

BUSINESS TRANSFORMATION

DECEMBER 2021

ASIA

THE CHANGE TO FUTURISTIC BUSINESS

asia.biznesstransform.com

TECHNOLOGIES THAT WILL TRANSFORM BUSINESS IN

2022

Digital technology is driving massive change in the way organisations work. BTx Asia identifies trends that will matter the most.



Abhinav Jain
ALMOND Solutions



Abhishek Rungta,
Indus Net Technologies



Amit Kumar Khan,
Mjunction Services Limited



Anshuman Rai,
Commvault



Ashish Airon,
CogniTensor



Bharath Raj, Blackhawk
Network India



Dr. Kishore Dhara,
OakNorth



Jai Mrug,
M76 Analytics



Jaya Kumar K,
Sabre Bengaluru GCC



Manoj Paul,
Equinix India



Pramod Sharda,
IceWarp



Ranga Jagannath,
Agora



Sandesh Kaup,
Milestone Systems



Saurabh Saxena,
Micro Focus



Sudhindra Holla,
Axis Communications

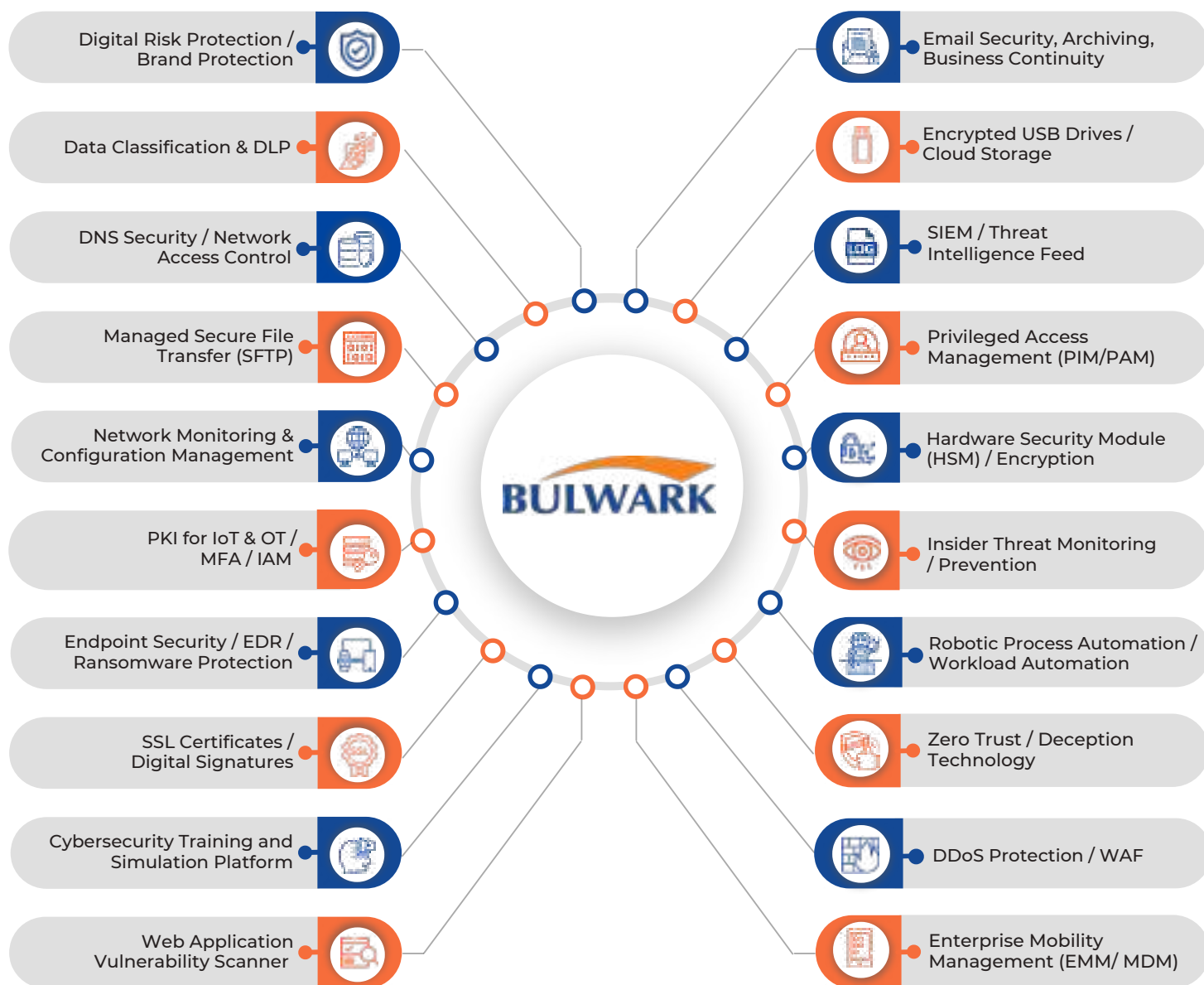


Sudhir Kunder,
DE-CIX Interwire India



Tom Schaumburg,
Capco

OUR SOLUTIONS



— Meet The Team —



Value Added Distributor for Information and Cybersecurity solutions.

Office No:710 & 910, IT Plaza, Silicon Oasis, Dubai, UAE. | Email: info@bulwark.biz | Phone: +971 4 333 5040
www.bulwark.biz

BUSINESS TRANSFORMATION

ASIA THE CHANGE TO FUTURISTIC BUSINESS

MANAGING DIRECTOR
Tushar Sahoo
tushar@gecmmediagroup.com

CHIEF EDITOR
Arun Shankar
arun@gecmmediagroup.com

EDITOR
Shubhendu Parth
shubhendu@gecmmediagroup.com

CEO
Ronak Samantaray
ronak@gecmmediagroup.com

GLOBAL HEAD, CONTENT AND STRATEGIC
ALLIANCES
Anushree Dixit
anushree@gecmmediagroup.com

EXECUTIVE DIRECTOR
PRESIDENT - INTERNATIONAL AFFAIRS
Sundip Sibal
Sundip@gecmmediagroup.com

GROUP SALES HEAD
Richa S
richa@gecmmediagroup.com

PROJECT MANAGER
Anshuman Jyothiprakash
anshuman@gecmmediagroup.com

EVENTS EXECUTIVE
Gurleen Rooprai
gurleen@gecmmediagroup.com

Jennifer Lorraine Mendoza
jennifer@gecmmediagroup.com

SALES AND ADVERTISING
Ronak Samantaray
ronak@gecmmediagroup.com

ACCOUNTS AND OPERATIONS
Ankit Vats
ankit@gecmmediagroup.com
Ph: +91-9999756403

DESIGNED BY



Creative Lead
Ajay Arya

Designer
Rahul Arya

PRODUCTION, CIRCULATION, SUBSCRIPTIONS
info@gecmmediagroup.com

**GEC
MEDIA
GROUP**



THINK DIVERGENT, RECALLIBERATE, AND INNOVATE TO SURVIVE

Coronavirus is turning out to be an endless pit with the disease hitting in waves and the virus mutating endlessly. Scientists and virologists indicate that Omicron is not the end of it; the virus will keep evolving indefinitely and the world will have to live with it.

The good news is that economies in Asia have so far weathered the COVID-19 pandemic better than the rest of the world in terms of disease

management and fatality. For statistics: The total number of those infected in Asia, after adjusting the population size, stood at 18,000 per 1 Million in November 2021 as compared to 74,000 in Europe and 134,000 in North America. The difference is equally stark for fatalities, which stood at 290 per Million in Asia compared to 1,600 in Europe and 2,800 in North America, according to a PineBridge Investments report.

The bad news is that Omicron has triggered a series of knee-jerk reactions from Asian countries that were just about recovering from the pandemic-driven slowdown. This may prove to be detrimental to the region's growth and economy. While India has put on hold its decision to open international travel fully, South Korea has announced that it is extending restrictions for international visitors. Indonesia, which had reopened its borders to tourists in mid-October, has also gone back to the extended quarantine norm.

Similarly, Japan has completely banned all non-resident foreign travellers, while Singapore and the Philippines have indicated that they may tighten restrictions for foreign tourists. Hong Kong too has changed its border policy by making three weeks quarantine mandatory for anyone who comes from a country with even a single case of the variant. Malaysia on the other hand has decided to wait and watch.

This certainly puts Asian businesses in a tight spot. The solution lies in the ability of society to learn how to live a normal life despite the virus. Since economies cannot remain shut and restricted any further, it is equally important that countries adopt policies and approaches that enable stringent monitoring measures without disturbing physical business channels and the movement of people.

The other part of the solution lies in the ability of businesses and organisations to learn how to operate more efficiently in a restricted but otherwise borderless, digital economy. This will require a mindset change and the use of new-age technologies to build sustainable and resilient operations. However, none of this can happen without the essential process transformation and recalibration of policies, both at the corporate and national levels.

Desperate times certainly call for desperate measures, but this cannot be restrictive and restricted by the inability of a few to look beyond the obvious. It is time for the divergents.

Shubhendu Parth
shubhendu@gecmmediagroup.com

CELEBRATING **10⁺** YEARS OF TRUST...



ENABLING ◀ **DIGITAL TRANSFORMATION**

- AI Chatbots
- BI & Analytics
- Blockchain
- CRM / CEM
- Robotic Process Automation
- Managed IT Services



▶ **SECURING** **DIGITAL TRANSFORMATION**

- Digital Risk & Compliance
- Zero Trust
- Cloud & Application Assurance
- Digital Identity
- Data Protection & Privacy
- Managed Security Services



MENA | APAC | AMERICAS

400+ Professional Team | 300+ Enterprise Clients | 50+ International Awards | 10+ Global Locations | 20+ Nationalities

CONTENTS

DECEMBER 2021

07 **OPINION**
Digital transformation in the industrial world

08 **OPINION**
Why social CRM is the future of customer service

11 **OPINION**
How to make your employees more security savvy

14 **OPINION**
Clear link between diversity and business success



38
TRANSFORMATION CHAMPIONS
Orchestrating assets people, customers



43
TRANSFORMATION CHAMPIONS
Cross industry and project-based transformation projects



44
INDUSTRY COMMENT
BUILDING CUSTOMER ENGAGEMENT IN THE NEW NORMAL



55
EXECUTIVE CORNER
Composability are sharp differentiators in business

47 **INDUSTRY COMMENT**
Complement in-house expertise to embed digital model

48 **INDUSTRY COMMENT**
Blending project and asset data into digital twins

50 **INDUSTRY COMMENT**
Top 5 questions the Board can ask their CISOs

58 **EXECUTIVE CORNER**
As executives, do we know the meaning of life?

64 **NEWS**
INDIANS DOMINATE GLOBAL TECH GIANTS

65-66 **EXECUTIVE CORNER**
TECH COMPANIES AND ESG



OMNICHANNEL NOTIFICATION MANAGEMENT FOR ENTERPRISES

sendQuick is an omnichannel mobile messaging platform that leverages SMS, email, voice, social messenger apps, and team collaboration tools to help organizations manage IT incident alerts, automate business processes, foster customer service interactions and provide secure remote access to customers and employees.

Deliver Value with sendQuick

- ⚙ Automate business processes and increase your business profitability
- ⚙ Pre-empt and resolve technology problems before they become business problems
- ⚙ Enhance customer and employee security online and earn their loyalty and trust
- ⚙ Leverage social messenger apps and team collaboration tools for 2-way messaging

Multi-Platform



For further details, please visit www.talariix.com
email ashok@talariix.com or call +97156 212992



DIGITAL TRANSFORMATION IN THE INDUSTRIAL WORLD

The pandemic has fast-forwarded digital transition of the industrial sector by five years and several technologies are set to underpin a sustainable future.



BY RAVI GOPINATH

Chief Strategy Officer and
Chief Cloud Officer, AVEVA

As the world begins to recalibrate itself after the pandemic, businesses have undergone a radical and irreversible shake up of the status quo. The crisis, while extraordinarily unprecedented and challenging, offered radical insights into running and optimising organisations in unpredictable times. Put simply, the crisis showed how oil and gas enterprise operations could be upended almost overnight.

Workforce routines, supply chains, essential maintenance and parts movement were disrupted, while border closures and an unprecedented drop in demand squeezed already tight economic operations. To thrive in this brave new world, energy players were compelled to respond with

transformative action.

As such, the crisis has fast-forwarded the digital transition of the industrial sector by around five years. Several developing technologies are set to underpin a sustainable, optimised and streamlined future for the energy industry.

CLOUD

The industrial sector is rapidly digitising. Companies that were initially hesitant to migrate to the cloud were compelled to make their move amid the pandemic, and now they are seeing transformational benefits. Cloud adoption is accelerating rapidly globally – industrial data volumes are set to treble in the next four years, topping 159 Zettabytes by 2024, according to IDC data.

Energy giants like BP, Shell and Equinor are all accelerating their cloud programs, while Chevron is set to go cloud-only this year. By leveraging Cloud, companies can integrate standalone products, linking AI modules together into a broader intelligence for more efficient performance. With integrated systems comes integrated analysis.

ARTIFICIAL INTELLIGENCE

As AI becomes more sophisticated, with wider use cases, it allows organisations to improve productivity and make better decisions. With unified smart analytics that bridge complete data stacks, teams can leverage mathematical

thought processes across all their activities. A recent IDC report predicts that in accelerating digitisation efforts, worldwide spending on AI systems will reach \$98 billion by 2023, more than two and a half times the spend in 2019.

MACHINE LEARNING

By leveraging the power of machine learning, it is also possible to transform asset performance. Using a knowledge graph – a data map of the entire asset that uses AI and machine learning to build connections – the software comes to understand over time the critical processes and components needed for optimum asset management. The knowledge graph uses this information to help define the asset's safe operating envelope, and to automatically notify the owner of key thresholds for safety, performance or other metrics are being met or exceeded.

CONNECTED WORKFORCE

The impact of pandemic-driven worker lockdowns has forced industrial organisations across the globe to rapidly accelerate their migration to digital. With the help of technologies like cloud, the industrial internet of things, digital twins, and AI, companies are overcoming supply chain, production, and distribution complexity obstacles by linking core processes into a unified remote digital environment. ■

WHY SOCIAL CRM IS THE FUTURE OF CUSTOMER SERVICE

Businesses can improve their customer satisfaction score by mapping social networks, blogs, and various online forums. Here is how social CRM can help.



BY VINAY K MAYER

Director, Marketing Research & Consulting, Asia Research Partners LLP

With the rise of Social Customer Relationship Management (SCRM), customers can access a direct line to businesses and organisations, rather than having to go through an intermediary. In the past, this used to result in unnecessary delays and frustrating interactions, where

the customer could get lost in call centres or get put on hold for long periods of time. It was also sometimes inefficient for businesses that didn't know how to integrate their needs with available resources. But SCRM has changed all that by allowing parties to connect directly and immediately share information about what they do and don't





KEY TAKEAWAYS

Social Customer Relationship Management has changed the way businesses and customers connect and share information about what they do and need.

By following the user's lead, creators of a product can understand what their customers want and show what is in style for that season.

Businesses can leverage consumers' online profiles, combine it with their social listening graphs and customise their offerings to meet individual user's need.

need from each other.

SCRM is a strategy of being responsive to your audience, taking an interest in their needs and wants, and striving to link together the dots between all of the pieces of data so that you can learn more about them. It's an approach to customer care where your customers are involved in the process through various social networks, blogs, forums etc. helping them to build healthy relationships with your business. A negative experience gets acknowledged (and sometimes redressed) in this model of social CRM. An example of this would be through discussions on any networking site like LinkedIn, Twitter and Facebook.

Reports indicate that the global market for SCRM is expected to reach \$244 Billion by 2027 at a CAGR of 46.6%, which means that there is a bright future ahead for businesses looking into how



Companies need to bring in artificial intelligence to manage trade leads and businesses, things that were previously handled manually.



they can implement stronger customer relationships based around social interaction.

#1 UNDERSTAND AUDIENCE TO IMPROVE YOUR PRODUCTS

When starting social customer relationship management, you have to have a community set up to begin with. The community needs to be engaged in the brand, having conversations about relevant topics can lead to further engagement on social media platforms like Facebook, Twitter, etc.

Each piece of information you share with your audience on these sites is like an ingredient for your website's recipe book. It will also help you better understand your customers by looking into each person's profile, including their preferences or buying history.

Following the customer's lead, creators of a product know what their customers want and show what is in style for that season.





Businesses should also connect with users and customers on a global scale by adopting new-age social CRM tools, including mobile social platforms.



#2 OPTIMISE SOCIAL DATA, DRAFT CRM STRATEGIES

As companies continue acquiring and processing data, we're starting to see the most impactful change in the way our world is run. Marketers and businesses alike can capitalise on this exponential growth by utilising consumers' online profiles combined with their social listening graphs, allowing them to better identify their audience and adapt products to suit new trends.

New and existing relationships alike can benefit from Social CRM, because it gives the company a look at all potential customer conflicts. One of the quickest ways to improve your business is by being able to resolve conflicts faster, so be sure to ask your customers about their biggest grievances so you can help them feel more satisfied with their experience.

#3 PERSONALISE FOR LEAD GENERATION, BETTER UX

Customisation is a new CRM trend and it is also a critical one. Personalisation involves going deeper and meeting the individual needs of every customer. An example of personalisation is choosing a customer and knowing what kind of information you can collect to specialise your product offering for that particular individual. This is a tool that helps develop and retain customers for the future.

Get in on this trend by leveraging the analytical power of customer relationship management (CRM) systems for your marketing efforts. By uploading data from multiple sources including social media, email applications, databases and other customer relations tools, you can better understand who your current customers are while increasing your reach potential with data analysis that spurs high-performing messaging to attract new clients.

For instance, Saying 'thank you', sending personal holiday greetings, customising gifts and freebies to the customers, emailing/calling after sales, communicating with them regularly about new products, services or company policies—all these are examples of personalisation.

#4 BRING ARTIFICIAL INTELLIGENCE INTO YOUR BUSINESS

Artificial intelligence (AI) is emerging as a tool in marketing automation processes as more tools such as bots and business model predictors, also referred to as lead analytics tools, are becoming elements of CRM systems that collect, organise, and transmit data. These systems manage trade leads for sales teams and businesses that had previously been handled manually by people working within those roles.

Alexa, Amazon's voice memo tool, is an example of AI that is available today. Consumers enjoy this product because it provides instant information whenever they need it, by simply asking Alexa a question.

