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SPECIAL EDITION

Issue #01
Nov - Dec 2018

Your Definitive Guide to the Journey of 4th Industrial Revolution

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WE are at the cusp of a turning point in history, where man and machine are making the leap into an era of advanced technologies. It has been evident across the years, with the development of smartphones, rise of e-wallets, expansion of the sharing economy, usage of wearable technologies and other integrated devices.

The 4th Industrial Revolution is here. Awareness of its presence is critical in order to harness its full potential. Every aspect of our lives from the moment we wake till the moment we sleep will be affected by these new technologies, changing the way we interact with one another, with our environment and with ourselves.

Take a peek at transportation services. You need only open an e-hailing app and within minutes, safely driven to your destination. Left your wallet at home? Not to worry, there's e-wallet apps on your smartphone to pay for services.

Everywhere we go, we are carrying a supercomputer in our hands, which has, if not already, become a basic need of survival in this digital age.

Emerging technologies such as Artificial Intelligence (AI), Robotic Process Automation (RPA), Deep Learning, Internet of Things (IoT), Cloud Computing, Virtual Reality (VR) and Augmented Reality (AR) are soon becoming household names as more and more industries adopt them.

Our inaugural issue of The Fourth Leap magazine connects the dots between fundamental digital quake of technological change and the opportunities available to businesses, those that can adapt to the disruptive agents of the 4th Industrial Revolution.

How will we make sense of this convergence of man and machine? How will complex industrial environments such as those encompassing energy, oil & gas, utilities, chemical and materials, manufacturing - automotive, power grids, solar, medical equipment - and related sectors be transformed? Will this technological shift promise more productivity and efficiency? And how will it create the jobs of the future?

There are more questions than answers, but the Fourth Leap Magazine will assist you, business leaders and decision-makers, manoeuvre this exciting journey!

Look forward as well to our upcoming event, The Fourth Leap 2018 Conference, happening on the 22nd of November 2018 at One World Hotel, Bandar Utama.

The conference serves as an engaging platform for decision makers, thought leaders as well as the movers and shakers of the industry, coming together to discuss and share ideas regarding the Fourth Industrial Revolution, and look for new ways to grow and stay relevant in the industry.

In the words of Professor Klaus Schwab, Founder and Chairman of the World Economic Forum, he says, "In this new world, it is not the big fish which eats the little fish, it's the fast fish that eats the slow fish."

The question that companies need to be asking themselves, is where they stand in the food chain and how close are their competitors to putting them out of business?

– Sritharan Vellasamy
(sri@wordlabs.com.my)

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THE FOURTH LEAP 2018

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- Rise of the Machines or Human Empowerment?
- Smart Cities with Connected Citizens
- Blockchain Technology's Role in the 4th Industrial Revolution
- The Malaysian Story and Progress in Dealing with 4th Industrial Revolution
- How to Transform Marketing for the 4th Industrial Revolution?

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ABOUT WORDLABS BUSINESS NETWORK (WBN)

Wordlabs Business Network (WBN) was founded in 2015 to assist business organisations to adapt and grow in an increasingly uncertain and volatile world.

With a database of over 20,000 professionals and decision-makers across ASEAN, WBN is a regional business platform built together with industry partners to enable the business community in the region to meet and discuss business challenges, future trends and explore opportunities.

As communications, transport and technology have changed the way individuals live their lives, so too have these advances altered many business operations.

From Global Business Services (GBS) to Fourth Industrial Revolution, to the era of startups bringing traditional giants to their knees – businesses have many challenges to tackle in this globalised world.

The discussions are not so simple anymore – not just revolving around talent, technology, costs or locations. It is much more complex.

Our intent is not to necessarily educate business practitioners and enablers on just the "how" (operational issues) – but also to focus on the "what" (strategic issues) in order to take a more comprehensive view.

This is a void WBN aspires to fill, not just with the conferences – but also by extending the conversations through all our services and media channels.

We're proud to serve as the focal point for decision-makers in the corporate world, policy-makers, academics, trade associations and other stakeholders – enabling them to share experiences and learn from one another.

We leverage our media suites to create a solid backbone for our events and other initiatives to ensure continued and parallel discussions by constantly involving thought leaders.

Some of our industry publications include the Global Business Services magazine (catering to the sourcing world), the Fourth Leap (dedicated towards 4th Industrial Revolution) and many others.

The best way to start the journey with us is to attend one of our events. We look forward to connecting with you.

We do this through a variety of different products and services, including:

- Quarterly conferences
- In-house industry publication magazines (across print and digital)
- Bespoke reports, content generation and tailor-made publications (across print and digital)
- Workshops
- Training
- Bespoke events
- Lead generation
- Awards programme
- Webinars and podcasts
- PR and general media services

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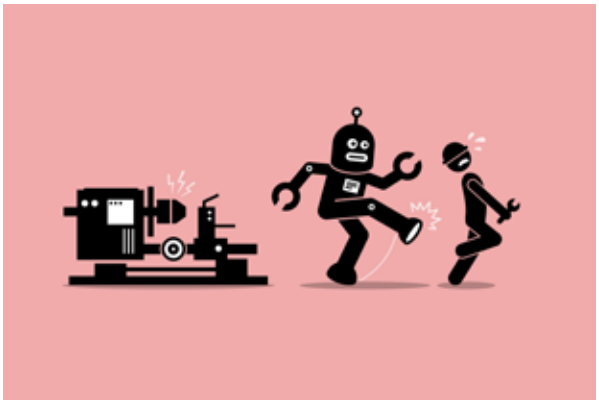
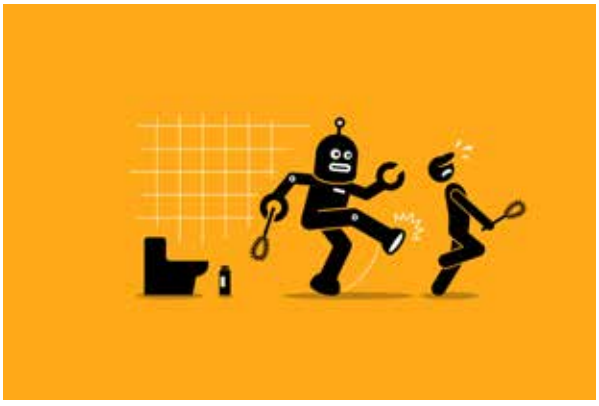
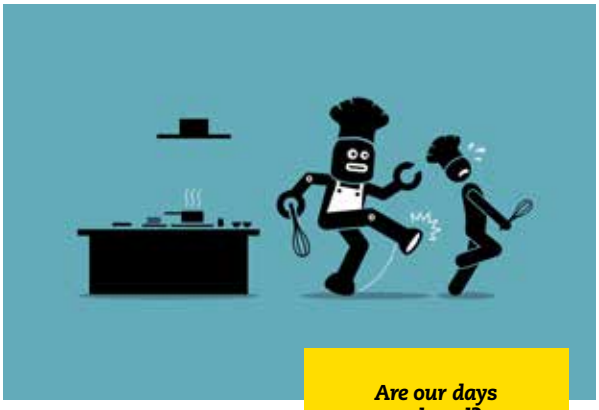






Are our days numbered?... Most people relate automation to machines and its ability to replace human involvement at work.

EVOLUTION OF AUTOMATION – FROM WHAT IT WAS TO WHAT IT IS

AUTOMATION is a very common term known across sectors today, yet it still remains among the big unknowns. Most people relate it to machines and its ability to replace human involvement at work. Terminologies such as robotic automation and artificial intelligence, many a times, are loosely or interchangeably used. This Supply WisdomSM whitepaper attempts to shed light on and clearly define some of those confusing automation concepts that we have heard of so far, keeping the evolutionary timeframe in mind.

FIRST WAVE OF AUTOMATION

The concept of Automation dates back several centuries. While its origins are debatable, many trace it back to 1620, when Dutch scientist Cornelius Drebbel invented the Thermostat.

The term was not very common too, until Ford developed such a programme in the 1900s and its assembly line concept led to significant reduction in the turnaround time for the production of one car, from 12 hours to a mere 1.5 hours.

The concept travelled further and by the 1950s, Japan had become the global leader in automobile automation with brands like Toyota, Honda, and Nissan, all vouching of high standards and quality.

What is interesting is that it did not stop there. The progression continued and the next big change coincided with the third and fourth generation of computers. In the 1980s, computers had slowly entered homes and by the 1990s, the ability of personal systems to create networks brought about the biggest phenomenon ever - the internet.

Automation underwent a major change at that precise point in time, and since then, its advancement has been faster than ever before. Here are some concepts that are closely related to the first wave.

1. Computerisation:
Computerisation should not be interchangeably used with automation simply because doing one is not equal to doing the other. But automation can and does involve computerisation.

As per Merriam-Webster, to computerise means "to use a computer to make, do, or control (something)". Computerisation, therefore, means that a function (which could be a process or operation) is integrated with a computer system and performed by someone who has been trained. In the present scenario, automation can be viewed from a digital transformation perspective, which is nothing but computerised change.

As per CIO Magazine, it means "the acceleration of business activities, processes, competencies, and models to fully leverage the changes and opportunities of digital technologies and their impact in a strategic and prioritised way." Historically, computerisation was largely applied to bank transactions, billing counters, etc.

2. Data Center Automation:
Another commonly heard of terminology is Data Center Automation, which simply put, is the way in which workflow and processes in a data center facility are managed through automation. This involves automation across computing, network, and storage layers in both physical and virtual environments, thus bringing down high human dependency in data centers.

It is chiefly achieved through a data center automation software solution (therefore also called Software Defined Data Centers or SDDCs) that provides centralised access to all or most data center resources. How does it exactly help?

- It helps with tasks related to scheduling and monitoring.
- It provides insights into server nodes and their configurations.
- It helps in running routine processes including patching, updating, reporting etc. automatically.
- It ensures that processes and controls are compliant with standards, policies, and procedures.

Some well-known data center automation tools include OpenStack, Puppet, CloudStack, Microsoft System Center, OpenNebula, HPE Helion Eucalyptus, Chef, Ansible Tower, and Git. It is interesting to note that in 2016, the Global Data Center Automation Market was valued at nearly US$4.18 B. Already growing at a significant rate, the projections for 2022 amount to US$18.33 B, at a CAGR of 23.5%.

3. Robotic Desktop Automation (RDA):
Often confused with Robotic Process Automation or RPA (they only sound similar), RDA is a "form of RPA software deployed locally on a user's desktop or laptop, whereby the software is initiated on demand or against a schedule to carry out an automated action."

This is easy to install due to its relatively lower cost and high efficiency in automating routine tasks. However, it is limited to a single operating system or user account.

Desktop automation tools can be window handle-based or based on properties of controls, and even record and playback-based. Some of the known desktop automation tools include Sikuli, AutoIT, TestComplete, Winium, PyWinAuto, and Microsoft UI Automation library, among others.

4. Business Process Automation (BPA):
Often mistaken with Business Process Improvement (BPI) or Business Process Management (BPM), BPA refers to the technology-enabled automation of complex business processes and functions that looks at activities that can accomplish a specific workflow or function.

Generally, BPA is mostly applied by organisations to automate less complex processes or single processes in extensive workflows, but again it is not limited to only simple, linear processes. According to Gartner, BPA "focuses on 'run the business' as opposed to 'count the business' types of automation efforts and often deals with event-driven, mission-critical, core processes."

However, it is important to understand the feasibility of BPA before using it, because there are times it may fail. For instance, the decision to automate a company's customer-interaction processes may not always work or for that matter where the human decision-making factor is high.

Computerisation means that a function is integrated with a computer system and performed by someone who has been trained.

RPA can be described as something which takes the robot out of the human.

But BPA has been known to produce some great results, especially when it comes to routine tasks, difficult decisions that can be addressed by machines, research, self-service portals, risky or hazardous manual tasks, sensor-based tracking and alerts, IT back-office processes, document management etc.

5. Current Wave Of Automation:
Through the previous sections about first wave of automation technologies, we can easily say that automation has been around for a long time Recently, however,with the latest technologies trying to take human efforts out of any possible work, we can safely say we are in a new era of robotics automation.

To an extent, 'automation' has always been a centrepiece for innovation. Starting from calculators to today's autonomous driving car, technological advancements have concentrated heavily on making human work non mundane. While the first wave of automation described here involved the transitioning of automation in current terms means more on reducing time spent on computers to get the work done. Let us take a look at the technologies that are currently doing rounds in the market.

6. Robotic Process Automation:
According to Leslie Willcocks, professor of technology, work, and globalisation at the London School of Economics' department of management, RPA can be described as something which takes the robot out of the human.

He further explains that it is any software that can do repetitive work more quickly, more accurately, and tirelessly, than humans, freeing them to do other tasks requiring human strengths such as emotional intelligence, reasoning, judgment, and interaction with the customer.

There are various types of automation that currently fall into the 'RPA' framework. It can range from something as simple as everyday data manipulation to something that can be scaled up to be re-used enterprise-wide. Sometimes, some of the RPA tools concentrate only on certain functions, like Blue Prism, which focuses mainly on the financial and banking industry.

To further differentiate traditional process automation from our current RPA processes, it can be said that tradition automation programmes were part of IT programs, whereas robotic operation is a sourcing decision run and operated by the business operations team, and not just one IT programmer.

Initially, cost was the main reason companies began exploring RPA. However, companies now have moved beyond cost efficiency and are looking at RPAs that provide them with job accuracy and help them reach their goals faster. In addition, it also boosts employee morale by helping them work in tasks that are more meaningful.

7. Machine Learning:
"Machine learning is based on algorithms that can learn from data without relying on rules-based programming", says a McKinsey article. Machine learning understands data pattern from past experiences to extrapolate it for future predictions. However, machine learning cannot reason data or understand motive behind drastic changes.

