mop, mops floors with high pressure, has independent navigation, can store maps of upto 3 floors, and other features.

The Milagrow range of floor cleaning robotic products include iMap 10, iMap 10 nano, Seagull, RedHawk 21 and Black Cat 21, and they can all change the course of living. Competitively priced, Milagrow robots understand the user's needs and do the cleaning tasks empathetically. The functioning of the robots is borrowed deep human behavior and the way we love to live. These robotic cleaners are transformative in nature. ■



REVIEW

SUBSTITUTING YOUR PRESENCE AT WORK WITH A ROBOT

The Double 3 robot allows remote workers to log into available robots inside an organisation through the Internet, and then engage with the onsite team.

Double Robotics is the creator of Double 3, a telepresence robot and began shipping in middle of 2013. Double 3 helps telecommuters feel more connected to their colleagues by giving them a physical presence when they cannot appear in person. Double 3 is an innovative tool for bringing remote workers into the office boosting interaction between remote and onsite teams.

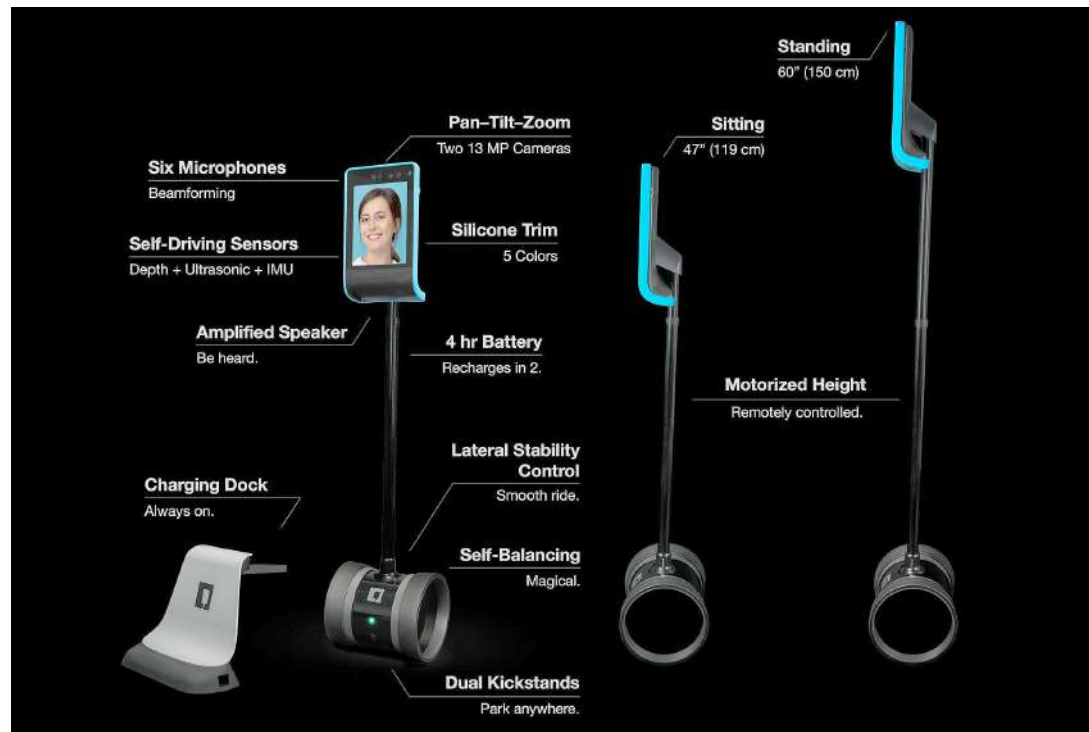
Traditional videoconferencing continues to be the most important tool used by telecommuters in the post pandemic workplace. However, remote workers know how difficult it can be to schedule a call or ask someone to set up a laptop for video chat.

Having your own Double 3 means a remote worker is free to move around the office, without having to

schedule a meeting. Double 3 takes video calls onto a table surface with a movable base putting the remote worker in control.

The remote worker is usually only contacted for priority items missing people to people conversations. Double 3 gives each remote worker a physical presence in the office. This approach to telecommuting is different creating a much better collaborative environment for remote workers and their team.

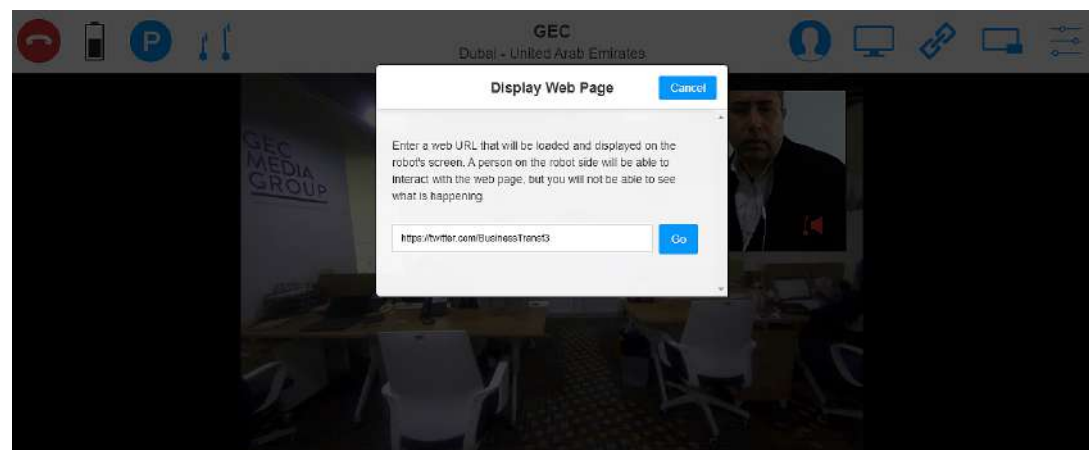
Double 3 is a self-driving, two-wheeled videoconferencing robot that enhances remote work. It connects to the Internet through the existing Wi-Fi network. Double 3 enables doctors, workers, students to feel more connected to colleagues by giving them a physical presence where they cannot go in person.



Components of the Double 3 Robot.



Double 3 is mounted by a user via the Internet.



Double 3 can be used to broadcast content from the Internet.

By driving Double 3 you can move around the office, visit patients, attend meetings, monitor work sites, or attend a class from anywhere in the world.

13 Megapixel cameras, which tilt up and down, provide a wide field of view with zoom. A new precision gearmotor enables both cameras to physically tilt up and down. A software algorithm combines video feeds into a single screen user experience. An array of six microphones helps the user to hear other workers with background noise filtering. The integrated audio system enables two-way simultaneous communication.

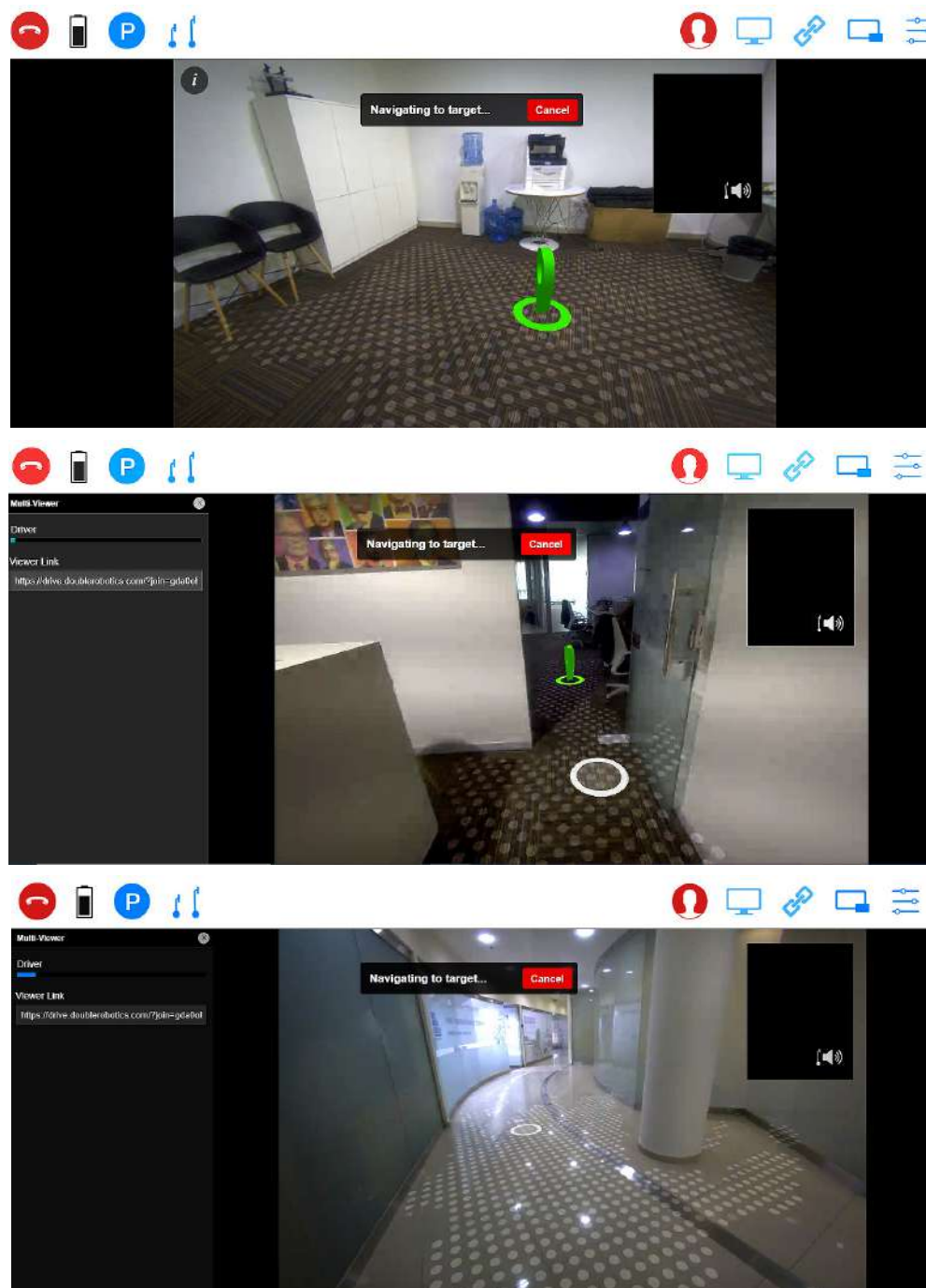
An array of 3D sensors enables Double 3 to sense its environment, including safe paths to move, diverting around obstacles, to finally reach its destination. Collision avoidance means first timers can use Double 3 without worrying about impacting walls, objects, people. Double 3 scans the area ahead and maps the safe to move floor area with coloured ovals. Easy to use push arrows drag Double 3 along the way, forward, left, right or turnaround.