GET READY FOR THE NEW-AGE SOCIAL CRM

Social media and mobile devices enable business relationships to be developed on the go today. In this environment, businesses can make connections with their users and customers on a global scale. Following the recent outbreak of COVID-19, brands have adopted a virtual business model. They have shifted their customer relationships to a social mobile CRM, which gives consumers a more organic way to engage with brands.

Using sites such as Twitter and Facebook not only allows social CRM users to display their latest deals or updates on their products, but it gives them a platform where they can connect with more clients than they could on any other social network.

Many companies are already adapting to the use of technology in their communications methods. Industries are prescribing how digital methods are taking away from the traditional ways of doing business, but one way that businesses can adapt with the times is to introduce technology into some aspects of their marketing budgets. While some are still spending more on physical marketing efforts, many are looking to change that.

It is predicted that by 2030, over half of all marketing revenue will be generated through digital platforms; after all, social media is a great platform for gaining exposure and building relationships with customers and prospects alike! ■

HOW TO MAKE YOUR EMPLOYEES MORE SECURITY SAVVY

The core of any enterprise security awareness program should be to shape employee behavior so that it reduces the likelihood of security incidents.



BY WILLIAM CANDRICK

Director Analyst, Gartner

Cybercriminals have become experts at social engineering, using increasingly sophisticated techniques to trick employees into clicking on malicious links. It's up to security leaders to provide employees with the information and know-how to better defend against these attacks.

You can turn your employees into cybersecurity advocates, but only if your security awareness programs actually work. Bolster your initiatives with these three actions.

You need to turn employees into controls that detect and resist social engineering attacks, but security and risk leaders often fail to deliver a security awareness program that produces meaningful changes in employee behavior.

#1 SET THE VISION

Start by establishing a vision statement that lays out the security behaviors desired and required to enable the organisation to achieve its strategic objectives.

Do this with a cross-functional working group comprising representatives from across the organisation, including core lines of business and support functions. Secure approval from senior management.

The cross-functional team must develop a statement that embodies the end-state or the aspiration for the security awareness program and should resonate across the organisation, providing a tangible lodestar for employees to follow.

Articulate which signature behaviors would be on display if the organisation achieved its desired security awareness end-state. Signature behaviors are those that clearly reflect positive intent and support by end users for realising the security awareness vision.

#2 DEFINE TANGIBLE, MEASURABLE DESIRED BEHAVIORS

The core value proposition of any enterprise security awareness program should be to shape employee behavior so that it reduces the likelihood and or impact of security incidents. Gartner advocates outcome-driven metrics to indicate an operational and benefit outcome aligned to the behavioral statements in the vision.

Mandatory completion rates and knowledge check outcome metrics come via standard reports available in the majority of security awareness computer-based training platforms. These are useful measures of how many of your end users are completing the security awareness training and how easy it is to understand.

It's useful information but does not indicate an effective security awareness program that reduces risk or delivers other tangential business benefits. ODMs measure outcomes that can be tied back to measurable protection benefits.

#3 LINK BEHAVIORS TO MEASURABLE BENEFITS

Once the ODMs have been collated, link those insights to the business drivers that senior leadership really cares about. Start by measuring root causes of human-generated cyber risks that will deliver benefits if improved — for example, the number of cybersecurity incidents caused by data misuse or human error. Such metrics should improve over time if your awareness program is working effectively.

Then link those benefits outcomes to business drivers and benefits — which will relate at most organisations to revenue, growth, cost management, risk management and brand reputation. ■

CAN THE EU LEGISLATION CREATE ETHICAL AI?

The anticipated regulation, which may become a global standard, appears to be surprisingly smart and only prohibits certain uses of AI.



BY SYLVAIN DURANTON & STEVEN MILLS

Managing Director and Senior Partner at BCG, Global Head of BCG GAMMA



Managing Director and Partner at BCG, Chief AI Ethics Officer of BCG GAMMA

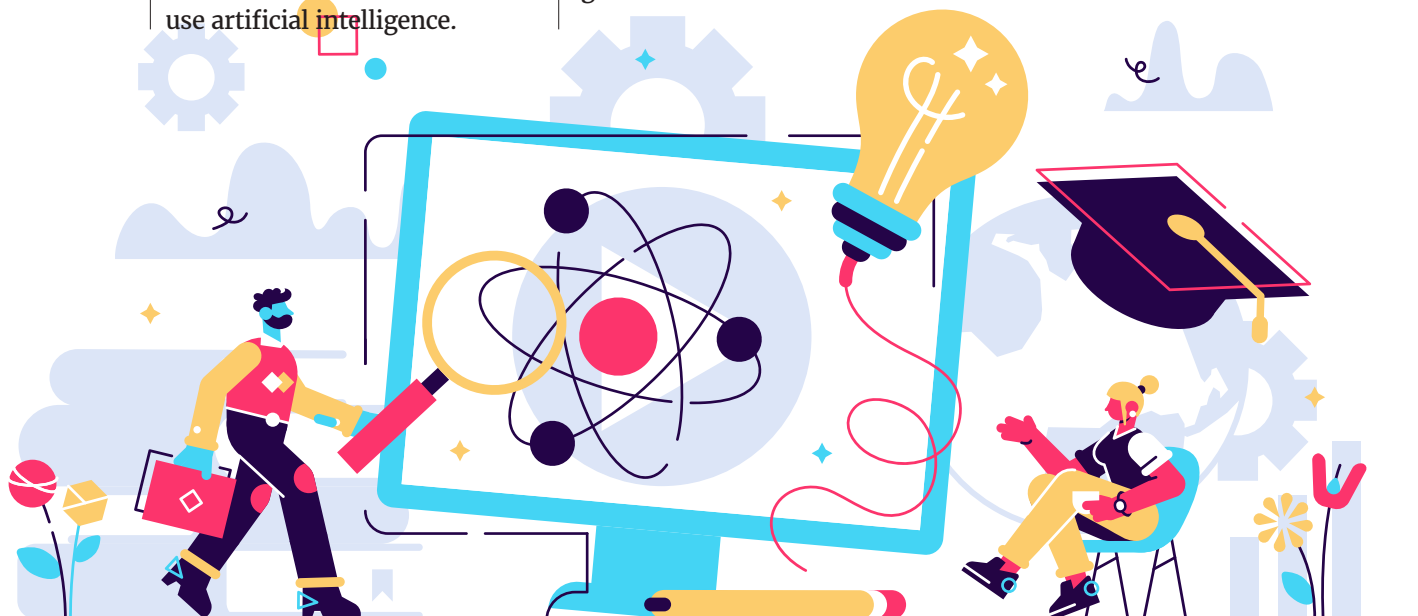
In a recent survey of senior executives at more than 1,000 large organisations, the business community is already in favor of ethical artificial intelligence: 86% of respondents say their companies were taking active steps to use artificial intelligence responsibly.

This shows that companies are intrinsically motivated to behave responsibly. The challenge many executives report is the lack of clear standards – which leaves many of them no choice but to create their own.

Good regulation establishes common standards and reinforces transparency requirements, so customers can make up their own minds and reward companies for using responsible artificial intelligence. This will help to build public trust and show that responsible artificial intelligence is in line with our fundamental rights and values.

A wave of technology regulation is sweeping the world. Legislators and regulators from the European Union, the US, India, and other countries have been working on new laws and regulation that will soon shape how organisations – and through them, all of us as citizens and consumers – can use artificial intelligence.

Just as artificial intelligence itself, these regulations mostly work under the radar – but they will soon affect almost every aspect of our lives. Because whether you know it or not, artificial intelligence is everywhere: it can help you discover new music, park your car, or play you in a video game.





We advise businesses to take proactive steps towards using responsible AI and be open and transparent about steps they are taking.



The EU's anticipated regulation, which may become the de facto global standard, appears to be surprisingly smart. It only prohibits certain uses of artificial intelligence, not the technology itself. Think facial recognition, which can be used for mass surveillance – or to unlock your phone.

It is a thoughtful approach that activists have criticised for not being rigorous enough, but it has the benefit of leaving the door open for further research and new beneficial uses.

The legislation is also unusually tech-savvy. It requires artificial intelligence systems to be trained on high-quality data sets, transparent and subject to human oversight, and robust and accurate. These requirements will have to be more clearly defined – but it's good to see regulators who know the ingredients for good artificial intelligence.

On the whole, however, the EU regulation could benefit from a more balanced view on artificial intelligence's potential. The proposed regulation talks about high-risk artificial intelligence systems that are likely to cause physical or psychological harm through the use of subliminal

techniques or by exploiting vulnerabilities of a specific group of persons due to their age, physical or mental disability.

It also prohibits artificial intelligence from providing social scoring to assist public authorities.

Every powerful technology has the potential for abuse, so we understand why the EU wants to implement democratic safeguards. But the language of the regulation risks amplifying concerns citizens already have about the technology. Let's remember that most artificial intelligence use cases are entirely innocuous – just ask Siri or Alexa or look into your Discover Weekly playlist on Spotify. Regulators should strive for a balanced tone that encourages citizens to remain vigilant yet leaves room for all the positive impacts that artificial intelligence can deliver.

At heart, artificial intelligence is a computer-based method for reducing waste: for cutting back unnecessary time, effort, materials and energy. BCG studies show that applying artificial intelligence to corporate sustainability could reduce global emissions by 10%.

So artificial intelligence can do a lot of good. Lawmakers should focus on the relatively few applications that are associated with risk – and give the others space to develop.

EU regulators would likely argue that this is exactly why they differentiate between Unacceptable, High Risk and Moderate, Low Risk use cases. But the regulation encourages voluntary compliance even if you are in the Low-Risk category.

This puts companies in a tough spot: They will either have to deal with great cost and complexity, or answer to their customers who will ask them why they do not. Regulators should instead focus on a middle ground for the

Moderate, Low Risk category that encourages transparency and accountability without the full set of onerous requirements.

Otherwise, the EU artificial intelligence regulation could end up stifling innovation, especially for small and medium-sized enterprises, while large platforms with their armies of lawyers and lobbyists could go unscathed.

Adding to that fear is the vague language of the draft, which includes a wobbly definition of artificial intelligence itself. This imprecision is likely to lead to constant updating – and creates loopholes for those wanting to exploit the law.

This lack of precision could lead businesses into a no man's land of legal uncertainty where they could face fines of up to 6% of their global turnover if they do not use complete data sets. But who will tell them what a complete data set is? Nobody. And that is just one of many unclear standards.

We would much prefer it if regulators worked in phases and required extensive transparency first – and from there, we could work out clear standards together.

We believe that in the end, companies will do a better job of proving that artificial intelligence can be used responsibly than legislation ever could. The new laws will set legal requirements – but clearing those will not be enough to gain society's approval.

If you want the social license to operate artificial intelligence at scale, you will have to gain people's trust. We advise businesses to take proactive steps towards using responsible artificial intelligence and be open and transparent about the steps they are taking. The best companies are already moving in that direction – and they will be greatly rewarded for doing so. ■

CLEAR LINK BETWEEN DIVERSITY AND BUSINESS SUCCESS

It is no secret that the more diverse the workforce, the richer the business outcomes will be and the best first step has already been taken.

Fostering diversity from the top down and utilising as many diverse viewpoints as possible is the key for these strategies to succeed. From increased performance to a dramatic uptick in innovation, developing diversity and inclusion policies comes with inherent bottom-line benefits.

Recent research from global management consultants McKinsey found that, on average, ethnic diversity in businesses increased the likelihood of financial outperformance against the local industry average by an average of 36% in 2019.

Gender diversity sees a similar result, with diverse organisations, on this metric being a quarter more likely to outperform their local industry average.

With such a clear link between diversity and inclusion to business success, it is no secret that the more diverse the workforce; the richer the business outcomes will be. For leaders who already work to increase diversity metrics in hiring practices, the best first step has already been taken.

An inclusive culture is the next required step for leaders, who must engage and reward inclusive behaviours identified across team projects. These leaders win when they hear all ideas and engage in problem solving across teams with all levels of employees.

But to be truly effective, these diversity and inclusion practices need to reach all areas of an organisation, from

boardroom to entry level staff. Integrating diversity and inclusion initiatives is the requirement to doing business in an increasingly diverse and multicultural world.

The difference between success and failure here rests on the level of support and penetration these initiatives have across your business. While some organisations have, erroneously, attempted to drive their D&I initiatives through a steady flow of new entry-level employees, efforts must start at the top, with new hires in strategic positions, then flow down to all departments and employees at all levels.

As with any other successful company initiative, it needs senior buy-in and representatives at the highest level of the business leading by example and informing on diversity metrics to build awareness across the enterprise.

In practice, this increased focus on diversity and inclusion delivers a mixture of experiences that not only make us better at what we do but provides a more complete informational foundation from which to do business with other areas. It is not enough to merely have diverse viewpoints – you need diversity in your decision making.

While diversity and inclusion are clearly critical to business success, it can be taken further by, holding everyone



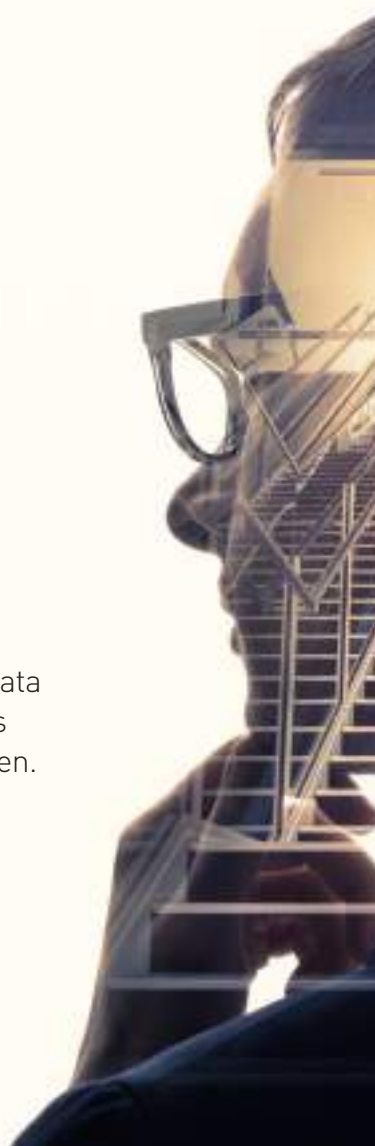
BY LIBBY DUANE ADAMS

Chief Advocacy Officer and Co-Founder at Alteryx

“
Just
15%

of the
world's data
scientists
are women.

”





KEY TAKEAWAYS

Diverse organisations are a quarter more likely to outperform their local industry average.

It needs senior buy-in at the highest level, informing on diversity metrics to build awareness.

An inclusive culture is the next required step for leaders, who must reward inclusive behaviours.

in a business accountable, and encouraging the use of – in the literal sense, more inclusive language. In short developing a culture of We.

This democratisation of responsibility comes with a comparable democratisation of action. At its core, a shift to a We Culture empowers employees to take responsibility for their own outcomes.

Three ways this culture shift can start are, to firstly delegate the decision-making process – enabling employees to actively shape their career paths with accountability, impact, and the skills development they need now and in future roles. Second is through the use of We based communication. Thirdly is consistent praise – until these behaviours become self-sustaining.

There is a correlation between linking diversity and inclusivity undertakings to any business activities. Upskilling, democratising, and turning employees into leaders are all inexorably linked goals. The higher quality diversity and inclusion initiatives, the better questions are asked, the higher quality of questions can be answered and the more business value breakthroughs can be achieved.

The ability to see different problems through different perspectives is one of the most powerful tools in the drive towards developing an increasingly globalised business. Doing so, also helps reduces inherent bias in the decision process. Business leaders will need to focus on the journey, and not the end of the diversity and inclusion metrics charts.

Diverse hiring, with inclusive decision making, needs to be

part of the company culture which will attract amazing talent; further supporting these efforts. Success will run in tandem with hard work, effective leadership, continuous feedback and acknowledging employee successes.

The technology sector is moving at a breakneck pace, and upskilling, diversity, and inclusion initiatives should operate hand in hand to ensure businesses keep up. With data everywhere and offering the ability to solve the worlds' problems, just 15% of the world's data scientists are women.

The evolving landscape of the data science and analytics market creates an inherent need for organisations to foster data-driven cultures fuelled by collaboration and diversity, presenting an opportunity for all demographics traditionally underrepresented in the technology workforce, to accelerate their careers by embracing analytic roles.

For business leaders, this represents an opportunity to look within for specialists with the right attitude to problem solving, not just technical aptitude, to support and upskill in both data literacy and analytics.

Stripping away bias and striving for an equitable relationship with employees is a vital first step to inclusion. Ultimately, we need to develop a culture that not just allows for the unique differences between people but celebrates them. A business developed on a foundation of multiple, diverse viewpoints is more prepared to thrive in today's hyperglobal environment. ■



ARE WE REALLY THROWING AWAY ONE THIRD OF WORLD'S EDIBLE FOOD?

Cheese, bread, meat, food can be efficiently produced using data-based algorithms, while machine learning helps optimise sales and production planning.



BY OLIVER GUY

Senior Director Industry Solutions, Software AG



In Germany alone, around 12 million tons of food ends up in the trash every year and over

30%

of that is destroyed in the production process.



One place to start is by reducing the daily mountains of food waste around the world – which can use a helping hand from some clever technology solutions.

World hunger continues to loom, intensified by lengthy and unexpected droughts, a pandemic and unmitigated poverty. At the same time, an estimated 1.3 billion tons of food is wasted globally every year, one third of all food produced for human consumption.

Are we really throwing away one third of the world's edible food? It is enough to feed all of the 815 million hungry people in the world, four times over. That's a lot to swallow.

Retailers and food outlets are conscious of the issue, working with consumer apps like Too Good to Go, but technology can help reduce food waste even more – in three innovative ways.

INTRODUCING THE INTERNET OF FOOD

Imagine food being smart like our phones, TVs, and cars. Hard to believe? The Internet of Things IoT, integration and analytics all have promise that might surprise you.

Supply chain transformation, using billions of IoT connected devices, is projected to reduce global food waste by as much as 20% in the next four years. That percentage will jump to 50% by the end of the next decade.

Here's the key with IoT:

Single use smart labels and real-time data tracking. With the information transmitted via printed IoT circuits, batteries and cellular connectivity-capable labels, companies can actually see everything – from location to temperature, humidity and even oversupply of food – and prevent waste between farm and fork.

