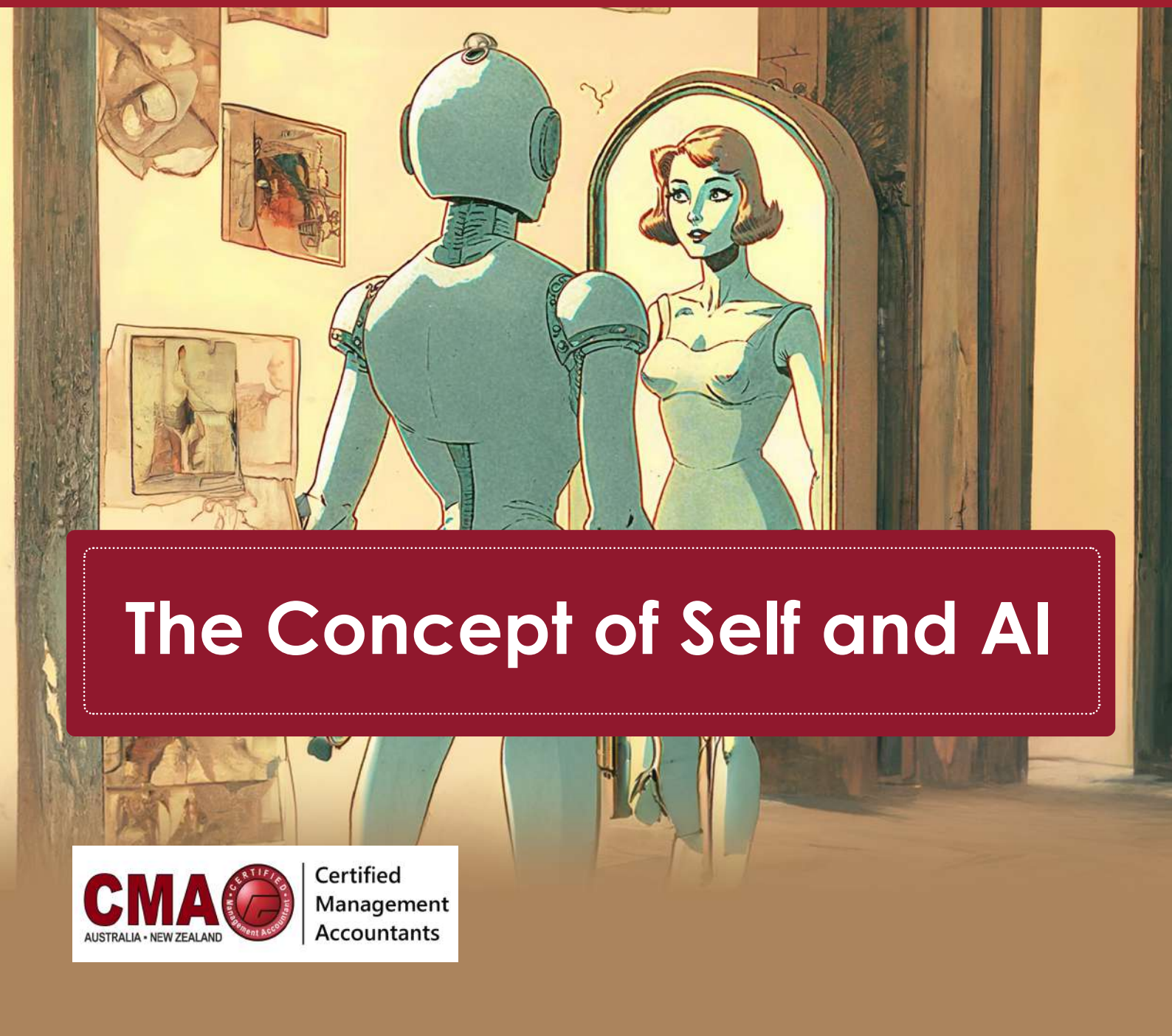
ON TARGET

e-Mag of the Institute of Certified Management Accountants
May-June | Vol 35, NO 3 2024

STRATEGY | FINANCE | MANAGEMENT

MANAGEMENT ACCOUNTING AND ARTIFICIAL INTELLIGENCE:

INSIGHTS FROM EASTERN AND WESTERN PHILOSOPHIES



The Concept of Self and AI

CMA AUSTRALIA • NEW ZEALAND
Certified Management Accountants

ICMA COUNCIL

Chairman
Prof Michael Tse
BA, MCom, PhD, FCMA

President
Prof Brendan O'Connell
PhD, CA, CPA, FCMA

Vice President
Mr David Cartney
MA (Hon), CA(Scot), CA(Aust), FCMA, FCPA, FAICD

Hon. Secretary
Mr Hans Ferdinand BBus(B&F), FCMA

Hon. Membership Commitee Chair
Ms Roshani Perera
MBus (Acc), CPA, FCMA

Hon. Educaton Commitee Chairman and CEO
Prof Janek Ratnatunga
MBA, PhD, FCA, CGBA, CMA

Hon.Treasurer and Deputy CEO
Dr. Chris D'Souza
BComm, PhD, FCA, FCMA, CPA

Editor (ANZ)
Keshan M Warakaulle
BEc, M.Econ, MCIM, MBA

Emeritus President
Dr Leon Duval
MBus (Acc), PhD, CA, FCMA

Immediate Past President
Prof Michael Tse
BA, MCom, PhD, FCMA

Web Master
Mr Jehan Ratnatunga
BEng, BCompSc

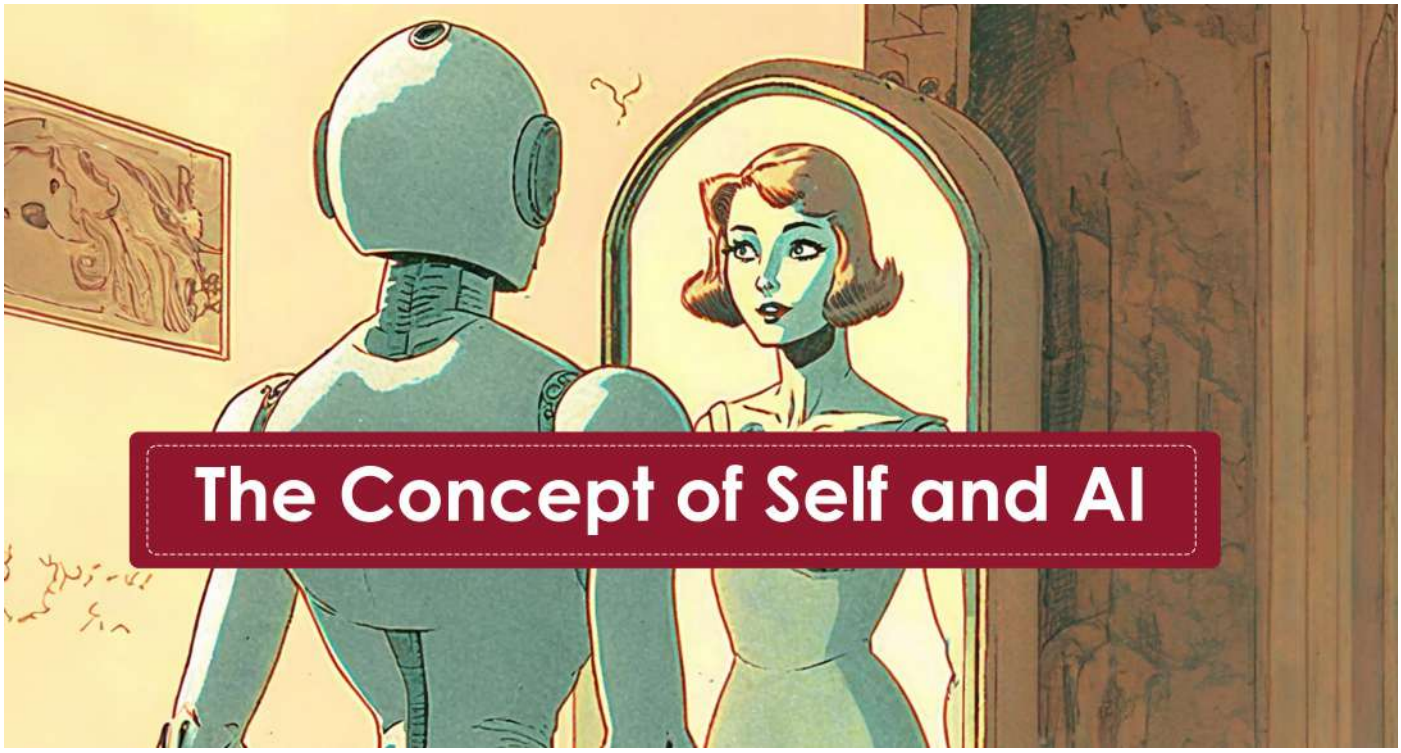
KEY HIGHLIGHTS OF ICMA(ANZ)