Facebook has mastered the art of displaying relevant content through machine learning using user's' historic activities. For instance, in Facebook, news feeds from friends that have been previously liked extensively appear before news feeds from other friends.

Machine Learning is more complex than Robotic Process Automation because Machine Learning is involved in analysing data and finding a structured pattern rather than repeating the same job at regular intervals. However, RPA is more popular in today's world as Machine Learning and more complex technologies have not yet been commercialised to the extent of RPA due to their higher costs.

With the ever increasing availability of data and the complexity involved around making sense of it, machine learning has found applications in almost all fields. Face detection and recognition, financial risk profiling, medical diagnosis, target marketing, identifying genetic changes due to diseases, etc. Machine Learning - coupled with Natural Language Processing (NLP) - is being widely used to decrease the distance between human talk and machine language.

8. Cognitive Computing:
Cognitive Computing is the simulation of human thought process using advanced technologies like machine learning, data mining and natural language processing. Cognitive Computing has been closely associated with IBM Watson for example.

Cognitive computing helps humans in making a decision. For example, IBM Watson is being used in healthcare to aid doctors with information to evaluate treatments for patients. It takes into consideration various factors like development of the disease, strength of the medicine, body vital signs, patient's age, patient's level of physical activity, etc. to suggest four or five medicines/dosages for the disease. And the doctors can choose the best one among these medicines.

An important factor differentiating Cognitive Computing from Machine Learning is its understanding of 'context'. According to the requirement of the process, cognitive computing analyses the given data based on time, place and tone of the user (for voice recognition software).

9. Artificial Intelligence:
Artificial Intelligence is a step further ahead of Cognitive Computing and is still under study. Instead of helping humans make a decision, artificial intelligence makes a decision based on the given inputs. The goal of artificial intelligence is to mimic a human and thus, take out any human intervention in a given process.

In the previous example of cognitive computing, it was evident that IBM Watson helps doctors come to a decision by suggesting medicines. If we were to use artificial intelligence technology in the place of IBM Watson (cognitive computing), the equipment could have suggested the medicine for the patient, thus eliminating the need for a doctor!

10. Autonomic Computing:
Autonomic Computing stems from the human 'autonomic nervous system' – to have a machine that does not require any action from humans. According to IRPAAI (Institute for Robotic Process Automation and Artificial Intelligence), an autonomic system is identified by eight characteristics:

- Knows what resources it has access to, what its capabilities and limitations are and how and why it is connected to other systems.
- Is able to configure and reconfigure itself depending on the changing computing environment.
- Is able to optimise its performance to ensure the most efficient computing process.
- Is able to work around encountered problems either by repairing itself or routing functions away from the trouble.
- Is able to detect, identify and protect itself against various types of attacks to maintain overall system security and integrity.
- Is able to adapt to its environment as it changes, interacting with neighbouring systems and establishing communication protocols.
- Relies on open standards and requires access to proprietary environments to achieve full performance.
- Is able to anticipate the demand on its resources transparently to users.

Artificial Intelligence is like the backbone to an autonomic computing system. An autonomic computing system uses artificial intelligence, data mining, and natural language processing to achieve its process without any human interference.

11. Automation And The Future:
How will automation be perceived in the days to come – merely a conflict of man vs machine? Or will it become part of a new futuristic business model that is more centered on creativity and collaboration with machines and digital technology?

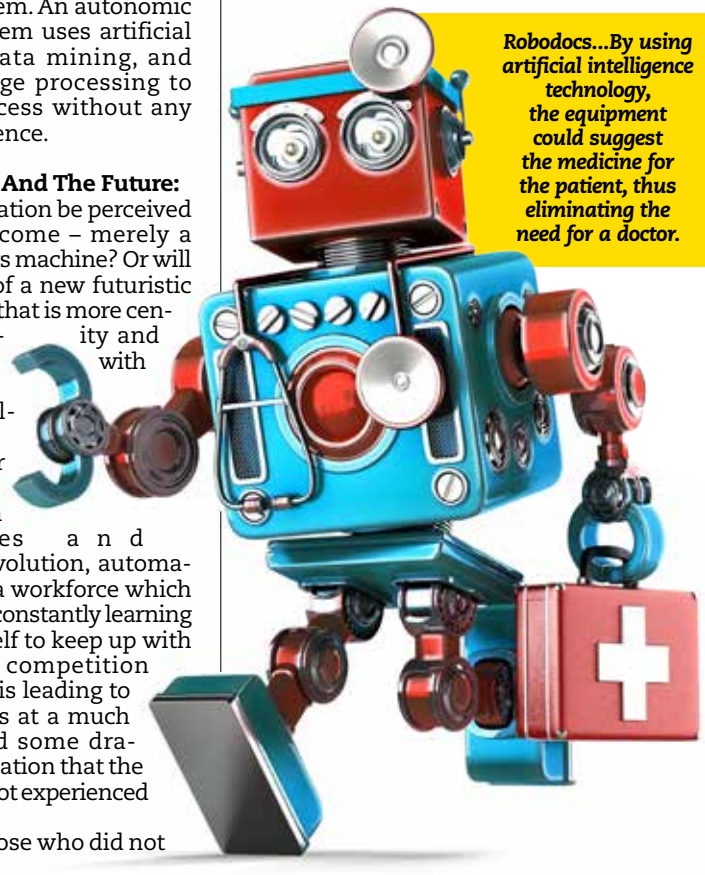
Whatever the perception may be, with changing times and technological evolution, automation is creating a workforce which is dynamic, and constantly learning and training itself to keep up with the increasing competition and demand. It is leading to new innovations at a much faster pace and some dramatic transformation that the workplace had not experienced before.

Therefore, those who did not see it coming or saw it coming and did not prepare themselves have a task at hand. But at the same time, it is also an opportunity to explore the unexplored and become part of a trend that is revolutionary, advanced, and truly modern.

Automation concepts will continue to evolve in the coming years and one thing is certain – automation as a phenomenon is a big part of the future, if not the future itself. The extent of its impact may be difficult to predict, but it is definitely going to be a big disruptor.

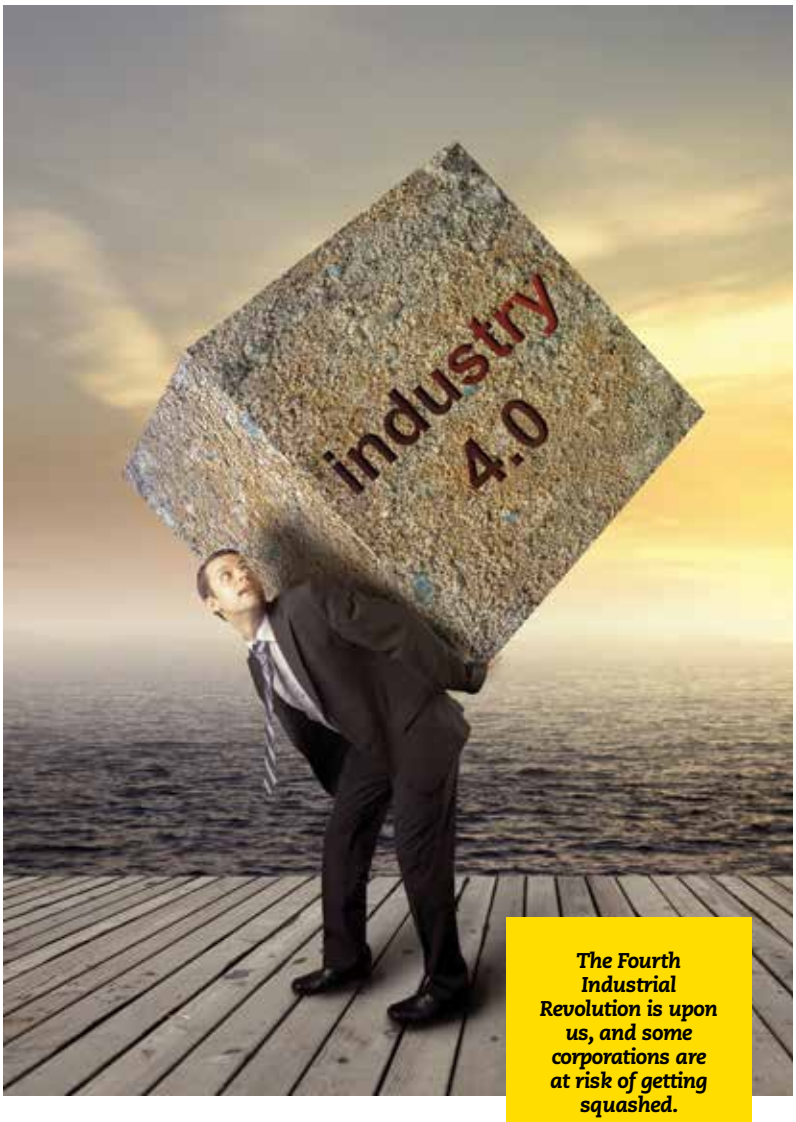
It is already changing the nature of several blue-collar and even white-collar job profiles, with many perceiving automation as a threat and the voices against it growing higher in pitch. However, the reality also is that not everything can be automated or taken over by a robot. The prospective application of automation differs from industry to industry and activity to activity.

Swathi Sarma is the Senior Marketing & Social Media Specialist of Neo Group.



Robodocs...By using artificial intelligence technology, the equipment could suggest the medicine for the patient, thus eliminating the need for a doctor.

THE FOURTH INDUSTRIAL REVOLUTION IS HERE ... NO, HAS BEEN HERE ...



The Fourth Industrial Revolution is upon us, and some corporations are at risk of getting squashed.

THE Fourth Industrial Revolution has been with us for a while be it in disbursed initiatives, in little dots across the landscape and in innovative pushes by niche players. Now, it has become mainstream. If you are not ready yet, prepare yourselves to get steamrolled! Yes, get ready to be flattened out by a self-controlled, AI-driven algorithm that has just discovered another luddite caught in a time-warp!

Truly, the 4th IR is all around us, if not all over us. But let's focus on something interesting – the sector that has often been dumped with the service sector, but has many industrial features: the Retail Sector!

A FEW VIGNETTES TO TAKE NOTE OF

- Amazon Go - where you can purchase products without being checked out by a cashier or a self-checkout station - may look like a distant speck in silicon valley, but not anymore! A clone has already been launched in nearby India. Watasale, is a fully-automated shop, that has sprung up in Kochi, Kerala, where you can just pick up an item and walk out. The price is automatically charged to your e-wallet.
- Zume Pizza in California (not again!), is letting robots make their pizzas. Custom-built robots not only spread sauce more evenly and use blazing-hot ovens, they also cook over 50 pizzas during delivery to the customer.
- As early as 2016, a start-up called Flirtey partnered with Domino's in New Zealand to launch their first commercial drone delivery service.
- Closer to home, Malaysia has its fair share of successes in the area wherein Ideotics, a Cyberjaya-based business, uses CCTV video, already installed in retail stores, to help them manage staff and stocks, besides giving deep insights into shopper profiles and behaviours. Other than that, Moving Walls, based in Technology Park Malaysia watches you, as you watch billboards! It captures digital footprints from multiple sources, measures people and personifies any physical location.

One pizza please, Monsieur Robot...Zume Pizza in California is letting robots make their pizzas.

HARNESSING THE POWER OF INTELLIGENT DEVICES

At the heart of all these are some basic technologies that are, oddly enough, available to all of us. Artificial Intelligence and Machine/ Deep Learning technologies are increasingly sitting in tiny chips that are connected to the internet and/or cloud infrastructure to make the Internet of Things (IoT) a reality.

"Get ready to be flattened out by a self–controlled, AI–driven algorithm that has just discovered another luddite caught in a time–warp!"

Here's a quick overview on how these intelligent devices work:

1. Data capture devices ranging from wifi trackers, tiny cameras, RFID and Bluetooth devices or QR Code scanners collect data such as smartphone owners, people movement, stocks placement, location markers, etc and pass the data to custom-developed applications.
2. The application software processes these inputs and collects additional needed information by connecting to social media and other rich sources of information on the internet.
3. This larger data pool is then analysed using tools like artificial intelligence and deep learning to arrive at insights or actionable options, which are delivered back to Users, be it shoppers or retail store managers.
4. Finally, Business Intelligence tools like Altair SmartSight present this information in easily readable formats like graphs, infographics and dashboards direct to the smartphones of the users. Shoppers may get information on the latest promotions and sales on items they are interested in; store managers may receive data on shoppers interested in their products, or even how they should pitch their product to the right shopper at the right time.

Obviously, all this opens up huge opportunities of all kinds, namely these three:

- Young tech-savvy entrepreneurs get easy access to the latest technologies that can be designed, tested and installed at very low costs.
- Corporations get the opportunity to change the way they do business to keep up with the ever-increasing demands of their customers.
- Managers can now monitor their staff, stocks as well as assets, without expensive and difficult-to-manage supervisors, spread all over the countryside.

But, here's the catch…remember the old adage "every problem is an opportunity in disguise"? Well, the reverse of this is equally powerful - "every opportunity soon becomes a problem in disguise". We ignore these opportunities at our own cost. Sooner than later, not very far away, a twenty-something year old is coding away a solution that will make life much easier for your customer – and makes your product or service unnecessary. That is why it is important to remember that every new opportunity has the potential to make your product redundant! Every change has the inherent threat of turning your product obsolete.

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History is replete with huge companies that waited for this to happen - Kodak, Nokia, Xerox, Yahoo, Blackberry, to name a few. The list is long and studded with names that were very respectable - once upon a time! Surely, you don't want to join this "elite" list!

Sri Vadrevu is Founder-CEO of SigMax-e Services and Ideotics. Most recently, he co-authored "9 Entrepreneurisms", now in its 3rd Edition.