Smart farming deploys sophisticated real-time data tracking sensors to determine color, size and shape of fruits and veggies while they are still growing. This actionable data is vital in monitoring growing conditions, water supply and also optimal harvesting.

That, of course, is just the beginning. What about when wasted food gets to the garbage can?

A decade ago, Scientific World Journal published an article about using RFID technology in waste management, adding the capability to sense when it's time to pick up the trash – in essence, smart garbage cans. The tech, developing in the Republic of Korea currently, is aimed at a RFID-based garbage collection system using chips and stickers to measure the actual weight of garbage being thrown out.

A prototype RFID collection bin then communicates with a central server to request pickup. If it's over the allowable tolerance, no pickups are requested. This in turn helps to manage the habits of organisations, restaurants, and retail chains in decreasing



KEY TAKEAWAYS

Thanks to process mining, the potential savings and reductions at this meat producer were estimated to over \$800,000 per year.

A decentralised hub is capable of automating the transparency blockchain enables.

You can expect food suppliers to pick up the slack and eliminate their own inefficiencies just to keep up.

discharge via allowable tolerances. It is almost like the garbage can is saying no to waste!

In Germany alone, around 12 million tons of food ends up in the trash every year. Over 30% of that is destroyed in the production process. Cheese, bread, meat, and other food products can be efficiently produced using data-based algorithms. Machine learning helps optimise sales and production planning, as well as process and plant control systems.

PROCESS MINING FOR FOOD

The idea of process discovery solving the world's problems of hunger might seem far-fetched, but not for one of APAC's leading meat processors. How does process mining contribute?

The meat industry operates the production of raw materials within certain national standards and regulations. Issues include a hefty amount of waste and costs – as is typical in manufacturing. Instead of industrial products, though, what gets wasted is a lot of meat.

Thanks to process mining, the potential savings and reductions at this meat producer were estimated to over \$800,000 per year. Turnaround times for meat products even improved by about 30%. The key takeaway on process mining's discovery was the need for newer, more efficient cold storage.

Because if turnaround times increase, product can last that much longer. Better transparency reveals any discrepancy between expected and actual production volume. Adding it all up results in a significant improvement, which also benefits the overall production from cost to quality.

BLOCKCHAIN, TOP OF THE FOOD CHAIN

Segueing from data mining and analytics, unlocking the power of blockchain technology might be just the boost the food industry needs, hopefully leading to a sustainable ecosystem. But how? Through supply-demand algorithms.

Whereas process mining seeks to discover newer, more efficient pathways, distributed ledger technology or blockchain ensures those pathways remain clear and secure. The immediate tracking and transfer of data via blockchain ensures that a flour producer can verify every single shipment down to the granular details: harvesting time, conditions, transit points, freshness preservation methods, etc.

Human error then becomes a thing of the past. With a decentralised hub capable of automating the transparency the blockchain enables, you can expect food suppliers to pick up the slack and eliminate their own inefficiencies just to keep up.

As a matter of fact, Walmart has been working on leveraging the blockchain to accurately track produce supply chains. It is amazing to think that technology can play even a small role in something as fundamentally devastating as world hunger. But with a little creativity, connections – and perhaps, some simplicity – it can be possible to leverage the power of technology to do enterprising things. Like fill a pantry with good food.

So, think about what your company can do with technology to reduce food and other waste. ■

TOP EXECUTIVES ARE NOT IMMUNE TO BURNOUT

While superhuman responses necessary to address today's challenges are fuelled by adrenaline, the relentless sense of urgency is unsustainable.



BY CHRISTIE STRUCKMAN

Vice President Analyst,
Leadership, Culture and People,
Gartner

CEOs tell us the top four organisational competencies they need in place to deliver on their business strategy are talent management, technology enablement, digitalisation, innovation, and execution. They need an effective system to either hire or develop the skills needed for their strategy, and they need to continue with their digitalisation investments.

They need to simultaneously think differently about how they

design and deliver their products, services, and they need flawless execution on their business plans. And do this in the context of the virus with differential impacts around the world, and concerns about how to make hybrid work in their organisations.

Leaders have the right to prefer onsite v offsite work, and if so, should be clear sooner rather than later. The ambiguity is worse than not knowing. Executives should balance the work needs with employee





KEY TAKEAWAYS

Executives are not immune to burnout and relentless sense of urgency is not sustainable.

The superhuman responses required to address today's challenges are fueled by adrenaline.

Executives need to modulate work so that employees get a chance to play catchup with other commitments and with home life.

Telling employees to take care of themselves will more likely be followed if employees see the executives doing the same.

preferences. But just know that employees are expecting to be offered hybrid working options.

Our research suggests that by 2022, 47% of knowledge workers will be hybrid workers, up from 27% in 2019. And if you force your employees to go back full time in the office, you could lose 1 in 3 workers.

There is no one right culture for success. The best culture is one that is consistent with the strategy of the organisation, accentuates the unique value of the organisation in the ecosystem, celebrates the organisational history, and provides clear guidance to employees about what is accepted and expected.

Culture is an outcome of the systems, processes and practices of the organisation that teach employees how to behave. Similarly, there is no one right structure. The organisational structure is simply a tool to organise employees. Executives should focus on making sure their operating model is efficient and effective.

We believe four skills or competencies are critical for executives -- business acumen, digital acumen, emotional intelligence, and relationship management. Executives need to understand how their enterprises make money or provide services and know the levers that impact the business model.

Digital acumen is the ambition and ability to use and apply existing and emerging technology to drive better business outcomes. Emotional intelligence, the ability to recognise and manage emotions, helps executives as digitalisation changes employee's work practices, behaviors, and reporting relationships. And relationship management is critical to resolve challenges and barriers that arise across the enterprise.

Executives are not immune to burnout. The superhuman



Executives should balance the work needs with employee preferences.



responses required to address today's challenges are fueled by adrenaline. But the relentless sense of urgency is not sustainable. Executives need to modulate the work so that employees get a chance to play catchup both with other work commitments and with their home life.

And therefore, executives should model doing the same themselves. Telling employees to take care of themselves and take some time off will more likely be followed if employees see the executives doing the same.

Reporting structure is typically informed by two competing design principles: the role should be closest to the place where the decisions they influence happen and there needs to be manageable spans of control. Given these design principles, CIOs report to the CEO or COO of any organisation that has digitalisation as part of its business strategy.

The CTO, depending on the role they are asked to play in the organisation might report to the CEO or COO, or to the CIO. And the CISO role that sets security vision and strategy, develops security management frameworks, and enforces enterprise security and risk policies, tends to report to the CIO. ■

China

Beijing approves commercial operation of robotaxis

China has granted technology-company Baidu and Toyota Motor-backed Pony.ai Inc. licenses to start commercial operation of robotaxis in Beijing. The pilot licenses will allow the two companies to launch open-road autonomous commercial driving operations with a fleet of around 100 cars each in the 60-square-kilometer Beijing High-level Automated Driving Demonstration Area.

China had recently published its first national standards for grading autonomous driving. According to media reports, the country's six-level standards, Taxonomy of Driving Automation for Vehicles, provides official definitions for self-driving cars

from level zero (L0), which relies largely on human drivers, to L5 that achieves full driving automation.

Sharing more details, Baidu said in a statement that it has received permit for 67 vehicles and will launch the first commercial deployment of Apollo Go service on open roads. The initial service will be restricted to over 600 pick-up and drop-off points in both commercial and residential areas. Pony.ai will set up about 200 points in the zone, the company stated.

Reports indicate that Baidu had already established itself as the world's largest autonomous driving service provider. Apollo

Go ride-hailing platform has been providing free ride services in the last quarter and now operates in Beijing, Guangzhou, South China's Guangdong Province, Changsha, Central China's Hunan Province, Cangzhou, North China's Hebei Province, and Shanghai.

The global robotaxi market is also likely to grow at a CAGR of around 60% during 2021-26 due to the surging demand for e-hailing services and mounting concerns over road safety and emissions. Robotaxis can also help reduce the cost of vehicle ownership, enhance fleet management, and provide a convenient and budget mode of transportation.



India

Apollo logs into AWS to make tyre manufacturing smarter

Amazon Web Services (AWS) has announced that Apollo Tyres is moving the company's entire IT infrastructure to AWS cloud. The initiative aims to digitise Apollo Tyres' manufacturing process and is part of its digital strategy to achieve \$5 Billion revenue by 2026.

"By digitally transforming with AWS, we can unlock productivity and efficiency gains in our factories globally, innovate new products and services faster, and enhance customer experience," said Hizmy Hassen, Chief Digital Officer, Apollo Tyres. "We are using AWS capabilities, like IoT and machine learning services, to connect our factories and make them smarter. This fosters collaboration between our IT and business teams to make the production process more efficient, while delivering higher quality products at lower cost," he said.

Using data from the factory floor and real-time information from production machines, like tyre



rubber mixer machines, the tyre major plans to expand operational intelligence capabilities and more accurately manage machine utilisation, ensuring high quality levels and machine efficiency. Apollo Tyres also plans to connect all its factories in India and Europe in the cloud, end of 2021.

Apollo Tyres also launched an automated tyre inspection program that checks for tyre defects using photos of the tyres taken as they progress along the production line. Based on Amazon Rekognition, a machine learning service that automates image and video analysis, this automation allows factory supervisors to intervene when manufacturing anomalies occur, providing customers with high-quality tyres that meet strict safety standards.

India

Myntra rolls out social commerce for immersive shopping



Fashion ecommerce platform Myntra has forayed into Social Commerce at scale, to cater to the rapidly evolving content consumption patterns and shopping preferences of consumers. The company also unveiled M-Live, its live video streaming and live commerce platform to enable interactive

and real-time shopping experience in the country.

With the launch, Mynta is looking to transform the way consumers shop by bridging the gap between inspiration and commerce while bringing both under one single platform. "Under this charter, Myntra will target fashion and social media

savvy young men and women who are looking to have access to the best-in-class fashion advisory and in-demand trends," a company press release stated.

Reports indicate that social platforms are driving ~70% of purchase decisions for fashion-forward consumers, with fashion and beauty being the most popular categories in the Social Commerce realm.

The press release also highlighted that Myntra's Social Commerce Business has three distinct propositions – M-Live, Myntra Studio, and Myntra Fashion Superstar.

M-Live aims to facilitate a real-time engagement between consumers and brands by allowing influencers and experts to host live video sessions of product and styling concepts curated by them, enabling viewers to shop instantly. With Myntra Studio, it aims to provide users with access to 20,000+ shoppable fashion, beauty, and lifestyle content assets at scale.

Indonesia

Indosat Ooredoo, Google Cloud to ramp up SMB digitalisation

Indosat Ooredoo and Google have announced a new strategic partnership to accelerate digital transformation across consumer and enterprise segments in Indonesia by focusing on small and medium businesses (SMBs). The new partnership aligns to the government's digital economy development goals and is to prioritise Indonesian SMBs in sectors relevant to the companies' core capabilities, the companies stated.

"We understand the significant impact the pandemic is having on our nation's SMB community, and this partnership will deliver new and outstanding digital products and services that these businesses need to thrive," said Indosat Ooredoo president director and CEO Ahmad Al-Neama. "Through this partnership, Indosat Ooredoo will offer SMBs new cloud-based and 5G-enabled digital solutions designed to empower new business models that enable [businesses] to tap new markets and unlock opportunities that



All smiles (from left to right): Rob Enslin, President, Google Cloud; Ahmad Al-Neama, President Director and CEO, Indosat Ooredoo; Thomas Kurian, CEO, Google Cloud; Vikram Sinha, Director and COO, Indosat Ooredoo; Megawaty Khie, Country Director, Google Cloud Indonesia.

would not have been possible before," he added.

The two companies aim to support digital transformation initiatives of Indonesian SMBs throughout their business life cycle, enterprises and communities with the power of 5G. Indosat Ooredoo and Google Cloud will also create a marketplace of tailored cloud-based services to digitalise SMBs on the day they register their businesses. This will include building their online presence with Google My Business and boosting their productivity with Google Workspace. It could also involve expanding and automating their businesses using artificial intelligence and/or machine learning (AI/ML) to deliver better customer services with cloud-based smart data analytics, as well as other technology-driven solutions.

Japan

Honda to use AI to make cars and roads safer

Honda Motor has announced that it will be integrating artificial intelligence (AI) into its vehicles to warn drivers of imminent traffic hazards and help them avoid accidents caused by human error. The initiative is part of the company's goal to meet its target of zero fatalities by 2050. Announcing this at the 'World premiere of advanced future safety technologies' event, Honda stated that its AI-powered driver assistance technology is the world's first solution that checks a driver's movements and health using a monitoring camera and sensors.



The Japanese automaker also announced that it is planning to equip its upcoming vehicles with technologies that can alert drivers against risks by tightening the driver's seatbelt or emitting audible warnings. The automatic seatbelt tightening system will also warn the driver of at-risk pedestrians ahead of the car. "For the realisation of a collision-free society where all road users care for each other and the freedom of mobility becomes possible, we will further accelerate our industry-wide and public-private

initiatives," Keiji Otsu, Head, Honda R&D stated in a press release.

Honda also announced that it is developing another technology with mobile carrier SoftBank Corp. that connects drivers and other road users via telecommunication networks. According to the company, the technology will use information from in-vehicle and other cameras to predict dangerous traffic situations with the help of AI, and alert people facing imminent danger.

Philippine

PAL takes Rimini Street route to transformation

Rimini Street has announced that it has bagged Philippine Airlines (PAL) contract to support it for Oracle E-Business Suite, Fusion Middleware and Database software portfolio. The airline made a strategic decision to move to Rimini Street to help it address the challenges faced in the aftermath of global pandemic, the company said.

Reports indicate that PAL, which has a majority stake by billionaire Lucio C Tan, has filed for bankruptcy protection in the United States and the technology initiative is to streamline the operation and emerge as a better-capitalised airline. By turning over complete support of its Oracle footprint, the airline was able to accelerate key digital innovation projects that support the growth of its business including modernising its cargo system, integrating its mobile and remote capabilities for more efficiency and launching its passenger analytics for improving its Know Your Customer programme, it stated.



The impact of the coronavirus pandemic emphasises the critical role of technology in strengthening the internal capabilities of the airline companies like PAL, the company said, adding that, "One of the initiatives embarked on to navigate the pandemic-induced crisis was to streamline its portfolio of applications to better optimise its technology investments."

"This prompted the exploration of third-party support which led the company to Rimini Street for a comprehensive support solution for its mission-critical Oracle software portfolio, which is used for the airline's finance and administration, procurement and human resources functions," it added.

South Korea

KAIST offers technology to make EV batteries more durable

By AhmadElq - Own work, CC BY-SA 4.0, Wikimedia.org



Korea Advanced Institute of Science and Technology (KAIST) has developed an electrolyte additive technology that can help extend service life extension of lithium metal batteries used in electric vehicles. “An increase in battery energy density is required for an increase in EV driving range. The anode of a lithium metal battery is at least 10 times larger

in capacity than the graphite of a lithium ion battery, and thus an increase in energy density can be achieved,” KAIST stated.

The institute formed a two-layer solid electrolyte interfacial film on the surface of a lithium metal anode and applied two ionic additives that were different in terms of their reduction reactivity and adsorption capacity. The effort

helped it achieve a substantial extension in battery service life. In addition, it also ensured structural stability by forming a thin interfacial film on a nickel-rich cathode surface.

According to the KAIST researchers, they tested the battery having the lithium metal anode and the nickel-rich cathode by charging and discharging it 600 times. “The battery retained 80.9% of its capacity at the end of the test. The coulombic efficiency of the battery is 99.94%,” the institute stated, adding that the new technology can also help suppress lithium dendrite formation, which causes rapid increase in internal resistance, as also fire. “The technology can be combined with lithium and alloy anode materials, lithium storages, and anode-free batteries, which means it is capable of contributing to commercial lithium metal battery development,” KAIST stated.

Thailand

IBM enables Krungsri launch Open API platform for partners

Thailand’s Bank of Ayudhya PCL (Krungsri) has announced the launch of its Open API Platform that can connect its partners to digital services such as wallet top-ups, funds transfers, mobile payments, rewards, lending, and more. The platform, developed in collaboration with IBM Consulting on Red Hat OpenShift, enables Krungsri’s e-commerce, travel, lifestyle, insurance, and hospitality partners, and other industries to provide enhanced personalised financial services to their customers through a secure, modern, and open architecture.

Reports indicate that 82% of businesses in Thailand work with their banking partners to help the business keep up with fintech innovations and develop the right strategic guidance and solutions. A whopping 48% of businesses in APAC are leveraging APIs in their current operations and digital transformation journeys during a period



Sayam Prasitsirigul, Krungsri Chief Information and Digital Officer (left) and Sawat Asdaron, Managing Partner and Country Manager for IBM Consulting, IBM Thailand.

of fierce disruption. Krungsri’s partners include local and ASEAN brands such as Ngern Tid Lor that have joined its Open API Platform to deliver new products and services to their customers. On top of that, Krungsri’s platform can provide cross-border remittance services in Lao PDR, Cambodia, and Indonesia. By connecting to NIUM, the service is also available in 13 countries worldwide, such as the USA, UK, Australia, and several countries in Europe.

“The platform will enhance business opportunities as well as elevate customers’ experience. It also supports the bank’s aim to make banking simple and be a part of customers’ lives using IT and digital technologies as the key enablers as per Krungsri’s Medium-Term Business Plan covering 2021–2023,” the bank stated in a press release.

GEC MEDIA GROUP

MIDDLE EAST | AFRICA | ASIA | USA



World's Fastest Growing

Enterprise
CHANNELS MEEA

CYBER SENTINELS

THE TITANS

BUSINESS
TRANSFORMATION



The
Titans
Talk Show

GLOBAL
CIO
FORUM

GEC
OPEN

BTX
SHOW

GEC
UNITE
VirtualSummit

BRAND VOIZE
COMPANY OF GEC MEDIA GROUP

www.gecmediagroup.com

NEXT-GEN MEDIA AND RESEARCH COMPANY



Technology Community



THE
WORLD
CIO 200
SUMMIT



22

TECHNOLOGIES THAT WILL TRANSFORM BUSINESS IN 2022

Digital technology is driving massive change in the way organisations work. BTx Asia identifies trends that will matter the most.