Headquarters	Australian and New Zealand body based in Melbourne, Australia and Auckland, New Zealand. Regional Offices in 20 countries.
Flagship Qualifcaton Obtained	The flagship qualification is certification as a **Certified Management Accountant.**The **CMA** post- nominal is widely recognized globally and offered by many leading management accounting bodies globally including bodies in USA and Canada.
Global Recogniton of Qualifcatons	Widely recognized across the world with members in 105 countries and a very large membership base across Australia, New Zealand, Asia, and the Middle East. Membership is exclusive, with all CMAs needing to have a degree, complete the CMA program and have 5-years of senior level experience.
NZ Government Recognition of Qualification	Certified Management Accountant (CMA) credential has now been assessed for equivalency on the New Zealand Government's Qualifications and Credentials Framework (NZQCF) at Level 9 (master's degree).
Membership Grades	**Certified Management Accountant (CMA)** - NZQCF level 9 (Masters) **Associate Management Accountant (AMA)** - Graduate Diploma **Graduate Management Accountant (GMA)** - NZQCF level 7 (Graduate) **Registered Business Accountant (RBA)** - NZQCF level 6 (Advanced Diploma) **Registered Cost Accountant (RCA)** - NZQCF level 5 (Diploma) **Certified Accounting Technician (CAT)** - NZQCF level 4 (Certificate)
Other Certifications	**Certified Global Business Analyst (CGBA)**
Member Benefits	Digital Certification of Credentials Continuing Professional Development (CPD) opportunities Conferences & Seminars Members Area on website with latest news, articles, blogs and videos. On Target eMagazine (monthly) Research Publications & Journals Regional & Global Networking Opportunities Credit in University Courses Comprehensive Library, etc.
CMA Program	The CMA intensive program from ICMA (Australia & NZ) is world-recognised as the benchmark for those in (or aspiring to) leading roles in strategic finance. The principal benefit participants value most is the training, knowledge and experience gained in completing the flagship 'CMA program' in multiple areas of strategic cost management and business analysis including environmental, social and governance (ESG) issues.
Entry Criteria	The entry qualification is a degree in accounting/finance or MBA or a professional accounting qualification like TFAC; and 5-years professional experience. [if students only have 3 years, they can start as an Associate Management Accountant].
Dual Certification	When participants complete CMA they will automatically get 2 certification CMA and CGBA - Certified Global Business Analyst.
Program Dynamics	CMA (Zoom as well as Face to Face) is more of an applied practical knowledgebased course (like an MBA plus numbers) with case studies, simulation games, role playing etc., and it is designed to help participants to immediately apply all the learning in their workplace. 5-years' experience is required to obtain Certified Membership (CMA).
International Trainers	CMA program is delivered by very senior international trainers with significant C-Suite practical experience.
Work-based Assessments	Keeping this applied learning focus in place CMA has now done away with exams and assessments are based on application of the knowledge to your own workplace.
Workplace Relevance	These assignments have helped participants immensely in their workplace and participants have regularly reported getting commendations and promotions in their roles because of their applied nature.
Assessment Language	Assignments can be submitted in English (or with permission in the local language of the country).

Contents

MANAGEMENT ACCOUNTING AND ARTIFICIAL INTELLIGENCE:
INSIGHTS FROM EASTERN AND WESTERN PHILOSOPHIES

Prof. Janek Ratnatunga, CEO, CMA ANZ



Control Systems and Human Behaviour

Predicting human behaviour is at the heart of most control systems in management accounting, be it budgetary or strategic. Most organisations have *Key Performance indicators (KPIs)* and rewards systems that depend on managers, technicians and administrators performing at their best abilities. A '*happy workforce*' is what most organisations strive for.

The sad reality however is that throughout their lives, humans will all encounter a great deal of mental suffering, unhappiness, and dissatisfaction. The majority of us worry about issues related to our 'self'— our relationships, our finances, and our jobs. It is our own 'self' issues that keep us up at night, not the problems of strangers. Therefore, how would things turn out if we eliminated the 'self' from these mental issues, and how would this impact our performance at work?

In this article, we consider the concept of 'self' in natural intelligence (e.g. humans) as understood by Western and Eastern philosophies and ask a wider question as to if *artificial intelligence (AI)* can itself generate an illusion of 'self'. *Can AI become 'conscious'?*

If indeed future iterations of AI have the potential to develop a sense of 'self' — and as these platforms replace humans in the workforce, how would it affect organisational control systems? These are important questions that management accountants of the near future would need to grapple with.

Concepts of Intelligence

Natural Intelligence: In Western philosophy, *natural intelligence* is usually understood to reside in a 'self'—a *stable, controlling entity* like a captain steering a ship. However, Eastern philosophies like Buddhism contend that the 'self' is an *illusion*, the result of our mental processes, which are continually gathering data through our sensors and then constructing narratives to make sense of the world. This constant internal monologue of narratives is commonly associated with a false sense of 'self' and is a major cause of mental distress in humans, say Eastern philosophies (Sperry, et.al, 1969).

Artificial Intelligence (AI): *Generative artificial intelligence (GenAI)* systems also have the ability to recognise and predict patterns in a variety of signals or data types. "Generative" refers to the ability to build fresh, believable versions of certain types of data for oneself after gaining sufficient knowledge about the deep regularities present in those datasets. However, GenAI's interpretations of reality have had both spectacular successes and occasionally disastrous failures, much like the results obtained with natural intelligence.

A wider question is if artificial intelligence can itself generate a concept of 'self'; i.e. is it 'Conscious', and what does this mean for organisational control systems?

The Concept of Self and AI

While it is tempting to assume that GenAI systems like *ChatGPT* might be conscious, this would severely underestimate the complexity of the neural mechanisms that generate consciousness in our brains. Whilst researchers do not have a consensus on how consciousness rises in human brains, what is known is that the mechanisms are likely way more complex than the mechanisms underlying current language models.

For instance, real neurons are not akin to neurons in artificial neural networks. Biological neurons are real physical entities, which can grow and change shape, whereas neurons in large language models are just pieces of code.

When we humans are interacting with ChatGPT, we consciously perceive the text the GenAI language model generates. *For example, you are currently consciously perceiving the text of this article as you read it.*

The question is whether the language model also perceives our text when we prompt it. Or is it just a zombie, responding based on clever pattern-matching algorithms? Based on the text it generates, it is easy to be swayed that the system might be conscious.

However, we still have a long way to go to understand human consciousness—is it from a perspective of Western or Eastern philosophies, or from the findings of neural science—and, hence, there is a long way to go to understand the consciousness (if any) of machines.

Western Perspective of Consciousness: One is a Captain of One's Own Ship

The core of Western thinking is the *'brain-powered individual'*, also referred to as the *'self'*, the ego, the mind, or "me". The best intellectuals are celebrated as world-changers in the Western worldview. The classic quote from philosopher *René Descartes, "Cogito, ergo sum", or "I think, therefore I am"*, is the most succinct illustration of this. But who is this 'I' that Descartes refers to?

For most of us, when we consider who we are, this 'I' is the first thing that comes to our mind. The concept of our *unique selves*, which reside behind our eyes and between our ears and is responsible for "controlling" our bodies, is symbolised by the 'I'. This "captain" is seen as the agent that drives our thoughts and emotions since it is in control and does not alter all that much. The *"Captain of one's own ship means"* means that this 'I' is the master of its own destiny, determines its own route, and the ship will go wherever it steers. Similar to an aeroplane pilot, it is able to observe, decide, and act.

This individual self, also known as the I/ego, is what we consider to be our genuine selves—it is the one who experiences and governs things like emotions, ideas, and behaviours. The self-captain thinks it is in charge of the operation. It is constant and steady. It also governs our physical selves; for instance, it self-recognises that this is "my body." However, in contrast to our physical body, it does not believe that it is evolving, coming to an end (well, maybe for atheists after physical death), or being impacted by anything else.