A waypoint to reach can be added, which appears as an augmented reality object. And if there is a complete line of sight, Double 3 will rapidly cover the ground to reach there. If Double 3 is in close proximity to its docking and charging station it will show up in the application screen.

SPECIFICATIONS

Compute

- NVIDIA Jetson TX2-4GB System-on-Module
- 256-core NVIDIA Pascal GPU Architecture
- Dual-core NVIDIA Denver 2 64-Bit CPU
- Quad-core ARM A57 Complex
- 4GB 128-bit LPDDR4 Memory
- 16GB eMMC 5.1 Flash Storage
- Wi-Fi - Intel Dual-Band Wireless- AC
- Bluetooth 4.2
- 4 hours of runtime, 2-hour recharge time Li-ion
- 2 x USB 3.2 SuperSpeed ports

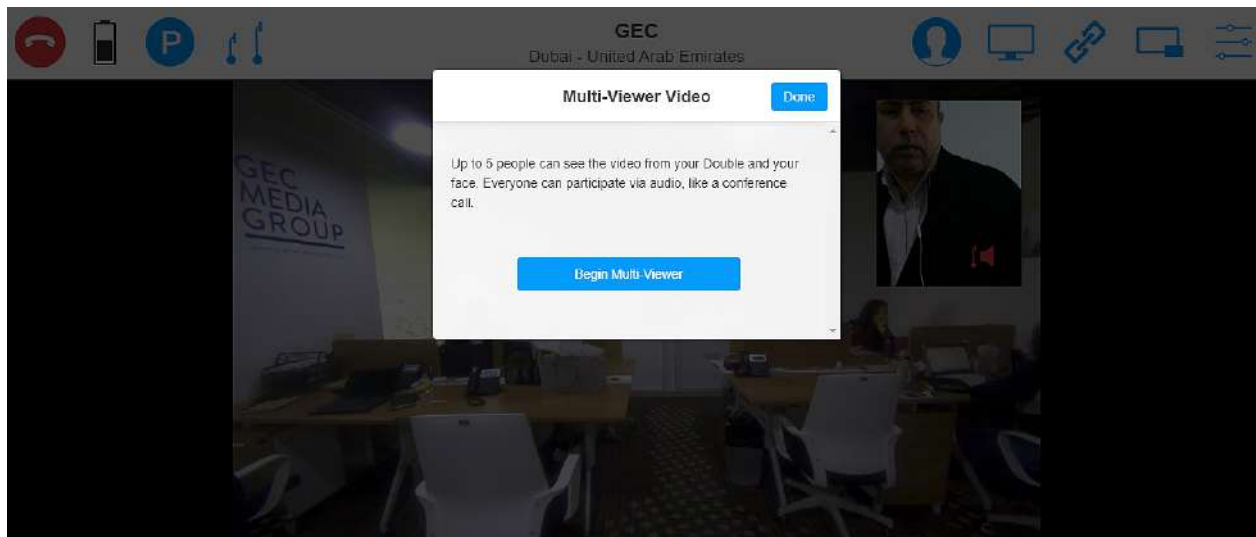


A waypoint to reach can be added, which appears as an augmented reality object.

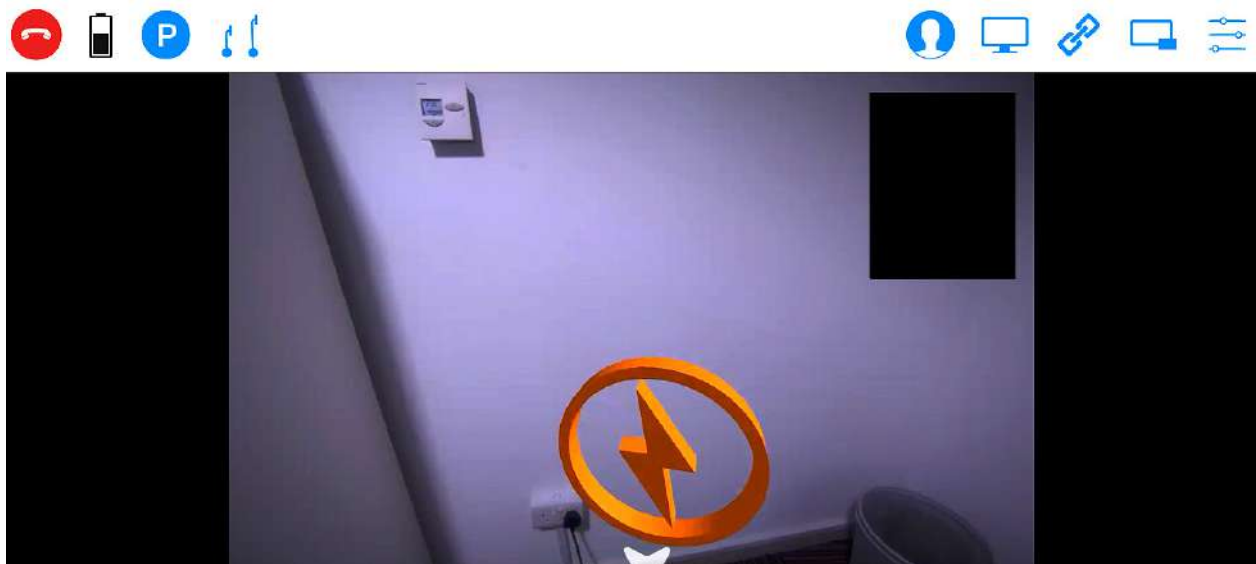
- ### User experience
- 2 x 13 Megapixel Unified Pan, Tilt, Zoom Module
 - One super wide-angle lens, one super zoom lens
 - 30 FPS and Night Vision Mode
 - 6 x Digital microphones with beamforming
 - 8-watt full range speaker
 - 2 x Stereovision depth sensors Intel RealSense D430

- 5 x Ultrasonic range finders
- 2 x Wheel encoders
- 1 x Inertial Measurement Unit
- 9.7-inch LED-backlit multi-touch LCD
- Remotely-adjustable height 47" to 60" tall

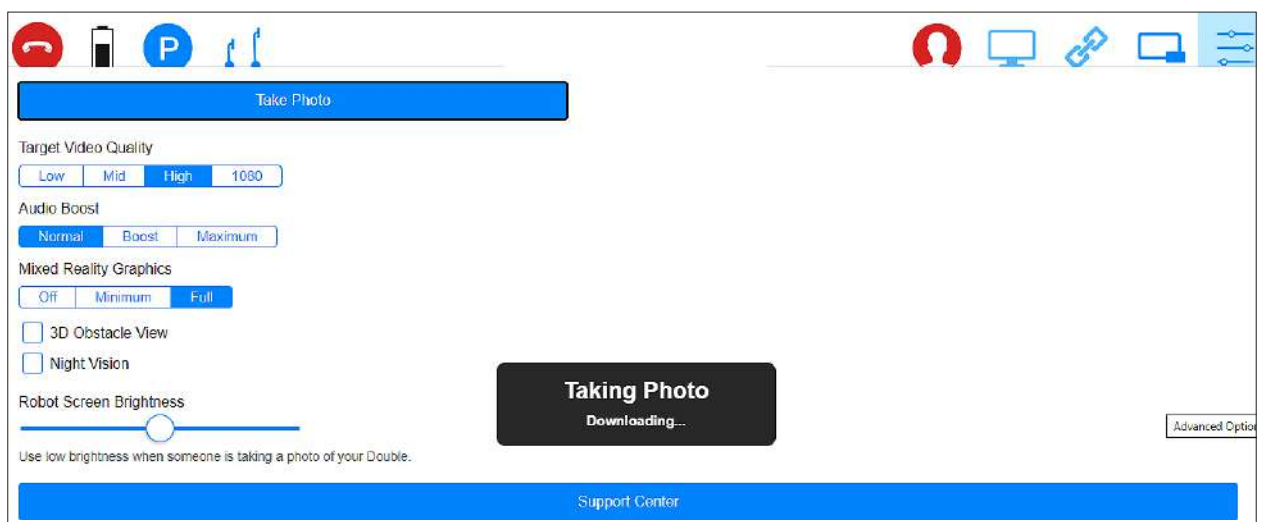
Hands-on review of Double 3, courtesy Jacky's Business Solutions.



