Gaurav Kataria
VP of Digital Strategy
and Solutions, CYIENT

Chris Trigg
Former Chief Digital Officer at
Southern Health Cross Society

Pebbles Sy-Manalang
SVP & CIO , Globe Telecom

Ivan Ng
Chief Technology Officer,
City Developments Ltd. (CDL)

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How Digital Transformation Is Shaping Industries

Making Solutions Take Flight
Why the CIO needs a seat in the A&D boardroom

CIO: Guiding Health Insurance
Technology – the key to a healthy life

A Telco's Digital Transformation:
How a CIO Thinks Digital Strategy

A Note from the Editor

Welcome to the second edition of Smart CIO, Workday's magazine for Chief Information Officers and the IT community in general. This quarter we have a special edition, one focused on industries and the different ways they navigate the rocky path of digital transformation. It's a jam-packed issue.

On the cover you'll see three successful CIO leaders, all driving technological change in unique ways. Based in India, Gaurav Kataria is Vice President of Digital Strategy & Solutions at Cyient and is changing the nature of the CIO role in Aerospace and Defense. New Zealander Chris Trigg, former Chief Digital Officer at Southern Cross Health Society, shares how CIOs are changing the strategy of the Health Insurance sector and improving people's health in the process. And Pebbles Sy-Manalang, CIO of Globe Telecom in the Philippines, shows us first-hand how the telecommunications industry is adapting to a digital-first world.

We've reached out across the Asia Pacific region for this edition to understand the different challenges, transformation journeys and professional triumphs each CIO has experienced. It's fantastic to see a diverse group of CIOs, CTOs and CDOs taking the time to share their knowledge and expertise.

Also in Smart CIO volume 2, you'll find our regular columnist, former Asia Pacific CTO at FireEye Bryce

Boland, looking at the different cybersecurity needs required by different industries. Salvatore Trimboli, CTO at private wealth investment firm EL&C Baillieu Holst, shares his thoughts on the effects of AI and machine learning on global industries.

In Singapore, Alvin Ong the CIO of Nanyang Technological University, answers questions on measuring success when embarking on the digital journey in Higher Education.

Rishi Mehra, Financial Controller for Asia Pacific at Professional Services organization Aon discusses the importance of successful collaboration between the CIO and CFO for business growth. Finally, we speak to Lawrence Cheok, Senior Research Manager at IDC Asia Pacific, about the IDC-Workday Digital Dysfunction APJ study and the roadblocks facing CIOs when it comes to digital transformation.

Workday partnered with the industry analyst firm for the report, Beyond the State of Dysfunction: Unleashing the Potential of Digital Transformation. You'll find the results very interesting.

No matter the industry you're in, there's a lot of useful information for the IT professional in this issue.

Smart CIO's vision is to nurture a community of CIOs, CTOs and CDOs across Asia Pacific. Here you can share and learn from each other and hopefully innovate and progress together towards making your industries and your organizations built for the future.

If you are reading this, you're welcome to share your industry or digital transformation insights and article contributions to the rest of the community in our future issues.

I very much look forward to hearing from you.

Jennifer Alejandro

Editor-in-Chief

smartCIO

Contents at a Glance

Making Solutions Take Flight:
The Evolving Role of the CIO

Gaurav Kataria, Vice President Digital Strategy & Solutions at Cyient

A strict regulatory environment is putting a drag on technology adoption in the Aerospace and Defense industry. It is also placing the CIO in the hot seat, shares Gaurav Kataria, Vice President - Digital Strategy and Solutions, A&D, Cyient. CIOs today need to be especially strategic and selective about solutions in the market.

The Aerospace and Defense (A&D) industry has a penchant for technology, and this comes as no surprise to Gaurav. It's a natural association. The Internet, for starters, came about because of a defense project.

"The aircraft itself is the best example of technology coming to life," added Kataria, who was the company's former CIO. "The amount of complex technology, sensors, and analytics that go into flying an airplane are just mind-boggling."

Technology has since become more of a need than a want, especially since the A&D industry has seen a growth spurt in both commercial and defense sides of the business.

Companies at the head of the pack are technology-led. They have used technology to drive new business models and make internal processes more efficient.

This paradigm shift has forced organizations to pull the IT function from the periphery to the core of their business strategy – IT now has a seat in the boardroom. This has become possible only with the impact technology has created across the industry.

"Today, technology can be applied to solve problems related to excess inventory, aircraft maintenance, product planning, and all the way to predictive health monitoring of assets and humans alike," said Kataria.

"The aircraft itself is the best example of technology coming to life"

"In today's business scenario, where demand is greater than supply and the industry is under tremendous pressure on margins, the CIO role is very quickly transforming from being a technology leadership role to a business leader role."

But the most significant and immediate impact is being created by the application of the data insights continuum. This includes everything from data ingestion to data governance, data analytics, artificial intelligence, and visualization.

Role of a smart CIO in A&D
For CIOs, the A&D sector can be a challenge in itself. Because the industry was one of the earliest adopters of technology, many legacy systems are in need of an overhaul today.

Moreover, the industry is heavily regulated, despite being the most prominent technology adopter among traditional manufacturing industries.

The slow pace of adoption of technology initiatives in the A&D industry can be a dampener at times. CIOs are, by nature, agile

in their ways of working. This is second nature for most CIOs given the fast-paced transformation of technology itself.

"Most CIOs are overcoming these challenges by prioritizing the initiatives based on the impact they create: top line, bottom line, and human impact. This prioritization helps organizations drive process change and allocate resources to keep the digital agenda moving forward," explained Kataria.

A change of mindset may help. Instead of rushing to integrate new technology, CIOs should first rationalize and improve their business processes. If not, they will see a higher rate of failure for their digital transformation projects.

"Technology cannot complicate or simplify things. It is the underlying business process that creates an impact," Kataria said.

It's a simple concept, but one that is often overlooked. If the best technology is applied to a broken process, it will have little impact and might add another layer of complexity. Apply technology to an optimal process and the effect can be tremendous.

Quality over quantity

Kataria also finds it helpful to zoom in on a business problem that needs to be solved. Years ago, as CIO of Cyient, he found that its human capital management platform wasn't meeting the needs of the growing organization.

As Vice President Digital Strategy & Solutions at Cyient, Gaurav Kataria is responsible for taking Aerospace & Defense digital capabilities like IoT, AI, VR and analytics to market. He has 20 years' experience in digital transformation and technology with a focus on how digital solutions drive business change.

That's why he implemented Workday, a cloud-based offering that improved a range of processes—from recruitment to onboarding, performance management, and exit.

The Workday tool was scalable too, implying that it could support Cyient's plans to make multiple business acquisitions across the globe.

Technology adoption becomes easier once the business problem and its expected outcomes are apparent. This approach also means business buy-in is near-automatic.