BY SHUBHENDU PARTH & VIMARSH BAJPAI

A year is a long time in history, and who would have thought that 2021 would go down the annals of tech revolution as the year of massive digital transformation that swept through homes and workplaces alike. Just a few months after the pandemic began in 2020, Satya Nadella, the CEO of Microsoft, put it succinctly, “We’ve seen two years’ worth of digital transformation in two months.”

Organisations are reinventing themselves in the post-pandemic world by integrating digital technology in all areas of business in a bid to scale faster, optimise costs and resources and deliver more value to customers. As they leapfrog on to the digital bandwagon, many businesses are playing catch up with the fast-paced developments that surprise even the best of business leaders. Take any aspect of business, supply chain, marketing, operations, human resources or customer acquisition, scratch the surface and you will see how technology underpins the dramatic changes that are taking place.

Business transformation is a two-way street. The demands of the digital economy have made IT more essential for business success than ever before. The year 2022 will mark a turning point in the journey of the CIO who can deliver technology-driven changes that were almost unfathomable for their predecessors. However, businesses too will have to complement the efforts of IT in building the organisation of the future that runs on innovative cloud-connected services, artificial intelligence (AI), blockchain and automation.

In 2022, businesses will have only two choices, they can transform or disrupted. “Digital transformation is not just about technology. It is a necessary but challenging journey of operating digital-first with the speed and nimbleness to change rapidly, exploit technology to create lean operations, and free people to do more complex tasks,” says Forrester Research.

THE BTX ASIA APPROACH

When we set out to compile this list, our first goal was to understand the key drivers for transformation. To get a microscopic view and

to get a structured industry view we reached out to industry leaders who served as the Editorial Expert, sharing insight from their respective industry perspective and technology in general.

Based on the inputs from the experts and secondary research, BTx Asia editorial team prepared a master list of over 40 technologies, which we reviewed and evaluated to understand their plausible impact in the next two years, including their applicability, maturity, and possible adoption by the industry across Asia at large.

THE YEAR 2022 AHEAD

During our conversation with business leaders, we noted that AI is now the nerve centre of IT, thanks to the dramatic rise in the volume of data and the growing popularity of conversational interfaces. It also became evident that AI-powered applications will continue to grow in 2022, offering insight that will change the way organisations think, operate and deliver services.

The pandemic has changed the nature of workplaces overnight, sharply increasing the tribe of remote workers; security has now become a major concern. No wonder then, the future belongs to Cybersecurity Mesh Architecture (CMA) that will support the majority of identity and access management requests and enable a more explicit, mobile, and adaptive unified access model.

Similarly, there are plenty of talks about 5G. However, it will be a mistake to see it only as another extension of existing network capabilities. In 2022, this technology will drive innovation, both for the government and corporate sector. Over the years, 5G will create a global value chain that will result in massive job creation and substantial economic value.

The future belongs to businesses that are open to experimenting with new ideas and aligning their tech stack with business goals. As 2021 draws to a close, we come together to visualise a future in which 3G-printed houses line the streets, delivery drones and flying taxis hover in the skies, autonomous cars zoom across the roads and businesses set up supermarkets in metaverse. Going



"Tools and aids with re-usable components that business users can configure and adapt quickly into their landscape, will gain traction."

AMIT KUMAR KHAN

Chief Information Officer,
Mjunction Services Limited



"Blockchain will mitigate business conflicts and supports them with better security, transparency and decentralisation."

ABHINAV JAIN

CEO and Co-Founder,
ALMOND Solutions

ahead, business and technology leaders who quickly grasp and embrace these trends will be much better prepared to contribute to the ever-changing future.

Here is how 22 technologies will transform business in the days to come.

#1 ARTIFICIAL INTELLIGENCE

The new-age machines are becoming smarter. Thanks to artificial intelligence, they can learn, plan, reason and make their own decisions when faced with situations similar to human beings and animals. Be it autonomous vehicles or the need to customise experience for a large crowd, businesses of the future will rely heavily on AI.

Cutting across industries, AI-powered solutions will help sales teams to prioritise customers by identifying those who are most likely to buy a company's products or services. For the manufacturing sector, AI will help match demand and supply while crunching data to match with the supply chain. The healthcare sector could see hospitals deliver medicines customised to the exact genome of their patients and robot-assisted surgeries that protect patient data from cyber theft.

Rapid automation will assist in cash flow forecasting and rise in the number of AI-powered cognitive assistants and document verification chatbots. Robo-advisors in financial institutions and hotels to assist customers and virtual tutors that decipher students' emotions during online sessions will not be limited to SciFi. AI-assisted work will become even more critical in dangerous fields such as mining, firefighting and handling of radioactive materials. With AI becoming

ubiquitous, businesses will have to rethink the skills and structure of their workforce as speed and precision becomes the name of the game.

#2 BLOCKCHAIN

Not too far in future, businesses across sectors will find blockchain at the centre of their transformation curve as this technology will usher in a new era of trust, transparency and automation. Be it smart contracts, customer engagement, supply chain management, capital raising or financial management, blockchain has the potential to turn a traditional business model upside down.

While streamlining business processes, blockchain can use a private, validated, shared ledger to guarantee the quality and origin of information, goods, or services and automatically execute smart contracts. Thus elevating trust between parties. Enterprises will be able to replicate the technology and track their products throughout the supply chain, right from manufacturing to delivery at customers' doorsteps. While challenging central banks and intermediaries, the decentralised peer-to-peer payment system that comprises a booming set of cryptocurrencies will become the primary way to pay for goods and services in the near future. Many businesses across the globe have started to accept crypto as a form of payment.

The technology will help in the creation and maintenance of corporate records including articles of incorporation, stock ledgers, and shareholder lists, setting a new milestone in data protection. Recruitment of staff and payroll is another area where blockchain-led revolution will drive change. With talent war at an all-time high, more businesses would be inclined to modernise hiring by quickly

verifying credentials of candidates over blockchain.

#3 COMPOSABLE APPLICATIONS

As the world moved on to the digital bandwagon en masse during the pandemic, businesses across the globe have come under pressure to innovate and build applications that are scalable, intelligent, composable and connected. Businesses of the future will leverage one of the big innovations in application development, the emergence and maturity of low-code and no-code platforms. A Forrester report indicates that low-code development slashes time and risk and increases the developer pool. Low-code development platforms make development easier through modeling and other visual tools.

The low-code/no-code revolution will provide a level-playing field for small and mid-size enterprises to leverage those technologies that previously required massive capital investments. According to Accenture, besides providing a competitive edge, composable applications will help businesses accelerate digitisation as the pandemic made them more reliant on technology. The benefits of composable applications that enterprises will avail include having greater business agility, higher team productivity, faster speed to market besides promptly overcoming the limitations of SaaS solutions. It will also be easier to create new user experiences and develop new business applications at a fast pace. This will also enhance their ability to redeploy apps and reduce the backlog of IT projects. Gartner predicts that by 2024, 65% of all app development will include low code/no code automation.

#4 CYBERSECURITY MESH

The need to resolve identity and access management (IAM) challenges have never been higher

than in the post-pandemic digital normal. The remote work environment that has transformed workplaces forever will further accelerate the growing trend of Cybersecurity Mesh that helps implement a Zero Trust Architecture by securing all data and systems accessed securely regardless of their location. The need for cybersecurity mesh architecture (CMA) is further aggravated with increasing incidents of hacking and ransomware attacks.

Gartner predicts that in future cybersecurity mesh will support the majority of IAM requests and enable a more explicit, mobile, and adaptive unified access management model. It says that by 2024, organisations adopting CMA to integrate security tools to work as a cooperative ecosystem will reduce the financial impact of individual security incidents by an average of 90%. As more businesses go global, they will benefit from CMA by getting a more integrated, scalable, flexible and reliable approach to digital asset access points.

With the growing demand for a comprehensive delivery of IAM services, the need for managed security service providers will grow significantly. According to Gartner, by 2023, 40% of IAM application convergence will primarily be driven by MSSPs that focus on delivering best-of-breed solutions with an integrated approach; this process will shift the influence from product vendors to service partners.

#5 DATA FABRIC

If data is the new oil and the biggest assets of businesses today it is also major challenge that they have to deal with, thank to multiple different formats in which data exists in the digital world. This also makes standardisation and harmonisation of data an uphill task. The challenge increases



"Security solutions on the cloud will bring a host of benefits like centralised management, scalable solutions, and reduction of total cost of operations."

SANDESH KAUP

Country Manager,
Milestone Systems, India and SAARC



"Security Operations Centres will become more automated and orchestrated with the enterprise ecosystem. Purpose-built, in-house SOC facilities will fade."

SAURABH SAXENA

Country Director - India, Micro Focus



"Drone surveys represent an opportunity to introduce a degree of transparency and accountability that was previously unviable."

ASHISH AIRON

Co-Founder, CogniTensor



"XR-based learning tools will ride on top of real-time engagement capabilities to deliver many superior outcomes as a natural extension."

RANGA JAGANNATH

Director, Growth, Agora

manifold with deployment of multiple cloud tools and technologies.

To seamlessly deal with troves of data generated, businesses will have to put together a data design or data fabric that can help them adopt a unified architecture. Deploying data fabric throughout the enterprise will help businesses streamline and reduce infrastructure costs and increase portability and reuse. This also means that organisations can deploy it globally without having to adapt to different data models. According to EY, it will also enable "trusted data" that can be consumed across the organisation as data fabric eliminates silos and inconsistencies.

Businesses of the future will focus on "democratising data" which implies easing the flow of information across the organisation and letting more departments access information in real time. Data fabric will open opportunities for new ventures to become competitive right from the start. This will also enable deep data exploration by data scientists to come up with more insights for consumption by key decision-makers.

#6 DRONE

With the adoption of Unmanned Aerial Vehicles (UAVs) on the rise, drone technology has taken the world by storm. Governments and businesses alike are upbeat about its potential, albeit few regulatory challenges that needs to be resolved.

The pandemic proved a real test for this technology as some startups used drones to deliver COVID test samples and medicines to rural areas. Parcel deliveries through drones will become common as we step into the future. Gartner predicts that in 2026, more than one million drones will be carrying out retail deliveries, up from over 20,000 today. The growing adoption

of autonomous flying drones will force CIOs in the mobility and transportation industries to rethink their business and operational models to exploit new forms of air mobility and remain competitive.

Experts believe that while the real estate industry will see growing use of drones to deliver high-resolution images of properties to potential buyers, the insurance sector will use drones to carry out contactless inspection by underwriters. Its adoption will also grow manifold in the food and agri businesses with the sector using it to enhance their efficiency, accuracy and scalability. Drones will also help in optimising the use of inputs such as food, fertiliser, water and pesticides. Thermal sensor drones will see a growing role in search and rescue operations while specialised drones will help in geographic mapping of inaccessible terrains, storm tracking and forecasting.

#7 EXTENDED REALITY

Digital transformation for businesses would be incomplete without the application of extended reality (XR) which is a critical visualisation and enablement component. XR leverages the power of wearable and hand-held augmented reality (AR), spatial computing and virtual reality (VR) tools to enable remote working besides delivering business and process benefits.

In times to come, XR will reshape every industry including automotive, defence, healthcare and retail. The technology will also change the way consumers interface with content while making purchases. The airports of tomorrow will have VR glasses that will display real-time information from flight updates and directions for baggage

claims. The automotive sector will leverage XR to deliver customised experiences by letting customers choose every element of their vehicle. Companies will be able to deliver virtual training for their upcoming fleet of electric cars and next-gen aircraft, all with the help of VR. At the smart factories of the future, XR will redefine every aspect of the product lifecycle management from design, testing, quality assurance to product launch.

From self-care and wellbeing to treatment and even surgical procedures, XR will improve several aspects of healthcare. The gaming, education and entertainment sectors are poised for further disruption as virtual tours and learning experiences come to life with extended reality.

#8 HYPERAUTOMATION

Not just automation, businesses of the future require intelligent automated decision-making and optimisation, and this is where hyperautomation comes into play. As Gartner puts it, "Hyperautomation refers to an effective combination of complementary sets of tools that can integrate functional and process silos to automate and augment business processes."

In the post-COVID world, hyperautomation will transform the account payable process by automating it to reduce cost and processing time. Businesses of the future will witness automation of travel and expense processes, order payments and customer service operations. The insurance sector will see automation of claims processing and underwriting processes. In the banking sector, pre-trained bots will extract information from documents, input data into their systems and build risk profiles via machine learning even as intelligent bots will be trained by historical data to improve their accuracy.

In the healthcare sector, voice biometrics technology will help identify patients. It will also help in automation of tasks such as answering FAQs, patient queries, and scheduling appointments. In the manufacturing sector, hyperautomation will help build a resilient supply chain, lean processes and faster go to market. Governments will be able to improve delivery of public services by automating high-friction steps in the process.

#9 5G NETWORK

The 5G technology is not just another extension of network that improves capability; it is a harbinger of innovation. The new communication technology will drive businesses and governments to create and deliver new services and solutions. 5G will lead to transformation in processes and drive a cultural shift in organisations. The key functional drivers of 5G will unlock a broad range of opportunities, including the optimisation of service delivery, decision-making, and end-user experience. According to PwC, by 2035 this will result in global economic value of in \$13.2 Trillion. It will also help generate 22.3 million new jobs in the 5G global value chain.

5G will also drive adoption of Industry 4.0 that will help automate mundane and repetitive tasks and make many existing jobs and skill sets obsolete. This will create demand for new skills to set the tone for transformation. One of the latent benefits of 5G adoption is energy efficiency, as it would yield carbon emission savings by as much as 15%, according to a recent Ericsson report.

From faster transactions in the BFSI sector to transforming the way manufacturers create and distribute their products, 5G will touch almost every industry that is building for the future.



"Two technologies stand out in terms of their role in business transformation: AI/ML and credit data science, and cloud computing plus cloud platform."

DR. KISHORE DHARA

Technical Director and AI/ML Architect, OakNorth



"Hyperautomation will enable businesses to take well-informed decisions based on data collected and evaluated by automation technologies."

ABHISHEK RUNGTA,

Founder and CEO, Indus Net Technologies



"5G will open up new opportunities and possibilities for robotics, drones, autonomous vehicles, telemedicine, and tactile internet, among others."

MANOJ PAUL

Managing Director, Equinix India



"A private direct cloud that minimises the downtime and guarantees continuous connectivity will provide stable infrastructure and reduce latency."

SUDHIR KUNDER

Country Director, DE-CIX Interwire India



An intelligent transport system and smart power grids will also become a reality. 5G will also transform the agriculture sector with drones, autonomous tractors and sensors becoming a common sight on our farms.

#10 3D PRINTING

A revolution is already underway in the manufacturing sector as 3D printing technology becomes more accessible and affordable. The pandemic proved a real test for 3D printing as the demand for personal protective equipment grew sharply. Several businesses geared up overnight to create 3D-printed safety goggles and PPEs.

While the application of this technology cuts across sectors, the medical devices sector will see big strides in times to come. Gartner predicts that by 2023, a quarter of medical devices in developed markets would make use of 3D printing, mainly for joint replacement, surgical implants and prosthetics. With the product development cycle shrinking across every industry, 3D printing technology

will provide manufacturers production and supply chain flexibility that was previously difficult to achieve.

Reports indicate that in the future, 3D printing enable manufacturing of aircraft parts such as ducting, vents and airflow systems by helping reduce weight and the number of components. The on-demand production will see a big spike, thanks to 3D printing. According to a report by MIT, the automotive industry can reduce volume of spare parts inventory by 90% with 3D printing. The shipbuilding industry will also become the flag bearer of 3D printing technology. With custom manufacturing coming into play, the technology will help build supply chain resilience. It will reduce cost and the need for human resources.

NEXT I2

#11 AUTONOMIC SYSTEMS

Autonomous computing can rectify the problem associated



with the system without any human intervention, all the while increasing efficiency and improving output. With application across a wide range of industries such as banking, manufacturing and transportation, autonomic systems will be able to mitigate the incidents of fraud and phishing attacks. Manufacturing companies will embrace autonomic systems as its help in identifying loopholes that hinder processes and affect the quality for the product. New-age transportation applications will see integration of autonomous computing with CCTV camera and sensors to manage traffic on busy junctions.

#12 CHATBOTS

The chatbots of the future will not only communicate in human language but will also anticipate the needs of the customers and learn from those conversations. The proliferation of chatbots in the modern workplace calls for IT leaders to create a conversational platform strategy that ensures an

effective solution for employees, customers and key partners, says Gartner. It adds that by 2022, 70% of white-collar workers will interact with conversational platforms on a daily basis. While not many chatbots support voice-enabled features at present, in the days to come, customers will demand that not only communicate in human voice but also reflect brand personality and other features.

#13 CLOUD COMPUTING

As the breath of cloud offerings and capabilities continue to grow, adoption of cloud services is on the rise. Gartner forecasts that end-user spending on public cloud services will grow 21.7% to reach \$482 Billion in 2022. Increased agility, innovation and resilience that the cloud delivers to business coupled with faster time to market and efficient scalability makes a strong case for cloud to be the vehicle for digital transformation. Hybrid, multi-cloud and edge environments are growing and setting the



"With organisations increasingly shifting towards cloud-based solutions, cybersecurity will continue to play a crucial role in 2022."

SUDHINDRA HOLLA

Director - India and SAARC, Axis Communications



"Edge computing will reduce latency, drive faster data access and resolve regulatory issues like sovereignty, besides cost savings from reduced data transport."

ANSHUMAN RAI

Area Vice President, India and South Asia - Commvault



"Remote sensing can massively improve the reaction time to handle a possible supply chain disruption by quickly obtaining signals about downstream activities."

JAI MRUG

Founder, M76 Analytics



"The demand for contactless travel has suddenly brought into focus technologies like facial recognition, touchless kiosks, robots, and autonomous vehicles."

JAYA KUMAR K

VP and MD, Sabre Bengaluru GCC

stage for new distributed cloud models. In addition, new wireless communications advances, such as 5G R16 and R17, will push cloud adoption to a new level of broader, deeper and ubiquitous usage.