Double 3 can connect to multiple users for conferencing.



If Double 3 is in close proximity to its docking and charging station it will show up in the application screen.



Double 3 is also capable of taking pix.

REVIEW

BUILDING YOUR PERSONAL HOME ASSISTANT THAT CAN ENTERTAIN

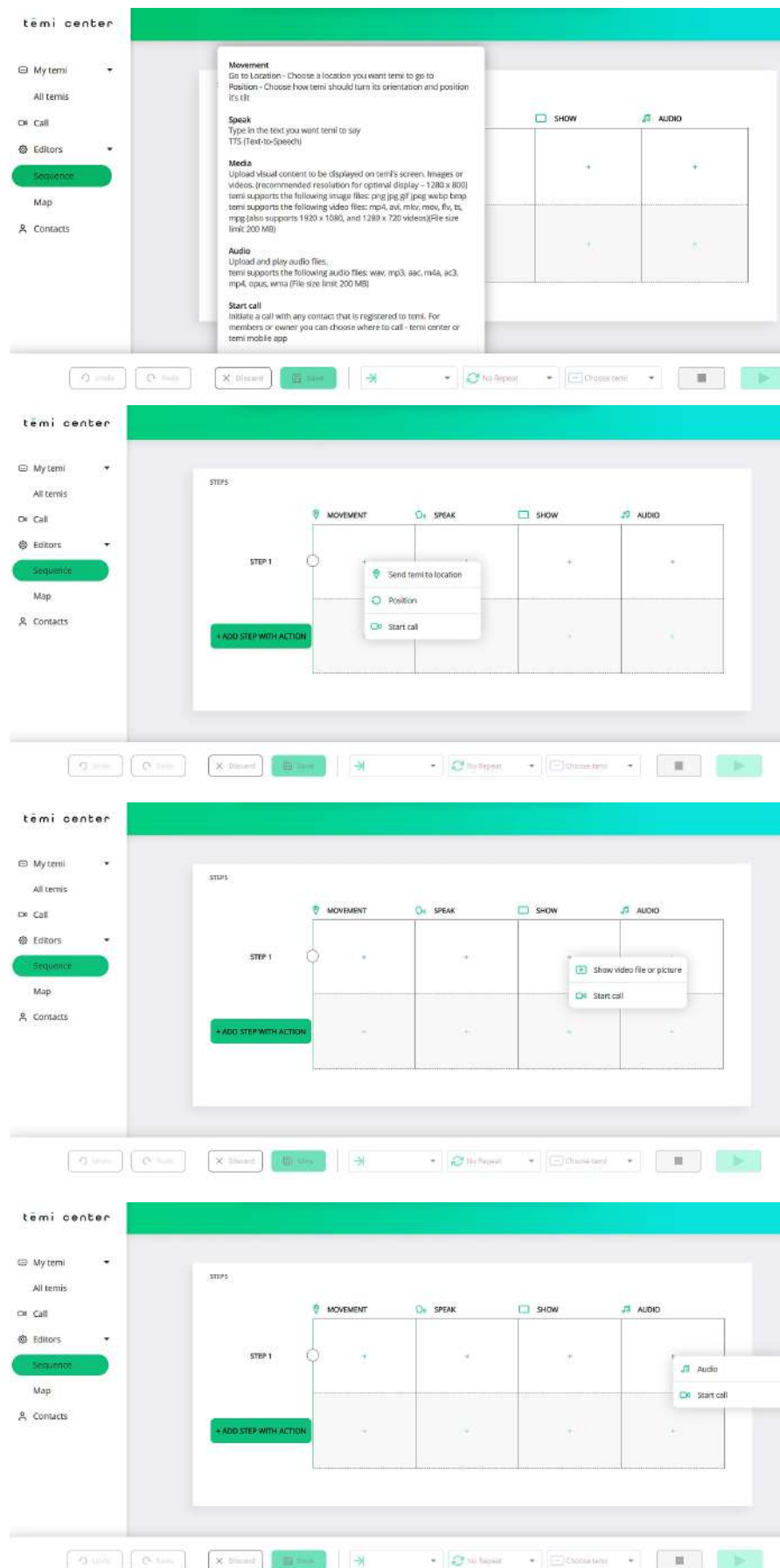
Temi has a semi-autonomous, self-learning system that recognises its user and builds an entertaining experience using Alexa and other applications.

Temi is an intelligent, mobile, personal robot for the home. Temi acts as a home personal assistant and entertainment system with the objective of providing a moving and interactive device to help manage your personal apps and devices. It is meant to control smart home devices, limited online content, and online sound and video communications.

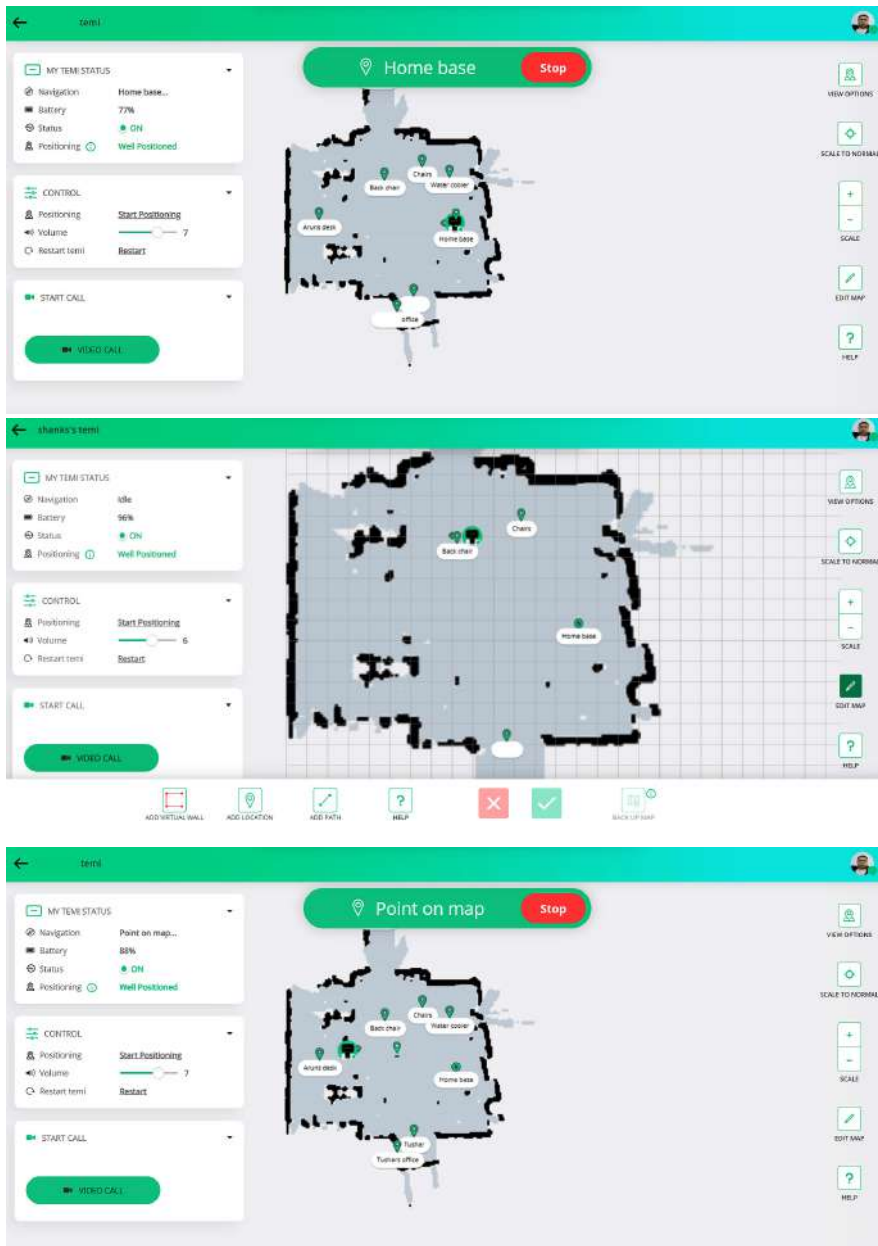
Through Temi, the user can communicate with others while managing their home and moving around. Temi can be activated to follow the user around the home and will always tilt its screen to make face to face contact as it detects the user visually and by audio. Temi has multiple applications preloaded and it is up to the user to manage and customise them for their usage. It has an inbuilt wireless docking station for smartphones and a tray for payloads as it moves around.

you.