"For example, starting with the Internet of Things (IoT) as a technology and find areas where it can be applied may not be the right approach to implementation. Instead, businesses should focus on the problem statement. If "reduction of factory maintenance downtime" is the need of the hour, then applying an IoT-based connected machine solution could offer a solution," explained Kataria.

The road ahead

Besides a robust growth, the A&D industry is also seeing a lot of consolidation. Partnerships have been inked between manufacturers such as Airbus and Bombardier, and Boeing and Embraer.

United Technology Corporation, a large manufacturer, acquired Rockwell Collins last year. It merged with defense contractor Raytheon in June.

"All these mega-mergers are forcing the industry to use technology to drive efficiencies and greater R&D," Kataria said.

"As we move forward, the industry will need to ensure there is greater partnership with the regulators to ensure new technology developments can result in regulatory changes and thus faster adoption. A great example is FAA's approval for the use of RFID in the aircraft cabin."

Kataria also expects emerging technologies like artificial intelligence, nanotech, and cognitive computing to have their time in the spotlight. However, this will bring about new challenges for CIOs.

"In today's business scenario, where demand is greater than supply, and the industry is under tremendous pressure to expand margins, the role of the CIO is very quickly transforming from being a technology leadership role to that of a business leader," he summed up.

"Business problem solving, rather than technology problem solving is taking center stage."

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C-Suite Digital Transformation Discussion at Elevate

By Ivan Ng, CTO of City Developments Limited

Workday Elevate Singapore brought together innovative leaders from APAC to discuss the pace of new technology and how to utilize it. Ivan Ng, CTO of City Developments Limited, joined the panel for Digital Transformation Perspectives: C-Suite Panel Discussion. Alongside a CEO, CFO and CHRO Ivan shared his thoughts on digital transformation and how the C-Suite can lead effectively during the journey.

Highlights include:

"Every digital initiative should fulfill one or two things... The ability to better engage with our customers... a term we call Customer Intimacy. And the second group... Operational Efficiency... to be able to let people better collaborate."

"Beyond automating, look to elevate your people."

"Technology folks have this habit of just talking about storage space... I think we need to translate our conversation into a business conversation."

"We are always transforming and never transformed."

Beyond automating, look to elevate your people, right?

Watch the video for more of Ivan's insights.

As CTO of City Developments Limited, Ivan Ng utilizes his extensive tech experience to drive digital innovation in a real estate sector spanning 103 locations across 29 countries. In 2018, he was conferred the Outstanding Computing Alumni Award by the National University of Singapore.
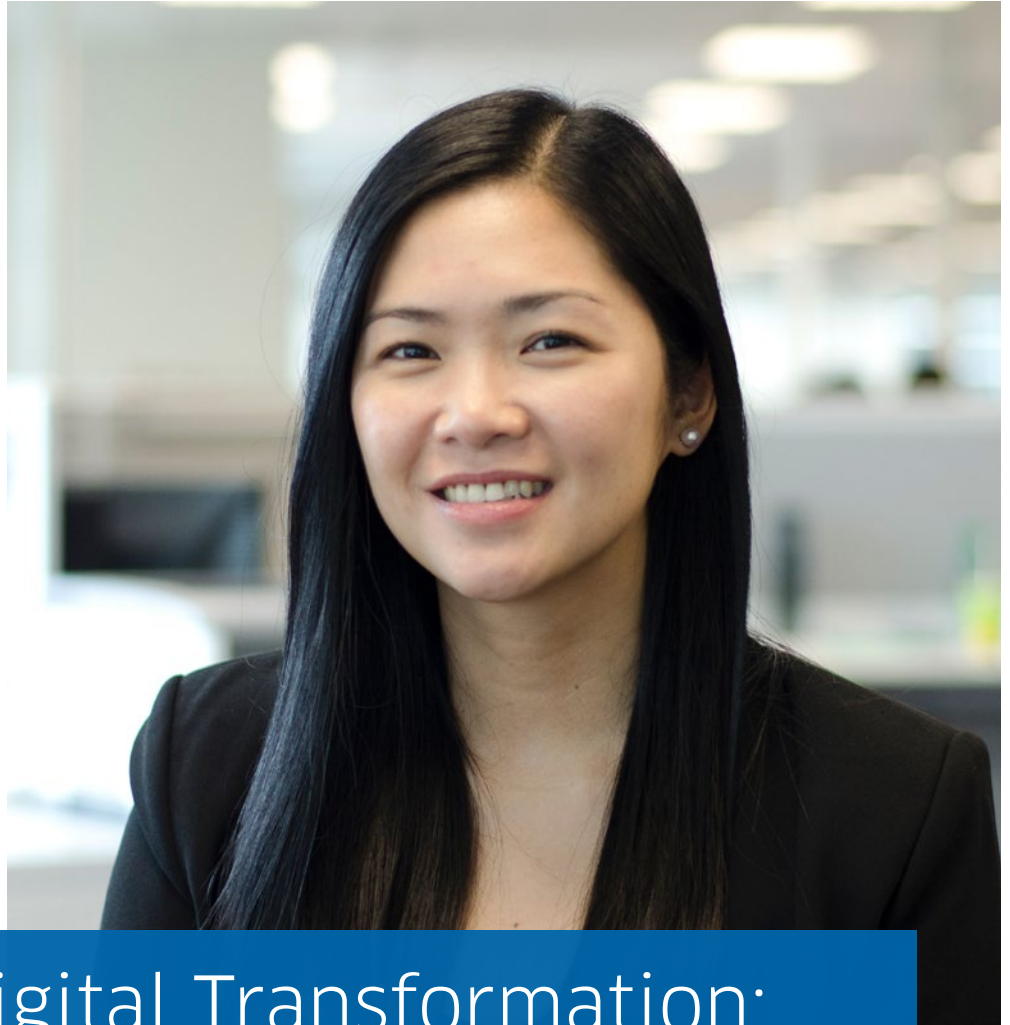
A Telco's Digital Transformation: How a CIO Thinks Digital Strategy

Digital transformation is crucial for business success and growth, especially for a telco. In an increasingly digital world, telcos need to constantly innovate and devise novel ways to provide digital experiences to subscribers.

Globe CIO Pebbles Sy-Manalang recognizes the benefits of innovation and technology to stay relevant and keep up with changing business environments and needs. With more than 90 million mobile subscribers across the Philippines, Globe is considered a leading full-service telecommunications company in the Philippines. The telco aims to be a purveyor of the digital lifestyle for Filipinos, and digital transformation is key to achieving that.

"We view ourselves more as a digital company rather than a telco, and our digital transformation has allowed us to be more flexible in how we engage our customers," Sy-Manalang said.

Technology as a business enabler

In the face of digital transformation, telcos such as Globe have to change the nature of the services they offer. SMS and calls have now moved to data, and while the Philippines used to be known as the SMS capital of the world, Filipinos today are quite digital-savvy. As a result, Globe goes beyond becoming a telco provider to meet the digital needs of their subscribers.