THE FUTURE OF SECURITY:
A GLANCE AT BIOMETRICS

WITH THE EASE THAT TECHNOLOGY BRINGS, MANY OF US ARE ALSO AT THE RISK OF LOSING OUR DATA PRIVACY. HENCE, MANY PUBLIC AGENCIES AND INSTITUTIONS ARE DEPLOYING ADDED SECURITY MEASURES IN THE FORM OF BIOMETRICS. IN THIS ARTICLE, **ASSOCIATE PROF WONG KOK SHEIK** FROM THE SCHOOL OF INFORMATION TECHNOLOGY AT MONASH UNIVERSITY, DELVES INTO THE ASPECTS OF BIOMETRICS TECHNOLOGY TODAY.

As technology continues to be a constant, ever-growing presence that impacts our day-to-day lives, almost every sector in Malaysia including the government, education and financial institutions have transitioned towards digitalisation.

This transition affects us as many registration and application procedures today require us to either complete or upload our personal details online, making things seamless and efficient.

With the ease that technology brings us, we also stand the risk of losing our data privacy due to the growing number of hackers and cybersecurity threats. Banks, financial institutions, and government agencies are at the forefront as they hold some of our most private and important assets – our personal background and financial information.

As we move towards digitisation, we are able to pay for bills and do online transfers from the comfort of our own home with a simple click. Hence, institutions and agencies are continuously studying and practicing ways of enhancing their security features.

IRON-CLAD SECURITY

In ensuring the safety of our personal assets online, many banks and financial institutions are currently employing layered security features such as the two-factor authentication solution (2FA). This is compliant with the Malaysian regulatory requirements for online banking. The 2FA is a two-step security process that requires users to provide identification from two different channels; **"what you have"** – login credentials and **"what you know"** – security code, I.e. TAC.

Furthermore, multi-layered security has become a popular system among financial institutions and government agencies today. A further step to 2FA would be the 3FA – three-factor authentication. 3FA is simply an additional security factor

Digital security is a top priority in the Fourth Industrial Revolution, where data is closely safeguarded.

One of a kind...the 3FA is a sought-after method in higher security as it requires a distinct genetic trait from the individual that cannot be replicated.

to the 2FA. To better understand, here's a simplified breakdown of the definition:

- *One-factor authentication:* **"what you know"** – password
- *Two-factor authentication:* This is in addition to the first factor, **"what you have"** – code generator (TAC), signed digital certificate or an RSA SecurID fob. Specifically, RSA SecurID fob is a device which produces numbers at a regular interval by using some sophisticated number generation algorithm. The number generator takes some input, including user information, to uniquely generate numbers. When the a computer / system user assigned with the RSA SecurID device wishes to access the said computer / system, the computer / system will be tuned in sync with the current state of the RSA SecurID device to produce the same number. The user needs to submit the number she sees on the device for verification purpose.
- *Three-factor authentication:* In addition to the two factors, the third factor is "what you are" – biometrics. Biometric can be further divided into two types, physiological (a fingerprint, palm print, iris scan or retina scan) as well as behavioural (voice, keystrokes, signature pressure, gait) biometrics.

ADDED LAYER OF SECURITY

Note that the order of what you know, have and are does not matter. The 3FA is a revolutionised extension to the existing security methods today. It requires the physical biometrics information of the individual.

The fingerprint and retinal scan are two of the most common authentication methods practiced. For example, we may have encountered this when doing in-person counter transactions in banks, walking through the automated clearance system at our local airports during immigration or just simply by unlocking our phones. The 3FA is a sought-after method in higher security as it requires a distinct genetic trait from the individual that cannot be replicated.

However, what happens if the individual suffers from a cataract condition, a cold or has a cut on their finger? How will these affect the scans and accesses to their personal information? For starters, mathematical algorithms and patterns are key to identifying genetic human traits in scans. Hence, physical deformities (hand, fingers, and iris) do not actually limit the accessibility as it can be easily healed. The only limit is if one suffers from a severe and irreversible physical condition, requiring the individual to re-enroll using a new dataset in the system.

Behavioural changes in vocal chords also do not necessarily affect the biometric scanning procedure. The technology works in a way that it captures many unique identifiers that include features such as such as speed, cadence, and pronunciation as well as physical aspects that include the shape of larynx, vocal tract and nasal passages. Banks like HSBC and Barclays are known for implementing this security feature.

As technology progresses, we must continue enhancing our methods of protecting our personal information from falling into the wrong hands. Although the two-factor authentication may be a feasible choice in our current operations, public agencies and financial institutions in Malaysia can explore the implementation of voice recognition or other 3FA methods in general as practiced by HSBC and Barclays in recognising their customers. Of course, this must be dealt with further research to see whether the Malaysian market requires this security feature in protecting our overall personal data.

IT TAKES TWO TO TANGO: INDUSTRY 4.0

A connected future... With the recent announcement regarding access to 5G in Malaysia, this paves the way for IoT.

MITI is highly focused on international trade and industry, with the vision to make Malaysia the preferred investment destination and among the most globally competitive trading nations by 2020.

Currently, there are three major roles that MITI is playing. Firstly, it is promotes Malaysian products and services overseas that require trade investment or export promotion. Secondly, the agency is make efforts to bring in Foreign Direct Investments (FDI's) into Malaysia. Thirdly, MITI is also involved in industrial development, under the guidance of the Third Industrial Masterplan.

"This new masterplan fits perfectly into the direction that MITI is heading towards. The difference between this and the earlier masterplan is that … new technological advancements will be integrated into the existing framework. We are also very fortunate to have three new technology agencies under MITI, namely SIRIM, Standards Malaysia and MIMOS. These agencies will support our industrial development framework to include technological aspects," said Isham.

To ensure that the industry can overcome the challenges posed by the Fourth Industrial Revolution, MITI has undertaken various initiatives to encourage the adoption of Industry 4.0 for the manufacturing sector, including developing the National Policy on Industry 4.0 that is set to be launched on Oct 31, 2018 by Malaysia's Prime Minister, YAB Tun Dr. Mahathir Mohamad.

REGIONAL IMPACT OF THE REVOLUTION

Collaboration is an important element in embracing the Fourth Industry Revolution as it extends beyond the borders, says Isham.

Malaysia envisions to be the strategic partner for smart manufacturing and related services in South East Asia, and the primary destination for a hi-tech industry. To achieve that, collaboration between countries is necessary in terms of technology sharing, capacity building, knowledge transfer and collaborative programmes.

"The economic impact might be felt only in the long run, but it can be long lasting. Countries such as Singapore, Vietnam and Thailand have announced their respective Industry 4.0 blueprints for their manufacturing sectors, and consequently have started having structured intervention to push forward the agenda within their respective economies.

"I view this positively. Economics is never about a zero sum game," said Datuk Isham.

The Readiness for the Future of Production Report 2018 by the World Economic Forum (WEF) and A.T. Kearney, positions Malaysia in the "Leader" quadrant, with a strong current production base and well-positioned for the future.

The introduction of the National Policy on Industry 4.0 will improve the competitiveness of the Malaysian industry in the long run. Isham believes that with the right implementation, Malaysia will become one of the leaders in Industry 4.0 in this region.

He said: "The potential is huge on many fronts. Firstly, we have one of the most sophisticated Electrical and Electronics (E&E) sectors in the region. As such, there is a natural progression for us to easily adopt manufacturing of products and parts related to Industry 4.0. But that is just a start, as our consulting houses including those related to the E&E and ICT sectors are very competent and most likely our export capabilities in this area will be the game changer in the long run."

ASEAN: GROWING TOGETHER

ASEAN member countries' gross domestic products combined to

US$2.73 trillion in 2017, putting the group ahead of the UK that has reached US$2.63 trillion and India, US$2.61 trillion. In 2017, Focus Economics estimated that ASEAN's growth had reached a five-year high of 5.2%. More than half of ASEAN population is below 30 years old, giving advantage on the demographic.

The ASEAN member countries are aggressive in responding to the 4th Industrial Revolution. ASEAN countries' adoption of Industry 4.0 will attract more foreign investments, hence benefit the region economically.

There was a benchmarking study conducted regarding the readiness of ASEAN countries towards adopting Industry 4.0, and Malaysia was one of the countries interviewed. This study was conducted to help other ASEAN countries embrace and develop legislations or policies that will complement these technological advancements.

"As a production hub in ASEAN, a lot of our companies are in the supply chain and depend on each other, hence if there was an imbalance in technological advancements, some countries would not be able to cope. That is why it's important that once the results of this benchmarking study is announced, we will all know where we stand and what we need to do to improve and grow as one," Isham said.

KEY TECHNOLOGIES TO THE FORE

Malaysia itself is very receptive towards adopting several key technologies, namely robotics and the Internet of Things (IoT), Big Data Analytics amongst others. Though many of these technologies are still in development stages, Datuk Isham affirms that it is moving at a rapid pace.

"Currently, we are the seventh largest drone producer in the world, and this technology is very important to us as we use it in areas such as plantation, mapping, monitoring and so on. Robotics is another area we are keen on developing as the robotics we have on hand are standalone in its function. The goal is to integrate elements of new technologies to enable them to communicate with one another and be multi-dimensional.

"With the recent announcement regarding access to 5G in Malaysia, this really paves the way for adoption of IoT. There are a lot of new applications that need to be rejuvenated and renewed, and a lot of new infrastructure that will have to be accommodated to support this new 5G network."

Industry 4.0 also heralds a new age of connected, smart manufacturing and dynamic supply networks. This however brings about new cyber risks. Cybersecurity should become a fundamental part of the strategy, design, and operations. It should be considered from the beginning of any new connected, Industry 4.0–driven initiative.

"Our government, through CyberSecurity Malaysia, has instituted a broad range of innovation-led cyber security programmes and initiatives. Malaysia is currently ranked third globally among 193 International Telecom Union members, in terms of the level of national commitment to addressing cyber-security risks. Malaysia is also among the top scorers in the Technical Performance Index of the Global Cybersecurity Index 2017.

"This really shows an accurate picture to the world, that we really understand the challenges that come with the digital age, and are working with all stakeholders – both public and private – towards building a safe and secure digital nation. I truly believe that we now know the lay of the land, and are ready to harness the opportunities that the fourth industrial revolution brings," Isham concludes.

Datuk Isham Ishak ... Secretary General of the Ministry of International Trade and Industry (MITI).

INDUSTRY 4.0 IN MALAYSIA, THE UNTOLD STORY?

MARKETING AND MATRADE, KEY PILLARS OF MALAYSIAN INDUSTRY 4.0 INITIATIVE

THE emergence of the Fourth Industrial Revolution, which gave birth to Industry 4.0 has created significant ripples among the public and private sectors. For the Malaysian private sector, especially exporters across various sectors, the excitement is palpable as it promises to be a potential game changer in what seems to be a staid global macroeconomic landscape.

Embracing the future...the growth of Industry 4.0 will provide greater avenue for Malaysian companies to short circuit the growth cycle.

For a start, the growth of Industry 4.0 will provide greater avenue for Malaysian companies to short circuit the growth cycle as it enables the companies to grow quickly and access new markets by innovating new business models.

For example, a mass exporter of furniture with dwindling raw resources can reinvent itself into a furniture design company by harnessing on their existing experience and talent. Alternatively, they can move up the value chain by providing more customized products by incorporating feedback loop from customers in real time basis.

Also, critically, the global adoption of Industry 4.0 products and services will result in positive impact on Malaysian exporters who are in the ecosystem. The professional services sector along with the ICT sector could also hugely benefit from the uptake of Industry 4.0 products and systems.

As such, the economic impact of Industry 4.0 could be significant on Malaysia's manufacturing industry, especially sectors that are involved in development and marketing of products and parts related sensors,

semiconductors, modules, routers, machineries and equipment. Sectors such as chemical, medical devices, aerospace, automotive, transport, textiles, pharmaceuticals and food processing and services will also likely to benefit.

The potential for Industry 4.0 initiatives to transform the Malaysian manufacturing industry is real. The contribution of the sector to the national economy can increase substantially from the current RM254 billion. It is estimated that currently, Industry 4.0 related products account for approximately 40 percent of Malaysia's total exports.

In terms of productivity, the number of skilled workers employed in the manufacturing sector is targeted to increase from the current 18% if the sector adopts Industry 4.0 tools and systems.

There will also likely be major impact on the services sector where enabling sectors such as logistics (including warehousing), transportations, as well e-commerce and ICT related services will be among the many type of services that will benefit from the potential boom for products and services related to the Industry 4.0 adoption.

THE DATA GAME

Industry 4.0, among others emphasises on the centrality of data in governing companies' decision-making process, especially the manufacturers.

The added emphasis of data has also impacted trade promotion organisations tasked at promoting growth of trade such as the Malaysia External Trade Development Corporation (MATRADE) as it too needed to develop structure and process to embed data in its operational structure. This would strengthen MATRADE's decision making process and ability to convert market intelligence into market insights for the benefit of the Malaysian exporters.

More critically, it also provides the catalyst for MATRADE to refocus and in some cases re-make its trade promotion approach so that it is able to address the potential opportunities and challenges posed by megatrends such as Industry 4.0 on Malaysian industry.

However, MATRADE's focus on matters related to Industry 4.0 takes a different tangent compared to the norm. Consultants, policy makers and machine makers/service providers are at pains to point out that Industry 4.0 will lead to greater insights on back-end operations in areas such as efficiency, cost savings and the likes. This is entirely true, but covers only half the narrative.

Improving efficiency... through big data, businesses are able eliminate inefficiencies and provide relevant information needed for key decisions to be made.

There seem to be lack of appreciation on the potential impact of Industry 4.0 applications and systems on companies' front end operations. This is a curious vacuum considering it is likely that the impact of Industry 4.0 will be the most significant on a company's bottom line from the aspect of revenue creation rather than cost savings and efficiency.