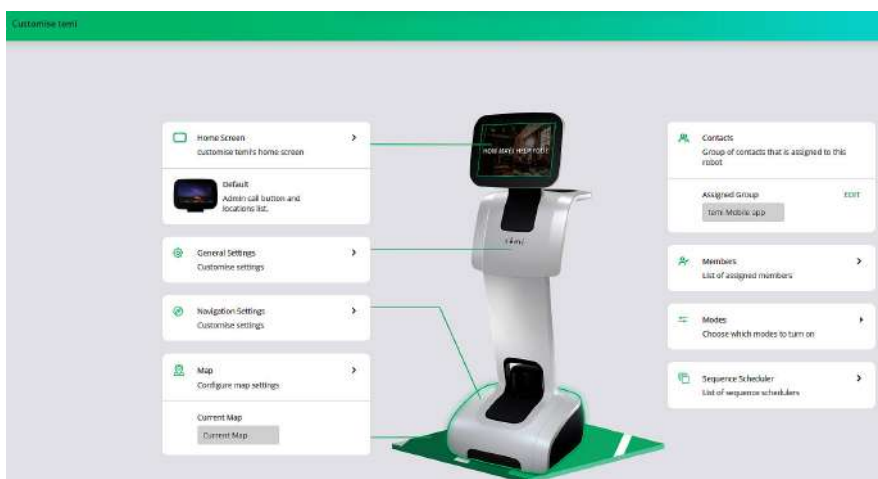
Temi combines technologies like AI and autonomous navigation to create a personal robot. Temi's human interaction and motion navigation is through its patented Robox brain. To enable autonomous navigation, the home needs to be mapped and objects named. This



Programming Temi to move, speak, broadcast.



Mapping the interior where Temi will move and naming the destination locations.



Components of the Temi Robot.

creates a geospatial map for Temi and every time it moves from point to point the route navigation is saved. With AI capabilities, Temi is expected to be semi learning, improving with positive outcomes.

Temi's human-robot interaction and autonomous navigation is delivered by the Robox Navigation System. It includes 2D mapping, 3D localisation, navigation, user detection and tracking, obstacle avoidance, path planning. Temi's intuitive Robox can hear, identify, understand, respond, to the user's voice using auto speech recognition, far field voice technology, natural language processing, speech-to-text and text-to-speech, engines.

SPECIFICATIONS

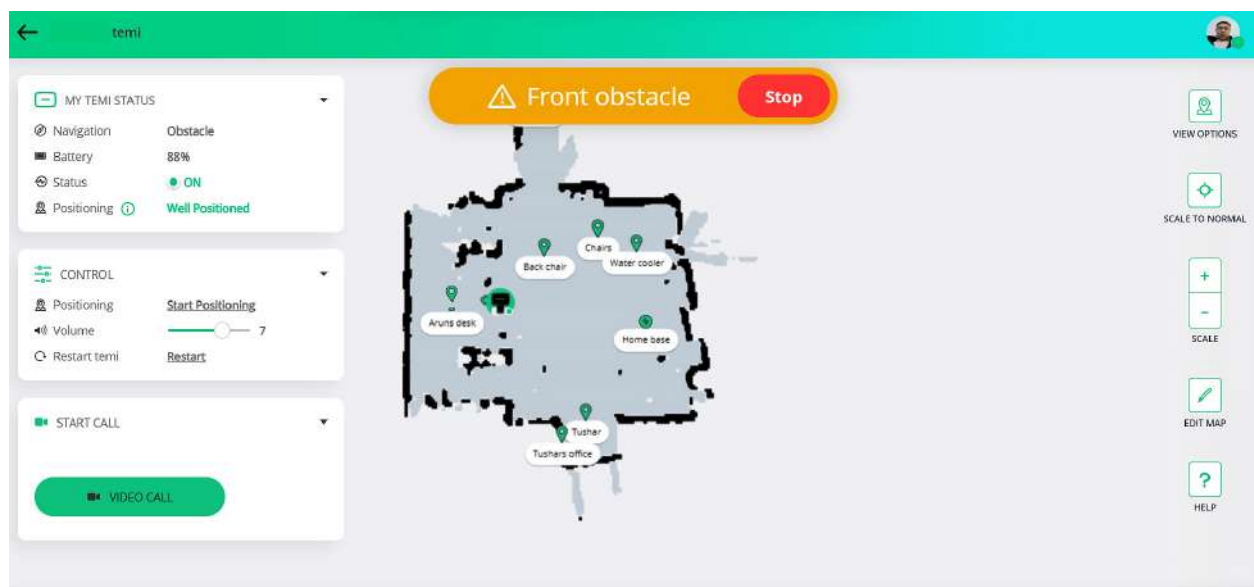
Compute

- CPU 1, ARM Quad core; CPU 2, ARM Hexa core
- Linux OS, Human interaction computer OS based on Android architecture with proprietary launcher and user interface
- Navigation computer based on ARM architecture
- 8 Hours of operation, autonomous charging, high performance docking station
- MIMO Wi-Fi system 802.11b,g,n,ac
- Bluetooth 4.0 Wireless short distance
- Fire-dome IOT security

User experience

- Built in applications include the AI assistant, sound system, SDK, navigation system, video calls and cameras, user experience
- 10" HD LCD screen with capacitive multi-touch for intuitive interface, fingerprint-resistant coating
- Autonomous face tracking screen tilt, motion range – 15°~+55°
- Brushless DC motor for high accuracy and quiet operation
- 4 Omni-directional digital mikes, with real-time localisation, beam forming, acoustic echo cancellation, noise reduction
- 20W Audio, high fidelity equaliser, one sub-woofer, 2 midrange speakers, 2 tweeters
- 13 MP high-res camera with autofocus, 1080p@30FPS, field of view 60 degrees, 5-Element lens, with hybrid IR filter
- 13MP wide camera for remote navigation, field of view 95 Degrees, 1080p@30FPS
- Two independent 50W direct drive brushless DC motors
- High resolution magnetic encoders that produce a smooth, accurate ride, with zero turn radius
- Standard wireless charger for mobile phone
- In built tray for 3Kg payload

Hands-on review of Temi, courtesy Jacky's Business Solutions.



Sensors and Lidar system will detect obstacles in the path of Termi.



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SAUDI ARABIA

ACCELERATING THE NATION'S ECONOMY WITH AUTOMATION

EY and Automation Anywhere, assess the impact of Intelligent Automation on the economy of Saudi Arabia and minimum conditions that need to be in place.



MILAN SHETH,
Executive Vice President, IMEA,
Automation Anywhere.

KEY TAKEAWAYS

- Saudi Arabia needs to accelerate its transformation journey, through a digital-first mindset realised through investments in new-age digital technologies.
- Saudi Arabia has based Vision 2030 goals on three pillars of competitive advantage.
- Saudi Arabia's visionary reform manifested in 2030 goals has helped the kingdom add \$150 billion to its GDP.
- As per global think tanks, the country has potential to double GDP by 2030 while reducing dependency on oil and gas.
- Intelligent Automation, combination of AI and Robotic Process Automation is a key lever in technology led productivity enhancement.

The year 2016 was a momentous one for Saudi Arabi as it embarked on a massive transformation journey on the back of Vision 2030 initiative with a core focus to diversify the economy and enhance the socio-economic outlook of the country. Investments in high growth sectors, renewed focus on developing private sector, strengthening technical infrastructure and undergoing a massive digitisation journey by fueling digital skill programs have been identified as key enablers to help make this vision a reality.

Saudi Arabia is at a critical juncture in its transformation journey. Since the launch of the Saudi Vision 2030 plan in 2016, the government has initiated crucial economic measures and bold social reforms to diversify its economy with a specific emphasis on technology. The impact of Covid-19 on the world economy has been severe with the World Bank terming it the worst recession since World War II.

The Saudi Arabian economy is no exception and is expected to decline by 6.9%, Nominal GDP, with the impact exacerbated by plummeting global demand for crude oil. Covid-19 created a setback to Saudi Arabia's economy similar to other nations globally. Saudi Arabia currently needs to quickly recover and get back on its path of accelerated transformation.