"The way we're designing our products today and even the way we've structured our organization looks at the journey our customers go through. We design products and services that create value for our subscribers," said Sy-Manalang. "The challenge is to not just be a pipe to our

"We don't want to fall in love with the technology and then try to find a use case for it. It has to start with a customer need or a customer problem, then we find a solution for it. That's what dictates what technology we're going to invest in."

customers' communication needs. If we limit ourselves to being a pipe, then we'll remain as a traditional telco provider."

To overcome that challenge, Globe turns to technology, regarding it as a major business enabler. Technology empowers the company to understand its customers better and meet their ever-changing expectations in a timely manner. For instance, technology allowed Globe to quickly partner with

companies like Facebook and Spotify which allowed Filipinos to adopt digital services and drove the shift towards data.

Further, technology also enables the company to adopt a test and learn approach and become more agile and innovative. When they started their cloud journey in 2014, the company learned how to swiftly pivot to address business demands. Globe's cloud transformation was a key enabler for Globe to quickly scale their products and services. Alongside the cloud, SaaS also provided the opportunity for Globe to innovate.

Customers at the heart of digital strategy

While technology allows for agility in execution, the main factor guiding Sy-Manalang when it comes to digital strategy is Globe's customers. Globe begins with the value, outcomes, and experiences the company wants to offer to their subscribers.

"Of course, technology helps in making sure we're more agile in delivering those capabilities. How we architect the back-end dictates how quickly we can respond to customer needs. But we don't invest in technology for technology's sake. We don't want to fall in love with the technology and then try to find a use case for it. It has to start with a customer need or a customer problem, then we find a solution for it. That's what dictates what technology we're going to invest in," Sy-Manalang said.

Pebbles Sy-Manalang has said that, "disruption is a given." That's why the CIO of one of the Philippines leading full-service telecommunications companies makes innovation a priority for herself and her company. A prominent woman in tech, she encourages, "women to mentor other women."

Customer demand also drives decisions about the right technology. Planning is a joint effort between the IT and business teams, and from there, customer journeys and user stories are prepared. Then, they look at what they have in their arsenal, and decide whether to deliver through available technology or build new capabilities.

"It's not really one-way—it's push and pull," said Sy-Manalang. "We do have a blueprint of our architecture and environment, so we know if there are gaps and we expose that to business. Because they're aware of what we have, it helps them think through how they can design experiences out of that. When a

capability has been designed, we know when it can deliver more in terms of customer needs or products and services, and we push and say that it can still be maximized."

Culture is key to Globe's digital transformation strategy

Culture is key to Globe's digital transformation initiatives. The company knows they wouldn't be able to transition their entire organization without changing their culture. To create wonderful digital experiences, Globe needs to transform from within. Globe encourages its employees to change their mindsets and digitize their own process areas.

Further, Globe needs to change its ways of working. "Transforming the way we work together and how we collaborated across the business was critical. We set up cross-functional teams grounded on customer experience so we can digitize and simplify our interactions. When you design your organization in a cross-functional way, you're empowering your teams to make decisions. We encourage them to work more closely together, and those that do are actually delivering better results," Sy-Manalang said.

Globe recognizes the increasing pace of change and encourages its employees to invest in their learning. Globe believes that its ability to learn and adapt is critical to support Globe's digital ambitions. Globe's culture is also hinged on its purpose; where its mission to deliver digital lifestyle contributes to nation-building. The awareness that the digital transformation strategy is bigger than the business goals, drives the commitment of the employees.

From custodian to advocate

With more companies undergoing digital transformation, the role of the CIO has drastically changed

from working behind the scenes to taking on a more strategic and impactful purpose. "The role of a CIO has shifted from being a custodian of IT investment to that of an advocate," Sy-Manalang said. "Technology and information have become democratized, and technology is no longer an enabler – technology is the product. My job now is to simplify the need and empower our business stakeholders so we can drive digital transformation together. Once we have a common understanding, we are able to leverage the key capabilities and partners in Globe's ecosystem."

For other CIOs thinking of going through their own digital transformation journey, Sy-Manalang highlights the importance of building relationships and getting top-down support. "The first step is building relationships with business stakeholders. Until we get away from the traditional thinking and relationship of IT and business, it's hard to start any digital transformation," she said. "Leadership support is needed. Ernest Cu, Globe's CEO, has been instrumental in our digital transformation initiatives whether it was our cloud transformation in 2014 or our current digitization initiatives. I don't think I've ever seen digital transformation succeed when it's not driven from top down."

Cybersecurity for Industries

By Bryce Boland, former Asia Pacific CTO of FireEye

Whatever industry you are in today, your workforce is transitioning from mechanical and labor intensive to more intellectual and data-intensive activities. This transformation forces the merging of the industrial operational technology (OT) worlds with the information technology (IT) world. Every industry is rapidly becoming more information dependent than ever before.

This creates incredible opportunities for disruptive creation, new economic models and rethinking the supply and value chains in industry. But it also creates opportunities for adversaries to take advantage of weaknesses in the technology holding these systems together. While industries like banking and finance have been tackling these challenges for many years, some industries are just entering the age of data intensification and are yet to suffer the consequences of poor security planning.

What is an industrial CIO to do? Here are my top tips for building a successful and resilient cyber capability for industry verticals.

Who's in charge?

The first thing, always, is to make sure there is someone in charge of cybersecurity. Whether reporting to you or another member of the executive team, the business needs one person accountable for ensuring the security of your organization's technology. This person needs to be able to both challenge and support you in delivering resilience to the business.

Industries with significant operational technology environments may want cybersecurity to report up to the Chief Engineer, or perhaps the COO. Regardless of organizational alignment, as a CIO, you will want to ensure this person delivers the capabilities you need for security, and covers both the OT and IT worlds.

Bryce Boland is an information security executive and technologist with over 20 years international experience in Security solutions and Financial Services Industries.

Former Asia Pacific CTO at FireEye – one of the world's premiere global security providers

Some industries struggle with a deep-rooted distrust of IT – especially where early IT integrations failed to understand the unique challenges of OT such as latency and timing impacts. Consider for example the impact of a delay in an instruction being received by a manufacturing system. It could cause a failure in part of the production which impacts the entire operation. In some cases, like power generation or transport systems, minor control errors or delays that aren't accounted for in the system design could result in catastrophic failure and loss of life. Navigating the very real concerns of operational impact on critical systems with integrity, finesse and authority is critical to success.

Some industries have a large physical asset component, and here it's not uncommon to see the physical security function overseeing the cybersecurity function. Regardless of who is in charge, set appropriate goals, measure progress, and leverage people with the skills to deliver. This information will protect your customer's interests. Data privacy is part of a customer centric mindset.

What is your cyber footprint?

The next key is to understand your footprint. Not your carbon footprint (although most industries must tackle that as well!), your cyber footprint. This is the total extent of your technology across traditional and cloud IT, as well as the OT systems. You can't manage what you don't know about, and you won't know if it's protected adequately either.