#14 DEEP FAKE

Not many technologies are both a boon and bane but then there is deepfake, which could be an audio, video or photo that appears real although it has been manipulated using the power of AI. Although deepfake is a threat when used without any ethical consideration, it has the potential to transform businesses such as healthcare, marketing, entertainment, education and e-commerce. In education, deepfakes can help teachers deliver innovative

lessons that are more engaging than conventional visual and media formats. In future, cultural and entertainment businesses will use deepfakes to bring to life historical characters who narrate their own stories to visitors. New-age influencers will use the power of deepfake to put across their message in various languages, adding another tool to influencer marketing.

#15 EDGE COMPUTING

Businesses wanting to free themselves from the shackles of traditional cloud-based networks are readily embracing edge computing platforms that enable a zero-touch, secure, distributed computing architecture for applications and data processing at or near the edge. According to IDC, the global edge computing



market will reach \$250 Billion by 2024, registering a compounded annual growth of 12.5%. As edge computing fulfills the need for predictive maintenance and intelligent processes, its adoption will grow rapidly in manufacturing businesses in the near future. Other benefits for businesses include cutting costs while delivering application services and the ease to offer better user experiences with bots and voice-enabled assistants.

#16 INTERNET OF THINGS

If there is one technology that is synonymous with ubiquity, it is the Internet of Things (IoT). The future of IoT is limitless as the number of active IoT devices globally is likely to grow to 24.1 Billion in 2030 and generate revenue of more than \$1.5 Trillion. One of the biggest

enablers for the growth of IoT is 5G, as high speed will result in large-scale automation in several industries. From wireless lighting and gesture control armbands to industrial robotics that will transform the shop floor, IoT will unleash a digital transformation unparalleled in the private and public sphere. Real-time decision-making is at the core of IoT that combines decision informatics, processing, reacting and learning.

#17 METAVERSE

A hypothesised iteration of the Internet that supports online 3D virtual environments through augmented reality, Metaverse is the new frontier in digital transformation. This purely virtual environment will see businesses launch digital-only products from clothes to cars in a decentralised marketplace. Workplaces of the future will exist in Metaverse packed with events and conferences in a virtual economy driven by crypto and blockchain. The challenge for businesses will be to create awe-inspiring experiences for their customers while maintaining a competitive edge and improving business processes.

#18 MICROSERVICES

As IT across organisations are under pressure to reduce cost, cut delivery time and improve quality, microservices architecture (MSA) has come in handy wherein a single application is composed of many loosely coupled and independently deployable smaller services. In future, MSA will witness greater adoption because of the flexibility it will provide, while enhancing the replaceability and upgradeability of the system. As each service is a separate object in the microservices framework, this enables their independent functioning. This decreases



"Video- and AI-based technologies are fast becoming a priority for companies and we can expect to see its adoption gaining speed in 2022."

PRAMOD SHARDA

CEO, – India and Middle East, IceWarp



"AI will get embedded in all new software development and will play an important role in transforming the way organisations operate."

TOM SCHAUMBURG

Partner and South East Asia Digital and Technology Lead, Capco



"Technology companies will look to embrace artificial intelligence and machine learning in most of their operations to reap long-term benefits."

BHARATH RAJ

Director - Engineering, Blackhawk Network India

the risk of fall of the business applications. Other benefits include scalability, reduced cost and easy team collaboration, which makes MSA a promising technology for digital transformation.

#19 NON-FUNGIBLE TOKEN

Since "non-fungible" means something unique, which is not replicable, the technology has led to setting up of a virtual supermarket that is seeing shoppers lining up in hordes. Non-Fungible Tokens (NFTs)

are currently taking the digital art and collectibles world by storm. Digital artists are seeing their lives change thanks to huge sales to a new crypto-audience, and celebrities are joining in as they spot a new opportunity to connect with fans. The proportion of NFT sales during the first six months of 2021 grew to \$2.5 Billion. The future belongs to NFTs as it has transformed the digital asset industry. NFTs will expand to all types of possessions from digital forms such as artwork, collectables, and videos to physical forms including real estate. NFTs facilitate an easier and more rewarding method of selling art through royalty payments. NFTs also have a great potential to transform the music industry with exclusivity and royalty.

#20 QUANTUM COMPUTING

Complex problems in Cryptography, Chemistry and Finance will finally have a solution thanks to the advancements in quantum computing (QC). Although the idea originated in the 1990s, it is only recently that large tech corporations have started proclaiming quantum supremacy and the race will continue well into the future. With the increasing number of applications, traditional computers are finding it challenging to match up the accuracy and speed. Once QC becomes a reality, the time to process complex problems will reduce dramatically. It will also drive research and development in a big way by reducing the cost and risks associated with new discoveries. Similarly, improved data analysis and robust modelling with QC will help optimise logistics and scheduling

workflows associated with their supply-chain management.

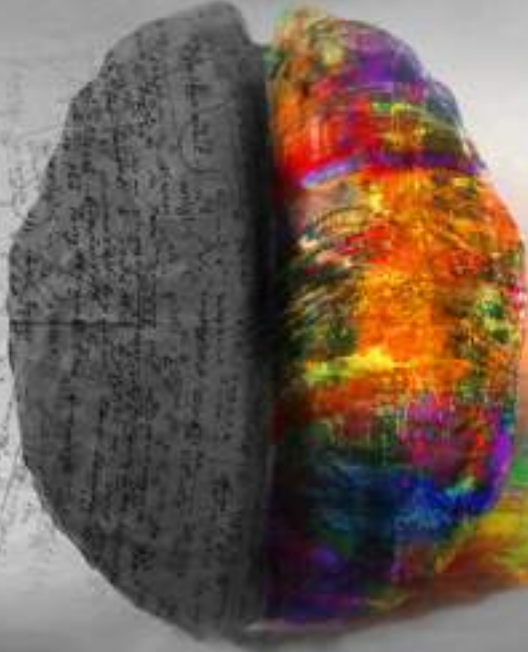
#21 REMOTE SENSING

Remote sensing technology has evolved to use drones and sensors to evaluate soil composition, electromagnetic fields, greenhouse gases and infrared light. While data collected from remote sensing instruments helps agriculturalists, it is also helpful in rescue missions in difficult-to-reach places. In future, businesses will combine remote sensing with machine learning and automated image identification to view the areas that are otherwise invisible with satellite imagery. Renewable energy companies will deploy it to review potential sites. Logistics and utilities companies of the future will leverage this technology to track and monitor their transport and transmission corridors. Advanced remote sensing will also make weather forecasts more precise.

#22 TOUCHFREE SOLUTIONS

While the pandemic set a new normal for hygiene and cleanliness, it also led to the proliferation of touch-free access control solutions at public places and offices. The touch-free market is likely to grow 17.4% in the next ten years to reach more than \$70 Billion. From wave-to-open doors to iris recognition, the workplaces of the future will be completely touch free. It will be possible to walk through the entire building without even touching a single handle or switch, thanks to the technology such as automatic lighting, hand-free toilet facility and touch-free elevators. Businesses will also have to plan touch-free secure print management to give their employees a contactless environment. ■

Brain Work > Busy Work



Software bots that run, process, and learn.
So you can think, create, and innovate.

Scan here to know more



IFS CLOUD

ORCHESTRATING ASSETS PEOPLE, CUSTOMERS

Built over the last three years, IFS Cloud has been engineered to reduce the technology debt of end customers and deliver their moments of service.

BY ARUN SHANKAR

In March this year, IFS, the billion-dollar global enterprise applications vendor, released a new brand identity to announce its evolved market position. IFS rebranded itself and launched IFS Cloud. IFS Cloud is the most significant launch in the company's history and sets a benchmark for the global enterprise application industry.

The new IFS branding was deployed across all touchpoints, including digital platforms, print and digital marketing, collaterals, merchandise, and office interiors. The roll-out was also accompanied by out-of-home advertising on some of the world's most iconic activation sites including Times Square in New York, Burj Khalifa in Dubai, and Shibuya in Japan.

"I do not think anyone who looked at the old logo felt like it was a modern logo. It has been around for decades and our business has changed," explains Darren Roos, CEO IFS. "We have changed from being an ERP and asset management vendor into delivering services for our customers," he points out.

IFS decided to have the launch event coinciding with its rebranding and announcement of the IFS Cloud. More than that it was also an announcement of IFS taking a new position as a vendor in the enterprise solutions and services market place.

CUSTOMER FEEDBACK

The rebuilding and reengineering of IFS started three years ago, when Roos joined in 2018. From the beginning he actively engaged and sought feedback from end customers on the challenges they faced with technology solutions and the application of technology into their business. Over time the feedback fell into a pattern of consistent pain points for end users and sluggishness from the IT industry to make amends.

"The feedback was consistent. Customers were really struggling with the complexity that the technology industry were creating," says Roos.

Enterprises had moved from mission critical applications and server-based hosting into a complex and fragmented world built around migration to the cloud. "They had no plan and they had this multitude of applications and they were really struggling with complexity," continues Roos.

Some of their challenges were how do you secure all of these disparate applications; how do you manage the release cycles of all of these applications; how do you manage the complexity of integration of all these different applications, and others.

Another conclusive feedback that Roos

DARREN ROOS
CEO, IFS



KEY TAKEAWAYS

Customers were really struggling with complexity the technology industry were creating.

IT industry was making it more and more difficult for end users rather than making it easier.

End customer were struggling with orchestration of customers, assets and employees, to drive business.

End customers are not really concerned about application integration and release cycles and would focus on driving value.

received was that the IT industry was making it more and more difficult for end users rather than making it easier.

End customer were struggling with the orchestration of their customers, assets and employees, to drive their business, customer loyalty, share of wallet and profitability. End customers are not really concerned about application integration and release cycles and would much rather focus on driving value, and this sentiment has developed over time.

“At a fundamental level, none of that made any sense to customers,” points out Roos.

The takeaway for Roos, was that end users were looking for an environment that was simpler, easier to manage, easy to use, with a lower total cost of ownership, to orchestrate assets, people, and customers. If IFS could do that, it would be a solution that everybody would want and IFS would win more often.

“And that is what we have built,” reflects Roos. IFS has now spent more on software engineering from 2018 to 2020 than it has in the past years building the IFS Cloud.

“We sat about leveraging the assets that we had, made some acquisitions, and we did a truckload of engineering. And today, we have a single solution. We have taken away all of the complexity, that very fragmented landscape,” he explains.

IFS Cloud has been built for customers in service centric industries. It has the next generation capability of augmented reality, artificial intelligence, low code, robotic process automation, augmented reality. These components have been natively built into the solution and the customer does not have to go and buy them additionally. It is available on-premises or in the cloud.

LATE MOVER ADVANTAGE

Contrary to text-book management principles, being a late mover has actually helped IFS. As a late mover in the cloud go-to-market, coming up from behind has actually helped it to avoid the development and release pitfalls that other early mover ERP vendors have had to go through in the past. Moreover, by starting as late as 2018, has helped IFS to use the latest software tools to build its IFS Cloud solution stack.

“I think we had an advantage, which, frankly, a lot of the others did not have, which was – the when, we did it. The technology landscape has changed so much in the last few years, that if we had undertaken this, maybe five years ago, or ten years ago, the only option to achieve, a scalable, elastic, flexible cloud environment would have been to rewrite it. You would have had to completely rewrite the stack,” elaborates Roos.

As a late mover, and taking advantage of the latest cloud development tools including containerisation, automation, Kubernetes, hyper scalar hosting platforms, has made it easier to build an effective cloud solution.

“This is technology that just was not around before,” he stresses.

While development of the user interface was a lot of work, Roos indicates that the element of risk was fairly low, due to the advanced level of development tools available to build the IFS Cloud solution.

MAKINGS OF IFS CLOUD

To begin its journey, IFS has built IFS Cloud entirely on the Microsoft Azure hyper scalar platform. Roos points out that the decision to use only one platform was based on not stretching limited resources across other platforms, including AWS.

IFS has gone all in with Microsoft Azure and is taking advantage of the various native capabilities that are available on Azure including Power BI, Power Apps, native

“

IFS has now spent more on software engineering from 2018 to 2020 than it has in the past years building the IFS Cloud.

”

automation. It is working closely with Jason Zander, Microsoft's Executive Vice President and the Azure team and leveraging the capabilities available on Azure. "Microsoft has been a great partner to us," reflect Roos.

Has IFS lost out on customers who would have preferred the availability of other hyper scalar platforms as well, including AWS? Roos does not think so. "I have not known one customer say to us, we are not going to go with IFS because you are not on AWS. It is just not the way it works."

Potential customers for IFS Cloud are not taking decisions based on the hyper scalar platform that it is using. They are interested in the capability

they are getting.

"Because we are all-in on Azure, we get the benefits of being able to leverage all of that capability on the Azure stack. And frankly if we were on AWS, we could do the same. But it is very difficult to do it across both, because you have finite resources," rounds up Roos.

Another aspect that IFS has managed carefully is the refresh cycle of its updates. Do it too fast and end users will be in a continuous cycle of operational disruption. Do it too slow and end users will lag behind in their innovation cycle. Hence a fine balance is required.

The three key areas in the core of IFS Cloud including Enterprise Resource Planning, ERP; Enterprise Asset Management, EAM; and Field Service Management, FSM; are still complex and large applications. These need to be updated to keep end customers at the edge and yet not be overly disruptive.

Roos feels that customers should not be waiting for years to receive the latest innovations and by the same token customers do not want updates every month. Hence, IFS has chosen to follow a biannual cycle of refreshes for IFS Cloud, once every six months.

CORE AND PERIPHERY ARCHITECTURE

Another important feedback from end customers that has been used by Roos while building IFS Cloud is how the various components of IFS Cloud need to work with each other. IFS Cloud has a core built around ERP, EAM, and FSM.

"We are so focused on having a single application, a single platform, single database, single UX, single data model - but does everything have to be in that model," he asks. "We have realised very recently, when it comes to the big applications ERP, EAM, FSM, it has got to be in that core."

But as IFS adds on applications

either as built or bought, into IFS Cloud, it will need to decide whether to add on the new additions into the core or to deploy them on as stand-alone, on the periphery. If they are intrinsically part of the IFS Cloud process then they would reside in the core, and not be deployed as stand-alone and on their own.

"There are certainly capabilities that I can think of that makes sense for them to be in the core," says Roos.

On the other hand, there are capabilities that can be implemented quickly and have standalone use cases, and it may not make sense for them to be deployed inside the core of IFS Cloud.

Moving forward, any new bolt-on into IFS Cloud, whether in the core or on the periphery, will always follow the singular principle of deep integration. This is a guiding approach based on consistent feedback voiced by customers, whereby such new additions should not feel like a new product.

Roos wants to avoid a situation where IFS' customers start getting, for example, a suite of technologies that have no harmonisation, the user experience and business processes make no sense, and the release cycles are out of sync.

"There must be a very clear relationship between the core and the peripheral application. If we are building, we will design with that imperative in mind. And if we acquire the very first thing we will do is focus on deep integration," he explains.

All this is possible because IFS Cloud is using a framework of Restful APIs to connect existing and new components, across the core and the periphery.

REDUCING TECHNOLOGY DEBT

End users also complain about their growing technology debt created by software application



By helping to orchestrate assets, people and customers, through IFS Cloud, IFS is helping its end users deliver their moments of service.



vendors as they release upgrades and higher versions for their flagship products. Enterprise application vendors that have a large installed base, find their community of end users on multiple levels of upgrade and multiple versions over the years. And often, the end users find that there is no way forward for them.

Roos points out that this happens with end users of legacy ERP vendor applications. “There is the technology debt that any software vendor has got. The installed base of customers is on versions that do not necessarily transition or allow the customer to transition. There is no technical upgrade path for them to the latest version on those platforms.”

With the launch of IFS Cloud, this has been a key consideration as well. “That was particularly important for us. We did not want to leave customers behind.”

Another type of technology debt that is created by enterprise application vendors is when products do not work and interoperate with each other. “Every single customer I talked to is thinking about how they rationalise their estate,” Roos indicates.

Amongst the feedback that Roos has heard are comments like: I have too many applications and they do not work together; my users do not have a good experience, help me to rationalise the estate; how do I get rid of some of the applications that makes it easier to secure my environment; how do I make integration and the release cycles easier; amongst others.

Roos believes the IFS Cloud as it has been launched will help to reduce the technology debt of end customers, with its core and peripheral application architecture, and deep integration using the API framework.

IFS has also designed an upgrade path for its end user community to move from on-premises to the cloud. “We have put an immense amount of thought into it. And there is no reason why we cannot take them to IFS cloud in a few months.”

Roos also feels that the real challenge is not so much technology and process as it is a mind shift. “You are going from building server farms and having to stand up applications and manage those applications to really being the recipient of somebody else’s service.”

MOMENTS OF SERVICE

Technology vendors often believe that end users are looking out to buy technology. However what end users are really looking for is to solve their business problems. “No executive, I have ever spoken to has said what I really want now, is to buy an ERP solution,” points out Roos.

The technology piece is the easy

piece and that is not a problem. And what is a problem is really understanding what end users are trying to achieve. As a typical example, often times at the end of a technology project, there is no definitive answer about whether any value has been created for its end users.

“Every technology company thinks their technology is the center of the universe,” according to Roos. “And that is fundamentally flawed.” Technology is never the center of the universe for the end user. The customer experience, and the moments of service for the end user’s customer is the center of the universe for the end user.

“We are explicitly trying to come at this from a non-technology perspective,” Roos points out. By helping to orchestrate assets, people and customers, through IFS Cloud, IFS is helping its end users deliver their moments of service for their customers.

“With the moment of service, what we are helping them to do is to frame that problem in the perspective of their customer. So, what is the moment of service that you are trying to create for your customer.” However, Roos also feels many of them have not thought about their business in that context.

“If the company can understand what the moment of service is, and then orchestrate assets, customers and people to deliver an outstanding moment of service, that is when the magic happens,” feels Roos.

“There is no question that companies that are able to do that will win more often, they will get more repeat business, and they will be more profitable,” he feels.

At the end of it all, there can be many approaches to the end goal. “What does matter is where you focus and the focus has got to be the moments of service,” reflects Roos. ■

ENABLING CROSS INDUSTRY AND PROJECT-BASED TRANSFORMATION

Factors such as cost, industry functionality, ability to achieve digital transformation, provide key comparison points between different solutions.



BY MEHMOOD KHAN

Managing Director and Vice President, Middle East and South Asia, IFS

While digital transformation has its share of challenges, inside industrial environments these soar as projects must cut across onshore and offshore locations, multiple plants, and complex assets says Mehmood Khan, Managing Director and Vice President – Middle East and South Asia, IFS.