It is at the front-end where MATRADE comes into the fore in an age where organisations struggle to reinvent their businesses to better leverage on the ever-changing dynamics of global trade.

MATRADE's support for exporters to innovate using Industry 4.0 tools and technologies to ensure greater competitiveness and sustainable operations can be crucial in Malaysia's Industry 4.0 journey. There is ample scope for Malaysian companies to evolve and adapt using Industry 4.0 technologies.

For example, Malaysian footwear companies can embrace supply chain digitisation by piloting the usage of additive manufacturing, often known as 3D printing, with the goal of reducing the manufacturing cycle, and ultimately reduce the time to market its footwear products and provide customised footwear to their clients.

Through big data, businesses will be able to cross-reference pricing histories or customer traffic patterns with multiple outside sources. By doing so, this will help in better understanding customers' behaviour, reduce costs by eliminating inefficiencies, enriching existing service offerings with new knowledge and eventually help companies to increase revenue and be more competitive.

CLOUD ON THE HORIZON

The challenges of ensuring that Malaysian exporters benefit from the full potential of Industry 4.0 trends either as a user/innovator or selling of products/services or related parts/components will depend heavily on the ability of the Malaysian public, government sector and the private sector to move quickly and leverage on the opportunities and navigate around the potential issues.

As it stands, 98% of Malaysian companies are SMEs and many of them might struggle to quickly scale-up to embrace the potential business arising from Industry 4.0. This could result in loss of competitiveness and a drop in profit margins en masse for Malaysian companies, which are especially operating in industries that potentially would be the early adopters of Industry 4.0 such as automotive, consumer electronics and aerospace.

Feedback from the industry indicates that currently, there is lack of awareness among many Malaysian exporters especially SMEs on the importance of big data. Consequently, MATRADE

Big Data and Cloud solutions are buzzwords in IR 4.0.

plans to create adequate awareness and access to training to ensure that small firms have the awareness on the potential of big data to transform and sustain their operations and enhance their profits.

On the other hand, there are also many smaller firms that do have the awareness and interest to develop big data, but suffer from lack of access to data needed to conceptualise and activate ideas. Most times, they do not have access to relevant data due to a lack of funding or outreach to owners of data. As such, MATRADE is also exploring collaborations with the private sector to develop database platforms populated with datasets required by the small firms to undertake the right operational and marketing decisions.

MATRADE'S ROLE

MATRADE's game plan is two pronged. Firstly, they intend to enable Malaysian exporters to leverage on the export opportunities arising from the implementation of Industry 4.0 products and services globally. This is done by linking Malaysian exporters to relevant global supply chains through various trade promotion activities.

Secondly, they plan to train exporters to leverage on Industry 4.0 related technologies (e.g. Big Data Analytics, Internet of Things) to develop new business models, customised solutions and strengthen the supply chain. They will also push for usage of e-Commerce by Malaysian SMEs.

MATRADE is aware that it too needs to re-invent itself to better respond to these changes and have the adequate understanding and resources to provide the kind of support that the Malaysian exporters especially SMEs require.

That can be done through internal process as well as collaboration with third parties. In the case of MATRADE, it has already started collaborating with universities, research institutions as well as big data analytics companies that are able to provide additional resources, insights and infrastructure needed by MATRADE to provide the SMEs with the kind of support required for them to succeed in the era of Industry 4.0.

There has to be a greater level of syndication of responsibilities with other government bodies that have the right resources to expedite the adoption of technologies among Malaysian SMEs. This includes agencies involved in training such as the Human Resources Development Fund as well as SIRIM, which facilitates the adoption of certification and testing practices among Malaysian companies.

The final component will also need to be the financial ecosystem. The speed in which technologies change necessitates a great level of agility among funders, be it from the government sector or private to absorb certain amount of risk in funding the adoption of new technologies. A risk averse financial ecosystem could be detrimental to SMEs seeking fast technological response to market changes.

MATRADE is working hard to continuously align its process and incentives to supporting exporters embarking in Industry 4.0 processes. It has also proactively undertaken various initiatives to push this agenda forward.

This year alone, MATRADE has undertaken efforts to collaborate with third parties such as Intel to co-organise workshops and seminars involving more than

100 Malaysian companies from the E&E, ICT and M&E sectors on Industry 4.0 topics such as smart manufacturing. MATRADE has also organised seminars on logistics and financial services to promote the array of support services available to Malaysian exporters of Industry 4.0 products and services.

Additionally, MATRADE also organised the participation to three overseas trade fairs related to Industry 4.0, availing 45 Malaysian companies to technology, business leads and market opportunities.

The Malaysian Government has currently put in place incentives to support the use of automation, robotics and ICT among SMEs. These include:

- Capital allowance to increase automation in labour-intensive industries (eg. rubber products, plastics, wood, furniture, and textiles industries) - Capital Allowance of 200% on first RM4 million;
- Reinvestment Allowance of 60% on Qualifying Capital Expenditure incurred within 15 years;
- Production of Selected Machinery and Equipment - 100% tax exemption for 10 years; and
- High Technology Companies - 100% tax exemption for 5 years

This can be a good start to support the Malaysian exporters' aspirations to move to Industry 4.0. However, greater thought will be given to reevaluate and/or improve the current set of support system to further promote the adoption of significant components of Industry 4.0 such as automation, robotics and ICT.

MOVING FORWARD

The failure to respond to the impetus and opportunities from Industry 4.0 could erode Malaysia's exports and exporters capabilities to compete in the long run. This could create a significant divide between Malaysia and countries who have proactively transformed its industries and government machinery to respond to these opportunities.

The first mover advantage will be crucial to ensure the Malaysian SMEs are able to quickly escalate their resources - technology and manpower - to ensure they are able to harness the potential of Industry 4.0 to provide value to their customers and stakeholders and consequently generate greater income and profit margins for them.

However, a delay in this adoption can be detrimental to the overall economic growth and export sector of the country. For example, in sectors that are highly dependent on supply chain such as E&E and aeronautics, failure to adopt SOPs determined by the principals will result in companies losing their access to vendor programmes.

Malaysia is clearly ready to respond as there are already preparations to launch a National Policy on Industry 4.0. Ultimately it may just come down to how well Government organisations such as MATRADE can provide the private sector with the right policy mix, concerted capacity development programmes and trade promotion activities to make the difference.

By all indications, it looks like MATRADE and other government agencies are ready for the challenge. ◘

This is a contribution by the Malaysia External Trade Development Corporation (MATRADE).

MATRADE has also organised seminars on logistics and financial services to promote the array of support services support available to Malaysian exporters of Industry 4.0. products and services.

EVOLVING ROLE OF CFOs IN THE AGE OF DIGITAL DISRUPTION

TVT CHARI, FORMER GROUP CHIEF FINANCIAL OFFICER (CFO) OF AXIATA SHARES HIS INSIGHTS ON THE EVER-CHANGING ROLES OF CFOS, THE IMPACT OF DIGITAL DISRUPTION ACROSS VARIOUS INDUSTRIES, AS WELL AS THE KEY PARAMETERS TO DRIVE DIGITAL TRANSFORMATION WITHIN COMPANIES.

TVT Chari, former Group Chief Financial Officer of Axiata.

AS the world around us continues to evolve, mankind in turn needs to keep up. Adapting is one thing, understanding is another; indubitably, changes wrought by the Fourth Industrial Revolution will dictate the ebb and flow of businesses. These changes will determine – depending on the speed of adoption and understanding of these alteration – which will rise, and which will fall.

Every decision-maker in the top management has a role to play in steering the business forward. If the CEO is likened to the ship's captain, then the Chief Financial Officer is Chief Mate. After spending 36 years in the finance sector – eight years of which he spent as Group CFO of Axiata – he believes that the role of a CFO is no longer just about cheque books and balance sheets.

THEN VS NOW

Back in the '80s – the age of irksome phone cords and elaborate note-foldings – the role of a CFO revolved primarily around financial efficiency, transactional processing with the latest technologies a company can get their hands on.

That role then evolved in the 2000's, where it prioritises partnering with the business through business process reengineering and leveraging on technology. However, in 2010, the goal shifted to being more on value creation and preservation. This involved balancing performance and risk, having a holistic approach, and focusing on integrated finance and business transformation.

"The question CFOs should be asking themselves is, where do we go from here? In my experience, the role of CFOs of the future can be

CFOs are integral to a company's rise or fall.

seen through four faces: a catalyst, strategist, operator and steward."

According to Chari, as a catalyst, CFOs would need to stimulate behaviours across the organisation to achieve strategic and financial objectives, whilst at the same time being a strategist that is able to provide financial leadership when it comes to determining strategic business direction and aligning the right financial strategies.

CFOs also have the unique responsibility of acting as a steward for their organisation in terms of protecting and preserving their assets. Finally, they must also take on the reigns of an operator with regards to balancing capabilities, cost and service levels to fulfill the organisation's financial responsibilities.

"This does not mean that CFOs are strategists, or tech gurus – more importantly, they need to be asking themselves whether they are aware of what's happening around them. Are they able to drive changes in the organisation?"

Aspects such as keeping the books clean, maintaining healthy business control, installing structured processes in the organisation are all hygiene factors that need to be taken care of, regardless of disruptions, as it is part and parcel of the role. However, a CFO must also understand the impacts these disruptions may bring to the organisation and oversee the sustainability of the business in this environment.

"A CFO who has mastered the art of juggling all four faces, is on the right track. To put it simply, CFOs need to start to think like a CEO, but act as a CFO."

GAME-CHANGING DISRUPTORS

One of the most popular buzzwords resulting from the Fourth Industrial Revolution is "Digital disruption". Approximately 72% of businesses will be disrupted within the next three to six years, which leaves CFOs with a short time frame to enact change. Digitalisation is causing ripples of concern throughout varying sectors as early adopters are disrupting the market.

Essentially, traditional brick and mortar companies are being replaced by click and mortar companies. It comes at no surprise that 60-70% of the expanded business is going to be taken over by the likes of Amazon or Lazada. Scalability is fast, and companies are able to expand globally as well. One great example is Uber; not only have they disrupted the face of public transport, but have also successfully scaled their operations globally in a seamless and efficient manner.

Digital disruption is not only affecting businesses, but consumers as well. Five years prior, the average consumer would think twice about purchasing a product on Amazon or Lazada. Today, there's almost no hesitation, and consumers trust these online shopping platforms as much as they do with local retailer. Therefore, the focus is now on quality of service and customer engagement.

"From my own experiences as Group CFO, I received anywhere between 1000 SMS's to 1500 SMS a day during festival days .Today, that number has dropped to zero. We used to have RM1.5 billion on SMS revenue alone, and now, it has reduced significantly to almost zero. Roaming revenue both inbound and outbound have come down dramatically. The other traditional brick and mortar telcos in the same sphere are no longer competitors. With the ease of access to the internet, our competitors are now WhatsApp, WeChat, Line, Skype, Facetime and so on. WhatsApp alone is eating up 50-90% of voice and SMS revenue. The game has changed."

SHIFTING MINDSETS

The psychology of consumers are also rapidly changing, as seen in the hospitality industry. Traditionally, guests would go to a hotel, check in for their stay and leave, without much engagement. With Airbnb now being a major disruptor to hotels, both guests and hosts are able to provide feedback or ratings on each other using technology.

"The way I see it, there's an interesting concept at play here. We believe that a higher power is constantly watching and we strive to always do the right thing. When you are in an Airbnb home, the end results of how well you host your guests or how well the guests treat the home is monitored and judged via technology such as online feedback and comments. We always do the right thing when we know someone is watching", Chari said with a smile

Harnessing the right technologies to help grow the business is another important aspect of being a CFO. "Am I radically going to simplify the business? Though I would still have check and balances, it should be carried out with a system. Technologies such as Artificial Intelligence needs to drive the process rather than putting a bunch of people to check and recheck."

"The question CFOs should be asking themselves is, where do we go from here? In my experience, the role of CFOs of the future can be seen through four faces: a catalyst, strategist, operator and steward."

Even the healthcare industry is evolving wherein people are investing more on prevention as opposed to cures. Now, there are gadgets that will allow for the early detection of diseases such as DNA sequencing chips. It works by analysing your blood and telling you in advance, which diseases you are prone to.