Most industries have already started connecting their OT to their IT, and with good reason. Efficiency, productivity gains, putting real-time dashboards on the Executive team's mobile computing platforms. But this combination expands the attack vectors the organization is exposed to and can increase the impact of a security incident significantly.

The other area of footprint is the innovative technology use being introduced in many industries.

- In property related industries (e.g. forestry, farming, electricity distribution) the use of drones creates a new set of technologies to be tracked, managed, patched
- In aerospace, the use of real-time telemetry from engines
- In healthcare, the explosion of network connected monitoring and dosing systems
- In mining, the automation of transport systems

However you are using new technology they create new attack surface and data sets that you need to manage and protect. We already have malware for drones, hackers taking control of cars over the Internet, attackers compromising medical implants, and aircraft inflight communications systems compromised by IOT malware. Every new device increases your vulnerable cyber footprint.

Protect your supply chain

Take a good look at your supply chain. Your business probably depends on information flows as well as material flows both to and from third parties. You need to have plans in place to know exactly who all those third parties are, what cyber exposure do you have to them, and how you protect access to and from them. You don't want your business destroyed by a ransomware propagating from a supplier, but you also don't want your key customer damaged by ransomware propagating from your systems. You might survive the technical recovery, but your business could be destroyed anyway from the damaged relationship.

Often the supply chain is the weak link that provides an attacker access, or allows malware to move into your network. The EternalPetya attack, which came in through a trusted software supplier, brought hospitals, power companies, pharmaceutical manufacturers, airports and port systems to their knees. Recovery took months for some businesses and two companies reported their costs reached up to USD 300 million each.

Data protection plans

You need a data protection plan. Some industries are heavily exposed here, dealing with massive amount of personally identifiable information (PII) or payment card information (PCI) – education, retail/e-commerce, anyone with a large number of customers. Your systems for managing this customer data will be under scrutiny from regulators, and in the event of a data breach, your business could face significant fines. Worse, you can damage the trust of your customers and your reputation as a business.

The same is true of your workforce, for whom you must manage PII, financials, performance information, grievances and many other facets of your team. My guidance is that if managing this information isn't a core business, leverage a partner for whom it is. Due diligence will show you they will have more expertise in protecting this data, and look for partners who demonstrate leadership in advancing their data protection so you can take this problem off your plate.

In summary: put someone in charge, understand your true cyber footprint, protect your supply chains, have a data protection plan, and leverage competent partners to reduce your risk and increase your agility.
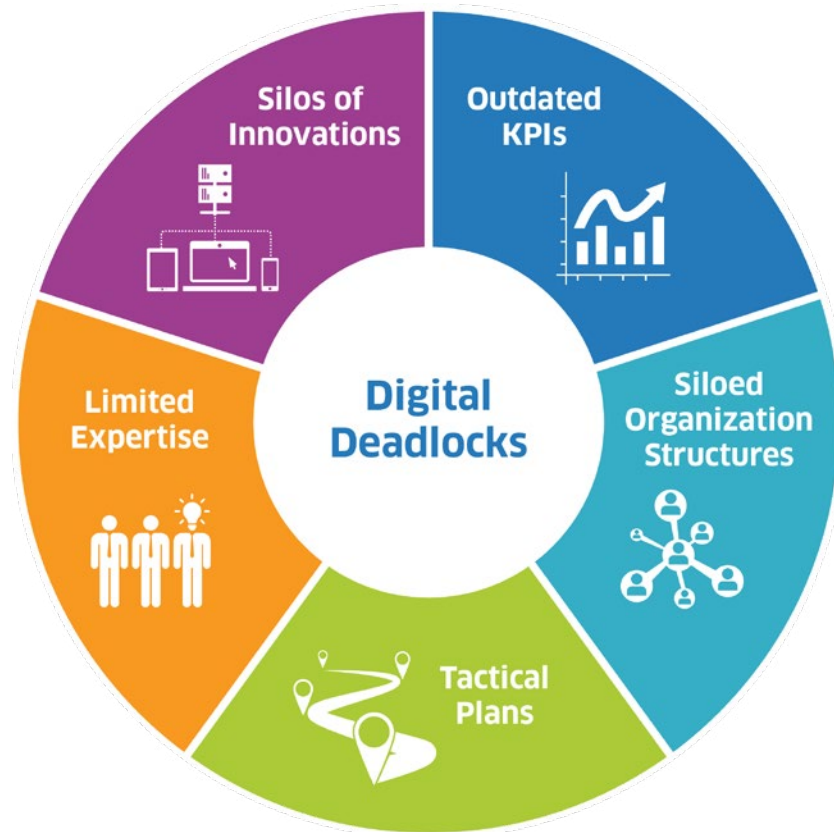
Beyond the State of Dysfunction:

Unleashing the Potential of Digital Transformation

Across industries all modern businesses are embarking on unique digital transformation journeys. As much as organizations understand the need to digitalize processes, culture and customer experiences, few have a complete understanding of how to reach their digital destination.

Partnering with global market intelligence firm, IDC, Workday sought to better understand the digital transformation roadblocks facing businesses operating in the Asia Pacific Japan region. The report, Beyond the State of Dysfunction: Unleashing the Potential of Digital Transformation, surveyed 961 respondents including 343 holding C-Suite positions.

"Around 97% of them said DX is a priority and around 80% are already on the digital transformation journey. They do realize the need for transformation. In a conversation with one CIO, he said the will is there but the means to get there is unclear," said Lawrence Cheok, Senior Research Manager at IDC.

The report tried to understand the perspective of the C-Suite as a whole. Ultimately, this is the group responsible for digital transformation decisions. When it comes to digital deadlocks, five trends emerged:

- 51% said they had siloed technologies holding back innovation

- 55% weren't using digital KPIs to track DX investment so were unable to determine ROI

- 58% have siloed organizational structures meaning DX is driven by centralized teams

- 48% said DX roadmaps were not established

73%
of HR and Finance leaders say an integrated Finance and HR solution is very important for visibility

>50%
of Finance and HR leaders are operating over multiple technology environments and solutions

- 58% said less than 30% of employees were digitally skilled

On an industry level, 68% of education and 69% of insurance organizations have not begun the digital transformation journey. Meanwhile, financial markets, communications and media, healthcare and utilities are well advanced in the transformation process. Most industries blame leadership conflict as the biggest digital roadblock. In 11 out of 13 industries (in the exceptions are manufacturing and transportation), leadership conflicts is amongst the top three transformation challenges.

The deadlocks and lack of transformation progress will have major implications for business over the long term, especially as the digital economy becomes the norm.

"In the digital economy, it is no longer about how good your products and services are. Competitive advantage is going to be largely determined by how fast companies react to changes and innovate accordingly," said Mr Cheok.