The challenges of today's macro-economic disruption have failed to dampen digital transformation plans. According to a global research study from IFS, 52% of companies will increase their spending on digital transformation. While many people might assume that businesses would pull back on technology spending, the reality is that investment is increasing.

During these dynamic times, plans to increase spending on digital transformation tracks closely with concerns about economic conditions disrupting the business. In fact, people concerned with economic disruption are 20% more likely to increase spending

on digital transformation.

Appetite for digital transformation initiatives is, however, not consistent across all geographies or industry verticals. Construction leads with 75% respondents saying they have plans to invest this year. Next is information technology and manufacturing companies.

On the other end of the spectrum, energy and utilities industries are more cautious, followed by retail. The construction industry, which has historically been a laggard when it comes to enabling technology, is investing heavily to catch up with more digitally mature sectors such as manufacturing.

Despite a widespread willingness to invest, digital transformation execution is fraught area for many decision-makers. The ability to deliver a measurable return on technology investment quickly, and to the satisfaction of internal stakeholders, is the number one concern for majority of decision-makers.

Many companies are wisely using the global downturn to divert resources to technological renewal and innovation. As most businesses are adapting to economic recovery, and not permanently scrapping digital transformation initiatives, there is reason to believe that companies with a progressive mindset toward technology investment will be well equipped to rebound.

While enterprise software will doubtlessly play a role in accelerating recovery, it is important to remember its vital role in helping companies

here and now. Providing the necessary process transparency and analytics to ensure effective and informed decision-making is critical in these trying times.

So how should decision makers select enterprise software faced with economic and business challenges? When it comes to selecting enterprise software, most companies want to achieve efficiency improvement; reduce operational costs; and achieve digital transformation.

The application selection process is a chance to apply a rigorous evaluation of business requirements to ensure the ongoing success of the business. Factors such as cost, industry functionality, ability to achieve digital transformation, provide key comparison points between different solutions.

However, for many industrial decision makers managing complex projects, finding a software solution that meets requirements is not as simple as it seems. Often operating in disconnected and challenging environments, decision makers have come to rely on a patchwork of solutions and spreadsheets to run their operations.

The key reasons decision makers struggle to find a software solution that meets such requirements is that it will typically cut across industries and operate both onshore and offshore. It will include project management, services, construction, manufacturing, and asset maintenance. In such a complex, hybrid environment, finding the best fit solution that meets all the requirements is tough. ■

BUILDING CUSTOMER ENGAGEMENT IN THE NEW NORMAL

Digital technologies will replace yesteryears tools as brands begin to tap consumer data and translate it into actionable insights and engagement.

The pandemic has forever altered the way companies look at customer engagement. Almost immediately after the pandemic hit, organisations across sectors and sizes and around the world, started to re-evaluate and re-prioritise their digital transformation agenda. This was critical to ensure business continuity and seamless customer experience.

The initiative saw companies in APAC region accelerate their digital adoption at an unprecedented pace, some by as much as four to five years. This has simultaneously created entirely new and innovative ways of connecting with and servicing customers, and unlocked new

opportunities in the workforce. According to LinkedIn's Jobs on the Rise Report 2021, the roles in customer service, including customer support and contact centre specialists, are among the fastest growing in Southeast Asia.

These two forces acting in conjunction will drive a change in contact centres of the future. As brands act swiftly to close the experience gap, meet customer needs and become more agile, they will undoubtedly adopt a more digital-first approach for their contact centre.

This means increased investments in digital solutions, which will not only empower more agents to work



BY LEE HAWKSLEY

Vice President and General Manager - APJ, Twilio





Digital natives with agile processes and willingness to reinvent their ways of working will benefit the most from the technology-driven change.



remotely, but also offer greater omnichannel experiences in line with customers' needs. We will see even more businesses build flexible, tailored contact centres that can respond to rapidly changing market conditions, and serve customers on any channels.

NO MONOLITHIC MARKETING CLOUD AND CRM

According to Twilio's State of Customer Engagement Report 2021, even as the volume of digital interactions increased by 54% over the past year, almost half of organisations still face challenges getting accurate customer data. This poses a huge obstacle in today's era of hyper-personalisation; brands who fail to effectively tap on first-party data and translate this into actionable insights and engagement will lose out amid an increasingly competitive landscape.

This will necessitate a shift away from outdated technology like CRM and marketing clouds. Such tools built for the bygone era lack the ability to collect customer data into one unified view at consumer scale. They simply are not equipped to capture the billions of customer signals that exist today.

Instead, businesses looking to offer scalable, hyper-personalised experiences will turn to solutions that help deliver exceptional, omni-channel campaigns fit for the digital era. Their sights will be set on Customer Engagement Platforms (CEP) that combine customer data infrastructure with scalable communication APIs, so they can quickly build and move from idea to execution.

TECHNOLOGISTS WILL CEMENT THEIR PLACE ON THE BOARD

One of the biggest impediments in businesses' digital

transformation journey is that they operate in silos. The truth is that today, business and IT cannot be decoupled. As legacy companies race to innovate and new digital natives emerge, IT decisions have essentially become business decisions.

Technologists hold the key to their organisation's digital journeys, so it is crucial that they are involved to set the tone and define the strategic objectives for the overall business. This is necessary to ensure that every decision, from software development to tech implementation, takes one up the ladder to a larger objective that advances the businesses' digital agenda.

With that, we can expect to see more technical CEOs and co-founders on the board and those that are already there will have a bigger voice. Organisations will also move to bring in developers as partners within the business, and tap on their expertise to spot gaps in existing solutions and solve business problems.

UNLOCK THE POTENTIAL OF CUSTOMER ENGAGEMENT STRATEGIES

The pandemic has spurred a hike in reliance on digital services, and over 75% consumers prefer digital channels and communications. Beyond that, the region registered the fastest growth in the global communications-platform-as-a-service (CPaaS) market, at 55% year-on-year (above the 40% global average).

Organisations in APAC are now racing to unlock the untapped potential in their customer engagement strategies to establish competitive advantage for the long run. Some of the world's best innovators and disruptors are emerging from





KEY TAKEAWAYS

The roles in customer service, including customer support and contact centre specialists, are among the fastest growing in Southeast Asia.

As brands act swiftly to close the experience gap, meet customer needs and become more agile, they will adopt digital-first approach for their contact centre.

Businesses will adopt CE Platform to combine customer data infrastructure with scalable communication APIs, quickly moving from idea to execution.

the APAC region and the trend is likely to accelerate.

What is interesting to note is that these trends are sector-agnostic. Customers today expect the same level of service, transparency and superior experiences regardless of industry. This means that irrespective of whether it is education, financial services, retail and ecommerce or telecommunications organisations are sitting upright and paying attention. And while larger businesses may have deeper pockets and resources to initiate change, digital natives with agile processes and willingness to reinvent their ways of working may benefit the most from the change.

GEAR UP TO CAPITALISE ON THE TRENDS

There is no one-size-fits-all solution. Regardless of what industry, or what stage of transformation they are in, businesses must first look inwards to assess their existing

culture and level of maturity. Some organisations may benefit from a more leadership-driven, holistic approach to align their business around a single digital agenda and navigate these changes; others may seek a more incremental “brick-by-brick” strategy and rely on ground-up initiatives from employees to spur innovation.

In my experience, the most successful digital transformations are in fact a series of connected and aligned ‘digital renovations’, high impact, quick to deliver projects that when rolled up change the fundamental nature of the business.

What remains consistent is the need for organisations to build and empower multi-disciplinary teams. Talent will always be the most valuable asset, and business leaders must invest to cultivate a culture of learning, collaboration and open exchange of ideas. In doing so, employees will be motivated, remain highly skilled and inspired to add value to the organisation. ■

COMPLEMENT IN-HOUSE EXPERTISE TO EMBED DIGITAL MODEL

Embedding digital at the core of the organisation contributes to sustainability leading to less physical waste and decreased need for travel.



BY RAMI RIAD MOURTADA

Partner and Associate Director,
Boston Consulting Group, BCG



Across sectors, a common set of new digital-driven capabilities is key for any company aspiring to be Bionic.



A definitive recent change has been the greatly increased regional consumer adoption of digital channels for almost all products and services, broadly driven by COVID-19 accelerating an existing trend.

This has led to companies having to better digitise their offerings front-to-back

to keep up, based on a better, first-hand understanding of the material advantages a proper digitisation and datacentric approach provides, whether in new customer offerings or optimised internal processes. This has been a strong driver in putting digital transformation even further at the top of Leaders' agendas, and crystalised the important role digital plays at the core of organisations' continuing viability and resilience.

The rising digital transformation mandate has heightened the focus on internal gaps and customer pain-points across organisations' processes and operations, and has driven renewed attention to importance of putting technology and data, in concert with human interaction, at the centre of the organisation.

Thus, a transformation is needed towards what we at BCG call the Bionic Company, one that seamlessly connects strategy, operating model, and offerings in an agile, platform-focused, and customer-centric way, leading to further outcomes in new business growth, additional capabilities, and enhanced offerings.

While there are some variations in technology priorities, for example across sectors and between SMEs and large multinationals, a common set of new digital-driven capabilities is key for any company aspiring to be Bionic. These include revised automated customer-facing processes and channels, enhanced internal technology-

driven platforms with embedded Artificial Intelligence, AI, and advanced data analytics, and new design and development skills across key teams.

There are still viable opportunities for partnerships, the aim there should be to complement, and not replace, sufficient in-house capabilities to properly drive the transformation and embed the new digital operating model.

For top leadership: first, directing a rapid assessment of where the organisation stands in the digital transformation journey overall, identifying key capability gaps and major pain-points; and second, agreeing a strategic activation roadmap to accelerate the digital transformation in a phased Bionic approach that ties technology, data and human skills, and which deploys pilots to test, refine and build momentum with emerging results.

For technology leadership: it is imperative that a vision be developed for the target platform landscape that underpins the new digital operating model, aiming to streamline technology and data foundations for key offerings, processes and channels, end-to-end.

However, the criticality of sustainability as an organisation's collective responsibility means that independent cross-cutting initiatives are still needed to coordinate and ensure impact holistically. ■

BLENDING PROJECT AND ASSET DATA INTO DIGITAL TWINS

Incorporating project and asset data into digital twins creates transparency through digital tools and real-time data sharing to expedite decision making.

Over the past ten years, capital expenditure projects, both brownfield and greenfield, have become more complex and challenging due to many factors, not limited to ever-changing environmental, societal and government standards and requirements, increased end-product specialisation, and a move towards larger, more distributed global project teams.

As a result, industrial capital projects are commonly delivered over-budget and beyond the originally planned project schedule by an average of 20 months or more. Pile on a common project design and execution approach that involves the use of outdated technologies and methodologies, disconnected systems and tools, siloed working with lack of data integration, and duplicity in data creation, and an industry for change is revealed.

As the industrial sector emerges from the global pandemic with a clearer view of future process plant, and market requirements, operators and their engineering, procurement and construction contractors have doubled down on digital transformation to build the plant of the future.

The digital twin of a plant captures the as-is version of the physical plant digitally, and can help to generate the necessary insights to drive savings, improve safety, sustainability and productivity, and enhance the overall asset life cycle.

As companies adjust to new

market demands and shift to cleaner operations and more sustainable end-products, the majority of the capital projects that will be delivered in the next couple of years are planned for existing, aging, or operational assets.

Unlike on a greenfield or net-new project, when forming the digital twin on an existing asset, sometimes called a brownfield asset, there will already be data in place from when it was designed and constructed, and there are likely years of operational and maintenance data to consider as well.

All this data is commonly spread across disparate systems, in multiple versions, and may even be conflicting, but when aggregated and contextualised, it becomes a strong foundation for the asset's digital twin.

On an existing, operational asset, there are two critical



BY VANESSA ERICKSON

Capital Project Portfolio Expert,
AVEVA





Majority of the capital projects that will be delivered in the next couple of years are planned for existing, aging, operational assets.



elements to getting the most out of your digital twin. The first is to systematically connect engineering data from the plant as it stands today. Laser scanning of the physical plant is particularly useful here to quickly and accurately create or verify the 3D model, which has likely changed from how it was originally designed.

It is ideal to also incorporate all available process simulation data, material and equipment specs, and construction and fabrication vendor data, as well as any operational data collated over time to gain a contextualised understanding of your plant and how it behaves.

The second critical success factor is to deploy on a secure cloud platform to make verified, up to date asset data accessible to internal teams and external contractors around the world. Aggregating asset data into a cloud platform is like joining the dots between related information from different places.

It aligns all teams around a single source of truth no matter where they are based in the world. This allows for faster and more precise decision-making capabilities and reduces the possibility of expensive errors at the end of the project.

Lack of data integrity or access to trusted data can be disastrous, especially for brownfield and maintenance projects, with costly consequences when planned operations are expected to be resumed and do not happen, or worse, it could become a factor in missed regulatory compliance issues or safety incidents later on.

Whether executing a project or gathering project data to form the digital twin, the approach remains the same. A strongly integrated approach to the technologies that create and utilise your data is crucial. This should include process simulation, equipment lists, P&IDs and Diagrams, and the

3D model as well as vendor, procurement and construction information.

This data-centric strategy minimises leakages from offline collaboration, reduces the time spent finding and verifying data, and provides deeper understanding of processes that would otherwise stand alone in the legacy, disparate approach. Integrating the engineering and project data together in a single place is, in effect, the first form of the digital twin.

Incorporating project and asset data into your digital twin strategy creates transparency through digital tools and real-time data sharing to inform and expedite decision making, drive project efficiency and reduce risk while simultaneously enhancing future operations.

In the past, project decisions were based on data generated from a mix of physical and digital documents and reports leading to errors, inconsistencies, and conflicts, ultimately impacting the success of the project, while lending little value to operational decisions.

On operational plants, a scaled-back digital twin strategy may have been developed from a point in time with limited or missing data on its design or construction, or more commonly, prioritised for future greenfield projects only.

Putting data at the center of your asset strategy disrupts the way all project and operations stakeholders work and collaborate. When data is continuously shared to the core of the digital twin as it is generated and all documents and reports are created from the latest version of that data, the insights you extract can be trusted to make and implement decisions quickly and with complete confidence.

And if that is not enough, the efficiency gains from this approach translates to ten, or even fifteen, percent savings on the total installed cost of a typical capital project. ■



TOP 5 QUESTIONS THE BOARD CAN ASK THEIR CISOS

How secure are we? Why do we need more money for security? Chances are, most CISOs have heard these questions, from their boards of directors.

Recently, boards have been asking security and risk leaders for guidance on how to navigate a global pandemic, increased phishing threats and, potentially, a workforce unaccustomed to working from home.

The problem is, these questions are unanswerable. They are driven by exaggerated, incomplete or contradictory public information and are a distraction from more relevant questions.

Additionally, security leaders need to be able to give the board something that they care about and that is meaningful to them. Beyond individual passions and concerns, boards collectively generally care about three things:

Revenue, mission: Operating or nonoperating income and enhancing non-revenue mission objectives

Cost: Future cost avoidance and immediate decrease in operating expenses

Risk: Financial, market, regulatory compliance and security, innovation, brand, and reputation

As board members realise how critical security and risk management is, they are asking leaders more complex and nuanced questions. Boards today are becoming more informed and more prepared to challenge the effectiveness of their companies' programs.

Most board questions can be categorised into five areas.

#1 THE INCIDENT QUESTION

What it sounds like: How did this happen? I thought you had this under control? What went wrong?

Why it is asked: These questions are asked when an incident or event has occurred and the board either already knows or the CISO is informing them of it. This is particularly relevant for CISOs during the Covid-19 pandemic, when boards may be asking questions specific to securing the organisation while large portions of employees are working from home under unusual conditions. This could also be in reference to any other incident, including data breaches that may have impacted the organisation in general.

How to respond: An incident regardless of category is inevitable, so be factual. Share what you know and what you are doing to find out anything you do not currently know. In short, acknowledge the incident, provide details on business impact, outline weaknesses or gaps that need to be worked out, and provide a mitigation plan.

Be cautious not to endorse one option as the ultimate choice when in front of the



BY SAM OLYAEI

Director Analyst, Gartner



KEY TAKEAWAYS

Security leaders need to be able to give the board something they care about and that is meaningful to them.

Beyond individual passions and concerns, boards collectively generally care about three things – revenue, cost, risk.

An incident regardless of category is inevitable, so be factual.

“
It is impossible
100%
to be secure or
protected.”

board. The responsibility for oversight of security and risk remains with the security leader, but the accountability has to always be defined at the board, executive level.

#2 THE TRADE-OFF QUESTION

What it sounds like: Are we 100% secure? Are you sure?

Why it is asked: Questions like this are often asked by board members who do not truly understand security and the impact to the business. It is impossible to be 100% secure or protected. The CISO's role is to identify the highest-risk areas and allocate finite resources toward managing them based on business appetite.

How to respond: Considering the ever-evolving nature of the threat landscape, it is impossible to eliminate all sources of information risk. My role is to implement controls to manage the risk. As our business grows, we have to

continually reassess how much risk is appropriate. Our goal is to build a sustainable program that balances the need to protect against the need to run our business.

#3 THE LANDSCAPE QUESTION

What it sounds like: How bad is it out there? What about what happened at X company? How are we compared to others?

Why it is asked: Board members will come across threat reports, articles, blogs and regulatory pressure to understand risks. They will always ask about what others are doing, especially peer organisations. They want to know what the weather looks like and how they compare to others.

How to respond: Avoid guessing at the root cause of a security issue at a different company by saying, I do not want to speculate on the incident at Company XYZ until more information is available, but I will be happy to follow up with you when I know more. Consider discussing a series of broader security responses such as identifying a similar weakness and how it is being fixed or updating business continuity plans.

#4 THE RISK QUESTION

What it sounds like: Do we know what our risks are? What keeps you up at night?

Why it is asked: The board knows accepting risk is a choice, if they do not, that is a challenge you need to solve. They want to know that the company's risks are being handled. CISOs should be prepared to explain the organisation's risk tolerance to defend risk management decisions.

How to respond: Explain the business impact of risk management decisions and ensure that your positions are

supported by evidence. The second part is vital because boards are making decisions based on the risk tolerance. Any risks outside the tolerance level requires a remedy to bring them within tolerance. This does not necessarily require dramatic changes in short periods of time; beware of overreacting.