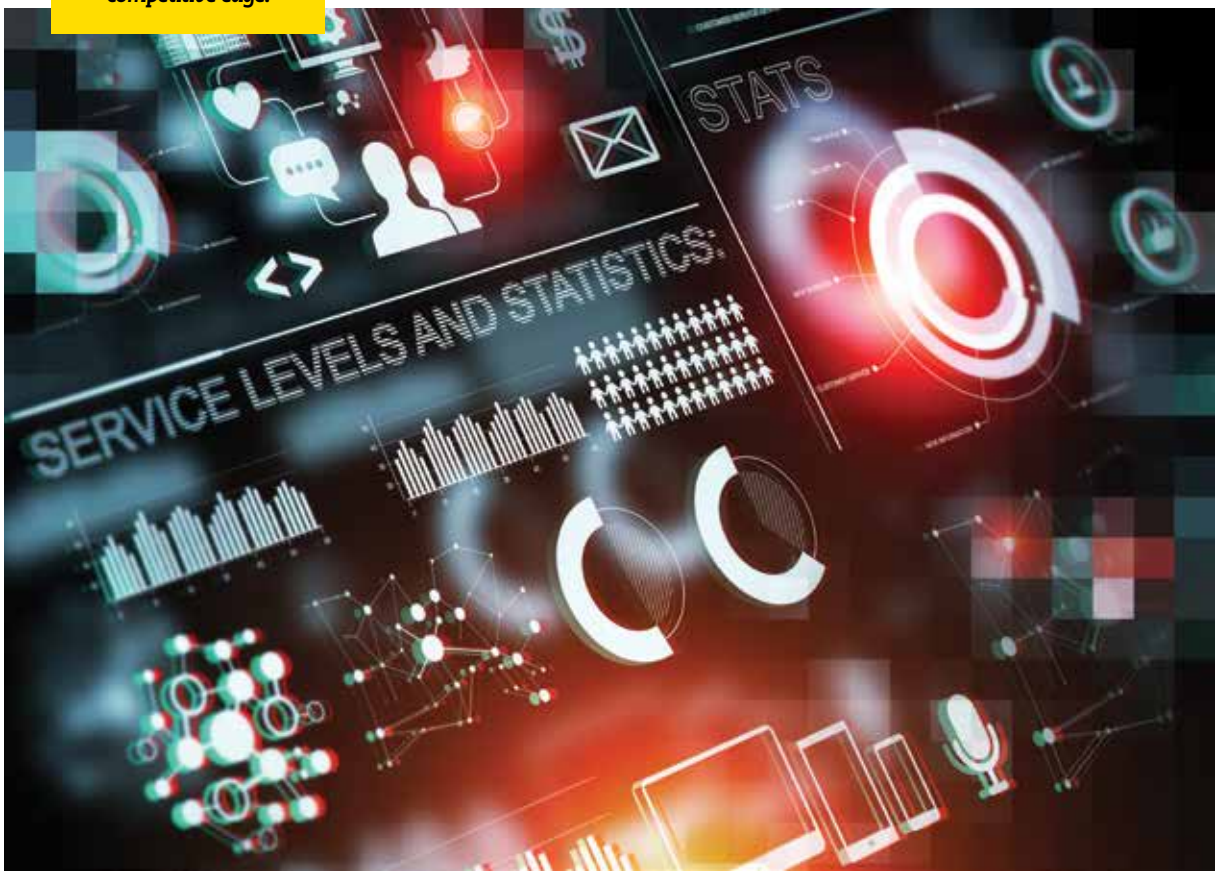
"Another interesting area to look at is national defence. The wars of tomorrow will not be fought by humans brandishing guns, but by technology. Drones capable of using facial scanning, will lock on selected targets and zoom in for the kill. These drones are fitted with AI, capable of telling people apart and avoiding collateral damage. However, cybersecurity needs to be beefed up in order to prevent hacking of such technology."

EMBARKING ON THE DIGITAL TRANSFORMATION JOURNEY

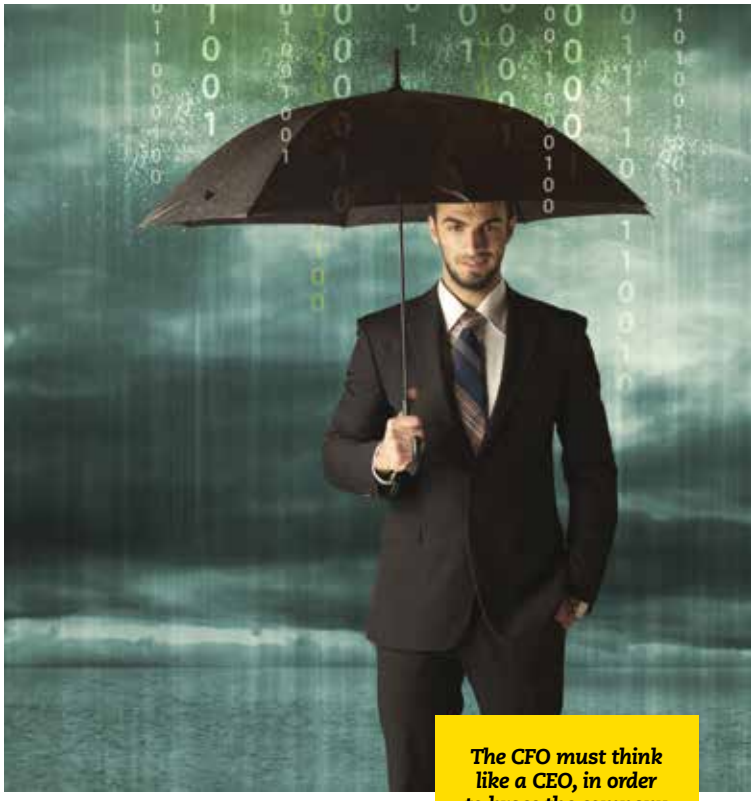
Change is something that cannot happen overnight, and the same can be said about businesses of today. Every business is on the same journey towards digital transformation, albeit at different stages.

"There are three essential things a company needs to achieve. They must be able to innovate their business models to better suit their customer needs; radically simplify the business in which they operate,

Big Data Analytics should be leveraged in order to give companies the competitive edge.



“Am I radically going to simplify the business? Though I would still have cheques and balances, it should be carried out with a system. Technologies such as Artificial Intelligence needs to drive the process rather than putting a bunch of people to check and recheck.”



The CFO must think like a CEO, in order to brace the company for the oncoming disruptive storms.

and finally - digitalise by using emerging technologies. The last of these three entails an extensive use of data to drive business decisions.”

CFOs are tasked with spearheading the generation of hypotheses, and technology is integrated in order to test them.

“Let us assume we have 4000 employees and 1700 supplies in an organisation. We then came up with a hypothesis to see if the address, phone number, name will match for these two diverse set of data points, We then used Data Analytics to gather information to test it out the hypothesis. As a result, we managed to cross-reference every name, contact number and addresses between suppliers and employees, searching for a match. And indeed, matches were found and we caught seven employees acting as suppliers.”

Similarly, CFOs should actively generate these hypotheses, as the thinking process is what refines the organisation. Mundane work can be given to chatbots and AI, whilst higher value works are undertaken by employees. Technology will then analyse all the variables and either support or disprove the hypothesis.

When it comes to the business model, those that are successful are the outliers, stepping away from the norm. Hewlett-Packard does not make money by selling printers, as the cost of a printer is affordable. Their larger revenue stream comes from selling ink cartridges. Rolls-Royce is one of the main manufacturers of aircraft engines, and they make their revenue not from selling the engines themselves, but through lengthy maintenance contracts.

“Conventional business methods have no place in this era. If a CFO is unable to be strategic in their thinking, opportunities in the market will be overlooked. We must leverage on data to drive our business decisions. Do not fear disruption, and once you have an innovative solution, be rigorous in its execution.”

BIG DATA, THE ‘BIG SHOT’

Big Data allows organisations to analyse massive volumes of data (in both unstructured and structured forms) to improve decision-making and strategic business ventures. From a financial standpoint, there are four things which big data can help with; it could drive increment in revenue, drive down costs, reduce capital expenditure, as well as detect frauds.

During Chari’s stint as a CFO, they conducted a study to determine the number of people who were awake and actively downloading information using the internet between the hours of midnight till 4 AM. Once the results of the study came in, the company was able to create a more behaviour-based psychographic segmentation. Analytics and hypotheses were then used to determine a suitable value proposition that can be offered to customers.

Addressing these challenges and major sustainability questions are a part of risk mitigation exercise for any Board and Board audit committees. They need to drive transformation within the organization so that the risks are addressed in a timely manner. The Chart below defines the areas to address to mitigate the risks. This can’t be delegated to a smaller department but should be driven by the CEO under the Board’s guidance

“At the end of the day, I believe that the role of a CFO is to step away from the traditional model and be open-minded. This means being closer to the business and understanding technologies and how it may impact the organisation. They need to be able to compete with the click and mortar companies. If not, then the company will soon become the next Kodak.”

Jobs of the future will have a huge focus on finding the essential people and outsourcing the rest.

BEYOND THE FUTURE OF WORK – JOBS OF TOMORROW

OUTSOURCING

The jobs of the future will have very little to do with processing words or numbers (the Internet can do that now). Nor will we need many people to act as placeholders, errand runners or receptionists. Instead, there's going to be a huge focus on finding the right people and outsourcing the rest.

So, are you essential? Most of the best jobs will be for people who manage customers, organise fans, and do digital community management. We'll continue to need brilliant designers, energetic brain stormers and rigorous lab technicians. Increasingly though, the need to actually show up at an office that consists of an anonymous hallway and a farm of cubicles or closed doors is ebbing away. It's too expensive, and it's too slow and cumbersome.

Fifteen years ago, Facebook didn't exist. Ten years before that, we didn't have the Web. So who knows what jobs will be born a decade from now? One thing for sure is that it will not look the same as now. No one is going to pay you just to show up. We will see a more flexible; more freelance, outsourced, flat structured, collaborative, and far less secure work world. It will be run by a generation with new values — and women will increasingly be at the controls.

PeoplePerHour, the online freelance market, reckons self-employment in the UK and the US is currently growing at an average rate of more than three percent. Based on official labour market statistics, PeoplePerHour predicts self-employment will grow at an annual rate of 3.5 percent over the next five years in the UK, and at 3.2 percent in the US.

That would mean one in two people in both countries would be working as freelancers by 2020, the company said. In Australia, that number is predicted to be 5,000,000 by 2020.

In the US, meanwhile, a study published last year by the Freelancers Union suggested as many as a third of working Americans were already self-employed – around 56 million in all – though some also hold down jobs. It said

that the rise of online marketplaces for freelance work such as Uber, Elance and freelancer.com was partly to explain for the increase in self-employment in western countries. This is more than people having a side hustle, it's a complete paradigm shift from the way we think about work today.

Work-life balance. In most corporate circles, it's the sort of phrase that gives hard-charging managers the hives, bringing to mind yoga-infused, candlelit meditation sessions and — more frustratingly — rows of empty office cubicles.

GREEN JOBS

Climate change is a real threat; shifting jobs from industries that harm the earth to ones that sustain it will become an economic imperative.

At the same time, the world faces a long-term climate crisis. But what if there was a way to solve both problems with one policy? A number of environmentalists and economists believe that by implementing a comprehensive energy programme, we can not only avert the worst consequences of climate change but also create millions of new jobs — green jobs — in the west.

What's a green job? It depends on whom you ask. Some categories are obvious: if you're churning out solar panels, you're getting a green paycheck. But by some counts, so are steelworkers whose product goes into wind turbines or contractors who make homes more energy efficient.

According to the U.S. Department of Energy (DOE), 3.4 million Americans were directly employed by the clean energy industry (which includes the energy efficiency, smart grid, and energy storage industries; electric power generation from renewables; renewable fuels production; and the electric, hybrid, and hydrogen-based vehicle industries).

Environmental advocates asserted that with the right policies, those job figures could swell. It is predicted that for the next three decades, green employment could provide up to 10% of all job growth.

In the future, we will have more and more leisure time as machines replace many of the tasks we do at home and at work.

WATER

When you talk to experts about developing new technology to provide clean drinking water for the developing world, they'll tell you that with four billion people making less than $2 a day, there is no viable business model, no economic model and no way to finance development costs. But the 25 poorest countries already spend 20% of their GDP on water.

This 20%, about 30 cents, is not much, but do the math again: 4 billion people spending 30 cents a day is a $1.2 billion market every day. It's a $400 billion a year opportunity. Filling that need will not easy, however profitable it is.

Thus, addressing this will require every tool in the toolbox. Our agricultural practices must be totally revamped, our industrial practices as well. We will need water wise appliances, novel infrastructure solutions, and a lot of honesty about planetary population pushing nine billion.

What is the carrying capacity of the earth? At this point in time, nobody knows. But one thing is for sure; we are going to have to deploy a lot more intellectual horsepower to solve that conundrum and maintain the solution.

LEISURE JOBS

In the future, we will have more and more leisure time as machines replace many of the tasks we do at home and at work. Japan has introduced a housewife robot that does all house chores, from cleaning to cooking.

The implications for older people is clear, allowing them more independent living. However using machines will have side effects. People may tend to become lazy and face health problems like obesity, diabetes and heart problems. Nonetheless all this additional spare time will need to be filled. We will see massive growth in out-of-home entertainment, leisure and tourism sectors. o

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Martin Conboy is well recognised as one of the leading voices of the global outsourcing industry and its role in facilitating outsourcing success throughout the Asia-Pacific. He has also worked in a number of senior leadership roles including in the recruitment sector.

Digital natives and tech-savvy consumers are on the rise, and traditional methods of capturing their attention are insufficient.

BRACING FOR CHANGE

THE Fourth Industrial Revolution is here to stay and its impact has been felt by all industries. Technology has not only changed the way businesses operate, but has altered the behavioural patterns of consumers. Change is not necessarily a bad thing, and the success of an organisation lies in how quick they embrace the change, and how they incorporate it across their value chain.

Prof Datuk Dr Marimuthu Nadason, President of the Federation of Malaysian Consumers Associations (FOMCA), shares his thoughts on the benefits of the Fourth Industrial Revolution, how technology is changing consumer behaviours as well as the importance of data and its corresponding regulations in today's world.

Virtual shopping is the future...Online shopping is picking up, with many brick and mortar superstores closing down and going digital.

Connection is key...Big data allows companies to look into new areas of growth, make informed decisions on their marketing strategies as well as international branding.

AGE OF BREAKTHROUGHS

Under the banner of emerging technologies – Analytics, Artificial Intelligence and Internet Of Things have been successfully incorporated into various sectors, to improve efficiency and productivity across the board.

"What were once futuristic ideas have already materialised into the present reality. Take for example artificial intelligence in the medical field, where a medical diagnosis can be produced faster than a radiologist and with pinpoint accuracy," said Prof Marimuthu.

He went on to highlight that autonomous vehicles are currently being developed with the hopes of a safe and reliable driverless car not far in the horizon. Not only would this reduce road accidents and incidents of drunk driving, it would improve road safety and security. Many concerns have been raised concerning the safety aspect of autonomous vehicles with recent incidents skewing public opinion on the matter, but nevertheless, there's still vast potential in this sector.