No single company view

Digital transformation hits a major roadblock when organizations don't have a consistent view of their finances and employees and their role in the journey. 73% of HR and Finance Leaders said integrated Finance and HR solution is important, or very important for improved visibility, unfortunately more than half of Finance and HR Leaders are operating over multiple technology environments and solutions.

"It really isn't that departments are not collaborating. The HR or Finance function have been driving DX leadership but only from within their function. They do this for very pragmatic

reasons, to make sure they get the digital ball rolling, but it's only within the scope of their control. They're open to digital ideas but they're not looking beyond HR or Finance," said Mr Cheok.

Lack of departmental conversations

Successful digital transformation relies on each department working together for a common goal. For departments to have the right digital conversations there needs to be an agreed roadmap – one where all departments are working towards. The report found there were no digital transformation roadmaps, either within functions or across the board.

- 44% of IT leaders do not have DX roadmaps
- 52% of FIN leaders do not have DX roadmaps
- 65% of HR leaders do not have DX roadmaps

Looking at roadmaps on an industry level, between 60 to 66% of insurance, education and construction sectors reported having no DX roadmap, the highest within the region.

"Business needs to have more common processes, more common technologies and common governance in place. Collaborations must be grounded upon aligned goals, roadmaps and metrics. This will elevate conversations to talk about strategy for DX issues, ones that work across the entire organization," said Mr Cheok.

Organizational silos

With the different business functions working within organizational silos, cross functional conflict arises. Conflict creates further DX roadblocks. 19% of c-level executives see conflict between technology leadership and other internal stakeholders as the top transformation challenge while

a further 56% see silos within their organizations as key challenges.

"Today, organizations have their DX journey running through a special project team or centralized transformation office where DX is the day-to-day concerns of these teams, but for the larger organization by and large it is business as usual," said Mr Cheok.

Between 68 to 70% of manufacturing, wholesale, and construction industries are operating DX out of centralized DX teams or groups.

Where is the ROI?

Even if leadership embraces digitalization there will be no return on investment if there is conflict and lack of understanding between each function. If 60% of C level executives believe there is no ROI from digital transformation then the CIO must step up and take a stronger leadership role when it

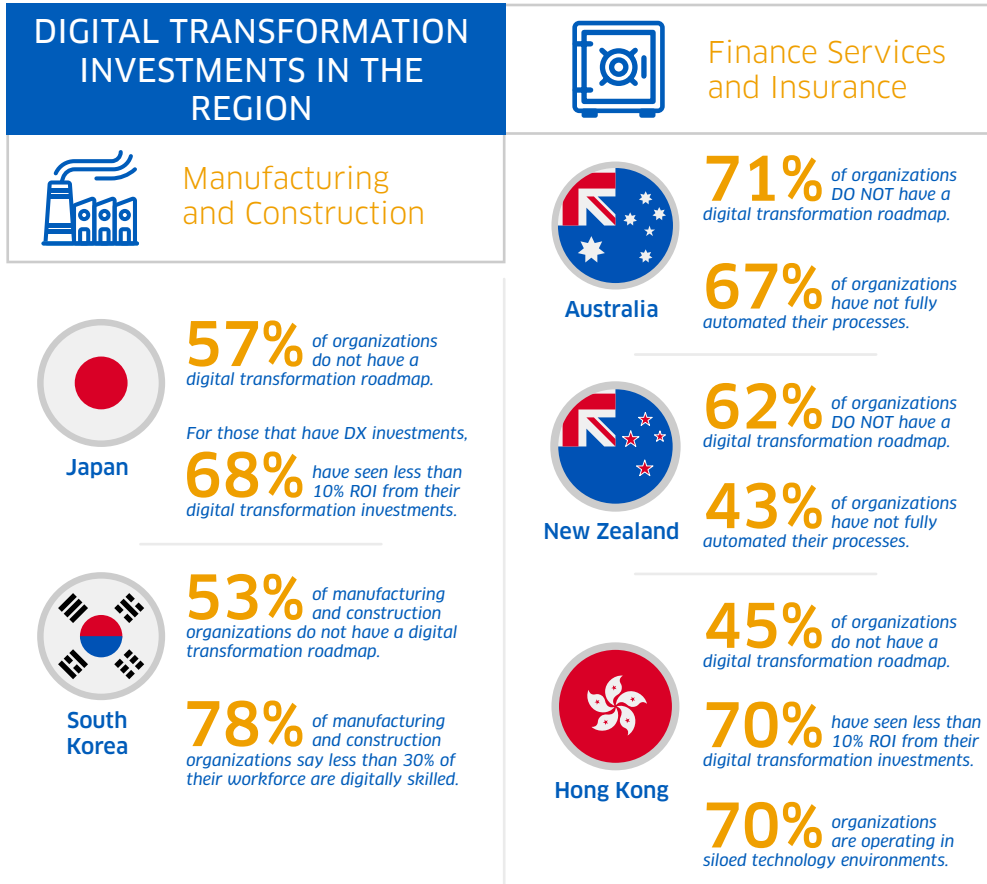# Leaders that do not have DX Road Maps

44%

IT Leaders

52%

Finance Leaders

65%

HR Leaders

DIGITAL TRANSFORMATION INVESTMENTS IN THE REGION

Manufacturing and Construction

Japan

57% of organizations do not have a digital transformation roadmap.

For those that have DX investments,

68% have seen less than 10% ROI from their digital transformation investments.

South Korea

53% of manufacturing and construction organizations do not have a digital transformation roadmap.

78% of manufacturing and construction organizations say less than 30% of their workforce are digitally skilled.

Finance Services and Insurance

Australia

71% of organizations DO NOT have a digital transformation roadmap.

67% of organizations have not fully automated their processes.

New Zealand

62% of organizations DO NOT have a digital transformation roadmap.

43% of organizations have not fully automated their processes.

Hong Kong

45% of organizations do not have a digital transformation roadmap.

70% have seen less than 10% ROI from their digital transformation investments.

70% organizations are operating in siloed technology environments.

comes to strategy. For industries, manufacturing, construction, and insurance are falling behind when it comes to digital ROIs. APAC financial services and healthcare, on the other hand, are currently seeing digital transformation ROI.

"One important thing for CIOs is that they need to start looking like a business partner and helping the rest of the C-Suite understand what are the possibilities of technology, the benefits and then drive a digital transformation program. Have a vision of what the technology landscape for the enterprise should look like in the future and what needs to be done to support that. Then breaking that down into stages based on what is currently feasible financially and the maturity of different technologies," said Mr Cheok.

Measuring digital transformation success

To determine ROI, the business needs a consistent set of metrics. This has been a problem for the organizations surveyed as they've been using legacy measurement systems – ones that aren't useful to digital metrics. According to the report, 55% of organizations are not using balanced scorecards with digital KPIs to align and measure digital investments, with HR the furthest behind. In industries, more than 59% of education, construction and utilities sectors are yet to implement digital KPIs to measure the success of the transformation projects.