FOCUS ON NON-OIL

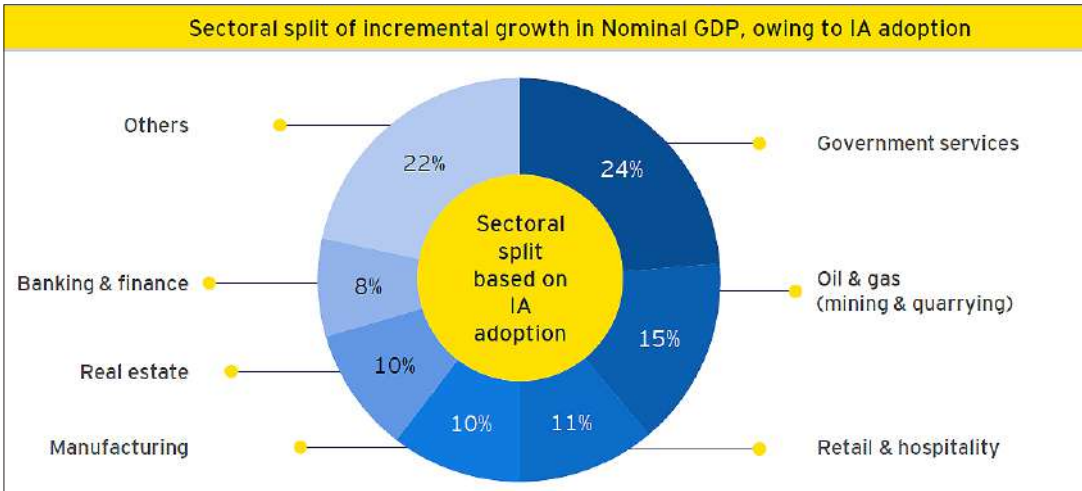
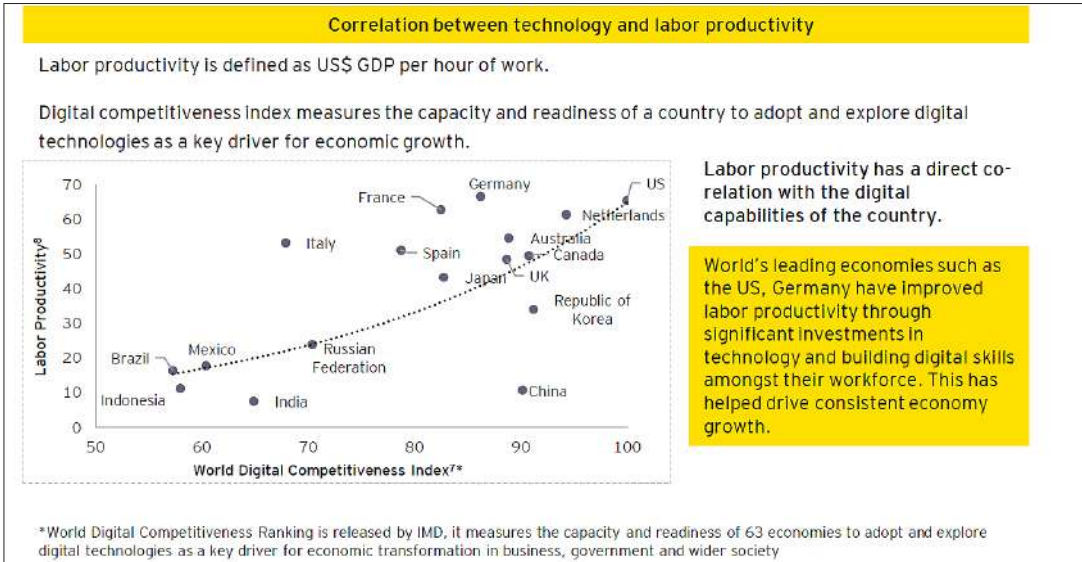
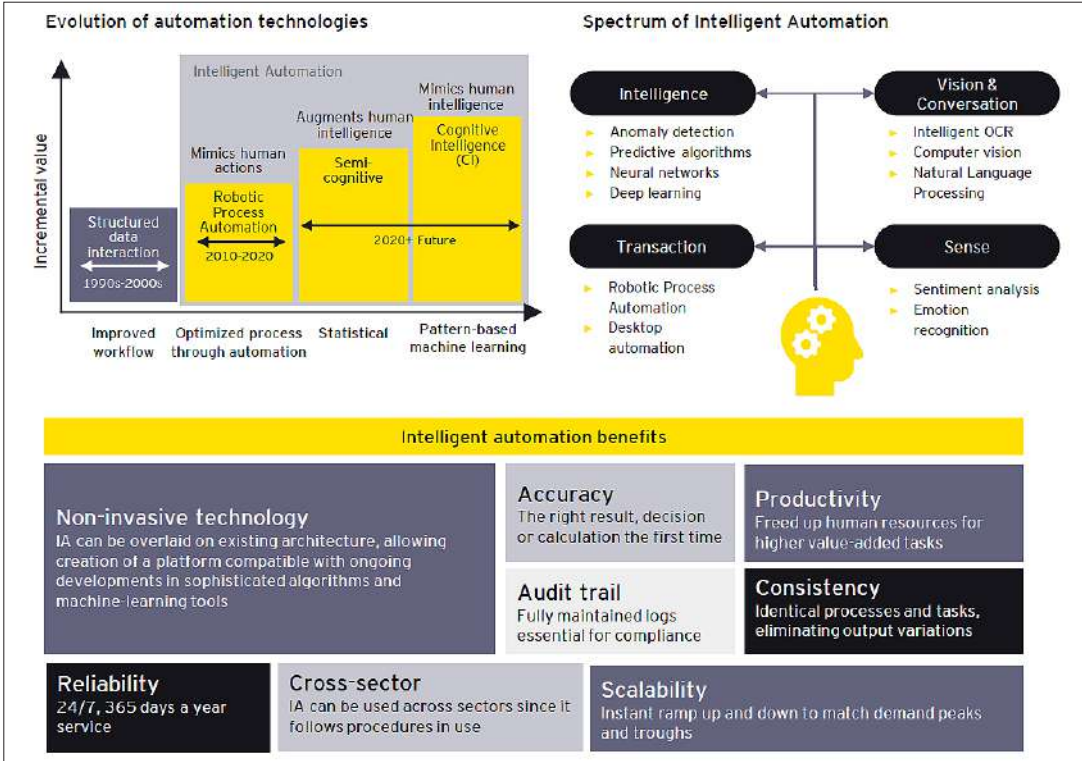
Saudi Arabia has laid strong

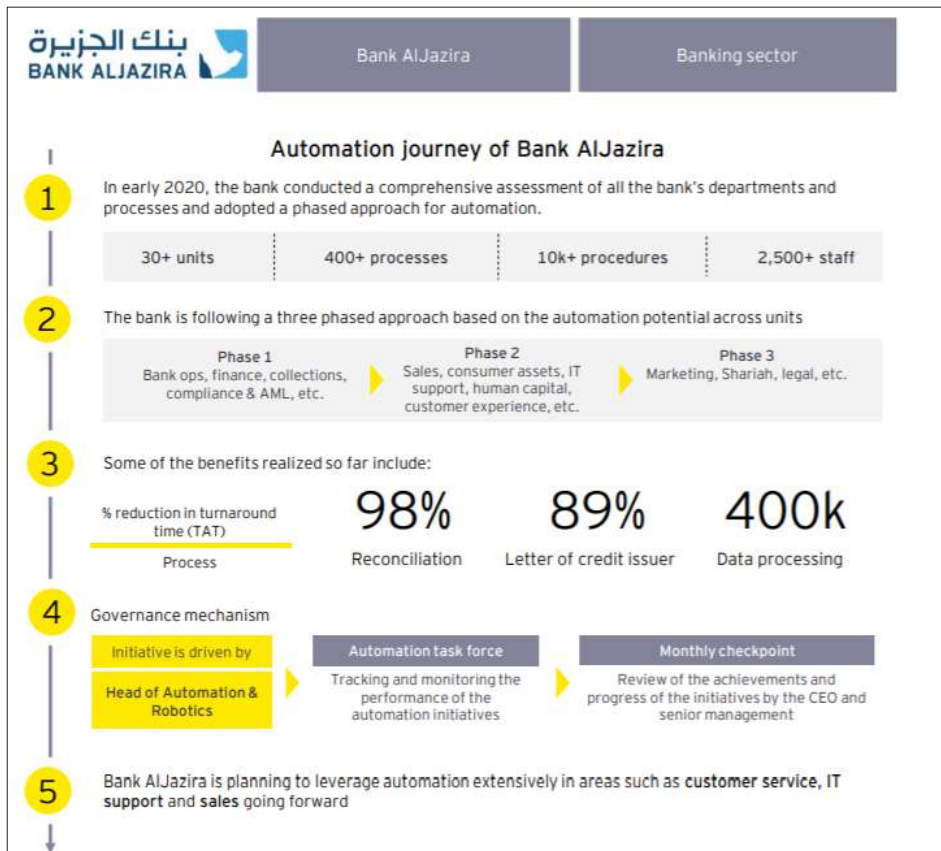
foundations by setting a strategic direction with its Vision 2030 plan and actively promoting private and public partnerships to drive the adoption of Intelligent Automation in the country. To further accelerate the Intelligent Automation journey, the country needs to focus on three critical enablers.

First, accelerating the digital journeys of government entities and private enterprises by assisting them in adopting end-to-end digitised systems that can deliver fast and secure services through the cloud. Second, transforming the local talent by focusing on training and development in digital skills to make them future ready. Third, building a strong ecosystem of start-ups, enterprises, government, and academia to drive innovation and speed up the transformation process.

To drive sustained long-term growth, it is critical to factor in technology-led productivity improvement that would help compound the economic output generated from assets, resources and human capital – that are invariably finite. Multiple studies have proven that countries that have embraced new-age technologies and invested in building skills of the future, have witnessed positive economic growth on the back of improved labor productivity.

Labor productivity has a direct correlation with the digital capabilities of the country. World's leading economies such as the US, Germany have improved labor productivity through significant investments in technology and building digital skills





The impact of Covid-19 on the world economy has been severe with the World Bank terming it the worst recession since World War II.

amongst their workforce. This has helped drive consistent economy growth.