When we talk about the construction industry, we aren't just talking about smart homes with sensors. According to Prof Marimuthu, houses can now be build entirely using a 3D printer, with speed and accuracy that far surpasses the human capacity. This would also reduce excess waste – heading towards a more sustainable form of construction. Whilst this works in the favour of the industry and Mother Earth, people also need to think about how this will affect labour, and what technical skills are required to meet demands.

Blockchain, on the other hand, could potentially revolutionise the banking and finance industry, offering the utmost transparency to all parties. Virtual transactions and business deals do away with tedious paper procedures and smoothens the entire process.

"I could easily draft out a virtual agreement with a third party, insert the conditions and allow my partners and stakeholders access to the agreement. Once the conditions of the agreement have been met, I would then make the payment, verifiable by the third party. The entire trail is documented virtually and in real time so that all parties are aware of any new change at any given time," explained Prof Marimuthu.

"Companies need to realise that if they fail to deliver seamless customer experience, there are multiple other platforms that the customer can readily jump ship to."

Prof Datuk Dr Marimuthu Nadason, President of the Federation of Malaysian Consumer Associations (FOMCA).

Keeping customers protected...several laws and regulations have been put in place to shield customers from being taken advantage of by companies.

A NEW MARKET

It's no secret that digital natives and tech-savvy consumers are on the rise, and traditional methods of capturing their attention are insufficient. According to the FOMCA President, customers are now more educated and make informed decisions when it comes to choosing products or services.

"Think of it this way – if you walk into a shop, nearly every product on the shelves would have been, in some way or other, reviewed online. Depending on your biases towards a brand or certain review sites, you would then make your choice. There are even sites which compare products of similar category, allowing you to get your money's worth.

"Online shopping is also picking up, with many brick and mortar superstores closing down and going digital. However, based on our NCCC Annual Report, the most number of complaints received were concerning online shopping. Companies need to realise that if they fail to deliver seamless customer experience, there are multiple other platforms that the customer can readily jump ship to," said Prof Marimuthu.

Here is where data analytics steps in, as they are able to leverage on data collected from customers into predicting their behaviour. With this information, brands would be able to devise key strategies in attracting and retaining customers. Simply by analysing their purchasing history and preferences, brands would be able to ensure a solid engagement with the customer, increasing their loyalty for the brand.

Consumers may also rejoice with the breakthroughs in the product packaging and process systems which ultimately have increased transparency and efficiency. Companies are now coming up with new innovations to ensure reduced product damage rates. Logistics would also see a reduction in costs as robotics and AI are able to customise packaging sizes and weight. Less materials are wasted which also improves packaging sustainability as well.

SHIELDING CONSUMERS

As President of FOMCA, Professor Marimuthu is well-versed in the laws and regulations that consumers can turn to to protect their rights. One such law is the Consumer Protection Act 1999 which provides protection for consumers through the establishment of the National Consumer Advisory Council and the Tribunal for Consumer Claims.

"Through this act, consumers are essentially safeguarded from any product, service or process that endangers their life in any way. The supplier would also be required to provide adequate information on products or services so as to not mislead the public and affect their purchasing decision. Consumers are also granted the freedom to purchase any products and the right to know if they are priced appropriately and distributed through reliable channels."

According to the professor, in the case that a product or service in which you have purchased is unsatisfactory or incurs damages, you have the right to claim compensation from the company.

The rise of online platforms have also led to the establishment of the Consumer Protection (Electronic Trade Transactions) Regulations 2012. The electronic trade transaction regulations 2012 applies to any person who operates a business through website / the online market place for the purpose of supplying goods or services, whereby the online marketplace operators have a duty to make known their details, any and all terms and conditions applied to the sales, full prices of said goods and services, payment methods, product description, and estimated delivery time.

RISE OF BIG DATA

It's no secret that with the dawn of technological advancements, data has rose to become a precious commodity. Big data is now analysed and utilised by many companies globally, allowing them to look into new areas of growth, make informed decisions on their marketing strategies as well as international branding.

According to Prof Marimuthu, data collected from customers is currently stored in cloud and source code hosting providers, which would then be used to track their contact details, addresses and purchasing preferences. Consumers are the primary target group as many online shopping sites requires one to 'sign up' whereas physical stores offer loyalty cards which typically entails you signing up a physical document.

However, people should also be cautious when giving out personal data as cyber breaches are a very real threat in this day and age.

"Take for example the recent case in Malaysia where 46.2 million mobile numbers were leaked online in October 2017, which breached the Personal Data Protection Act 2010.

"Now this is by far nothing new as it has occured in the US and many other countries where technology is utilised to process data. The key takeaway is that data should not be taken lightly. There are numerous ways in which people with ill intent can make use of this data, especially when it comes to scams."

Because of technology and digitalisation, companies need to work towards preventing data breaches by strengthening their authorisation procedures. There needs to be an increase in transparency across all value chains – if a company is transparent in anything they do, that's value added. Transparency is the keyword worldwide; it's important for the financial market, the government, and investment purposes.

THE ROLE OF GOVERNMENTS

The topic of automation potentially leading to increase joblessness is an ongoing debate with no clear victor. On one hand, if repetitive jobs can be automated, staff members can take on higher value work. On the other hand, can organisations successfully incorporate these technologies, and restructure their organisation so that employees can be moved into new areas?

Prof Marimuthu also strongly believes that marketing and sales will not be automated as the human element is predominantly there. However, he also understands that AI is constantly improving and there's no telling what new attributes it would have.

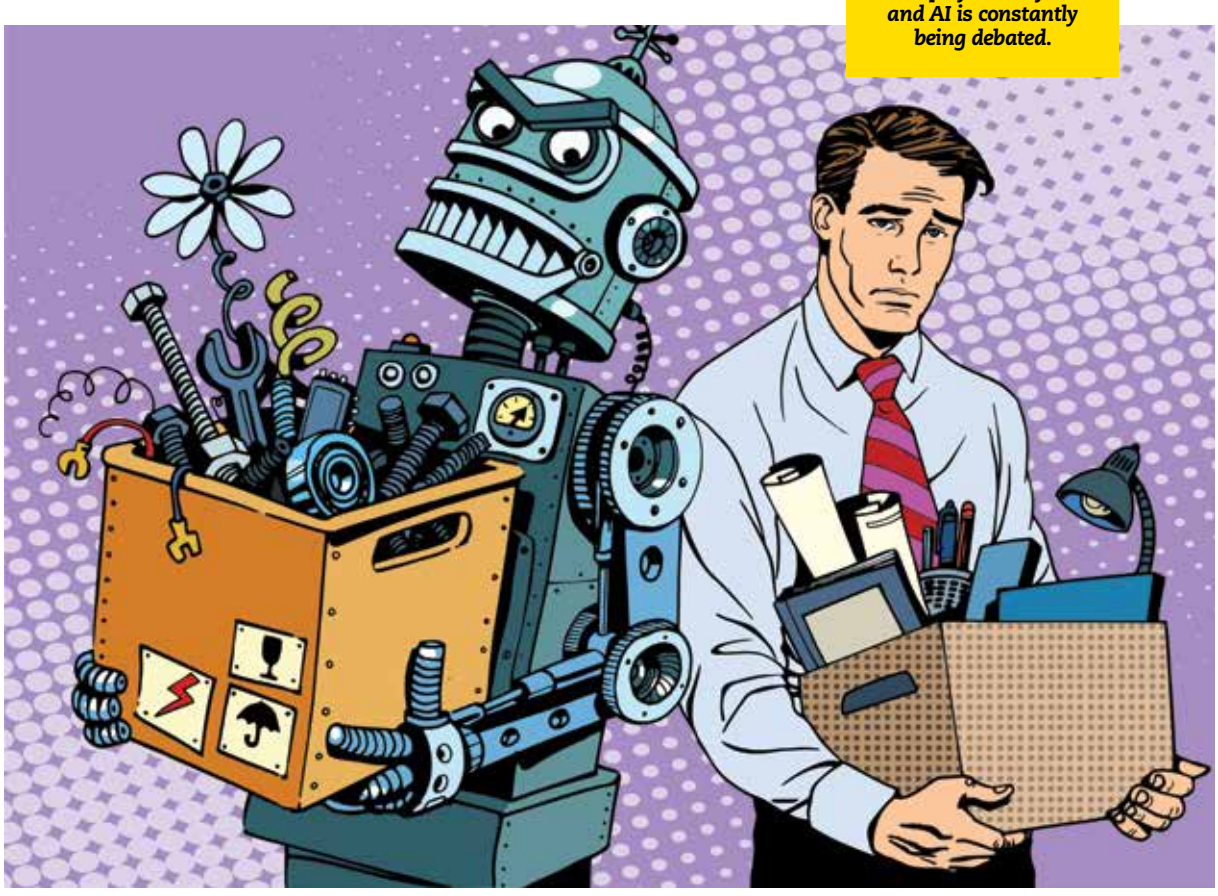
"Automation is everywhere. Sure, there will be new jobs arising from it, but this is mostly in the IT and digital sectors. You must also consider those at the lower end of the value chain. If these jobs are automated, what are these people going to do?" he remarked.

This brings us to another major roleplayer in the Fourth Industrial Revolution – governments. Protecting the job market, regulation companies, harnessing emerging technologies to increase productivity and efficiency, and mitigating effects of these new technologies all fall under the government's jurisdiction.

"I'll be very honest with you. The government needs to put a restriction. They have a responsibility to limit the number of graduates in the field to decrease joblessness due to oversupply. At the end of the day, it's up to the government and how they approach these challenges. With all the technological changes, there's bound to be an impact – each, with their respective pros and cons. For businesses, it could mean huge savings, but for people in general, they will risk unemployment."

"These are just some of the many benefits and challenges I feel that have arose as a result of the Industrial Revolution 4.0 but I honestly believe that we have only just scratched the tip of the iceberg. There's just so much potential in this sector if done right. We must be able to establish the groundwork for this Industrial Revolution, else we can't hope to be prepared for the next one." o

The threat of rising unemployment by RPA and AI is constantly being debated.



NAVIGATING A SMART ECOSYSTEM IN AN AGE OF DIGITAL DISRUPTION

The race is on... IR4.0 will bring about a technology revolution of great magnitude and one that is happening at a much faster pace.

THE Fourth Industrial Revolution is fundamentally different from the previous three, which were characterised mainly by advances in technology. The key outputs of IR 4.0 is the ability of technology to think and make smart decisions in real-time. All this is facilitated by the invisible advances in communication and connectivity. IR 4.0 will connect people and objects to each other, drastically improving the efficiency of businesses and individuals, resulting in a smart ecosystem.

IR 4.0 will change how we live, work, and communicate; it will also change the things we value and the way we value them in the future. This is certainly a REVOLUTION as it will be extremely disruptive and will impact us in various ways. Already we see changing business models and employment trends. According to The World Economic Forum, an estimated 65% of primary education students will end up working in jobs that haven't even been created yet.

COMPONENTS OF A SMART ECOSYSTEM

Autonomous Automation, Machine Learning, and Artificial Intelligence are the key enablers of IR 4.0. It leverages both the physical and digital world to increase capability and efficiency. Furthermore, it leverages the internet as a key medium for sharing and collecting information, as well as driving distributed, intelligent decisions back to physical processes.

IR 3.0 focused on automation and simplification of processes thanks to digital technology. However, the overall control of the process was still heavily centralised and human-driven.

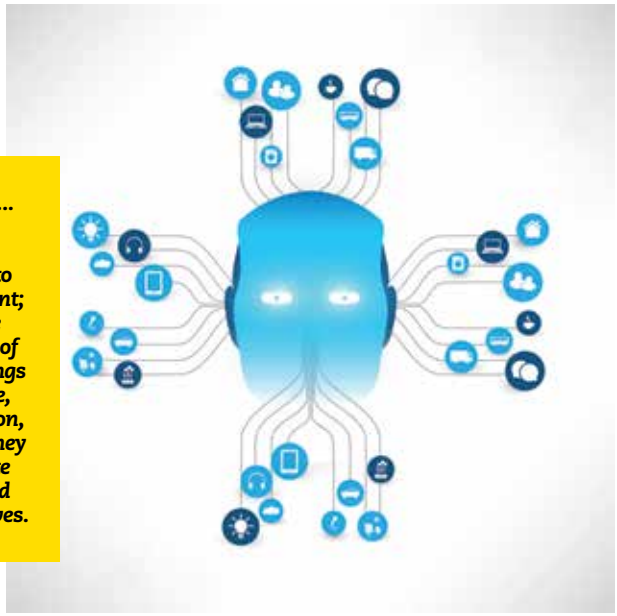
IR 4.0 instead, focuses on equipment/technologies that can interact together and make real-time, expert and aware, decisions. Those equipment/technologies integrated and working together have given life to a distributed and technology-driven SMART ECOSYSTEM. All components of this ecosystem will be able to communicate and exchange relevant information with each other and with humans, without the need for a centralised or human intervention.

Since all components of the ecosystem are designed to be integrated, this will force a shift from the 'one size fits all' mentality to extremely personalised scenarios, in which customers will have greater control over the final

product. Undoubtedly, our devices and sensors have become an extension of ourselves. Social media such as Facebook, our smartphones and even smartwatches are extensions of who we are as an individual and what we do. Everything gets integrated, customised and smart-automated.

An ecosystem of computing will surround us, becoming so natural it will disappear into the background. Less intrusive, it will fit into more parts of our world and solve more problems. User interfaces will become integrated and we will control them with voice, gaze, and gesture. We will see the results, not the effort.

"We stand on the brink of a technological revolution that will fundamentally alter the way we live, work, and relate to one another. In its scale, scope, and complexity, the transformation will be unlike anything humankind has experienced before." Klaus Schwab, President of the World Economic Forum, The Fourth Industrial Revolution.