"Organizations today are still using traditional metrics, like financial metrics, to look at their business performance. When it comes to measuring the success of DX, leading indicators are needed, as progress does not immediately translate into financial returns," said Mr Cheok.

Digital KPIs are required to reflect the different value that digitalization brings to an organization. You cannot successfully manage a process unless you are able to measure it. These new KPIs are the basis for collaboration and alignment across the different business functions. Ultimately, this requires a different mindset amongst the C-Suite to successfully navigate an organization through digital transformation.

Q&A *with*
Rishi Mehra

Financial Controller, Aon, Asia Pacific

The professional services industry must embrace digital transformation to offer more innovative products and solutions. New technologies allow organizations to offer more efficient and effective services to their customers, giving them a competitive advantage. Global professional services group, Aon, are embracing the benefits offered by digitalization. Effective C-Suite collaboration is required to ensure the technology drives more growth and less disruption. Aon's Financial Controller in the Asia Pacific region, Rishi Mehra, understands the need for successful collaboration having forged a strong working relationship with his CIO.

Q: **How would you describe your relationship with your CIO?**

A: At Aon, finance and IT work very closely in partnering with the business. There is a good connect on the desired business outcomes, change management and financial impacts of all major technology programs both on ROIC as well as run-rate costs. We have a very good personal rapport as well, having worked together for many years.

Q: **How has the relationship and dynamic with the CIO changed over the years? Are they interdependent?**

A: The relationship is interdependent. We are aligned on the client outcomes which are driven by the respective business solution lines. The technology space changes rapidly and hence the CIO keeps the organization current on all those matters, and as the CIO strategizes the technology response there is an involvement from finance as well. Most of the discussions are around how the proposed set of investments create value, increase efficiency or avoid risks. This framework has helped technology and finance stay on the same page.

Q: **What do you do to better understand your CIO's point of view?**

A: The CIO has a good view on the overall business strategy and direction; finance also has a seat at the same table. As the business direction gets converted to project level discussions, the CIO ropes in finance for awareness and consultation; at which time there are discussions on the business/technology outcomes as well as the financial outcomes. Project prioritization i.e. allocating finite resources to create the maximum impact is a key part of the dialogue among the business, technology and finance teams.

Q: **How do you go about getting your CIO to understand the financial side of the business?**

A: IT is one of the key costs for professional services firms. Finance partners very closely with IT to provide the necessary analytics. The CIO is very involved in the budgeting and forecasting process, which is broken down by run-rate/change costs; by specific line expenses, business projects and by individual countries. There is a regular tracking of financial metrics and discussions on course-corrections as needed. The CIO is tasked to deliver the targets within the IT P&L and finance supports that effort.

Q: **How do you view the budgets for IT and digital projects, given that technology and business conditions change so quickly and**

Before embarking on a successful career in the finance department at professional services company Aon, Rishi Mehra worked at PricewaterhouseCoopers and PepsiCo. Today, the Financial Controller manages finance for all lines of Aon's business in the APAC region, working closely with the group's CIO.

are so important to the company's success?

A: During the annual planning process which starts with the outside-in client view, there are several discussions on retention, increasing stickiness and growth of the business for each of the solution lines. The IT team maintains a running list of business priorities, that is base-lined to align with the business plan for the year. These IT projects and investments are then scored and ranked. The monthly review mechanisms keep the lists current and are the avenue where scope, delivery or costs

are refreshed. There are regular debates on build, buy, outsource etc. The main driver remains to be the desired business outcomes. We are seeing a shift toward a quick use case and/or proof of concept before a full-blown project is sanctioned.

Q: What are the tech-specific challenges facing the Professional Services industry? How does collaboration meet these challenges?

A: There is a constant search for creating more value – either new products or solutions and new ways of delivery. The digital economy is growing at great speed, there is a need to respond to the client needs in the new framework. I would see a shift from "do it all in-house" to "partnership/eco-system/platform" approaches. These are not the easiest to handle – control, ownership, commercials are key matters that need to be addressed. We will continue to see the digital space evolve and become even bigger. Being nimble and joined up i.e. collaboration is a given (not a choice) so that responses can be developed in quick-time to create value for our customers and potential clients.

Q: Have you seen the role of the CIO change and evolve over the years?

A: Yes, changes in business operations have changed the way technology supports the

business. Clearly, there is a shift from owned to shared structures, it would be different in different areas of the business. There is a constant need for efficiency as well as delivering outcomes in shorter spans of time. The CIO partakes in all these matters, closely working with other functions to deliver business and client value.

Q: Has there been a divide between finance and IT? How do you bridge the divide?

A: We have a very fruitful relationship, we acknowledge that there are different lenses of looking at the same thing, and we should appreciate the different views that come in for any matter. It is the overall business outcome that drives the decision.

Q: What tips would you offer other CFOs in dealing with CIOs and IT?

A: Technology is a space that is fast evolving and will continue to change at a rapid pace. Be curious and be involved, so that CFOs appreciate the role of technology in shaping business growth; there is no better way to add value to the CFO CIO partnership.

Q: How will collaboration between the CFO and CIO shape the future of your organization (and business in general)?

A: Strategy is a key component for any organization, this sets the direction and the pace; this is true for Aon as well. This is a shared responsibility of the management team, led by the CEO. The agenda depends on the market forces, we see shifts from time to time. At Aon while our traditional business models are delivering strong results, we continue to observe and adapt to the changes around us. Digital is a key component for differentiation and growth; the CFO and CIO participate in the strategy together, so as to support business growth and value generation for our clients.

CIO: Guiding Health Insurance Strategy

Chris Trigg, former Chief Digital Officer at Southern Cross Health Society

Digital transformation across the health industry is changing people's lives. Health insurance, in particular, is embracing digitalization. Across the industry, technology is driving automation of processes and data-based decision making – which ultimately benefits the customer when it comes to health and wellbeing.

"We've worked hard to drive a change-ready culture and to help our people understand that as we transform there will be uncertainty, some ambiguity, but we have trust in our strategy and our leadership to get there."

For Chris Trigg, former Chief Digital Officer at Southern Cross Health Society, technology is key to re-inventing the customer experience as well as creating a competitive advantage for health insurers.

"Technology is changing the sector significantly, insurers are fighting for relevance and looking to have a deeper, richer engagement with their customers. Digital can enable this," he explained.

Recently placing in the top ten of the 2019 CIO50, a ranking of New Zealand's top technology leaders, Mr Trigg has always placed the customer experience at the center of IT. As he embarks on a new insurance role at IAG as Executive General Manager - Technology Operations, Risk and Controls, the customer journey will remain central.

"My personal experience from other sectors places customer experience at the heart of what we do. To better understand this experience we have a diverse leadership team with good institutional knowledge, and strong external knowledge to bring new perspectives," said Mr Trigg.