The board will be seeking assurances that material risks are being adequately managed, and that subtle, long-term approaches may be appropriate in some instances. Remember, the board is accountable for enterprise risk, of which cyberrisk makes up a small, albeit important, component of the organisation. Challenge yourself to be brief and to the point. A lack of a control is not a risk, and neither is the next big threat. Focus on the big-ticket items that you control – Loss of IP? Regulation? Third-party risk?

#5 THE PERFORMANCE QUESTION

What it sounds like: Are we appropriately allocating resources? Are we spending enough? Why are we spending so much?

Why it is asked: The board will want reassurance that security and risk management leaders are not standing still. Board members will want to know about metrics and ROI.

How to respond: Use a balanced scorecard approach in which the top layer expresses business aspirations and the performance of the organisation against those aspirations is illustrated using a simple traffic-light mechanism. As much as possible, explain aspirations in terms of business performance, not technology. Performance is underpinned by a series of security measurements that are evaluated using a set of objective criteria. ■

IS YOUR B2B ENTERPRISE READY TO BE THE NEXT APPLE?

Independently audited NPS and industry analyst reports will tell you how likely customers are to recommend you, use them to optimise operations and offerings.

We live in the age of experiences. A good customer experience can turn a one-off consumer into a loyal brand advocate. Given that we now live in a digital-first world, businesses across the region are investing heavily in building digital capabilities that allow them to adapt quickly to customer demand.

This is obvious in the success of B2C companies such as Apple and OSN, but what about B2B organisations? Many see significantly slower growth regionally than fast moving consumer-based online businesses. So, what can B2B enterprises learn from B2C that can accelerate their growth?

CUSTOMERS, NOT COMPETITORS

The first step is to become customer obsessed. Retailers bond with customers through the nuances of psychology that make them choose a brand and remain loyal to it. Consumers are less tantalised by product features than they are by buying experiences, and e-tailers have capitalised on that.

In B2B, enterprises should be emulating this. If they can understand the business their customers operate in — the opportunities and challenges — and design solutions and services that meet these needs and solve those challenges, they

are within reach of a winning proposition. The need to nurture relationships is vital in the B2B world.

So B2B entities must put customers first and foremost. Similar to the way the designers of the iPhone were obsessed with the user experience and were constantly asking How can we make the phone more user friendly. They understood that customers respond to a company that improves their lives in some noticeable fashion. In the age of social media, even for B2B companies, if you can get people talking about a service or product of yours and how it helps their business grow, you have taken an important step.

FOCUS ON EASE OF USE AND FLEXIBILITY

Involving your customer in your product-development cycle is a strong start. Feedback can lead to discoveries of wants or problems that your customers have that you can solve. Then you can stop being a link in a supply chain and become an industry hero.

A huge part of that feedback process will involve ease of use. In the new normal, where businesses and consumers have ever-changing needs, products and services that fulfil those needs will only be successful if they are easy to use. Getting



BY JAMES PETTER

VP International, Pure Storage



KEY TAKEAWAYS

B2B businesses, like their consumer-serving peers, must hold themselves to account.

The first step is to become customer obsessed.

A huge part of that feedback process will involve ease of use.



Everything from network latency to cost efficiency can help to oil operational efficiency and lead to better consumer experiences.



bogged down in arduous training courses and endless technical manuals does not make for the best customer experience.

An extension of the ease-of-use element is flexibility. A good customer experience is made better by giving customers options in how they consume a product or service.

Indeed, the XaaS concept

itself is all about turning what used to be products into services and whether it be for security or infrastructure, we are seeing more and more customers pivot to an as-a-service consumption model that helps to address the delivery of aftersales, because the business remains with its customer throughout the consumption journey. Aftersales is, if you like, baked right into the original sale.

BETTER INSIGHTS LEAD TO BETTER OUTCOMES

Whether it is Netflix or Amazon, successful B2C companies know full well that their greatest asset is data. These companies use modern analytics on the high volumes of data to create personalised customer experiences as well as cross-sell and upsell subscribers and users on products and services. B2C businesses also look inward to improve their products and services.

Everything from network latency to cost efficiency can help to oil operational efficiency and lead to better consumer experiences. Analytics play an increasing role in actionable intelligence for digital businesses.

B2B firms have as much access to extensive stores of high-quality data as B2C organisations do. Now is the time to make use of this potential treasure trove of insight. A sound, modern data-analytics strategy can be a great accelerator for digital transformation in general, yielding actionable intel on everything from the customer experience to energy consumption.

AIOps is another area which B2B organisations should have an eye on. AIOps is the application of advanced analytics to big data to automate IT operations.

This means looking into the future to predict business requirements based on current activity. It can take a burden off teams by predicting and automating mundane tasks.

The knock-on effect is that IT teams will have more time for supporting innovative projects which positively impact customer experience. In fact, a recent study by Pure Storage showed that organisations that are furthest along the analytics-maturity scale, when compared with those that are the least mature, are 3.2 times more likely to be more popular with customers than their competitors.

TAKE A LOOK IN THE MIRROR

In the B2C space, a true measure of success of a product or service is consumer sentiment. B2C companies rely on consumer feedback — be it via social media or forums and reviews. B2B businesses, like their consumer-serving peers, must hold themselves to account. Independently audited Net Promoter Scores and industry analyst reports will tell you how likely customers are to recommend you. Use them to optimise operations and offerings.

B2C businesses have been dancing to these tunes for years. Infrastructure that gives customers flexibility; adjustment of business models to suit customer needs; analytics that tell stakeholders when the mood is about to change and whether they have read the room correctly. B2B enterprises across the region are starting to see the benefits in implementing parts of these B2C models. Is your enterprise ready to be the next Apple? ■

DATA IS THE CORE DIGITAL FUNCTION DRIVING OVERHAUL

Data must be collected, retained, analysed to reach the business' peak potential, upscaling staff to understand complexities of navigating such systems.



BY SAIFUDDIN KHWAJA

Senior Sales Director at
Western Digital

Whilst the digital environment has been constantly changing in the Middle East over the last few years, the pandemic ushered in, by necessity, a degree of digital transformation that is unprecedented for the region in both its scale and scope. The rapid acceleration of digital across both private and public sectors alike forced the roll out of digital systems and placed connected technology and data storage at the forefront of adoption.

The next few years

should be an exciting time for smart technology providers in the Middle East. As various technologies continue to evolve so will the data storage needs and how to get the best value from it. Specialised storage is therefore necessary to create optimum value from IoT data, which must be considered when building out the wider data infrastructure.

The implementation of the right storage infrastructure and technology and subsequent education on them will help consumers to feel that their information is more secure and remove doubt around these technologies.

The core digital function that is driving most internal infrastructure overhauls is data. Data must be efficiently collected, retained, and analysed to reach the business' peak potential, upscaling staff to understand the complexities of navigating such systems. Therefore, digital businesses must be prepared to manage and mitigate any event where there is potential for data to be corrupted or lost.

Data protection in the modern enterprise is seeing fast-paced changes often requiring a new approach and strategy. As we move towards a more regulated world, it is also necessary to remain compliant with data privacy regulations and eDiscovery requests. Data must also be protected from loss, disasters, and cyber-threats.

Successfully adopting a cloud

strategy will help businesses end up with a more powerful, cost effective and highly reliable solution for long-term data retention and a robust platform that can respond to new capacity or hardware challenges in a flexible manner and facilitate data forever.

Business leaders need to look at the bigger picture of data as an enterprise asset because when a company's data strategy is aligned with their business strategy, better business decisions can happen. Data infrastructure is critical in our digital world as data must be stored and analysed quickly, efficiently, and securely. Thus, data architectures need to go beyond simple data capture and storage to data transformation and creating business value.

Many businesses, however, still use general-purpose architecture to manage their IoT data. This architecture does not fully meet the varying needs of IoT applications and workloads for consumers and enterprises. Therefore, businesses must move from general-purpose storage to purpose-built data storage and different solutions for different needs.

Taking on transformative digital solutions should not mean sacrificing sustainable initiatives, in fact, it should do the opposite. It should mean building the foundation for data, giving people new ways of utilising technology like never. ■

COMPOSABILITY ARE SHARP DIFFERENTIATORS IN BUSINESS

Organisations prioritise flexibility, embrace agile applications that enable capabilities to quickly deploy new technologies efficiently within hours.



BY NIDAL ABOU-LTAIF

President, Avaya International

It is no secret that there are seeing huge transformations taking place across almost every business sector. A lot of that was brought on by the pandemic, which forced businesses to go digital, and showed us there is no one-size-fits-all model for the new ways of delivering experiences. But the transformation has since been sustained by the fact that enterprises realise that their customers and employees expect personalised experiences,

wherever they are, and however they are choosing to interact.

This is very obvious at the regional level, where you have governments setting out their visions for a post-pandemic world, and the private sector is following. The UAE aiming to build a dynamic economy in the world, with significant investments being made in upskilling young talent and creating a nation of coders. Likewise, Saudi Arabia is investing \$1.2 Billion in technology initiatives.

And organisations are now looking to answer the question of how they can keep up with all of this change. They recognise the challenges and opportunities within the world, and they understand that delivering unforgettably positive experiences is among the most powerful differentiators for businesses today.

To deliver those experiences in a new world, and to really make this forced digital transformation count, regional organisations are moving towards a composable approach. To keep up with these ever-changing customer expectations, businesses providing great experiences are not satisfied with monolithic, apps in a cloud world. Instead, they need solutions that can be composed, as needed, regardless of whether the application sits on-premises or in the cloud.

This pivot is towards customisation is exactly right. Today, businesses are looking

at how they can deliver a Total Experience to their customers, encompassing an entire customer journey from web enquiry to after-sales support and beyond. When today's consumers connect with organisations, they want experiences that are simple and seamless. If the company that they are counting on cannot provide them with what they need, these customers will go find another company that can. And the only way to satisfy these customers is by addressing the Total Experience and composing personalised customer journeys for them.

It is known that consumer and employee demands are constantly changing. And, despite the positive environment now, with the end of the pandemic in sight, the current situation can still be fluid. So, for a business it can be difficult to keep pace and be flexible, especially if you are using older technology that prevents you from quickly rolling out new services.

That is why regional organisations are prioritising flexibility above anything else. They are embracing agile, services-based applications with large ecosystems that enable capabilities to be quickly composed as and when needed. And the composability of the technology is the key, it is no longer good enough to say that a deployment will take six months. You need to be able to deploy new technologies and capabilities within hours. ■

TCS PARTNERS JAGUAR LAND ROVER TO ENTER FORMULA E RACING

Tata Consultancy Services (TCS) has joined the British racing team Jaguar Racing as title partner ahead of the 2021/22 ABB FIA Formula E World Championship. It will be the fourth and final year for the teams to be racing with the futuristic Gen2 cars that will be used for the full race distance of 45 minutes plus 1 lap. The Jaguar TCS Racing team has Mitch Evans and Sam Bird behind the wheels.

As countries around the world push for more EVs, the two companies are using the racetrack for research and development, including revisions in software to improve energy management, making the racing car faster, and more efficient. TCS and Jaguar expect to use these data and insights to shape EV technologies for a more sustainable future. It will also serve as a test bed for Jaguar with its journey to becoming an all-electric luxury brand from 2025.



Image: TCS

JAGUAR

tcs

RACING



Jaguar TCS Racing team (from left to right): Sam Bird and Mitch Evans.

AS EXECUTIVES, DO WE KNOW THE MEANING OF LIFE?

Tension between work and influence, family and enjoyment, settle into equilibrium that is suited to each individual, no one can or has ever had it all.



BY NIRANJAN GIDWANI

Consultant Director, Member UAE Superbrands Council, Former CEO Eros Group

It is natural for each individual to be driven by ambition. Yet each of us must also aspire to lead a whole life in perfect contentment. There is a natural, rubber-band like stretch between ambition and contentment. Sometimes the balance tips towards ambition, especially when one is younger. At other times, especially when one is older, the balance needs to start tipping towards contentment.

It is the deep desire of every individual to die peacefully, having lived a life of fulfilment

and contentment. But to judge whether our lives have been fulfilling creates their own dilemmas of judgment. Does one need to be well-known, or even famous? Can a famous person and an ordinary person both be able to lead a fulfilled life?

In Indian mythology, one can always dig deep to pull out pearls of wisdom. The story of Bhishma is one of the most celebrated. During the battle of Kurukshetra, Bhishma is struck down by the arrows of Arjuna, who is his grandnephew. The



“

We chase wealth and success throughout our life.

”

arrows pierce his body and when Bhishma falls down from his chariot, the arrows form a bed so that Bhishma's body does not lie on Mother Earth.

With his body resting on the bed of arrows, Bhishma's head hangs loose with no support. Bhishma asks Arjuna to provide some support. Arjuna does so by piercing three arrows in the ground in a manner that Bhishma's head can rest on those arrows. A satisfied Bhishma says, 'What a fitting pillow for a warrior like me.' He then asks for water. Arjuna again pierces his arrows into the earth and cool water springs out of the hole and goes directly into Bhishma's mouth. Bhishma drinks some water.

Bhishma then asks Lord Krishna, who is near-by, as to why he is dying with such suffering in spite of his track record of good karmas. Lord Krishna reminds him that in one birth he had sinned by inflicting pain on insects when he stuck needles and thorns into their bodies. This deed, coupled with his unjust support of the Kauravas, caused him that painful death.

It is a great gain to feel fulfilled with life. Thankful for all the good things that have happened, no regrets for all the bad things that have happened. Bitterness and fulfilment do not go hand in hand.

Each person has to learn life lessons for himself or herself

as he or she goes through a personal odyssey of discovery about work, life, friendship and relationships.

The availability of loads of knowledge, of being able to quote from religious books is not of any great value as compared to internalising that knowledge. The lessons of experience in life and in management work in the same way. We know the lessons, but are unable to always practice them.

According to a famous and successful management guru and successful business head, each person's personality has two elements, a base layer and a layer on top. The base layer is about temperament, which is more or less fixed by a person's genes and circumstances of birth. The layer on top is the human quality, which is shaped by the person's life experiences.

Temperament plus human quality equals the personality.

To become good, one needs to constantly practice being good.

The tension between work and influence, on the one hand, and family and enjoyment, on the other, settle into a sort of equilibrium that is uniquely suited to each individual. No one can or has ever had it all. And no one formula fits all.

The same happens with life. We chase wealth and success throughout our life. But as soon as we have acquired it, we have to think about what to do with it. Likewise, the acquisition of power leads us to the question of what exactly to do with that power. Truly powerful leaders have always used power to contain their power.

The journey of career and life has some purpose. It is to be happy: to give all one has, to take all one can, and to keep both in balance. When we refer to happiness, what we truly

mean is a complex phenomenon called emotional well-being. To be happy is to possess a favorable emotional state. It is this path to happiness that motivates human beings to seek a life of virtue.

Life's biggest lessons are learnt from the smallest of creatures.

One Sunday morning, a contented man sat in his balcony. A little ant caught his eye. It was travelling from one end of the balcony to the other, carrying a leaf several times bigger than itself. He saw that the ant, when faced with impediments during its journey, paused, took a diversion and then continued towards its destination.

At one point the tiny creature comes across a crack in the floor. It stops for a while and then lays the huge leaf over the crack, walks over the leaf and picks it up on the other side. The man watches this for about two hours, until the creature has reached its destination—a tiny hole in the floor. Now how could the ant carry this large leaf into the tiny hole? It simply could not.

So, the minuscule thing, after all the painstaking work and the exercising of wonderful skill, after overcoming all the difficulties along the way, leaves behind the large leaf and goes home empty-handed. It is a day on which the ant learns a great lesson. Is not that the truth about our lives as well?

For most people, a good life is one that leads to a circle of virtue. Aristotle had said that virtue and human happiness are synonymous. He had argued that we all try to develop inner strength and virtues. Without those strengths and virtue, we cannot be human.

For sure most of us wish to lead a good life. But what is the good life? Who decides it for each of us? ■



DRIVING CORPORATE TRANSFORMATION THROUGH WELLNESS APPROACH

As employee wellbeing takes the centrestage in the post-pandemic normal, corporate wellness programmes can go a long way in transforming organisations.



BY EKTAA SIBAL

India's number one Inner-self Transformation Specialist, International Meditation Expert, Global Executive Leadership Coach and Gifted Energy Healer with inborn intuitive abilities

Did you know that an average employee spends almost 50 hours a week and eats about one-third of their meals at work? No wonder then, there is always a need to transform the culture of an organisation by making it more enriching. This makes it imperative for organisations to take a more holistic view of employee wellbeing.

Here are some important points to note about the need for corporate wellness.

A study conducted by GSK among office-going workers in China, India, Indonesia, and the Philippines indicates that 67% of employees admitted to experiencing some kind of body pain at work. Over 60% individuals had faced headaches and other physical sufferings that in turn led to loss of productivity.

Another study by the Global Wellness Institute indicates that discomfort at place of work could result in the following drawbacks at work.

- 62% individuals believed that it made them less productive.
- 63% individuals admitted reduced ability to engage at work.
- 62% individuals said that it hampered their motivation to complete their assigned tasks.

A research by Gallup concluded that higher percentage of staff engagement can help brands increase their earning by over 147% by outperforming the competitors.

Several studies at the Harvard also point out that the return on investment (ROI) of wellness programmes can be calculated based on the fact that for every dollar a company spends on wellness, it can save \$2.73 and reduce absenteeism.





KEY TAKEAWAYS

With employee spending almost 50 hours a week at their workplace, it is imperative for organisations to take a more holistic view of employee wellbeing.

Higher percentage of staff engagement can help brands increase their earning by over 147% by outperforming the competitors.

WELLNESS: THE RIGHT TOOL FOR CORPORATE TRANSFORMATION

Corporate wellness programmes typically bring to mind images of treadmills and salads. However, physical health is just one dimension of overall wellness. Many people live in a constant state of stress and anxiety, just trying to make it through the day.

Whether its work deadlines, relationships, parenting or even commuting in traffic, just getting through every day without losing one's cool is increasingly challenging. No wonder then, many forward-thinking wellness programmes are shifting to a much more holistic approach to include emotional, occupational, social, intellectual dimensions, in addition to the traditional physical wellness people normally associate with good health.