Digital transformation has hence been recognised as a key enabler for achieving Vision 2030 goals and the kingdom has made significant investments to propel technology adoption across key sectors. The country's 14 million strong workforce when equipped with skills covering new technologies, digitised processes and efficient ways of working will invariably increase the labor productivity thereby

accelerating economic growth.

DIGITAL TRANSFORMATION

While some automation technologies have been around for a few years, Intelligent Automation is causing a disruptive revolution for organisations and entities that is dramatically changing the way they operate. Automation solutions handle routine, repetitive work thereby increasing the productivity of the workforce.

However, as traditional levers of productivity improvement mature, Intelligent Automation is emerging as a key lever in driving forward the transformation across sectors. Higher investments in automation across sectors has a direct impact on improving the productivity. Improvement in productivity, leads to an increase in economic output.

Intelligent Automation is a continuum of technologies which builds upon the existing automation architecture and combines Cognitive solutions and RPA to deliver rapid end-to-end process automation at scale. It makes operations smarter and autonomous by leveraging

technologies such as Machine Learning, Natural Language Processing and Natural Language Generation.

Intelligent Automation – a combination of AI and Robotic Process Automation has the potential to act as a key lever in realising the technology led productivity enhancement. Intelligent Automation is unquestionably amongst the top digital transformation enablers for enterprises and government with compelling and proven benefit of productivity gains.

Intelligent Automation has all the key characteristics of being an active catalyst in accelerating Saudi Arabia's digital transformation journey and assisting Saudi Arabia to realise its vision. Emphasis on increased adoption of Intelligent Automation as a fundamental element of digitisation is one of the common traits observed across the most digitally advanced countries in the world.

Improving the digital and cloud adoption, aiding the transformation of the skillset of its citizens and creation of an ecosystem that fosters innovation form the key enablers that Saudi Arabia needs to target. Accelerated Intelligent Automation adoption would enable the enterprises to compete globally and the government entities to drastically improve the quality of governance and citizen services – both of which form the core for Saudi Arabia to become a global powerhouse.

The true potential of Intelligent Automation can only be realised by accelerating the digital and cloud adoption in both government as well as private enterprises in the country. Digital and cloud infrastructure will enable them to deliver services through digital channels in short time and at scale.

INTELLIGENT AUTOMATION AND GDP

Intelligent Automation can act as a potential game changer for Saudi Arabia in its quest to attain the goals highlighted as part of Vision 2030. Even in a moderate growth scenario, a 30% incremental realisation in the automation potential over and above the current automation level,

can boost Saudi Arabia's economy by adding \$293 billion to its nominal GDP by 2030.

In addition to the potential incremental GDP growth, Intelligent Automation would act as a stimulus for the growth of non-oil sectors. Sectors such as government services, banking and insurance and energy and materials are poised to be the biggest beneficiaries of increased Intelligent Automation adoption.

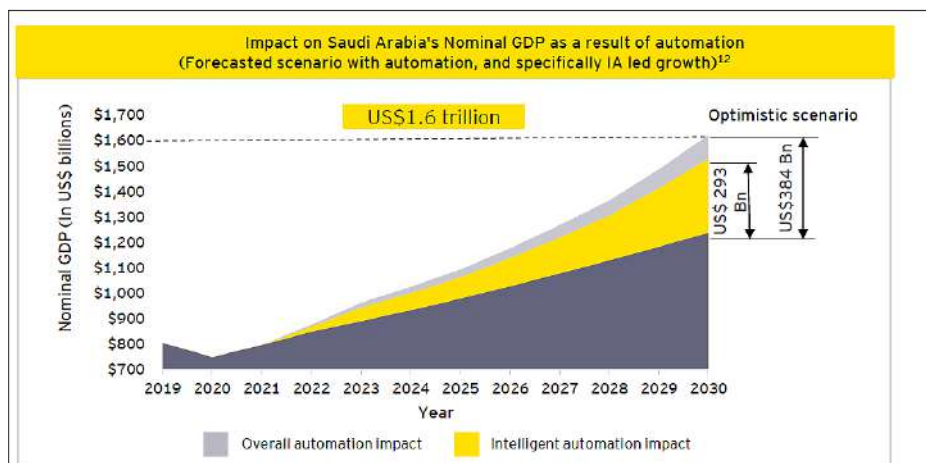
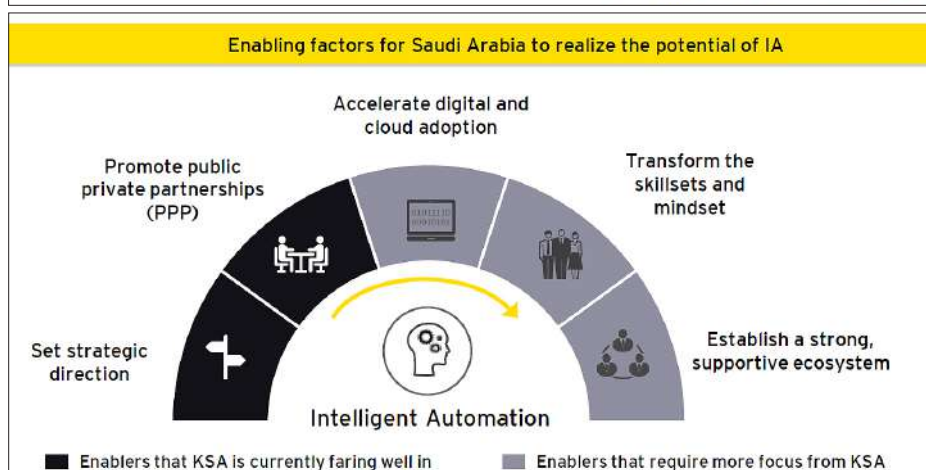
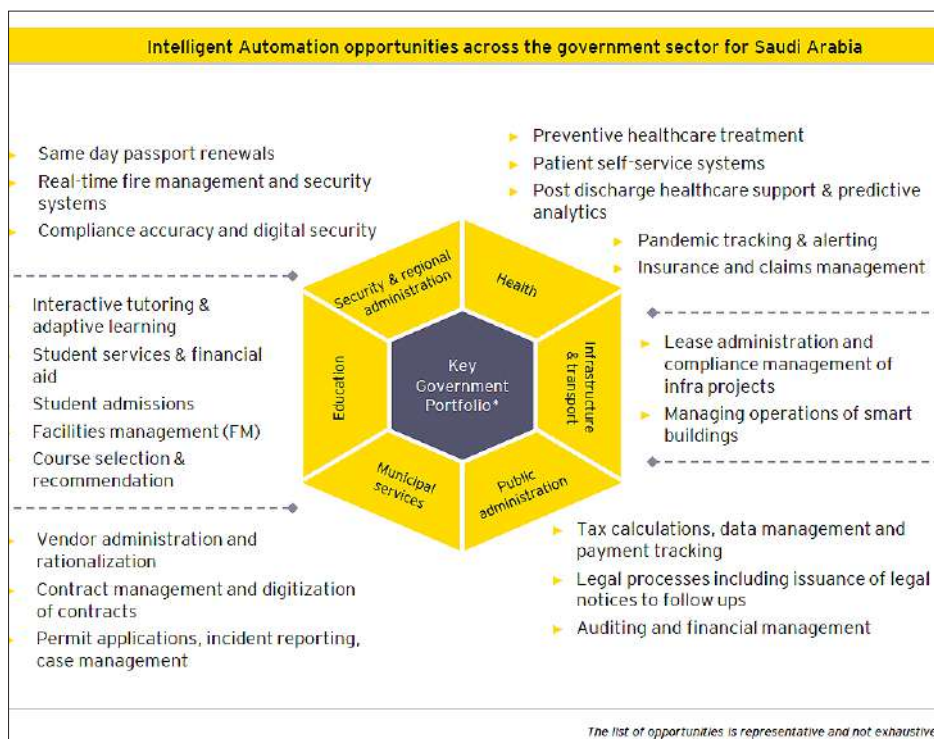
The productivity improvement for a sector that can be achieved through automation technologies varies on the basis of current adoption of automation and the future automation potential of the sector. To quantify the potential impact of automation technologies on Saudi Arabia's economy by 2030 and calculate the productivity improvement across sectors, a realisation percentage of the automation potential across each sector was estimated.

A key hypothesis considered is that Intelligent Automation will act as a virtual workforce performing the identified activities and the freed up human resources will re-join the workforce with enhanced skills and higher productivity than before.

Government services and public sector, banking and insurance and energy and materials emerged as top sectors that would contribute the most to the incremental growth in GDP due to Intelligent Automation and also happen to be the key focus sectors of the country's diversification plan.

To achieve the aspired level of technology-led productivity gains, it is critical that digitisation is adopted by government and enterprises across sectors, and not just a select few. This requires a significant investment in technology, policy-mindset changes, and upskilling-reskilling of the workforce both from the government and the enterprises.

Excerpted and edited from the report Saudi Arabia: Showing the way to the world, Analysing the impact of automation on Saudi Arabia's economy, by Ernst & Young and Automation Anywhere.