The CIO and strategy

A 2019 Accenture report on the insurance industry as a whole, found the sector was embracing digitalization. When asked, 90% of insurance executives claimed to "have a coherent, long-term plan for technology innovation in place".

To achieve this, the role of the CIO or CDO in the leadership structure has changed. No longer a functional delivery role, today's CIO needs a solid understanding of the broader business challenges as well as awareness of trends and innovations in the health insurance sector.

"The role is not a functional leader," said Mr Trigg. "It's someone who is setting the strategy, and ensuring the right capabilities and foundations are in place for the organization to succeed. In our

case, we see capabilities around data and integration as critical accelerators for the delivery of our strategy – you can't build everything so you need the skills to integrate yourself into a health ecosystem."

To Mr Trigg, strategy means understanding how the different lines of business work together for the greater good of the organization. It also means when it comes to new technology you're choosing a platform that offers real benefits.

"Being close to the strategy is paramount, also living within your fiscal needs and the risk appetite of the business. We have worked hard to build high-trust relationships with the business stakeholders and focus on the strategic outcomes we're striving to achieve versus falling in love with the latest platform," he said.

Guiding strategy and understanding other stakeholder needs creates trust within an organization. This trust has meant Southern Cross Health Society is a workplace that supports digital transformation. To create a positive customer experience via technology you require buy-in from all levels of the business – not just leadership.

"Over the past three years we've been working to embed agility into the digital teams and the wider business. We've worked hard to drive a change-ready culture and to help our people understand that as we transform there will be

uncertainty, some ambiguity, but we have trust in our strategy and our leadership to get there," said Mr Trigg.

Changing the customer experience

Employee buy-in to digital transformation is vital, especially when the transformation radically changes business processes. Historically, the health insurance sector has been reliant on manual time-consuming tasks.

Digitizing the claims process as well as simplifying the manual and onerous join and buy

As Chief Digital Officer at Southern Cross Health Society for three years, Chris Trigg made the top ten of the 2019 CIO50 – a ranking of New Zealand's top technology leaders. With experience across telecommunications, utilities and airlines, Chris is remaining in insurance, recently accepting the role of Executive General Manager - Technology Operations, Risk and Controls at IAG.

customer service and satisfaction Mr Trigg believes other technologies will significantly impact the health insurance sector as well. Genomics, for example, accelerates clinical research and drug development for patients, it also has the potential to change the way insurers offer real value to customers.

"In terms of disruption, I think that genomics has the potential to be a real game changer, it creates the opportunity to foresee future predispositions to disease, and to enable personalized, precision-based pathways of care to help support a customer live their healthiest life," he said.

processes all change dramatically once an insurer embarks on the digital journey. Essentially, the CDO is changing the nature of customer engagement. Instead of consumers fitting into the insurer's processes, new systems are being created with the customer's needs at the forefront.

"Dealing with legacy systems while trying to figure out how to create more personalized customer-centric products within a policy management system designed for a different type of customer engagement is a major challenge. In the future I see our key capabilities will need to be around data and integration, recognizing we are part of a connected ecosystem of platforms and partnerships to achieve our business outcomes," explained Mr Trigg.

This level of engagement resets the relationship between insurer and customer. Southern Cross Health Society sees its technology strategy as moving the customer journey beyond insurance claims.

"It's having a huge impact in terms of helping our organization operating more efficiently through technology. For example, we're using Robotic Process Automation (RPA) to automate the claims process. We see digital as key to driving a positive customer experience and increase our relevance to customers by driving more frequent interactions outside of a 'claims' situation," said Mr Trigg.

Technology – the key to a healthy life

If digital transformation drives efficiencies leading to improved

Overall, a digitally transformed health insurance sector means a stronger and better-equipped healthcare sector.

"I think there is a real opportunity to be part of a more-connected ecosystem which ultimately drives better quality and quantity of life for people," said Mr Trigg.

Q&A *with*
Alvin Ong

CIO, Nanyang Technological University, Singapore

Across the globe the higher education sector is embracing digital transformation. As a sector steeped in history and tradition it hasn't been seen to integrate new technologies as quickly as others. With increased competition and a customer base of digital natives, this is rapidly changing. CIO of Singapore's Nanyang Technological University, Alvin Ong is leading his organization's digital journey. While the journey will be a long one, the guiding principles of "buy-over-build", "cloud-first", "mobile-ready" and "secure-by-design" will keep the transformation on track.

Q: What triggered the decision to undergo this massive digital transformation?

A: NTU has been rising rapidly in the world universities ranking in the past decade, thanks to our growing strengths in education, research and innovation.

Yet, we had been increasingly encumbered by an aging IT infrastructure and more than a few hundred legacy bespoke IT applications built over the last 28 years. These bespoke applications were highly customized and had served us well in the past. However, it is increasingly difficult to maintain and keep up with rapid organizational changes. Up till 2018, we were slow to embrace newer technology platforms and best practices such as the Cloud, Data Analytics, Artificial Intelligence, Blockchain, Internet-of-Things – some of the disruptive technologies that underpin the 4th Industrial Revolution.

Modernizing our IT infrastructure is necessary to succeed in a digital world. In 2017, we started on our Admin Excellence journey and one of the key strategic drivers is to optimize the use of technologies to help NTU realize its vision to become a great global university. There is therefore a pressing need to quickly modernize our IT platforms to better support our current and future needs in the education, research and administrative domains. This digital transformation is underpinned by

our "buy-over-build", "cloud-first", "mobile-ready" and "secure-by-design" guiding principles.

We are still in the early stages of our digital transformation journey and the implementation of Workday application to replace our legacy HR system is one such significant milestone.

Q: What are your own metrics for success of this transformation?

A: 1. Harmonised HR business processes.
2. Single source of the truth and up to date information.
3. Easy to generate reports and ability to slice and dice data for decision making.

Alvin Ong has been CIO of Nanyang Technological University since 2017. Before joining the higher education industry he worked extensively in Singapore's public healthcare sector and was responsible for the IT management and planning of several new healthcare facilities including Changi General Hospital and Yishun Community Hospital.

the best outcomes to enable a great global university. So far this extra pressure has been leveraged in a positive way to spur us to excel and outdo ourselves.

4. Convenient, easy to use HR application that runs on desktops, tablets and mobile devices.
5. Improved customer satisfaction.

Q: Can you describe how you expect people's daily work lives to change after this transformation?

A: This digital transformation changes the way we work, interact and communicate, and enables the organization to become more efficient and competitive through higher workforce productivity. For example, Workday at NTU is all about simplifying the way we work and collaborate. For the first time, pertinent HR information will be easily accessible to staff anytime, anywhere, on any device. More importantly, it enables our HR teams to shift from transactional work to focus on strategic HR matters such as talent sourcing and leadership development.

Q: Do you feel extra pressure being the CIO of a University known for being technologically innovative?