The World Health Organization (WHO) estimates the economic loss to India on account of mental health disorders to be \$1.03 Trillion. In another survey, the Associated Chambers of

Commerce and Industry of India (Assocham) has confirmed that corporate wellness programmes increase employee loyalty, improves work performance, increases productivity and reduces the attrition rate.

Corporate wellness is essentially the well-being initiatives that an organisation adopts as a policy to support healthy actions and to improve overall wellbeing of its employees. Workplace wellness helps employees enrich their physical, mental, emotional, occupational and social wellbeing.

Companies can also benefit by hosting regular wellness workshops and wellness transformation sessions as it demonstrates that the employees are cared for and their health and wellbeing matters to the organisation. With the wellness aspect becoming more important during the Pandemic, such activities lead to improved morale and higher performance of the employees.

Employee wellness programmes have multiple benefits, both for the employers and the employees. Here are some key elements why organisations are going ahead and incorporating corporate wellness programmes.

- Reduces stress among employees
- Healthier individuals
- Creates work life harmony
- Generates positive influence on company culture
- Boosts productivity
- Reduces absenteeism
- Increases adaptability and resilience
- Improves recruitment and retention
- Builds higher morale

Here are some of the activities that an organisation can incorporate as a part of its corporate wellness programme to bring transformation.

- Regular group meditation sessions should be conducted



The ROI of wellness programmes can be calculated based on the fact that for every dollar a company spends on wellness, it can save and reduce

\$2.73

absenteeism.



for all the employees to experience its many benefits.

- In-premise counsellor at workplace can help the employees to take help for any issues.
- Observe health related occasions by conducting talks or sessions to raise awareness such as World Health Day or Mental Health Day or Yoga Day, etc.
- Encourage work breaks by including short duration fun activities.
- Organise indoor games and activities for employees to promote physical movement.
- Create hobby clubs to encourage camaraderie among employees.

Wellness at workplace should not be confined to health insurances or health checkups. It should extend to all those areas that can improve physical, mental, social and intellectual wellbeing.

Thus, putting a well-curated corporate wellness programme is a proactive approach to transform people's lives and in turn transform the organisation. ■

Ericsson launches intelligent platform for smarter networks



Ericsson has announced that it is launching an Intelligent Automation Platform, a service management and orchestration product which enables any mobile network to be intelligently automated. Building on existing offerings, including cloud-native dual-mode 5G Core and the Cloud RAN portfolio, the company is adding the Ericsson Intelligent Automation Platform and a suite

of rApps as a natural next step to build the networks of the future.

The solution facilitates artificial intelligence and automation, which improves network performance, operational efficiency and customer experience to help create smarter networks. The cloud-native solution will work across new and existing 4G and 5G Radio Access Networks (RAN) that can

support diverse vendors and RAN technologies, including purpose-built and Open RAN. "This will create greater choice for Communications Service Providers – CSPs as they evolve their networks. Ericsson's investment in this platform is reflective of the company's contributions to industry development of Open RAN technologies," the company said.

Ericsson Intelligent Automation Platform automates the radio access network using artificial intelligence and radio network applications with different functionalities. In a similar way to an operating system that automates operations, resources and identifies improvements to be made across the network, Ericsson Intelligent Automation Platform includes a non-real-time RAN intelligent controller that operates rApps. The platform also supports ecosystem innovation by enabling software developers to build products through a Software-Development Toolkit – SDK.

Miso launches telematics-based motor insurance app

Insurtech startup Miso Solutions has launched an app-only motor insurance mobile telematics platform. The platform aims to provide end-to-end digital distribution solutions in Thailand and Southeast Asia by offering personalized insurance premiums based on customer's driving behaviour. The initiative also aims to enhance safe driving, leading to reducing road accidents and fatality rates.

The company leverages technology from Amodo Telematics to create the smartphone-enabled "usage-based insurance" (UBI) solution as an end-to-end technology platform and marketing service to drive new business to insurance partners, the company stated, adding that the Miso app works by tracking driving indicators including accelerating, braking, speeding, cornering, and phone usage. "The app tracks the driving distance and time and classifies drivers in a star rating



system from one to six stars of the exclusive Miso Qualify to Buy (QTB) process."

The driving score, which is assessed in real-time by Miso, enables the company to offer personalised insurance proposition from Chubb Samaggi Insurance with discounts that are given at the beginning of the motor annual premium depending on the star rating of the QTB process. "Savings could be up to 50% from the total premium for the best drivers. The entire consumer experience is facilitated solely on the Miso app users' mobile phone," the company said.



Home gardening start-up Ugao raises INR 150 Million

Pune, India-based, home gardening and houseplant start-up Ugao has raised INR 150 Million in its pre-Series A funding round, led by DSG Consumer Partners and RPG Ventures. The company offers an array of products including, live indoor plants, planters, kitchen garden seeds and plant care products through its website

and ecommerce platforms like Amazon and Flipkart. Founded in 2015 by landscape architect Siddhant Bhalinge, the start-up claims a consistent growth of 120% year-on-year. Having fulfilled more than a million orders in the last six years, it aims to produce at over 500,000 plants a month by end of 2022. “The plant and home gardening

industry in India is estimated to grow at a CAGR of 50% and reach a market size of \$4 Billion by 2025,” Bhalinge said, adding that the company plan to utilise the funds to expand our regional presence with hubs and garden centers in Bangalore, Delhi, and Kolkata. The company also plans to use the funds for collaboration with international plant companies and to introduce a wider range of exotic plants and premium plant care products to the Indian market.

Speaking on the investment, Hariharan Premkumar, Head of India, DSG Consumer Partners said that plant parenting is on the rise across age groups and the category has massive growth potential. “The category is highly unorganised, and the offline purchase experience is subpar. Ugao has the potential to be the category-defining brand by solving customer pain points thoughtfully with a digital-first approach,” he said.

Brillio strengthens India presence with hub in Bengaluru

Digital technology consulting and solutions company Brillio has announced setting up of a new office in Bengaluru, India. Capping off a year where its business grew by 40%, this is the company’s second office in the fast-growing Indian tech capital. The new space in Koramangala provides a collaborative environment for 650 employees working across cross-functional teams, a company press release stated.

Earlier this month, Brillio announced the acquisition of Standav, making the company one of the largest Salesforce Revenue Cloud service providers in the world. With the addition of the new Bangalore location and Standav’s six delivery centers in the United States, Canada, and India, the company now has a presence in six cities across India. The company expects to have more than 4,000 employees globally by the end of the year.



“We’re thrilled to set up this new facility in Bengaluru, which is a strategic market for us in terms of talent, operations, and business capabilities,” said Raj Mamodia, Founder and CEO, Brillio. “This new office will be a valuable hub for great tech talent to collaborate, innovate and succeed together,” he added. The new office is part of the company’s expansion plan in key growth markets, including India, positioning the company to deliver digital solutions across technology, telecom, banking and financial services, retail/CPG, and healthcare and life sciences verticals on a global scale.

INDIANS DOMINATE GLOBAL TECH GIANTS

Indian CEOs have been driving global technology companies. Here is a quick look at some of the big companies they lead and the market cap they drive



BY KATHARINA BUCHHOLZ
Data Journalist, Statista

Indian-born CEOs have been a force to reckon with and the ascent of Parag Agrawal as CEO of Twitter is only the latest in the list of Indian executives making to the top position in high-profile American tech companies.

A quick research indicates that most Indian tech CEOs have programming or engineering background, and many of them also hold additional MBAs or other business degrees. This, experts point out, is because of the popularity of technical degrees in India as well as the availability of high-quality education facilities in the country.

Agrawal is a graduate of the Indian Institute of Technology in Mumbai and Stanford University, while Sundar Pichai, CEO of the much larger Google parent Alphabet, went to IIT Kharagpur and Stanford before receiving his MBA from the Ivy League University of Pennsylvania.

Satya Nadella, who presides over the highest-valued company of the bunch, Microsoft, also has an engineer degree from MIT Manipal and MBA from University of

Chicago Booth School of Business.

Similarly, Adobe CEO Shantanu Narayen attended the College of Engineering at Osmania University in Hyderabad, before completing his MBA from the University of California, Berkeley.

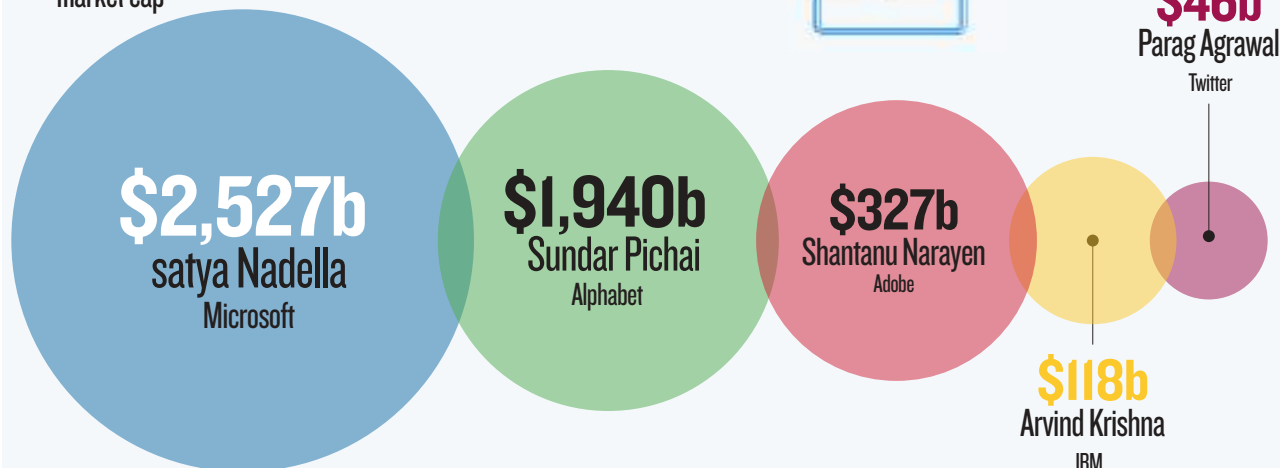
Arvind Krishna, CEO of IBM, completed his engineering from IIT Kanpur before receiving his PhD in electrical engineering from the University of Illinois.

The Harvard Business Review listed Narayen and Nadella as the top 10 best-performing CEOs of the world in 2019, along with Indian-born Ajay Banga, CEO of Mastercard and Taiwanese-born Jensen Huang, CEO of Nvidia who topped the ranking.

Other Indian-born CEOs of US tech companies include Sanjay Mehrotra of memory and storage company Micron (\$96 Billion market cap), Nimesh Arora of cybersecurity firm Palo Alto Networks (\$54 Billion market cap), Raghu Raghuraman of cloud service provider VMware (\$51 Billion market cap) and Anjali Sud of Vimeo (\$3 Billion market cap).

The Tech Giants Led by Indian CEOs

Indian-born CEOs of major American tech companies and their market cap*



as of Nov 30, 2021, 8 a.m. EST
Sources: Ycharts, Statista research



TECH COMPANIES AND ESG

While technology companies are aware of the need to integrate environmental, social and governance (ESG) practices into their business operations, there is a lot more that the sector can do to support the global sustainability goals. A KPMG report indicates that what technology companies think about ESG is very different from what they are actually doing on this front.

What tech companies are THINKING about ESG

#1 Environmental/climate change is the biggest risk to growth¹

86% think the tech industry requires more regulation and standards in the area of sustainability²

74% of tech CEOs feel it is their personal responsibility to ensure their ESG policies reflect their customers' values¹

79% agree that their organization's growth will be determined by their ability to shift to a clean technology economy¹

57% agree they must look beyond financial growth to achieve sustainable success¹

What tech companies are DOING about ESG

26% have significant incorporation of ESG into their strategic planning²

34% say climate change is having a high impact on their company's investment/funding²

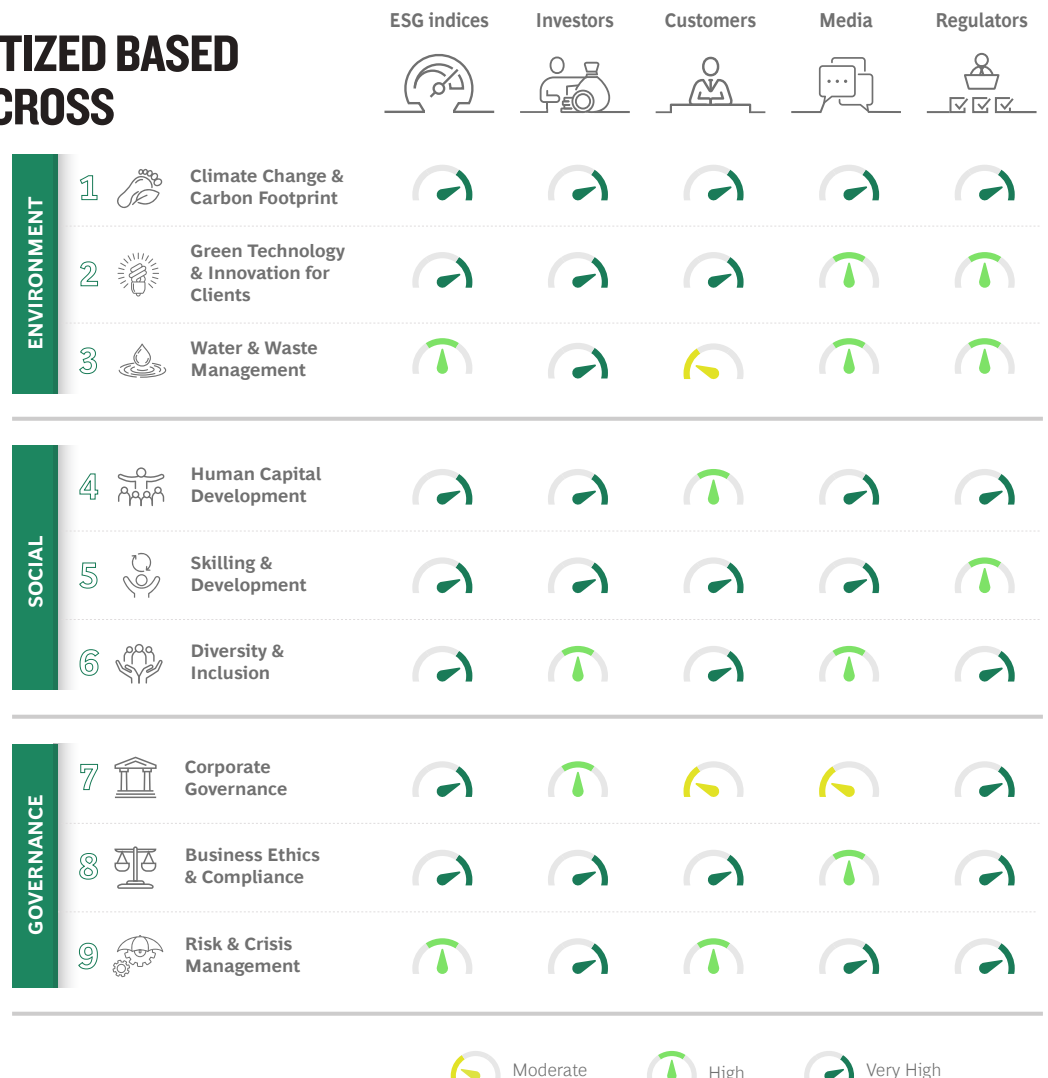
45% are struggling to link their growth strategy with a wider societal purpose¹

55% feel their sustainability experts are very effective¹

37% believe their governance experts are very effective¹

Source: The ESG imperatives for technology companies, KPMG.




ESG TOPICS PRIORITIZED BASED ON IMPORTANCE ACROSS STAKEHOLDERS



TECH COMPANIES AND ESG

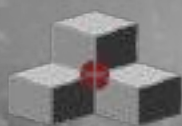
No matter the size or complexity of a technology company, ESG should be a priority for the leadership and part of its corporate strategy. Here is a five-point framework to self-assess ESG maturity and actionable steps for companies to follow.

The five-point ESG framework

ESG maturity	Comply 	Compete 	Shape 
1 ESG driven corporate purpose & strategy	Limited integration of ESG with business strategy Peripheral priority, Board focus on profit/expansion	ESG is a leadership priority with moderate strategy integration Leadership focus on balancing profit & purpose for material issues	Sustainability vision & goals embedded in business strategy Focus on sustainable business model, central to business strategy
2 ESG Governance model	Limited Board & senior leadership oversight Driven primarily by CSR foundation/department	Senior leadership driven ESG alongside "core operations" Flagship initiatives lead by business; but no/limited ESG KPIs	Eco-system wide ESG agenda extending into value chain ESG fully incorporated in KPIs & performance management
3 Target oriented ESG roadmap	Opportunistic portfolio of sustainability initiatives Ad-hoc selection of ESG initiatives; Qualitative reporting of achievements	Sustainability roadmap linked to leadership priorities Leadership focus on balancing profit & purpose for material issues	Business reimagined with sustainability at the core Business use-case assessment; disclosure of all material topics incl. areas of underperformance
4 Stakeholder engagement	Limited engagement by leadership on ESG performance Leadership engages on positive impact of ESG/CSR initiatives	Proactive engagement by C-Suite on ESG performance Public commitments on material topics, regular updates to stakeholders	Holistic ESG narrative across stakeholder ecosystem All stakeholders (internal & external) mapped; Well defined process to incorporate stakeholder feedback
5 ESG as an impact lever	Avoids harmful impact of own operations on stakeholders No impact disclosure	Creates positive value for stakeholders by pursuing ESG opportunities Limited impact disclosure	Leverages sustainability as advantage in business model. Contributes via solutions & ESG Stewardship Impact on society and the environment is quantified & disclosed in monetary terms

Source: 'The Next Big Leap' Towards ESG Maturity in Tech Sector, BCG-NASSCOM, November 2021.

SUSTAINABLE SOLUTIONS FOR A BETTER WORLD



TTC | THINKTHROUGH
CONSULTING
connecting ideas
for impact

Development Sector Advisory | Governance and Risk Advisory |
Sustainability, Climate Change & ESG Advisory
| Human Resource Advisory |
Business Support Services

Visit us at www.ttcglocal.com

"TECHNEPLUS"

INFINITE POSSIBILITIES



Industries Empowered

Expertise and varied industry experience has helped deliver exponential value, allowing clients to achieve desired business outcomes.



Financial Services



Healthcare



Retail



Manufacturing



Logistics



Ports & Terminals



Government



Oil & Gas