All connected... Everything will become integrated into the environment; there will be natural ways of controlling things through voice, gesture, emotion, touches, and they will anticipate our needs and enhance our lives.

A NEW PLAYING FIELD

Our current model and the new model are not fluently integrating with each other, and yes, there will be casualties along the way – those who are being disrupted by the dynamics of the new world and those who lack the ability to adapt and adjust. IR 4.0 is disrupting nations and the notion of being national is getting a different meaning. Of course, ethical questions, similar to the debates around the use of atomic energy and genetic research, will need to be answered as this connected super-intelligent world evolves, and new playing rules will need to reflect those questions.

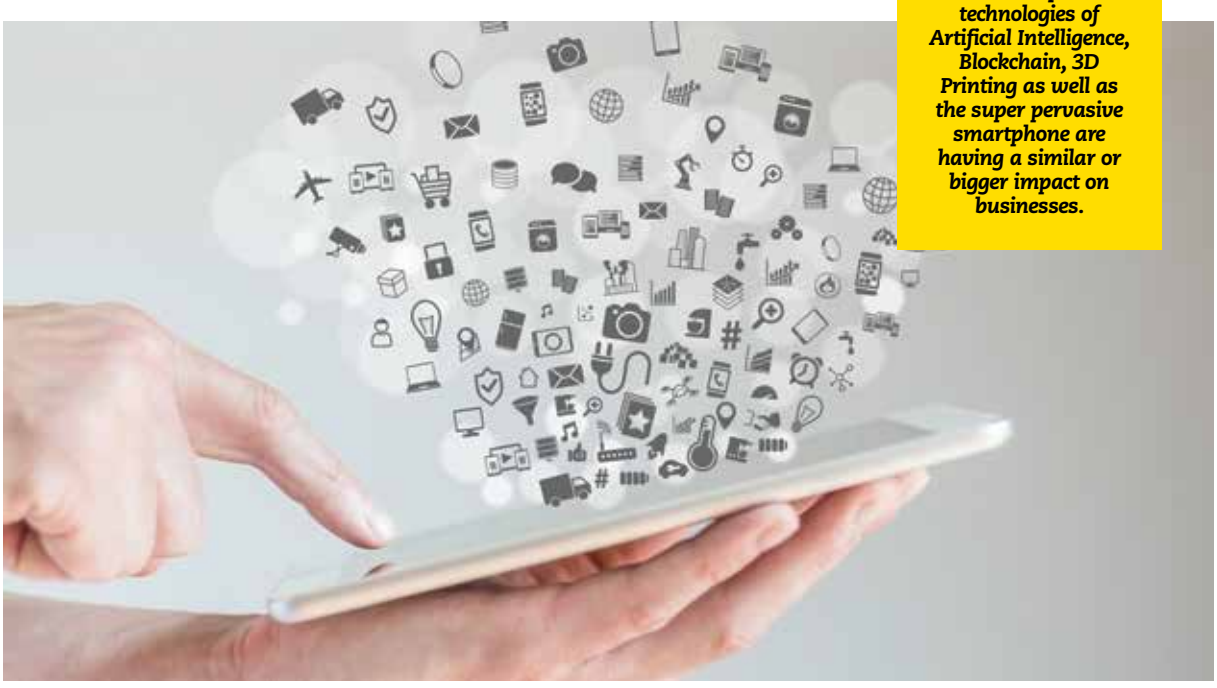
"The best technologies are the ones that you stop noticing" – Chris Thorn, British Heart Foundation. Everything will become integrated into the environment; there will be natural ways of controlling things through voice, gesture, emotion, touches, and they will anticipate our needs and enhance our lives.

The tipping point...IR 4.0 will bring about a technology revolution of great magnitude and one that is happening at a much faster pace. It is incumbent on us to understand and leverage it's monumental impact and widespread benefits, while confronting it's serious challenges.

Phil Captain is an Executive Business Coach to C-level executives, Business Owners, Start-ups & Professional Service Providers in USA, South America and Asia Pacific.

In this together... Components of a smart ecosystem will be able to communicate and exchange relevant information with each other and with humans, without the need for a centralised or human intervention.

FOURTH INDUSTRIAL REVOLUTION: IS IT JUST ABOUT DISRUPTIVE TECHNOLOGIES AND BUSINESS MODEL INNOVATION?



In today's world, the disruptive technologies of Artificial Intelligence, Blockchain, 3D Printing as well as the super pervasive smartphone are having a similar or bigger impact on businesses.

THE world is abuzz with how the 4th Industrial Revolution is upon us and the profound impact it has on our lives. We see the many signs of change, disruption and innovation in our daily lives.

The underlying factors behind every industrial revolution are twofold-disruptive technologies and business model innovations. The disruptive technology called steam engine had the most profound impact in the First Industrial Revolution. It is good to try and visualise how the power of the steam engine reduced the distances between cities and made transportation of goods so much easier. This changed business models for companies and countries.

In today's world, the disruptive technologies of Artificial Intelligence, Blockchain, 3D Printing as well as the super pervasive smartphone are having a similar or bigger impact on businesses. This is enabling the development of new business models around Platforms, Sharing Economy, and Pay-As-You-Go to name a few.

So while the terminologies have changed, it can be argued that nothing much really has changed. It's just about how companies stay on top of these disruptive technologies and use them in new ways to deliver value to customers.

IT'S ALL ABOUT THE STRATEGY

There is one other fundamental difference between the 4th Industrial Revolution and the previous ones, and that is to do with the financial strategy. Each of the digital success stories that we hear about from Amazon, UBER, Grab, Airbnb and others have all

Ace up their sleeves... Each of the digital success stories that we hear about from Amazon, UBER, Grab, Airbnb and others have all been backed by a financial strategy to make this new future happen.

"So while the terminologies have changed, it can be argued that nothing much really has changed. It's just about how companies stay on top of these disruptive technologies and use them in new ways to deliver value to customers."

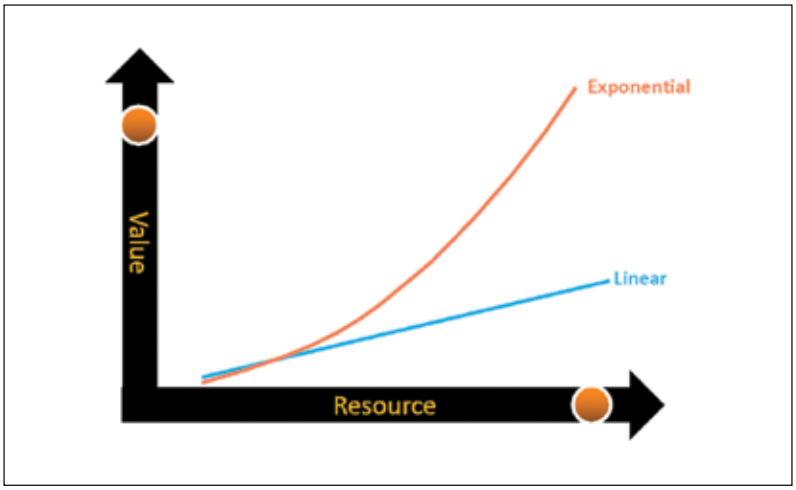
been backed by a financial strategy to make this new future happen. They were backed by strong private equity money who believe in this new future and were willing to invest billions of dollars in changing consumer habits to grow these blue ocean spaces.

UBER and Grab would not have achieved so much success had they not offered incredible price bargains for customers to realise the benefit of their new business models. While all these companies lose money in the early years, they also stand to make extraordinary profits once their scale increases tenfold. The platform play, global scale and leverage of disruptive technologies enables them to see a non-linear return on investments as the business grows in size. Having a solid financial strategy is thus an important prerequisite for success in this new era.

ASKING THE RIGHT QUESTIONS

As you look at embracing the 4th Industrial Revolution, we should all be asking four questions:

- What is our digital strategy? How can we leverage the power of the disruptive technologies to develop a new future, to address some of the biggest challenges that our customers are facing?
- How are we innovating our business model? How are we developing new value propositions such as Pay-As-You-Go, developing a platform strategy and a personalisation strategy for customers?
- Is the new strategy yielding a non-linear impact on the business? Are we likely to see an exponential return for the investment in resources over a period of time? If the answer to this question is NO, it means the strategy is still one of the previous era.



- What is the financial strategy and are we ready to back up a digital strategy with a financial one? Are we creating the right incentives for our clients, our teams and our partners to change their habits to partner with us in making this new future happen?

The fourth question is the one that most existing companies have failed to address in their digital transformation play. They expect the same good returns on the new digital business that they see in their current business in the near team. You have to necessarily emulate the financial strategy of the 4th Revolution companies, else we all will face what is call "Death by a thousand cuts". More companies are dying from a slow and painful death than by the Kodak Moment.

Manoj Menon was until recently MD and Senior Partner at Frost & Sullivan and a Board member of the Malaysian Industrial Development Authority.

ROBOTICS – THE WORKFORCE OF THE FUTURE

The future is here...Many major organisations worldwide are already starting to embrace the virtual workforce.

ORGANISATIONS no longer spend years on vast integrations that are obsolete by the time they are deployed. Instead, plug-in robotics solutions have acted as middleware to fill in the gaps. RPA is quickly evolving towards becoming a hot new topic in the digital world.

Through RPA, virtual workers log onto a system, navigate menus, reconcile, decide something is right, log into systems and post the right trade. Add Optical Character Recognition (OCR) software to handle those 4,000,000 faxes received annually and none of the 50 former paper shufflers will get a paper cut again.

Freed from routine and mundane tasks, employees can focus on skills that a robot cannot replicate, but are vital for good business. Robots can enable people to work better, smarter and more creatively, expanding the art of the possible.

Many major organisations worldwide are already starting to embrace the virtual workforce. The global RPA market size is expected to reach US$ 8.75 billion by 2024, representing a Compound Annual Growth Rate (CAGR) of 60% from 2015 to 2024[1].

The individual elements of RPA software are not new. However, it's the combination of all the features into a single, mature package that works with existing systems which, in many cases, creates a compelling alternative to core-platform integration or replacement. And not only can RPA reduce manual operations costs by 25% to 40% or more, it does this while improving service level and compliance, and typically provides a Return on Investment (ROI) in less than a year[2].

MANY LARGE ORGANISATIONS IN MALAYSIA ARE EXPERIENCING AN INCREASED EMPHASIS ON AUTOMATION IN THEIR DIGITAL TRANSFORMATION JOURNEY. ROBOTIC PROCESS AUTOMATION (RPA) IS CRITICAL IN DELIVERING AUTOMATION THAT ENABLES WORK TO BE PERFORMED EFFICIENTLY AND WITH MINIMAL ERROR.

DIGITAL AND ROBOTICS ARE A POWERFUL COMBINATION

The benefits from automation can be considerable. But much more is possible when robotics and digital are brought together. RPA needs to work with the content that is available within a system. So, for example, it can only automate a claims process once the initial data has been input in one way or another by one or more agents.

That might involve a number of manual inputs of information from supporting documentation. But if those preliminary stages are delivered via digital channels that maximise the extent of customer self-service, robots can get to work faster and across an entire end-to-end process. In other words, digital and RPA can deliver an overall solution that is far greater than the sum of its parts. The ROI that the combination can deliver will greatly outstrip that available from robotics alone – in fact, by as much as two-and-a-half times. As robotics take on a greater degree of responsibility for an end-to-end process and minimise or even eliminate altogether the amount of human intervention required, the potential ROI rises sharply[2].

ROBOTICS AND ARTIFICIAL INTELLIGENCE (AI)

In addition to "standard robotics," there is also an increasing interest in "intelligent robotics" – the use of machine learning and artificial

[1] Analyzing Business Trends in Robotics Process Automation and Artificial Intelligence, EY, 2017

intelligence approaches to allow automated processes to self-adjust and improve, and to tackle subjective decisions as well as to follow simple rules. This extension offers both improved, data-driven decision-making at speed, and increases the scope of manual work that can be automated[3].

As RPA undertakes the systematic and behind-the-scenes jobs, AI will complement the software to add thought, judgement and intelligence to the corporation. In many cases, the AI platform is the "brain", with RPA providing the "body" of the robot, able to collect the information required and take the resulting action. AI is set to become increasingly prevalent and key to the way in which organisations operate.

Similar to RPA, AI has experienced an impressive growth. The global revenue for AI and cognitive systems is estimated to increase to more than US$ 47 billion by 2020, with a CAGR of 55% (from 2015 to 2020)[1].

Some possible applications of how RPA and AI can complement the HR function: first level screenings and interviews can be conducted using a chatbot, either online using 'free-text' or via a video software such as Skype. The use of video analytics can gauge and analyse personality traits, and an interactive dashboard compares candidates' traits and performances. Following this, the AI system can arrange and schedule meetings with the selected candidates and HR through an automated email conversation. At this point, HR can take over.

The RPA and AI combination extends beyond just the support functions of an organisation. For the insurance industry, deploying automation is critical to improve operational efficiency across many areas such as claims, customer service and assessing risks. Automation has the potential to provide predictive consulting, which delivers better customer service, especially in case of emergencies such as during natural disasters, where many people need to be managed at the same time. RPA and AI can prove to be advantageous in such scenarios, as the work requirements of multiple people can be managed concurrently and in an efficient manner.

EVEN ROBOTS HAVE THEIR OWN CHALLENGES – UNDERSTANDING BUSINESS PROCESSES IS KEY

Although RPA can transform the economics and service levels of current manual operations, in a study of the implementation of RPA projects across 20 countries, as many as 30%-50% of initial RPA projects fail[4]. Implementation of RPA is not without its challenges. There are some common mistakes that will often prevent an organisation from delivering on the promise of RPA.