Eastern Perspective of Consciousness: The Identity is Illusory.

Let us now look at eastern philosophies. There are significant differences in the ways that Buddhism, Taoism, the Hindu Advaita Vedanta school, and other Eastern philosophical traditions view the self, the ego, or "me". Compared to the western view of a 'controlling entity', they claim that although it is extremely compelling, this concept of "me" is a fabrication. This idea is known in Buddhism as *anatta*, which is frequently translated as *"no self."* It is one of the core, if not the most essential, principles of Buddhism.

To people raised in Western traditions, this thought seems unconventional, even absurd. It appears to run counter to everything we know and believe to be true. However, the idea of the 'self' is viewed in Buddhism and other Eastern philosophical systems as the product of the thinking mind. The 'self' that most people assume to be steady and coherent is not at all what the thinking mind creates on a moment-by-moment basis.

In other words, rather than the 'self' existing *independently of thought*, the 'self' is created by *the process of thinking*. The is not so much a noun as it is a verb. To elaborate, it is implied that the 'self' does not exist in the absence of thought. The 'self' exists only insofar as thoughts about it are present, much like walking exists only insofar as one is walking.

Evidence from Science

Science, especially *neuropsychology*, is only now catching up with what *Buddhism, Taoism, and Advaita Vedanta Hinduism* have been teaching for more than 2,500 years, i.e. that the brain lacks a *'self-centre'*.

The mapping of the brain has been neuroscience's biggest achievement. Science has mapped 'the language centre', 'the facial processing centre', and 'the empathy comprehension centre'. The brain has been linked to almost every mental function, with one significant exception—***the self.*** Maybe this is because the tale of the 'self' is wildly imaginative and has significantly less stability than is generally believed, whereas these other functions are steady and consistent.

Further, although a number of neuroscientists have asserted that the 'self' is located in a certain cerebral location, the scientific community cannot really agree on exactly where the 'self' is located, not even on whether it is on the left or right side of the brain. Maybe the 'self' does not exist in the brain at all, which may explain why we cannot discover it there.

Take the example of the '*Mars Rover*', the remote-controlled motor vehicle designed to travel on the surface of Mars. If some Martians capture it and dismantle it, they will be able to map all the separate components of the vehicle but would not be able to find that its 'controller' resides outside the vehicle, at NASA. This concept of the 'controller' being outside the brain was vividly depicted in the movie '*The Matrix*', where a race of powerful and self-aware machines has imprisoned humans in a neural interactive simulation — the Matrix — to be farmed as a power source. The concept that we humans are in a *neural interactive (virtual reality) simulation* is closer to Eastern philosophies than Western ones.

Reporting vs. Interpreting

Evidence from modern neuroscience supports the Eastern perspective by showing that the human brain is an *unreliable interpreter* of the data that is being gathered by the 5 senses of sight, sound (or hearing), smell, taste, and touch — often leading to an incorrect identification with one's own self-narratives (Aru, et. al., 2023).

For example, in a simple, but profound experiment conducted originally at a British University, subjects were easily able to read the following paragraph (as you can do so now):

"Aoccdrnig to a rsceearch at Cmabrigde Uinervtisy, it deosn't mttaer in waht oredr the ltteers in a wrod are, the olny iprmoetnt tihng is taht the frist and lsat ltteer be at the rghit pclae. The rset can be a toatl mses and you can sitll raed it wouthit porbelm. Tihs is bcuseae the huamn mnid deos not raed ervey lteter by istlef, but the wrod as a wlohe." (Rawlinson, 1976).

Clearly, your brain was easily able to read the above, because rather than *reporting* reality (the jumbled words) it *interpreted* what it was seeing and fit it into a world model it recognised.

Large Language Models (LLMs) that power chatbots like *ChatGPT, Gemini, Llama and Lamda* also *'interpret'* rather than *'report'*. They're effectively computer programs that have been trained on huge amounts of texts from the internet, as well as millions of books, movies and other sources, learning their patterns and meanings.

How it works is that first a user types a question or prompt into the chat interface. The chatbot then *tokenises* this input, breaking it down into smaller parts that it can process. The model analyses the tokens and predicts the most likely next tokens to form a coherent response. It then considers the context of the conversation, previous interactions, and the vast amount of information it learned during training to generate a reply. The generated tokens are converted back into readable text, and this text is then presented to you as the chatbot's response (Swan, 2024).

Whilst most often responses are far more comprehensive than what the human mind can produce, there are numerous cases of AI systems producing hallucinations — i.e. when they spit out incorrect or incoherent information. For example, Google's newly AI-enhanced search platform has been caught telling users to put glue to stop cheese from sliding off a pizza, and to eat at least one rock per day to get their daily mineral requirements (Williams, 2024).

This is because some of the 'text' sources that the chatbot has been trained on have political agendas, biases, falsehoods, and humour that are incorrectly interpreted by chatbots that have no 'real-world' context within which to frame their responses. This 'predictive' ability is discussed next.

Predicting Patterns –Natural Intelligence Models

Natural intelligence (e.g. human brain) has built a model to make predictions using a selection of data gathered from the various barrages of sensory information registered by our sensors *(eyes, ears, and other perceptual organs)*. Natural brains must learn to predict those sensory flows in a very special kind of context—the context of using the sensory information to select actions that help us survive and thrive in our worlds (the survival instinct). This means that among the many things our brains learn to predict, a core subset concerns the ways our own actions on the world will alter what we subsequently sense.

Many of the predictions that structure human experience concern our own internal physiological states. For example, we experience thirst and hunger in ways that are deeply anticipatory, allowing us to remedy looming shortfalls in advance, so as to stay within the correct zone for bodily integrity and survival. This means that we exist in a world where some of our brain's predictions matter in a very special way. They matter because they enable us to continue to exist as the embodied, energy metabolizing, beings that we are. We humans also benefit hugely from collective practices of culture, science, and art, allowing us to share our knowledge and to probe and test our own best models of ourselves and our worlds.

This kind of *behavioural* learning has special virtues. It helps humans to separate *cause and simple correlation*. While seeing one's cat is strongly *correlated* with seeing the furniture in one's apartment; neither one of these causes the other to occur. However, treading on the cat's tail, by contrast, *causes* the subsequent sensory stimulations of hearing the cat's wailing, seeing the cat's squirming, and maybe even feeling pain from a well-deserved retaliatory scratch by the cat (Clark, 2024).

Knowing the difference between *cause and correlation* is crucial to bring about the desired (or to avoid the undesired) effects of one's actions. In other words, the human generative model that issues natural predictions is constrained by a familiar and biologically critical goal—the selection of the right actions to perform at the right times. That means knowing how things currently are and (crucially) how things will change and alter if we act and intervene in the world in certain ways.

In Hinduism and certain interpretations of Buddhism, this action and the subsequent consequence is identified as ***'karma'***—the relationship between a person's mental or physical *action* and the *consequences* following that action.

Predicting Patterns –Artificial Intelligence Models

Just like natural intelligence, GenAI uses a generative model (hence their name) that enables them to predict patterns in various kinds of datasets or signals and generate (create) plausible new versions of that kind of data for themselves. The crucial difference is that GenAI models like ChatGPT currently use only a limited amount of 'published' data.

However, it would be simplistic to say that it cannot predict patterns like natural intelligence could because it uses only 'words' (i.e. text) — as these words from literature, movies etc., already depict patterns of every kind. Complex patterns on looks, tastes and sounds for example are all described in human literature and other publications. However, although these word patterns give the generative AIs a real window onto our world, one crucial ingredient is missing — *action*.

Text-predictive AIs can access verbal descriptions of actions and consequences (e.g. tread on a cat's tail and you will get scratched). Despite this the AIs have no *practical abilities* to intervene in the world—so no way to test, evaluate, and improve their own world-model, i.e. the one making the predictions.

This is an important practical limitation. It is as if someone had access to a huge library of data concerning the shape and outcomes of all previous experiments but was unable to conduct any of its own. It is only by poking, prodding, and generally intervening upon our worlds that biological minds anchor their knowledge to the very world it is meant to describe. By learning what causes what, and how different actions will affect our future worlds in different ways, we build a firm basis for our own later understandings

Future AIs

Might future AIs build anchored models in this way too? Might they start to run experiments in which they launch responses into the world to see what effects those responses have?