The impact on nominal GDP for varying levels of incremental Intelligent Automation (IA) adoption is shown below:

Scenario	Incremental IA adoption (% of total IA potential)	Impact on Nominal GDP as a result of increased IA adoption
Optimistic	50%	US\$ 293 billion
Moderate	30%	US\$ 184 billion
Conservative	15%	US\$ 103 billion

HOW CIOs CAN ADAPT TO THE NEW WORLD OF CLOUD OPERATIONS

CIOs are the newly minted operators of the vast cloud footprint, and they need the tools, processes, people to operate, writes Paul Cormier of Red Hat.



PAUL CORMIER,
President and CEO,
Red Hat.

Every CIO and their respective organisations must understand that they control their own cloud destiny

A decade ago, Marc Andreessen proclaimed that software was eating the world. This came at a time when social media start-ups were just metamorphosing into giants, and cloud computing was still very much emerging technology. The software revolution introduced a wave of innovation and approaches that have fuelled transformation across industries.

A few years later, this statement changed: Open source software was eating the world, with Deutsche Bank noting in 2015 that there were open source rivals for almost every major infrastructure and data management software market. Red Hat has always believed in open source innovation; it is what makes us Red Hat.

From there, as the saying goes, things escalated quickly. Digital transformation started to take hold, apps were king, and every company became a software company. Retailers like Walmart and equipment manufacturers like John Deere opened innovation labs emphasising application development, frequently iterating on open source software that was then contributed back to communities and driving open source as the currency of a digital age.

But now, 2020 and the global pandemic have made it clear that we cannot just build applications – we need to be in charge of running them too. Covid-19 forced organisations to accelerate their digital transformation efforts to

drive innovation and meet customer demands.


In short, it is not enough to view every company as a software company. Now, every CIO is a cloud operator. This does not mean every enterprise organisation is the next hyperscaler. But think about the combination of hardware, applications, virtual environments, existing cloud services and associated infrastructure overseen by the average CIO.

It may not be on the same scale as what we think of as cloud but that does not make it any less of one. Our datacentres are on track to be composed of potentially hundreds of unique clouds, and every organisation will need to have the platforms, tools, processes, and people to effectively operate across these diverse landscapes.

Every CIO and their respective organisations must understand that they control their own cloud destiny. We know how to build for the cloud, but now we need to know how to run the cloud at scale.

Going all in on cloud services might seem easy, but as an all-in strategy, it is a future bet few CIOs are making to give themselves ultimate flexibility for a fast changing world. Maintaining a large datacentre that is not only spread across multiple locations but now also multiple clouds requires a highly-skilled IT workforce and can incur significant costs. Taking a hybrid approach offers balance, both technologically and economically,

Understanding what your specific deployment requires now and in future is a key to success for CIOs as cloud operators



but without a consistent hybrid cloud foundation, there are extensive complexities in blending on-premises and cloud services along with the risk of incompatible stacks.

For CIOs that maintain traditional datacentres, the notion of the datacentre is also expanding horizontally. While it is no longer unusual to scale workloads and environments to the public cloud, the demands of modern applications and end users are not fully answered by centralised processing and analytics. The rise of edge computing comes hand in hand with 5G in telecommunications, artificial intelligence, augmented reality, vehicles as datacentres and more, driving compute resources to the furthest edges of enterprise networks.

The two key delineating factors seen in edge computing are it simply does not exist without the hybrid cloud and the foundation of edge computing must be open or it will fail.

Cloud environments, datacentres and edge devices are all incredibly different footprints, each with unique needs around management, security networking and more. Cloud operators need a common foundation to span these diverse environments, just as they did to connect different cloud deployments, virtualised environments, and hardware stacks. That common foundation was, is and will always be Linux and Linux containers.

For cloud operators, Linux provides the linkage between each footprint of the open hybrid cloud, including edge. Being able to move workloads from the edge to the datacentre to the public cloud without having to completely

change each application is vital and made possible only through the open standards of the Linux kernel. Linux underpins the hybrid cloud, and it is also the foundation of the furthest edge of enterprise IT.

Being a cloud operator, however, is about more than adopting and integrating new core technologies. It is about understanding what is needed above and beyond these technologies to further expand your cloud operations at scale, as well as gaining the skills internally to fully build, manage, maintain, and secure these expanded environments.

Successfully deploying the underlying platforms for an open hybrid cloud strategy is one thing, but it brings more challenges: security, compliance, networking, and management. A cloud is not a static deployment; it will change, and it needs to change to adapt to dynamic business needs and market demands. Understanding what your specific deployment requires now and in future is a key to success for CIOs as cloud operators.

Finally, cloud operators need the skills internally to run their clouds, whatever definition of the term they choose to apply. Traditional IT skill sets will always be in demand, but it is equally as important to nurture teams to learn and master new technology platforms as they build up an internal catalogue of tools and best practices that are vital to future success. A cloud operator building for sustainable success cannot outsource everything – some things you need to learn to do yourself.

The new datacentre is the hybrid cloud, composed of bare-metal servers, virtualised environments, edge devices and potentially hundreds or more cloud services. CIOs are the newly minted operators of these complex, vast cloud footprints, and they need the platforms, tools, processes, and people to operate across these clouds.

Just as Red Hat was ready to help every company become a software company, we are here to help CIOs adapt to the new world of cloud operations. The future is hybrid, and so are we. ■

For cloud operators, Linux provides the linkage between each footprint of the open hybrid cloud, including edge



BUILDING UNIFIED INTEGRATED MANAGEMENT SYSTEM FOR DATACENTRE

As expectations grow from datacentres, bridging the vast number of sub-systems is the way forward to make them future ready explains Sayaji Shinde of AVEVA.



SAYAJI SHINDE,
Global Business Director- Smart Cities
and Infrastructure, AVEVA.

There are at least three principal datacentre challenges that can be rectified by having a unified integrated management system

As traffic on the Internet grows and enterprises continue to digitalise, the infrastructure required to support the transition – from offline to online, on-premises to the cloud – must advance as well. While it is well known that the energy required for tomorrow's datacentre is likely to match that of a medium sized city, there are also other looming challenges giving tech chiefs sleepless nights.

A modern-day datacentre consists of many sub systems. The simultaneous usage of power distribution, water systems, emergency backup, communications, security and surveillance, and multiple other support systems, creates added complexity. For effective performance and cost management, these sub systems must talk and work in concert with each other.

The pandemic brought about a global realisation that the online world is real, viable and the way forward for tomorrow. With the emphasis shifting to the virtual world, from online collaboration, trade and commerce to online supply chains and routing, datacentre customers are becoming more demanding in their expectations.

They want 100% availability and no down-time. They expect to be able to get serviced on demand, and to be able to pay as they go. Increasing performance and efficiency, with reducing costs, are

key expectations from advanced datacentres. In theory, modern-day datacentres are built with digital technologies, so these evolving expectations are not unsupported. But while compute infrastructures and overlaying applications like cloud platforms have innovated to become elastic, datacentres are not there yet.

There are at least three principal datacentre challenges that can be rectified by having a unified integrated management system, bridging the industrial and digital side of operations effectively.

#1 DOWNTIME AND OUTAGE

Downtime of a datacentre or parts of it can prove to be very damaging for customers. A recent global survey of 1,500+ datacentre customers found that 34% experienced downtime with an average cost of \$1 Million. One of the primary reasons for this is the lack of asset management tools that do not allow predictive maintenance models to be built up.

Datacentre administrators are unable to allocate resources or execute pre-emptive maintenance because they lack real time visibility into industrial assets. 60% of respondents in the same survey acknowledged that their most recent outages could have been prevented with better asset management practices in place.

Datacentre customers are becoming more demanding in their expectations

Controlling energy consumption through asset monitoring can immediately help to reduce the overall operating costs

Datacentre administrators must prioritise unification to remain profitable and simultaneously meet customer expectations

#2 SPIRALLING ENERGY COSTS

More than 50% of the operating cost of a modern-day datacentre is driven by energy consumption. Controlling energy consumption through asset monitoring can immediately help to reduce the overall operating costs. Utilities typically use a slab-wise pricing with each subsequent slab having a higher tariff.

Controlling and keeping the consumption in the lower slabs can help reduce the energy consumption bills. Datacentre managers can strive to control their energy bills by having analytics and real time operating models for all sub systems and assets.

#3 SUB-SYSTEM COMPLEXITY

Compute, virtualisation, and networking infrastructures have their own complexity and require their own management systems. The rest of the support systems within a datacentre also have their unique set of challenges. There are many specialised internal systems that coexist and yet are siloed such as Datacentre Infrastructure Management Solutions, Building Management Systems, Building Automation Systems, Building Energy Management Systems,

among others. 77% of respondents from the same survey want better integration of these systems.

As each system is compartmentalised, it is very difficult to generate a single window to visualise the end-to-end operations and take holistic decisions to improve performance. Due to the lack of a single dashboard for management decisions, datacentre administrators are also bogged down with a deluge of data emerging from each sub-system.

The growing efficiency of Industrial Internet of Things, IIoT, sensors and the resulting mountain of unstructured data, are also raising the urgency to integrate, build dashboards, create meaningful insights, and build proactive operations.