A: I work with many excellent and tech savvy colleagues who have high expectations of any technology solutions and platforms that my IT department implements. Hence there will always be extra pressure on me and my IT colleagues to deliver

Q: Why do you think NTU is the first university in Asia to implement the Workday system?

A: NTU is excited to be the first university in Asia to implement the Workday HRIS system. When we started this project, the goal to be Asia's first university to implement Workday did not feature in our consideration at all. Our primary goal was to drive the digital transformation and modernize our legacy systems into a single integrated resource that is easy to access and operate. We have gone through a very rigorous process in selecting the product (i.e. Workday) and the systems implementer (i.e. IBM) to work with us. I am appreciative of both Workday and IBM for partnering us in this journey and putting in all the long hours to help NTU succeed in its digital transformation journey.

The Impact of AI, Machine Learning and Analytics on Global Industries

By Salvatore Trimboli, CTO of Baillieu Holst

Artificial Intelligence is integrating and transforming across all industries, with nine out of 10 executives globally describing AI as the key ingredient to solving strategic challenges. I have been privileged to work across many different industries and have witnessed firsthand the impact of AI.

The implementation of AI in these markets and economies will be determined by those who have the resources and capacity for innovation in embracing the technology for business and customers. A PWC study calculates a 14% increase of global GDP by 2030 as a result of AI contributing $15.7 trillion more to the global economy.

Over time we have matured in the way we categorize and optimize data to enhance productivity. The heart of driving a true digital transformation is growing the scale of automation.

We are all racing towards a trend of large-scale automation and it is dominating conversation across each sector.

CTO at private wealth investment firm, EL&C Baillieu, Salvatore Trimboli believes technology can grow a company's revenue. With a career spanning Logistics, Retail, Professional Services, Construction and Financial industries he specializes in digital transformation.

Finance

The financial services domain has felt the greatest impact of AI and automation with algorithmic trading, underwriting, portfolio management and Blockchain. AI and analytics have become an integral component of what has come to be known as financial technology or fintech.

Construction

The construction industry has seen owners and contractors use AI systems to collect environmental data, building data, material data to identify the best way to create, visualize and service buildings. There are AI and machine learning solutions today that general contractors use to monitor and prioritize risk on the job site, so the project team can focus their limited time and resources. Builders using 3D printing to construct homes is no longer just a long-off fantasy. Thanks to Artificial Intelligence disruption, 3D printed homes are becoming commonplace.

Sunconomy are soon to complete a 2,000-square-foot 3D printed three-bedroom house in Lago Vista which will feature a detached garage and be powered by wind and solar. It's expected to cost about $290,000 with construction to take two months.

Hadrian X commercial bricklaying robot is used within a joint venture to provide "a wall as a service" with a bricklaying rate of 1000 bricks per hour with a high degree of accuracy, limit wasted bricks and can work 24 hours a day.

Accounting

The traditional bookkeeping tasks in the accounting and professional services sectors are being performed by AI with automated data entry and data categorization to help accountants quickly analyze broad financial trends. However, the accuracy of the machine learning algorithms still require refinement in the efficiency of accounting errors to fulfill the output of automation.

Retail

Within retail, based on a recent survey of 400 retail executives worldwide by Capgemini, AI could save retailers as much as $340 billion annually by 2022 with 80% of the savings to come from AI enabling more efficient processes. We see now many customer-facing AI functions, such as chatbots and self-checkout services to increase efficiency and also boosted by automated ad buying, personalizing customers' online experiences and serving users targeted recommendations.
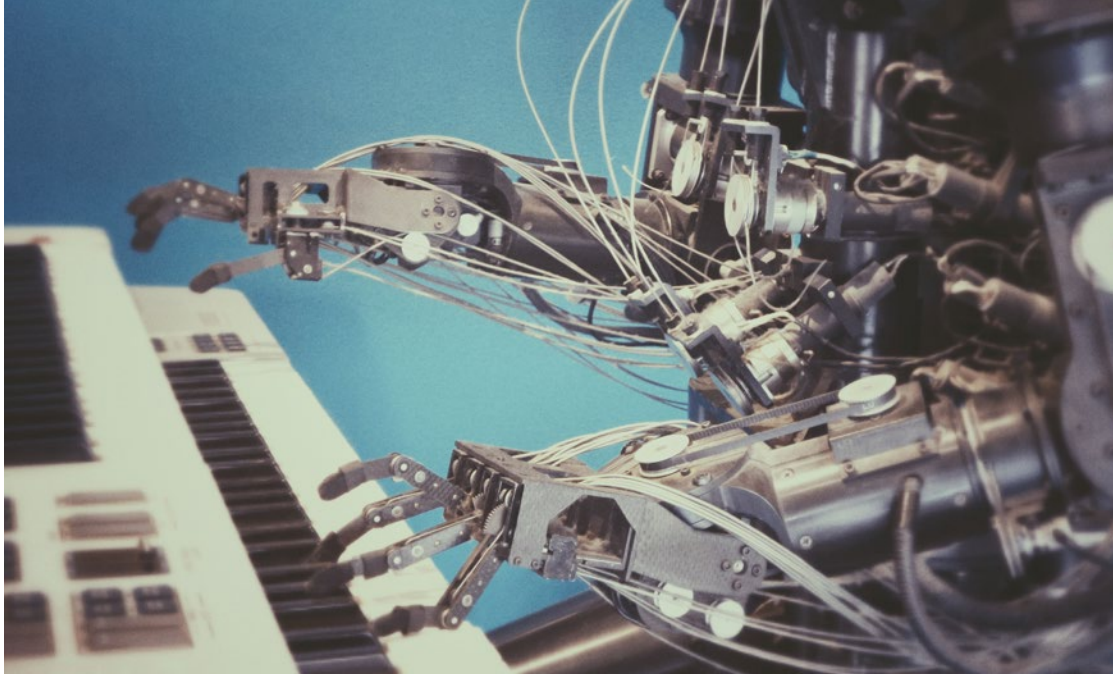
Are you ready for the future?

L'Oréal's Giorgio Armani Beauty brand is using augmented reality (AR) with WeChat customers that lets mobile users try on virtual makeup with order automation.

Logistics

In transport and logistics we see the strength of big data analytics and AI to improve the facets of driver route optimization and transparency to boost future performance. This technology has seen UPS saving 10 million gallons of fuel annually. AI also increases safety with analytics for driver eye detection that suggest rest periods and recommendations on throttle and brake pedal responses.

The Volvo Vera autonomous electric truck makes its trip from a logistics center to the port at Gothenburg over and over again with minimal human interaction while also significantly reducing the environmental impact of the shipping process. It's essentially a brain, some motors, batteries and no provision for a human driver.

AI can no longer be ignored with the many use cases across industries providing real business opportunities. In a world when fast is too slow, any industry storing data is being disrupted.

We need to capture our organizations' knowledge, redefine strategy and lead as we respond to competition using these technologies to create a highly efficient and scalable digital business.

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