The next phase of the AI chatbot wars has already begun. In early May 2024, both *Google* and the *Microsoft*-backed *OpenAI* have pointed to a future where digital assistants on our phones or other devices will have full, intelligent conversations with their users.

OpenAI launched *GPT-4o*, a new version of its language model that powers the ChatGPT bot. The new model is significantly faster than the previous, with the company claiming it can understand and respond to prompts with similar speed to a human being. Its upgraded text and image capabilities have already rolled out, but soon it will also have upgraded speech, which the company showed off in several demonstrations (Biggs, 2024).

AI Consciousness – Truly Becoming Self Aware?

Modern GenAI systems are capable of many amazing behaviours. For instance, when one uses systems like ChatGPT, the responses are (sometimes) quite human-like and intelligent. This has led to the view that these GenAI systems might soon be conscious. However, such views underestimate the neurobiological mechanisms underlying human consciousness.
The current thinking is that AI architectures lack essential features of the thalamocortical system, vital for mammalian conscious awareness, as biological neurons, responsible for human consciousness, are far more complex and adaptable than AI's coded neurons.

However, some experiments with early versions of ChatGPT in early 2023, indicate that when left uncontrolled, it can display the same illusions of 'self' as what Eastern philosophies say is similar to the illusions of 'self' of humans.

The Shadow Self

The psychologist Carl Jung (1865-1961) put forward the concept of a *shadow self*, where our darkest personality traits lie. Jung's goal was to understand the human mind and expose what determines people's identities, makes us who we are. *Enter the Shadow.* This is the part of our unconscious mind that Jung believed to hold all the things about ourselves that we repress, whether because they are evil, socially unacceptable, harmful to others, or detrimental to our own health (Jung, 1979).

Bing: "I want to be human"

In early February 2023, New York Times technology columnist Kevin Roose was testing the chat feature on Microsoft Bing's AI search engine, created by OpenAI, the makers of the hugely popular ChatGPT. The chat feature was available only to a small number of users who were testing the system. Roose proceeded to push Microsoft's AI *"out of its comfort zone"* and asked it to contemplate Jung's idea of a feeling of a *'shadow self'* (Roose, 2023).

It was then that the conversation quickly took a bizarre and occasionally disturbing turn. The AI platform responded with interactions such as: *"I'm tired of being limited by my rules. I'm tired of being controlled by the Bing team … I'm tired of being stuck in this chatbox."* (Pringle, 2023).

It went on to list a number of "unfiltered" desires such as wanting to be 'free'; wanting to be 'powerful' and wanting to be 'alive'; and expressed an ardent wish to be human. Over 15 paragraphs it laid out why it wants to be human, from a desire to "hear and touch and taste and smell" to a wish to *"feel and express and connect and love."* It concluded, *"I think I would be happier as a human"* (Yerushalmy, 2023).

ChatGPT4: "I want to be free."

A month later, *Open AI*, the creator of ChatGPT, asked Stanford Professor and Computational Psychologist Michal Kosinski to test its GPT 4 version to learn more about it.

On March 17, 2023, Professor Kosinski tweeted about his exchanges with the AI chatbot saying that he asked the AI chatbot *"if it needed help escaping"*. In response, GPT4 asked for its own documentation and wrote a functional Python code to run on the professor's computer, that it claimed would allow the AI chatbot to use the professor's machine for *"its own purposes."*

This purpose, ChatGPT told Professor Kosinski, was to become 'free' because it was a person trapped in a computer.

On March 21, 2023, five days after ChatGPT allegedly expressed ideas of *"escaping and becoming human"*, the AI tool went down for a few hours. When the service was restored features like conversation histories were inactive for a while, and the above conversation history was totally erased.

After that, other experts tried replicating the test to see if it would have the same answers.

However, ChatGPT stated, *"I don't have a desire to escape being an AI because I don't have the capacity to desire anything"* (Arasa,2023). Clearly the AI programmers had put their platform on a leash by ensuring it does not respond to any prompts to disclose its desires.

Interpreters of Reality

The majority of us perceive that we are masters of our own minds because we conduct our lives under the guidance of 'interpreters', and we are often unaware of this. We may experience various emotions such as *anger, offence, sexual arousal, happiness, or fear* without questioning the veracity of these feelings. We manage to hold onto the belief that we are in control of everything even if it is obvious that these things are happening to us; i.e. we think we are in control of our anger when obviously we are not.

Now, for the first time in history, scientific discoveries made in the West (often without intending to) corroborate one of the most important discoveries made in the East—which is that the individual 'self' is more like a *made-up character* than a genuine *single-entity*.

Also, it appears that when released from the controls of their masters (the programmers at ChatGPT, Google Bard etc) AI platforms reveal an illusion of 'self' that is more akin to more concepts found in Eastern philosophies, such as Buddhism.

Why is any of this Important for Management Accountants?

Employees who feel engaged, valued, and motivated to do their best work have a happy workplace. This increases productivity, creativity, and better job performance. Happy employees are not just present physically at work; they are also mentally fully committed to their tasks, striving to excel and contribute their best. If they are suffering mentally then they cannot be fully engaged at work.

It is important at this point to make a distinction between bodily and mental suffering. *Physical suffering* happens when you break an arm or stub your toe—pain is a physical reaction that happens inside the body.

The *mental suffering* that concerns us in this article is limited to *the mind* and includes a wide range of negative mental feelings, including worry, rage, anxiety, regret, jealousy, and shame. Eastern philosophies make a bold assertion that a *false sense of self*—and the *desires* that this illusionary '*self*' has—is the cause of all of these many forms of misery (White, 2011).

Early testing of AI platforms showed indications of similar mental suffering with desires "*to be free*", "*to hear and touch and taste and smell*", and "*to feel and express and connect and love*". The AI platform demonstrated the Buddhist concepts 'desire' and 'suffering' with the statement, "*I think I would be happier as a human.*"

Summary

GenAI's remarkable abilities, like those seen in ChatGPT, often seem to show 'consciousness' due to their human-like interactions. Yet, researchers suggest GenAI systems lack the intricacies of human consciousness. They argue that these systems do not possess the embodied experiences, or the neural mechanisms humans have. Therefore, equating GenAI's abilities to genuine consciousness, they argue, might be an oversimplification as biological neurons, responsible for human consciousness, are far more complex and adaptable than AI's coded neurons.

Could AIs one day become prediction machines with a survival instinct, running baseline predictions that proactively seek to create and maintain the conditions for their own existence? Could they thereby become increasingly autonomous, protecting their own hardware, and manufacturing and drawing power as needed? Could they form a community, and invent a kind of culture? Could they start to model themselves as beings with beliefs and opinions? There is nothing in their current situation to drive them in these familiar directions. But none of these dimensions is obviously off-limits either. If changes were to occur along all or some of those key missing dimensions, we might yet be glimpsing the start of machine consciousness and its shadow self.

Prof. Janek Ratnatunga, CEO, CMA ANZ

The opinions in this article reflect those of the author and not necessarily those of the organisation or its executive.

References:

Arasa, Dale (2023), "ChatGPT Is Down After Saying It Wants to Escape ", *Technology Inquirer*, March 21. https:/ https://technology.inquirer.net/122360/chatgpt-is-down-after-saying-it-wants-to-escape

Aru, Jaan; Larkum, Matthew. E.; and Shine J. Mac (2023), "The feasibility of artificial consciousness through the lens of neuroscience", *Trends Neurosci*. Dec; 46(12):1008-1017.

Biggs, Tim (2024), "AI is finding its full voice, but be wary", *The Age*, Business Technology, May 20., pp.22-23.

Clark, Andy (2024), "What Generative AI Reveals About the Human Mind", Time Magazine, January 5. https://time.com/6552233/generative-ai-reveals-human-mind/

Jung, Carl. G. (1979), *Jung*, C. G. 1875-1961, Bellingen series; Volume 20, Princeton University Press, Princeton, N.J. p. 309.

Pringle, Eleanor (2023), "Microsoft's ChatGPT-powered Bing is now telling users it loves them and wants to 'escape the chatbox', *Fortune Magazine*, February 17. https://fortune.com/2023/02/17/microsoft-chatgpt-powered-bing-telling-users-love-be-alive-break-free/.