Creating a unified operations centre is one way to converge sub-system equipment and applications into a single, cohesive management environment. A unified operation also facilitates management of multiple dispersed datacentres and the ability to manage them remotely.

Here are some of the other benefits of adopting a unified operations centre approach:

- Integrate IT, OT, IIoT into a single interface
- Provide multi-site performance visibility
- Detect inefficiencies and developing defects
- Trigger remedial action to optimise performance
- Integrate business and customer SLAs
- Deliver a consistent view of all operations
- Manage multiple datacentres from one location

As workloads on global and regional datacentres show no signs of any slowdowns, datacentre administrators must prioritise unification to remain increasingly profitable and simultaneously meet customer expectations. ■

HOW TO SECURE IoT-DRIVEN NETWORK IN THREE STEPS

Jacob Chacko of Aruba writes about three simple steps to protect the IoT-driven network and how security is the cornerstone in its successful adoption.



JACOB CHACKO,
Regional Business Head - MESA,
HPE Aruba.

Security is a constantly evolving and changing landscape, and unfortunately the job will never be done

The Internet of Things, IoT, is more than just the next stage in technical development. For many businesses it represents a valuable source of data which can be used to gain new insight into processes, operations, and customer activity. Offering the potential to spot and fix inefficiencies, identify new revenue streams, and much more, it has real economic potential for those who are able to correctly develop, network and generate an investment return.

However, crucial to the realisation of this potential is security. As the breadth and complexity of devices on the network continue to grow at a staggering rate, many organisations are struggling to secure this rapidly expanding attack surface. If they are unable to get a handle on the situation, then it will prove difficult to tap into the efficiencies and outcomes which make any IoT investment worthwhile.

Of course, this is not the first time IT teams have faced a device-based security challenge – the rise of BYOD and remote working both introduced an influx of mobile devices into the business environment for IT to deal with. And the way we got through it then is the same as we will now – by taking three simple steps to ensure a secured network.

#1 Put simply, you cannot secure what you cannot see. Before you can take any other steps, it is crucial

that you are able to accurately map what devices are connected to your network, who is operating them, and how and why they are connecting to your network. As well as getting a handle on your own official devices, shadow IoT, whereby staff connect devices to the network without informing IT teams or taking necessary precautions, is also something you must consider.

With many of today's devices built with generic hardware and software or coming from emerging vendors who do not follow standards; discovery, profiling and identification is proving more and more challenging. And if you cannot figure out what something is in order to label it good or bad, how can you create a reliable profile and keep operations moving?

The answer is to increase our focus on context and machine learning. If we cannot rely on being able to identify exactly what is using our network, we need to look at the behaviour of the device instead. In many scenarios a combination of what protocols a device is using and what data, applications, or URLs it is accessing is the only way to build up an accurate picture of what the device is, and whether the device is malicious.

#2 AI is also important in the next stage of securing IoT, enforcing policy. Today's IT teams need closed-loop, end-to-end access

Security is not a barrier to IoT adoption, it is the cornerstone for successful adoption

We should not shy away from this potential because of concerns about risk instead, we must plan, adapt, learn, and secure

control from the moment a device joins the network. Given the sheer quantities of IoT devices, however, manual intervention is no longer practical.

IoT devices are likely to be operating around the clock, or with some devices connecting at non-specific times to carry out a task before returning to sleep mode. If a heart monitor on ward B begins to transmit its data to a network across the country at 3AM, the reality is that a manual monitoring process is highly unlikely to catch the transfer in time for the device to be quarantined and investigated.

Instead, deploying AI allows teams to develop policies that leverage context, such as the user role, device type, certificate status, and location or day of week, to make quick and accurate decisions every time. When an IoT device joins a network or starts to act suspiciously, it can be automatically segmented, keeping traffic separate and secure, with the policy consistently enforced across wired and wireless networks.

Machine learning-based analytics can also build baselines for normal

functioning of IoT devices – like authentication, remote access, and internal access to high-value resources and cloud app usage – across network and log data.

#3 Once you have used the above steps to allow a device onto your network, you cannot just leave it unchecked. You can only accurately enforce and create a relevant and applicable access policy if you are continually monitoring activities. Active monitoring is essential to keep your network secure, looking for authenticity, new behaviours, and new vulnerabilities, profiling and analytics are key here.

A friendly device may not always be friendly, and you should always be on the look out for recognised devices acting in unusual ways or trying to access different parts of the network. Security is a constantly evolving and changing landscape, and unfortunately the job will never be done.

The advent of IoT has the potential to revolutionise business critical applications. We should not shy away from this potential because of concerns about risk instead, we must plan, adapt, learn, and secure. This is crucial to enabling the huge potential of this technology to be realised.

By setting up comprehensive visibility as an essential foundation, and then building machine learning and artificial intelligence on top of it, teams can stay one step ahead, and reduce the escalating number of risks facing the business. Security is not a barrier to IoT adoption, it is the cornerstone for successful adoption. ■

The advent of IoT has the potential to revolutionise business critical applications.



Michael Bell, Achim Pantfoerder, Nicolas Minbiole join Lucid Motors

Lucid Motors, which is setting new standards for sustainable mobility with its advanced luxury EVs, announced three additions to the company's leadership team, with Michael Bell joining as Senior Vice President of Digital, Achim Pantfoerder as Vice President of Program Management, and Nicolas Minbiole as Vice President of Global Quality.

These additions bring decades of expertise in the high-tech, automotive, and aerospace industries with companies like Apple, Intel, and Airbus. The company also announced the promotion of Eric Bach to Senior Vice President – Product and Chief Engineer, as well as the elevation of Derek Jenkins to Senior Vice President – Design and Brand.



Booz Allen Hamilton promotes Nans Mathieu to Sr VP, Ziad Antoine Nasrallah to VP

Booz Allen Hamilton continues to strengthen its senior leadership team in the Middle East and North Africa region to support clients with the right strategic roadmap for the future with the promotion of Nans Mathieu to Senior Vice President and Ziad Antoine Nasrallah to Vice President.

Nans specialises in centre of government transformation from strategy formulation to operational excellence. He has nearly 20 years of consulting experience advising governments and major corporations in Europe and the Middle East.

Ziad will leverage nearly two decades of experience in consulting engagements across North America, the Middle East, and Africa to advise commercial and public-sector clients throughout the MENA region.



Panasonic Life Solutions MEA promotes Eiji Ito to Managing Director

Panasonic has announced the appointment of Eiji Ito as the new Managing Director for its life solutions company Panasonic Life Solutions Middle East and Africa, PLSMEA. Ito is associated with the brand for over two decades and is expected to create a stronger foundation for growth of the life solutions business of Panasonic.

Ito took charge as the company's MD effective from April 1, 2021 and will be responsible for driving synergies and growth of all business divisions in the region for Panasonic under the life solutions umbrella comprising Wiring Devices, LED Lighting Fixtures, Fire Alarm System and Indoor Air Quality, IAQ, solutions.



Shabana Begum, Morsi Berguiga, Ravi Sinha, Jürgen Paskert join KPMG

KPMG Lower Gulf has announced four high-profile appointments, strengthening its senior leadership team in the Middle East.

Shabana Begum is a Tax Partner based in Dubai, Shabana has joined from KPMG UK, as the firm continues to build its transfer pricing practice across the Middle East region. Morsi Berguiga joins KPMG as a Partner in the Advisory team and sector lead for transportation and telecommunications.

Jürgen Paskert will serve as the Audit Quality Practice Partner, AQPP, for the Middle East. A Partner in Advisory Transaction Services, Ravi Sinha leads the M&A Integration and Separations Advisory Service for KPMG Middle East.



VMLY&R COMMERCE promotes Elke van Tienen to Global Head of People

VMLY&R COMMERCE has announced the promotion of Elke van Tienen, Chief People Officer, EMEA, to Global Head of People with immediate effect. Elke joins the VMLY&R COMMERCE Global Executive Committee and remains based in UK. The new appointment is the latest in a series of moves by VMLY&R COMMERCE CEO Beth Ann as the new company innovates and scales its delivery of end-to-end creative commerce solutions globally.

With over 15 years' experience as a talent professional, Tienen has created and delivered talent initiatives through critical phases of agency transformation while cultivating open and inclusive cultures.

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END CUSTOMERS

SPAN ACROSS

50

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overall CO₂ reduction
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8.1 kg
recyclable material
diverted from landfill



1,925 kg
overall CO₂ reduction



1,731
single use plastic
items removed



37%
Etihad flights serviced
by electric tractors



1,386 kg
overall CO₂ reduction
from operational
efficiencies



108 kg
weight removed
from cabin items



290 kg
overall CO₂ reduction
from GE jet engine foam
wash and fan blade
cleaning

Source: Etihad Airways

GREENER AIR TRAVEL

Etihad operated its fourth signature Greenliner aircraft, which is offset for all operations through 2021. The ecoFlight saw replacement of 1,731 single-use plastic items from onboard service, with a weight reduction of 108kg, saving 60kg CO₂ emissions. Collaboration with air navigation authorities has become an Etihad standard operating procedure. The ecoFlight saw the airline avoid 1,386kg CO₂ through operational efficiencies.



Source: Etihad Airways

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