One of the key aspects of the RPA tool is that the robot will perform tasks based on pre-defined processes which are programmed by the RPA developer. Any variations in existing manual processes will have to be taken into consideration during the gathering and development phase, prior to the final implementation of the RPA. Planning ahead and having a strong understanding of processes from the business perspective is critical in ensuring a successful implementation.

Another key challenge that some organisations may face is selecting the appropriate business processes to be automated. Some processes may require prerequisites, for example, the automation of the loan administrative process will first require the customers' details to be readily available in a digital format. In such cases, the organisation may opt to first automate processes further down the chain (e.g. the reporting processes), while having a RPA roadmap to eventually bring in the customers' data digitally for automation. Having business analysts with strong process expertise to lead this area will significantly help to manage this challenge.

While these may pose some challenges to the implementation, the benefits that the organisation will reap significantly outweighs the implementation efforts. Through RPA, some successes have been achieved. Just take an example of a large organisation in Malaysia – the bank reconciliation process has been reduced from 30 minutes to approximately five minutes, a six times reduction in time taken. Moreover, the robot will be able to work round the clock and complete the work error-free.

SO WHAT'S NEXT?

Though there are some challenges, it is clear that RPA stands to be a huge benefit to the future of the workforce. And by combining RPA with other components such as digital and AI, organisations will be able to fully realise the benefits of automation.

Since there is a surge in adopting virtual workforces, companies should start to review internal capabilities and readiness for automation, both in terms of IT infrastructure, as well as organisational readiness.

Lastly, a business-led approach tightly coupled with strong project management expertise is key in ensuring that the RPA implementation delivers the desired outcome. With this in mind, RPA can quickly drive business performance and help move the workforce higher up the value chain.

Automation and robotics free us from mundane tasks.

Ling Kay Yeow is a Partner in Ernst & Young Advisory Services Sdn Bhd. The views in this article are those of the author and do not necessarily reflect the views of the global EY organisation or its member firms.

[2] Robotics and Its Role in the Future of Work, EY, 2017

[3] As We say Robot, Will our Children say Colleague?, Guy Heiser, Sunil Mehta, 2016

The European Union is seen as a potential digital hub due to its large market size.

EU'S ROLE AS A PROPONENT FOR TECH INNOVATION

IF one recalls a time when one would watch certain movies and observe the depiction of a world so modernised and advanced, one would certainly raise the personal question as to whether such feats would even be possible to realise. In this current day and age, what was initially seen as visualisation is now the centrepiece for technology, as nations are building up to the concept of digitalisation and racing to be at the forefront of the 4th Industrial Revolution (IR 4.0).

The utilisation of Artificial Intelligence, robotics and machine learning in various sectors have proved to be essential in maximising productivity and have assisted organisations in acquiring these technologies to realise their economic potential at astounding rates.

Such is the case for the European Union, which is seen as a potential digital hub due to its large market size, which may increase baseline projections of GDP up to 10%. This means that digitalisation will be earning the bloc an additional €2.5 trillion of GDP in 2025, according to McKinsey estimates.

Maserati, world renowned sports and luxury car manufacturers from Italy, in 2015 took to venturing into the usage of IR 4.0 advanced solutions in the production of their vehicles. This not only saved 30% of their production time and tripled their production capacity, but also expanded their design variety, as seen with the Ghibli model which comes in 70,000 combinations.

It is within the successful adoption of these evolving technologies that we will see significantly enhanced performances and gains of competitive advantage. Apart from the commonly acknowledged notions of labour substitution that stems from the utilisation of AI, one can also see that it will have the potential to enhance productivity; raise throughput; improve predictions, outcomes, accuracy, and optimisation; and enable the discovery of novel solutions and possibilities. These potential opportunities when realised on a larger scale, can definitely translate into empowering growth of productivity for entire economies nationwide and on a macro-regional scale.

It must be taken into consideration that the near future will observe a rising aging population, decline of birth rates, and dwindling interest towards marital commitment. All of which will act as factors that will lead to slow, if not reducing rate of growth for the European labour supply. Inevitably, productivity growth will need to increase to sustain economic growth, especially in Europe.

It is important to look at what measures can be considered essential for Europe to take in the wake of the emerging but surely-to-be vibrant digitalisation market. For the most part, the measures can be observed through aspects such as the embracing and advocating for digitalising industrial development, driving investment towards the direction of technology and digital advancements, as well as consideration towards the question of human capital.

EU'S COURSE OF ACTION

It is imperative that we see Europe assert the role of trendsetter and tastemaker in spearheading the world into the techno era. This can be evident when we start to see European governments set ambitious digitalisation targets for their own public sectors, leading by example while raising efficiency, and improving citizen interaction and delivery of citizen services – as Estonia has done.

It is also instrumental that the EU accelerates efforts to complete a 'digital single market', as common legal and regulatory frameworks can enable digital companies to scale within and beyond individual countries, and realise the potential of the single market. In a socially-concentrated context, European governments could strongly support the enabling, creation, and growth of large-scale digital platforms and digital innovators. Apart from acknowledging that digital platforms have proved instrumental in boosting cross-border commerce as well as helping small and mid-level organisations gain global outreach, they also have assisted in the facilitation of job matching.

The EU should also look through the angle of the investor in a sense, to understand what investors are looking for within the digitalisation of industrialisation. Within this effort, European governments can strongly advocate for increased investments in digital infrastructure and digital skills and to deepen and expand its digital ecosystem. AI technologies can also be a targeted market for EU investors. This is considering the landscape of the continent itself which has many AI and next gen startups, with vibrant ecosystems in the making in cities including Amsterdam, Barcelona, and Stockholm. The companies around these territories can look at an investors' sentiment premised around of incentives and access to capital.

Another premise the EU can look at is the development of human capital towards the direction of digitalisation. Strategic moves revolving around this sentiment include moves to spur entrepreneurship, business dynamism, and job creation. The argument for this is that new products, new activities, and new business models will be especially important in Europe, as the continent's relatively high wage levels will likely speed up automation adoption. There also needs to be a strong and effective educational base as this will allow both faster digitisation and preparation of workers for the transition. Nations realise this when they start to improve science, technology, engineering, and math (STEM) skills and put a new emphasis on creativity as well as critical and systems thinking.

Greater mobility and better matching of talent with opportunity is needed across Europe to increase fluidity. This is where digitalisation comes into play, in a sense that digital platforms can support that and open up myriad opportunities for individuals to earn income outside of traditional employment contracts. A rethinking of worker support could serve instrumental for the outflow of ideas such as conditional transfers, adapted social safety nets, different forms of taxation, or even universal basic income may need to be considered and tested, as Finland and the Netherlands are currently doing.

THE DIGITAL SINGLE MARKET INITIATIVE

The continuous integration of EU member states and the borderless nature of digitalisation states push for the embodiment of the Digital Single Market initiative adopted by the bloc in 2015. The initiative revolves around the pillars, namely: much more liberal access for organisations and consumers to the digitalisation of goods and services; the creation of platforms that enable fair competition for digital networks to actualise their economic potential; and the maximisation of overall growth potential of the digital market.

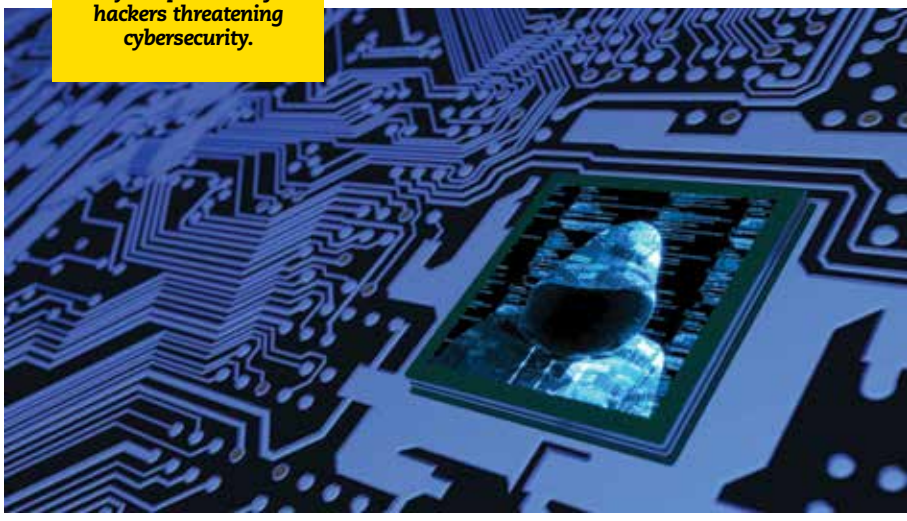
As far as efforts and strategising is concerned, there have been numerous proposals in the spirit of realising the Digital Single Market initiative through various forms of action.

One of those forms is the sentiment of investing in digital infrastructures. In September 2016, the EU Commission crafted the European Electronic Communications Code to modernise the current legislative framework for communication in 2009. Seeing as how it takes into consideration the emergence of AI technology and elements of digitalisation, it offers a more attractive regulatory environment that will foster investments in top-quality infrastructure and technologies across the EU. In the same year, a goal was set that by the end of 2017, whereby the European Commission will also update the European guidelines that help national telecoms regulators decide when to intervene in markets.

Then, there is guaranteeing the free flow of personal data which can be realised through a clear, comprehensive and predictable framework for data storage and data processing services. This will contribute to a more competitive and integrated EU market.

Another form of action vital within this push is strengthening the EU's Creative Sector. In September 2016, two proposals were fronted to the EU Commission which was reforming copyright rules which will guarantee fair remuneration for journalists, publishers and authors and reinforce their position to

Free flow of cross-border data is impeded by the presence of hackers threatening cybersecurity.



Having a strong education base particularly in the field of science, engineering, technology and math, will encourage faster digital adoption.

negotiate for their creative content, while boosting consumers' choice to content online and across borders.

Another was an update of European audiovisual media services rules will create a fairer environment for all, promote European films, protect children and better tackle hate speech online. Correlating to that, the same time last year there was a call for the enhancement of European Cyber Security through the formation of a European Cyber-Security Agency to assist Member States in dealing with cyber-attacks, as well as a new European certification scheme that will ensure that digital products and services are safe to use.

Boosting E-Commerce in the EU is one form of action that the EU Commission have taken rather dynamic steps in. Earlier in December 2015, it was called for that there should be a modernisation of EU contract rules that would encourage consumers to shop online, as well as businesses to expand without the fear of costing. The following year saw a proposal for regulations on geo-blocking that was proposed to ensure that consumers no longer face unjustified barriers such as being re-routed back to a country-specific website, or asked to pay with a debit or credit card from a certain country. It also saw a revising on parcel delivery for cross-border destinations.

The complication this move wanted to address was a situation where sending send a parcel from the Netherlands to Spain would cost currently €13, while to do the same thing in reverse would cost €32.74. Apart from that, in 2016, there was an assertive push that EU Member-states should soon agree on our Value Added Tax (VAT) for e-commerce proposals to allow consumers and companies to buy and sell goods and services easily online. Once agreed by all Member States, the new set-up for VAT rates on e-publications would allow Member States to align the rates on e-publications to those on printed publications ensuring a level-playing field for both products.

CHALLENGES IN EMBODYING THE FOURTH INDUSTRIAL REVOLUTION

Despite an assertive push by governments within the EU that behooves them to up their wits in coping with the technological times, the challenges that act as a stumbling block towards achieving this vision of a digitalised Europe must be recognised and strategically resolved to ensure smoothness in this transition.

For instance, many barriers still impede the free flow of cross-border data within the European economy; only 15% of EU consumers buy online from another EU country, whereas nearly 50% do so domestically, according to the EU Commission. This may stem from the fear of data theft and manipulation, as well as the fear of having individual cyber security compromised. Threats such as these, topped by the existence of the dark web, a coveted layer of the internet where users of this platform are anonymous and set themselves as untraceable make for rather petrifying possibilities.

It must be considered that a digital single market could double the ratio of cross-border to national digital trade of goods and services. Digital cross-border flows beyond e-commerce could also increase as companies take advantage of the single market scale. While this is seen as a favourable paradigm, it also translates into higher standards of competency that businesses would need to keep up with to ensure their market survival. It would be a burden on EU member countries to see establishments closing their doors due to the inability to align their own with the wave of digitalisation, which may appear as costly in its earlier stages of bloom.

While we've centred the EU as the base of discussion, we cannot downplay the prospects of competitors diving into IR 4.0 and the possibility of nations such as the U.S and China surpassing the regional bloc in terms of investment, policy craft, and digital infrastructure development. With Europe aiming to be the digital hub of the world, it would need to be maximising efforts and strategically immobilising the commitment of member states in stepping on the gas to win the rat race.

All in all, we see so much possibility in growth trajectory moving in a positive direction when countries take up the call to digitalise the construct of their life quality, economies and infrastructure. A nutshell contextualisation would say EU members would need to aim for inclusive growth to ensure that everyone profits from the digital dividend; digitalisation cannot remain restricted to a handful of regions or nation-states.

The EU's effective coordination of national policies allow for effective knowledge and best practice sharing, emphasise need for specialised support in integrating SMEs into IR 4.0 global value chains. More importantly, to strengthen industry-driven approaches (or bottom-up participation) instead of applying a top-down governance approach, giving a greater say to involved stakeholders.

Roberto Benetello has over 20 years of experience in international relations and business facilitation, general management, marketing and business development in various sectors. He currently serves as the CEO of EU-Malaysia Chamber of Commerce and Industry (EUMCCI).

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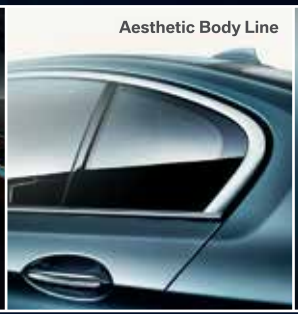
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