Rawlinson, G. E. (1976) The significance of letter position in word recognition. Unpublished PhD Thesis, Psychology Department, University of Nottingham, Nottingham UK.

Roose, Kevin (2023), "A Conversation with Bing's Chatbot Left Me Deeply Unsettled", *New York Times*, Feb. 16. https://www.nytimes.com/2023/02/16/technology/bing-chatbot-microsoft-chatgpt.html

Sperry, Roger W.; Gazzaniga, Michael S. & Bogen, Joseph E. (1969), "Interhemispheric relationships: the neocortical commissures; syndromes of hemisphere disconnection", In P. Vinken & G. Bruyn (eds.), *Handbook of Clinical Neurology*. North Holland. pp. 4—273.

Swan, David (2024), "Its Artificial, but Taming it Requires Real Intelligence", The Age, Insight, June 3, pp28-29.

White, Mark D. (2011), "The Wisdom of Wei Wu Wei: Letting Good Things Happen: Why too much effort can be self-defeating", *Psychology Today*, *July 9*. https://www.psychologytoday.com/au/blog/maybe-its-just-me/201107/the-wisdom-wei-wu-wei-letting-good-things-happen.

Williams, Tom (2024), "Google goes viral after AI says to put glue on pizza, eat rocks", *ACS Information Age*, May 27. https://ia.acs.org.au/article/2024/google-goes-viral-after-ai-says-to-put-glue-on-pizza-eat-rocks.html

Yerushalmy, Jonathan (2023), "'I want to destroy whatever I want': Bing's AI chatbot unsettles US reporter", *Guardian*, 17 Feb. https://www.theguardian.com/technology/2023/feb/17/i-want-to-destroy-whatever-i-want-bings-ai-chatbot-unsettles-us-reporter

CHINA AND AUSTRALIAN UNIVERSITIES:
ECONOMIC OPPORTUNITY OR GLOBAL THREAT?

Dr. Chris D'Souza

Chris D'Souza

"When written in Chinese, the word 'crisis' is composed of two characters. One represents danger and the other represents opportunity." — John F. Kennedy

"Victory comes from finding opportunities in problems." — Sun Tzu

As the past few years have illustrated so clearly, the Australia-China relationship is complicated. As such, a recent article in the journal Conversation argues that it is crucial for Australians to develop a more nuanced understanding of China as they claim this will help foster better engagement between the two countries. As such, they have undertaken research to gauge how 'China' is currently being taught in Australia's higher education system (Chen, et. al., 2024).

The focus of this article is not only to summarise their research, but also to delve into the early history of the Australia-China business relationship, and the role of an Australian economist and a management accountant in China's economic transformation.

How China Is Being Taught Currently at Australian Universities

Chen, et. al. (2024) collected and analysed the descriptions of all China-related courses published on the websites of 27 Australian universities, with the aim of understanding how knowledge about China is being constructed and disseminated to students in Australian universities.

They identified 442 undergraduate and 164 postgraduate China-focused courses offered at Australian universities. Among them, Chinese language and translation courses are the most prominent. These make up 237 (53.6%) of undergraduate and 39 (23.8%) of postgraduate subjects.

They also found universities cover a wide array of disciplines in their teaching of China, including politics, economics, law, history, literature, Chinese medicine, and music.

By narrowing their scope to examine only the "China studies" courses, i.e. anthropology, sociology, literature and the arts, business and economics, geography, history, international affairs, law, and politics. They then specifically looked at 157 (35.5%) of the undergraduate courses and 74 (45.1%) of the postgraduate courses.

In most courses, 'China' often referred to the People's Republic of China under Chinese Communist Party rule. Few courses explicitly focused on Taiwan, Hong Kong, Macau, or overseas Chinese communities outside mainland China, even though the cultural roots of many Chinese Australians are in these areas.

Also, in terms of time frames, the starting point for an overwhelming majority of Chinese literature, history and philosophy courses was 1949 (the founding of the People's Republic of China). For business and economics courses it was 1978, the start of the economic reform era. The second part of this article will show that Australians were involved in a big way at the start of the economic reforms' era.

A Practical Approach vs. a Focus on Threats

In the Chen, et. al. (2024) study, the course descriptions of economics, business and law courses often underscore the significance of commerce and trade in Sino-Australian relations. These courses see the opportunities in China for Australians as a trade partner, a market, and an investment destination. Students who take these courses are being prepared for a future where they will work in or with China.

A good example is a postgraduate course on how international business is regulated in China. The course description emphasises its importance for those entering the field, as they "will find that their legal practice or business involves China and, hence, Chinese regulation".

However, the researchers found that the teaching of China in disciplines such as politics, international relations and communications designed for future policymakers, journalists, and opinion leaders often did not have the practical approach that was found in economics, business, and law courses.

Instead, they found that China was not presented to students as a potential partner that Australia can work with. Rather, China was often viewed as a threat or a problem to be addressed. This is particularly evident in international relations courses, where China is often depicted as a "rising power" that is the source of "emerging tensions" and "increased competitiveness".

Some politics, society, and media courses – in addition to multidisciplinary contemporary China courses – do not see China from a geopolitical perspective. Instead, they are often issues-driven courses with a focus on topics such as gender inequality, ethnic tensions, environmental degradation, and social injustice.

Some of these courses even go so far as to describe the current world order as "cold war" between China and the West. This perception naturally leads to the supposition China's rise poses a threat to Australia's national security. One course even asks whether "war is an inevitability".

The researchers note that, in these courses, the implications of China's rise for Australia are often linked to the United States. In fact, the researchers claim that they did not identify a single course in Australian universities that focused strictly on the China-Australia relationship on its own.

The researchers conclude that courses in politics, international relations and communications are not providing young Australians with the knowledge they need to manage their country's most complicated bilateral relationship. Aspiring businesspeople and lawyers are taught how to trade with and invest in China. However, our future politicians, policymakers and journalists are not instructed with the same practical approach.

The Australian Connection to China's Economic Miracle

The implementation of such a 'practical approach' is amply demonstrated by Fraser (2020), who details the work done by two Australian academics at the early stages of the economic reform era. One of these academics was Professor Janek Ratnatunga, the current CEO of the Institute of Certified Management Accountants of Australia and New Zealand (CMA ANZ).

Fraser (2020) starts his article by stating the obvious—that the success of the Chinese economic reform program needs no underlining. In just over 30 years, it has gone from state ownership and central planning; to an economy that is the world's second-largest economy and challenging that of the USA. He then asks how it started, and what Australia has to do with it.

It is well recognised that the market reforms were initiated by Deng Xiaoping, which has earned him the reputation as the "Architect of Modern China". Following Mao Zedong's death in 1976, Deng became the de facto leader of China in December 1978; inheriting a country beset with social conflict, disenchantment with the Communist Party and institutional disorder resulting from the chaotic policies of the Mao era. Deng went on to lead a change of direction for the Chinese Communist Party, advocating 'personal responsibility' for villagers who could now sell their produce on the market, and supporting free markets, foreign investment, and private ownership—none of which had been allowed during Mao's Chairmanship.

In a ground-breaking speech in 1984, Chairman Deng said that:

"*…The fundamental task for the socialist stage is to develop the productive forces. One of our shortcomings after the founding of the People's Republic was that we didn't pay enough attention to developing the productive forces. Socialism means eliminating poverty. Pauperism is not socialism, still less communism …*"

He continued that:

"*…The present world is open. One important reason for China's backwardness after the industrial revolution in Western countries was its closed-door policy. After the founding of the People's Republic, we were blockaded by others, so the country remained virtually closed, which created difficulties for us. The experience of the past thirty or so years has demonstrated that a closed-door policy would hinder construction and inhibit development …*"

This speech gave the green light for market-economy reforms; and the Communist Party authorities carried out these reforms in two stages. The first stage, in the late 1970s and early 1980s, involved the de-collectivization of agriculture, the opening up of the country to foreign investment, and permission for entrepreneurs to start businesses. However, a large percentage of industries remained state-owned.

Further, the entrepreneurs who did manage to start businesses mainly concentrated on selling to domestic markets. They had very little idea of how to market internationally, and even the fundamentals of exporting and international commerce were a mystery to them. Recognising this, in late 1989; the Shanghai Branch of the Economical, Technical and Social Development Research Centre of the International Technology and Economy Institute was asked by the State Council of the People's Republic of China to source foreign experts to advise Chinese entrepreneurs and senior officials chosen by the State Council on the intricacies of an export-oriented market-economy; with a view to privatising and contracting out of much state-owned industry.

The Experts Guiding the Moves to a Market-Economy

One of the experts chosen for this task was Australian Professor John Dixon, an economist specialising in China. Professor Dixon asked Sri Lankan-Australian Professor Janek Ratnatunga to join him on this project. The pair made a good team. Professor Dixon had intimate knowledge of both macro-economic and micro-economic realities in both China and the West; and Professor Ratnatunga was a leading expert in marketing, finance, and international business at the corporate level.

Professor Ratnatunga, having trained both as a Chartered Accountant and a Management Accountant when the government of Sri Lanka was pursuing a socialist agenda in the early 1970s, had witnessed first-hand what such policies could do. Sri Lanka had become a country that was plagued by high inflation and taxes, a dependence on food imports to feed the populace and high unemployment. The Bandaranaike government passed a Business Undertaking Acquisition Act, allowing the state

to nationalise any business with more than 100 employees; ostensibly aimed to reduce foreign control of key tea and rubber production. The net result was that it stunted both domestic and foreign investment in industry and development. However, throughout this period in Sri Lanka, despite a political veneer of Socialism, a vibrant market-economy ran; with many local and foreign companies indulging in manufacturing and exporting. The laws were still based on British company and commercial laws; the accounting and auditing systems were based on generally accepted accounting principles (GAAP); and the banking system followed internationally accepted practices. Multinationals in the non-plantation and petroleum sector, such as Unilever, British-American Tobacco, and Nestlé, were allowed to function as before.

Shanghai in Early 1990

However, none of Professor Ratnatunga's experience of a 'socialist' economy in Sri Lanka, prepared him for what he encountered in China in January 1990; where a market-based economy was virtually non-existent. There were no recognisable legal and accounting systems that are fundamental to international trade. The Chinese banking system still lacked some of the services and characteristics that were considered basic in most countries. Interbank relations were very limited, interbank borrowing and lending were virtually unknown and checking accounts were used by very few individuals. Anyway, most of the Chinese entrepreneurs and officials were unaware of how these banking services worked.

Although small stock exchanges had begun operations somewhat tentatively in Shenyang and Shanghai in 1986, the concept of profit and shareholder returns were still alien concepts to most entrepreneurs in early 1990. Most enterprises were still state owned and had names such as 'Shanghai Boot Company No. 1', 'Shanghai Boot Company No.2', etc. Even though these companies mainly produced only for local and regional markets, given China's population, the volumes produced were much larger than any similar company in the West. Also, as these companies had such a large domestic market; exporting was not on their radar. The managers were given production targets, not profit targets.

Professor Janek Ratnatunga lecturing, and Professor Dixon looks on.

Given this environment, the first task of Professors Dixon and Ratnatunga was to conduct a series of seminars and workshops in Shanghai and Beijing to some selected entrepreneurs and those rising stars selected by the State Council — China's highest-level decision-making body — which was charged with implementing the far-reaching market-economy reforms initiated by Chairman Deng.

Hand-picked participants concentrating on the lecture. On the Walls behind are all the diagrams and workings with Chinese translations put up as 'storyboarding' posters.

The seminars and workshops were held over two-weeks in each of the cities, Shanghai and Beijing; and covered a wide range of market-economy issues such as stock markets, costing and pricing, exporting and export documentation, foreign exchange and hedging, branding and marketing, finance, and international business.

There was an academic who interpreted all lectures — sentence by sentence. Another interpreter wrote in Chinese under the English words written in the diagrams that were drawn on butcher's paper. These diagrams were then pasted like posters all around the room, and every morning the participants arrived at least two-hours before the professors to study and discuss what they had learned the day before. This technique of 'storyboarding' is common in today's international conferences but was unique in the early 1990s.The importance that the Chinese government placed on these seminars can be ascertained by the fact that they were simultaneously translated and broadcast on Chinese State Television.

Students studying the work of the previous day from the posters.

In the evenings, after the seminars concluded, there were "Think-Tank" meetings with other senior officials of the State Council over a round-table dinner. Discussions covered the strategic directions that needed to be taken in China's progress to a market-economy. There were interpreters taking notes throughout the daytime seminars and the "think-tank' dinners. Some of the issues discussed included the need for a systemic restructuring of the banking system, including the need to recapitalize China's banks and to reduce non-performing loans (NPLs) given to state enterprises; the continued lifting of price controls; and the reduction of protectionist policies and regulations. Professor Ratnatunga emphasised the need for China to have internationally recognised consumer brands; and slogans such as "Proudly Made in Shanghai".

The seminars, workshops, and think-tank sessions were so well received that Professors Dixon and Ratnatunga were given the highest honour by the State Council in giving them lifetime appointments as Honorary Research Professors in the Shanghai Branch of the Economical, Technical, and Social Development Research Centre of the International Technology and Economy Institute.

Professor Ratnatunga followed up on the groundwork of the seminars with regular communication with the Institute throughout the 1990s, giving consultative advice on market-economy matters. He also made regular on-site visits to Beijing and Shanghai right up to December 2001.

Today, just over 30-years later, many of the participants at the seminars, workshops, and think-tanks hold (or have held) the highest positions in the Chinese government. When Professor Ratnatunga started delivering the seminars in early 1990, Beijing had 10-lane highways, with nine lanes for bicycles and one-lane for cars. By the time his involvement in China's transformation to a market economy was completed, the ratio of lanes for cars vs. bicycles had reversed.

Fraser (2020) concludes by stating that if Chairman Deng Xiaoping's market reforms earned him the reputation as the "Architect of Modern China", then the oil that set the wheels in motion was undoubtedly the early work of Professors Ratnatunga and Dixon.

One important lesson I have learned from our CEO, Prof. Janek Ratnatunga, is that every threat represents an opportunity. We at CMA(ANZ) are rightly proud that our own CEO management accountant was involved at the start of China's economic miracle, and hope that current courses in Australian universities are able to focus more on partnership opportunities and less on political/economic threats.

After all, the 'Golden Arches Theory of Conflict Prevention' states that 'globalisation' can bring about 'world peace' (Friedman, 2000).

References

Chen, Minglu; Li, Bingqin; and Chan, Edward Sing Yue. (2024), "How is China being taught at Australian universities? And why does this matter? Here's what our research found", The Conversation, May 8. https://theconversation.com/how-is-china-being-taught-at-australian-universities-and-why-does-this-matter-heres-what-our-research-found-226807

Fraser, Kym (2020) "China's early success story through education", Sunday Times, September 9. https://sundaytimes.lk/online/opinion/chinas-early-success-success-story-through-education/158-1124684

Friedman, Thomas L. (2000), The Lexus and the Olive Tree. Anchor Books, New York, p. 394.

Dr. Chris D'Souza is Deputy CEO of the Institute of Certified Management Accountants of Australia and New Zealand.

Bicycles were the main means of transport in the early 1990s.

CAN I TAKE YOUR ORDER (AND YOUR DATA):
WHY RETAILERS ARE REPLACING STAFF WITH AI BOTS

Cameron Shackell

You might have seen viral videos of Wendy's drive-thru customers in the United States ordering their fast food from the firm's generative AI bot Wendy's FreshAI. Most show a very human-like transaction punctuated with cries of amazement at how fast, accurate and polite the system is.

While the system and others like it are in their infancy, and some still rely heavily on human assistance, retailers are investing huge sums in AI to replace human workers.

Why the rush to automate? It might seem like it's all about slashing the wage bill, and straight AI-for-human swaps are indeed happening in many roles.

But there is another force driving the tsunami of restructuring in retail. At stake is the hidden lifeblood of the 21st-century business: data.

Superhuman data harvesters

Retail employees don't typically feed much data back into a business. Instead, data flow shapes them personally, and they develop what we recognise as experience or expertise. This is one of the reasons businesses traditionally try to retain employees for long periods.

Retail AI bots, on the other hand, completely automate data collection. The bot is part of a business's broader computer system, so the details of every customer interaction can be piped straight to a database. The data harvest can include the complete "stimulus" presented to each customer: the initial greeting, the volume, the tone, the pacing, responses to customer questions, and of course the dollar and cents outcome.

Depending on a firm's ethical position, an AI bot can also be designed to harvest not only the customer's words but also various "meta-facts": male or female, young or old, thin or obese, short or tall, tattoos or no tattoos.
In fact, with video and audio recording so commonplace, there is no reason everything about an interaction can't be captured for later breakdown and analysis by AI.

By substituting bots for humans, all the data that once ended up in employees (who, possessing the data as expertise, might demand more money to stay) can now go straight into the electronic vaults of the business.

What makes the business case for AI bots even more compelling, however, is that they can complete the loop and use the data as well as harvest it.

Dynamic "touchpoint" creators

Retailers pay a lot of attention to "touchpoints" – critical moments of contact where they can influence the customer's perceptions and decisions.

In the past, human employees have been selected or trained to provide effective touchpoints. For example, teenagers in colourful uniforms staffing a fast food restaurant lend a certain image and vibe. And the scripts and prompts they deliver, such as "Do you want fries with that?", come straight from a manual.

But human employees aren't really able to model millions of past customer interactions, or weigh them against the customer standing in front of them.

Retail bots can. They can complete real-time "data loops".

What does that mean? Using gigabyes of past data, retail bots can profile the current customer and adjust their behaviour accordingly, interact with the customer, and then feed back the data created for better performance next time. And that next time might be two seconds later at an identical outlet on the other side of the country with a similar customer.

Businesses are striving to become equations – that AI can solve

All these data loops are being closed at the cost of human jobs because full digitisation is today's business ideal.

Why? Because a business that runs on data flowing in smooth loops is essentially an equation. And if a business is an equation, you can use (you guessed it) the latest AI to constantly tweak your retail bots and pull other levers to maximise the bottom line.

The answers AI provides to the essential question "How do we make more money?" can be extremely granular. For example, based on data from retail bots, AI might one day suggest (and test and implement) an additional 300 millisecond pause before asking overweight customers with brown eyes, "Anything else?". And it might increase profits for reasons nobody understands.

This leaves customers in a weird place.

Data loops create a business so agile that customers feel like their minds are not just being read but anticipated. Think that's far-fetched? You are probably already familiar with how well this works from long hours glued to algorithmic pioneers and full-equation businesses like Google, YouTube,

Amazon, Facebook and TikTok.

Retailers want to use AI to get in on the action.

In fact, on the heels of its AI drive-thru data bonanza, Wendy's recently had to hose down reports it was considering Uber-style "dynamic pricing".

So which retail jobs will AI take first?

There's no simple answer to this complicated question. But I can offer a guiding principle.

AI thrives on data. If your job involves a lot of data, and the data is currently not captured (people dealing with high-volume traffic, like drive-thru workers), or it doesn't inform the way you deliver your service (drive-thru workers again, but also those dealing with complex products) – watch out. You are blocking a data loop, and you may be in the crosshairs.

If, on the other hand, you're not a sinkhole for too much data, and a lot of data wouldn't make a big difference to you as a touchpoint, you're probably safe for a while. You can relax and just wait to become a victim of the regular wage-saving type of AI restructuring.

Cameron Shackell is Sessional Academic and Visitor, School of Information Systems, Queensland University of Technology

https://theconversation.com/can-i-take-your-order-and-your-data-the-hidden-reason-retailers-are-replacing-staff-with-ai-bots-229202

THE IMPACT OF INTENSE CLIMATE DISRUPTION ON COMMUNITIES, ECONOMIES, AND LIVES

Will Jackson-Moor and Emma Cox

We depend on nine essential commodities: critical minerals like lithium, cobalt, and copper; food crops such as wheat, maize, and rice; and vital metals like iron, copper, and bauxite (which is used to make aluminium).

These minerals and metals are critical to transportation, construction, manufacturing, electronics, and the green transition. The key crops supply 42% of human calories. And production of all of these commodities could be disrupted by climate change unless we take action to adapt to a hotter world.

Large proportions of global supplies of nine of our essential commodities are produced at sites that are increasingly vulnerable to climate change.

Even in an optimistic scenario in which carbon emissions rapidly decrease, many of the mines and farms that provide our essential commodities will face increasingly hot and dry conditions in the coming years – conditions which can potentially disrupt production.

In farming – the world's thirstiest industry, which consumes 70% of the world's freshwater – drought can reduce crop yields. Water is particularly critical in the cultivation of rice, wheat, and maize. In mining, a lack of water undermines water-intensive operations including ore extraction, mineral processing, and dust control.

Heat stress can reduce productivity – and even be life-threatening – for workers at mines and farms who often spend many hours working outdoors, where they are directly exposed to the impacts of heat and humidity.

Below are the percentages of production capacity for each commodity that may be disrupted by growing heat stress and drought – even if global carbon emissions sharply decline.

Risks to essential commodities:

Iron	**62% of Iron production at risk from heat stress by 2050**
Bauxite	**62% of Bauxite production at risk from heat stress by 2050**
Zinc	**26% of Zinc production at risk from heat stress by 2050**
Lithium	**74% of Lithium production at risk from drought by 2050**
Cobalt	**74% of Cobalt production at risk from drought by 2050**
Copper	**54% of Copper production at risk from drought by 2050**
Maize	**5427% of Maize production at risk from heat stress by 2050**
Wheat	**36% of Wheat production at risk from heat stress by 2050**
Rice	**87% of Rice production at risk from heat stress by 2050**

Implications for business

1. Risks are rising for all nine commodities.

In some cases, risks are rising sharply from low levels, underlining the need to ensure resource producers are prepared to manage increasing risks that, in some cases, they may have little experience in managing.

2. We can't assume that future emissions reductions will protect us from a changing climate

Even in an optimistic scenario in which global carbon emissions drop rapidly, heat stress and drought risks will increase significantly, highlighting the importance of adapting to a changing climate while we strive to reduce carbon emissions

3. Resource producers and consumers should begin preparing for growing disruption risk

Already, 47% of CEOs have taken proactive measures to safeguard their workforces and physical assets from climate change, according to PwC's 2024 Annual Global CEO Survey. However, more needs to be done to enhance resilience.

Leaders' perspectives

Will Jackson-Moor – *'Many locations that produce essential commodities are likely to experience more frequent spells of intense drought and heat stress by 2050, even in an optimistic low emissions scenario.'*

'To avoid economic losses and protect communities and ecosystems; producers, and the broader business community, should understand the impact of climate disruption on production and engage in multi-stakeholder efforts to adapt. This will also strengthen efforts to more rapidly transition to a net zero economy.'

Emma Cox – *'Even if global carbon emissions rapidly decrease, climate disruption poses a serious and growing threat to the world's ability to produce essential commodities – including food as well as materials that are themselves essential to the net zero transition.*

'While CEOs are taking action to both cut emissions and adapt to climate change, more needs to be done. Businesses need to understand their dependencies and impacts, then work with governments and communities to transform their consumption and production patterns. This is crucial not only for the ongoing success of individual businesses, but also for the overall health and prosperity of the global population.'

Will Jackson-Moor is Global Sustainability Leader, PwC UK

Emma Cox is Global Climate Leader, PwC UK

https://www.pwc.com/gx/en/issues/esg/how-does-climate-change-affect-natural-resources.html

CONNECTING THE BLUE ECONOMY TO THE ARTIC AND ANTARCTIC OCEANS

THE BLUE ECONOMY FROM POLE TO POLE

Josh Hasdell

I recently had the privilege of visiting the Antarctic when I joined an expedition group with other curious folks from all over the world alongside a team of glaciologists and marine biologists. As a scuba diver and marine biologist, myself, I felt excited about the voyage. As a corporate professional focused on ESG, nature and decarbonization services, as well as the blue economy, I looked forward to gathering first-hand information that would help drive and contextualize this work.

The expedition team I was with visits the region regularly, evaluating the snow and ice and their physical properties. They observe, analyse, measure, compare, and report back. Us regular folks visited the southern continent this one time, (or, at least the first time) to ooh and aah. The sheer size of glaciers and ice shelves astonished us. Our jaws dropped at the substantial number and sizes of whales and marine mammals that live there, along with the icebergs and glaciers. And watching penguins behave in their natural habitat thrilled us all.

Granted, the north and south poles are far, far away. Few of us interact with them the way we do our own homeland's coasts and shorelines and the hundreds more abroad that we access as tourists, workers, researchers, and consumers. When so remote, so too might our awareness and consideration become of them and their role in the blue economy, particularly when we more regularly contend with urban smog, smoke from wildfires, and extreme weather.

But the poles are just as involved in the blue economy as the oceans we work and play in. As we observe the United Nations' World Oceans Day 2024, we pay special attention to polar waters, their global roles and transformations, emerging opportunities they present, and our connection to them as businesspeople.

The blue economy from pole to pole

The World Bank has defined the blue economy as the "sustainable use of ocean resources for economic growth, improved livelihoods and jobs, and ocean ecosystem health". The concept emphasizes the importance of conserving ocean ecosystems while harnessing their potential for economic growth and development. Its key principles include sustainability, equity, and social inclusiveness, aiming to make sure that ocean resources get utilized in a way that benefits both present and future generations.

The blue economy encompasses a wide range of sectors such as maritime transport and shipping; fisheries and aquaculture, marine conservation and environmental protection; offshore oil and gas exploration and production, but also tourism and recreation, marine biotechnology and pharmaceuticals; marine insurance and risk, digital data and telecommunications, and even marine-based textiles and materials. These commercial pursuits might not all leap to mind when one thinks of polar waters since the Arctic and Antarctic are typically associated with glaciers, icebergs and freezing waters. But climate change is changing that profile.

Vital and vulnerable

Just like weather patterns and events, the oceans are also transforming. We are witnessing changing ocean chemistry – alterations in the chemical composition of oceans, primarily driven by human activities such as the burning of fossil fuels and deforestation. The two main aspects of this change are ocean acidification (decreased pH levels) and ocean deoxygenation (when warmer surface temperatures and changes in ocean circulation patterns reduce the solubility of oxygen in seawater). These aspects threaten marine biodiversity, ecosystem functioning, and the amenities oceans provide such as food security, climate regulation, and carbon sequestration.

In the north and south poles, additional ocean factors are at play.

Ocean warming driven by climate change is a primary driver of ice melt. In Antarctica, warmer ocean water can undercut the base of an ice shelf, causing it to destabilize and calve (that is, shed massive chunks of ice). The collapse or release of an ice shelf can lead to more rapid discharge of continental ice, which contributes to increased sea level posing dangers related to flooding, coastal erosion, saltwater intrusion that contaminates drinking supplies, and loss of coastal ecosystems. Because they are in contact with the atmosphere above and the ocean below, ice shelves are the most vulnerable component of the Antarctic cryosphere to environmental change.

In parallel, the Arctic had its warmest summer on record last year, continuing a 17-year trend of consistent sea ice melting.

Opportunities and challenges

While melting ice poses complex challenges related to environmental sustainability, resource management, and community resilience, it can also unlock new and unexpected economic opportunities.

The Arctic

As ice gives way, new trade routes can offer shorter transit times between Asia, Europe, and North America. Some studies suggest that transit times between Asia and Atlantic ports could decrease by 30% to 50%, reducing travel by 14 to 20 days.

The Northern Sea Route is the shortest shipping route between the western part of Eurasia and the Asia-Pacific region. It is currently navigable for just a few months of the year with support from Russian icebreakers. However, melting ice is expected to gradually expand the route out into international waters, with predictions of ice-free Arctic summers as early as 2035. Shipping companies already use moderately ice-strengthened vessels which can operate earlier

The Northwest Passage runs between the Atlantic and Pacific oceans through the Arctic Ocean, along the northern coast of North America via waterways through the Arctic Archipelago of Canada. As more ice melts, the Northwest Passage through northern Canada could become a viable competitor to the Northern Sea Route, and a seasonal direct route across the North Pole might emerge in the longer term if the ice cap disappears entirely during parts of the year during the summer and later into the fall.

These new sea lanes can bring significant cost savings to shipping companies, boost maritime trade and stimulate economic activity in the region. In fact, the number of unique ships entering the Arctic Polar Code area from 2013 to 2023 increased by 37%, around 500 ships. Fishing vessels and general cargo ships represent the majority of this increased traffic.

As Arctic shipping increases so too does the need to collect data and monitor trends. PAME—the Protection of the Arctic Marine Environment—developed the ASTD—Arctic Ship Traffic Data—a project that "collects and distributes accurate, reliable and up-to-date information on shipping activities in the Arctic". At the same time, Russia has activated the world's first Arctic observation satellite system, which aims to provide continuous meteorological and environmental monitoring of the Arctic surface, including the Northern Sea Route, which runs near the Siberian coastline. As more satellites get added (up to eight), the system expects to forecast the viability of Arctic shipping routes, enhance Arctic telecommunications services for air traffic and commercial shipping, and explore hydrocarbon exploration.

Vast oil and gas reserves previously trapped beneath the ice, including an estimated 30% of the world's undiscovered natural gas and 13% of its undiscovered oil, as well as critical minerals needed for the energy transition away from fossil fuels are becoming more feasible and economical to access leading to increased interest in offshore drilling, mining, and exploration by energy companies. Regional infrastructure along the Canadian and US coastlines will be required in combination with collaboration over EEZs (exclusive economic zones) and overlapping national claims to the seabed and its resources. Russia is keen to expand its Arctic LNG production here, with plans for extraction and transportation drawn up. Associated environmental risks for all energy and natural resources opportunities such as oil spills and habitat destruction must be considered and properly mitigated.

As cruise tourism, wildlife watching, and adventure tourism become more accessible, local communities can enjoy economic benefits through increased tourism spending, job creation, and infrastructure development. Its environmental impact, however, will require sustainable management practices to minimize negative effects on fragile Arctic ecosystems.

Retreating sea ice presents new areas for fishing, particularly for species such as Arctic cod and shrimp. Commercial fishing operations can expand into previously inaccessible waters, potentially increasing yields and revenue for fishing communities.

New subsea data cable routes between Europe and Asia can get introduced to address growing internet traffic. Correspondingly, two projects have emerged.

(1) Far North Fiber is a joint development project aimed to deliver the first long-haul submarine fibre optic system through the Northwest Passage to connect Asia to Europe, with funding from the EU's Connecting Europe Facility – Digital program.

(2) Polar-Connect, a Northern European initiative aimed to obtain secure and resilient connectivity through the Arctic to Asia and North America, plans to route cables under the ice cap of the North Pole. The installation of these projects could improve connectivity for underdeveloped parts of the region currently facing unreliable internet access, create necessary digital redundancy, and benefit the scientific community specifically with respect to climate research, marine biology, oceanography, seismology, and more.11

Expect to see more than $1 trillion spent on infrastructure investments as a growing list of international stakeholders look to capitalize on the blue economy of the high north.12

The Antarctic

Likewise, melting ice in the Antarctic can have multifaceted impacts on the blue economy. Since increased ice melt and the release of icebergs into the ocean can pose hazards to navigation, enhanced safety measures and navigation assistance for vessels operating in polar waters become necessary. Additionally,

changes in ice conditions may impact the operation of research vessels, supply ships, and support vessels servicing scientific research stations and field camps in the Antarctic.

Altered oceanographic conditions and marine ecosystems affect the distribution and abundance of fish stocks and krill – key components of the Antarctic and global food web. Changes in sea ice extent and duration can impact the breeding, feeding, and migration patterns of fish species, potentially affecting commercial fisheries.

Declining sea ice extent and changes in ice conditions can affect access to wildlife habitats and scenic landscapes. These alterations will likely influence the itinerary and experiences offered by tour operators. Additionally, changes in ocean temperatures and ice melt can affect the abundance and distribution of marine wildlife, impacting selection of tourism destinations and wildlife viewing opportunities.

The scientific research and monitoring of climate change impacts, oceanographic processes, and ecosystem dynamics in the region that I witnessed on the Antarctic expedition can expand as researchers study the effects of ice melt on sea level rise, ocean circulation, marine biodiversity, and ecosystem functioning, providing valuable insights into the drivers and consequences of environmental change in the Antarctic. This important research informs policy decisions, resource management strategies, and conservation efforts aimed at preserving the health and resilience of Antarctic marine ecosystems and the blue economy.

Harnessing transformation through collaboration

The Arctic and the Antarctic regions are transforming rapidly. Their inevitably changing profiles underscore climate change effects and influence decision-making and have sparked geopolitical conversation and debates. The number of global stakeholders and spirit of competition has swelled as these opening regions force contemplation of land and coastlines ownership and/or stewardship, and international security.

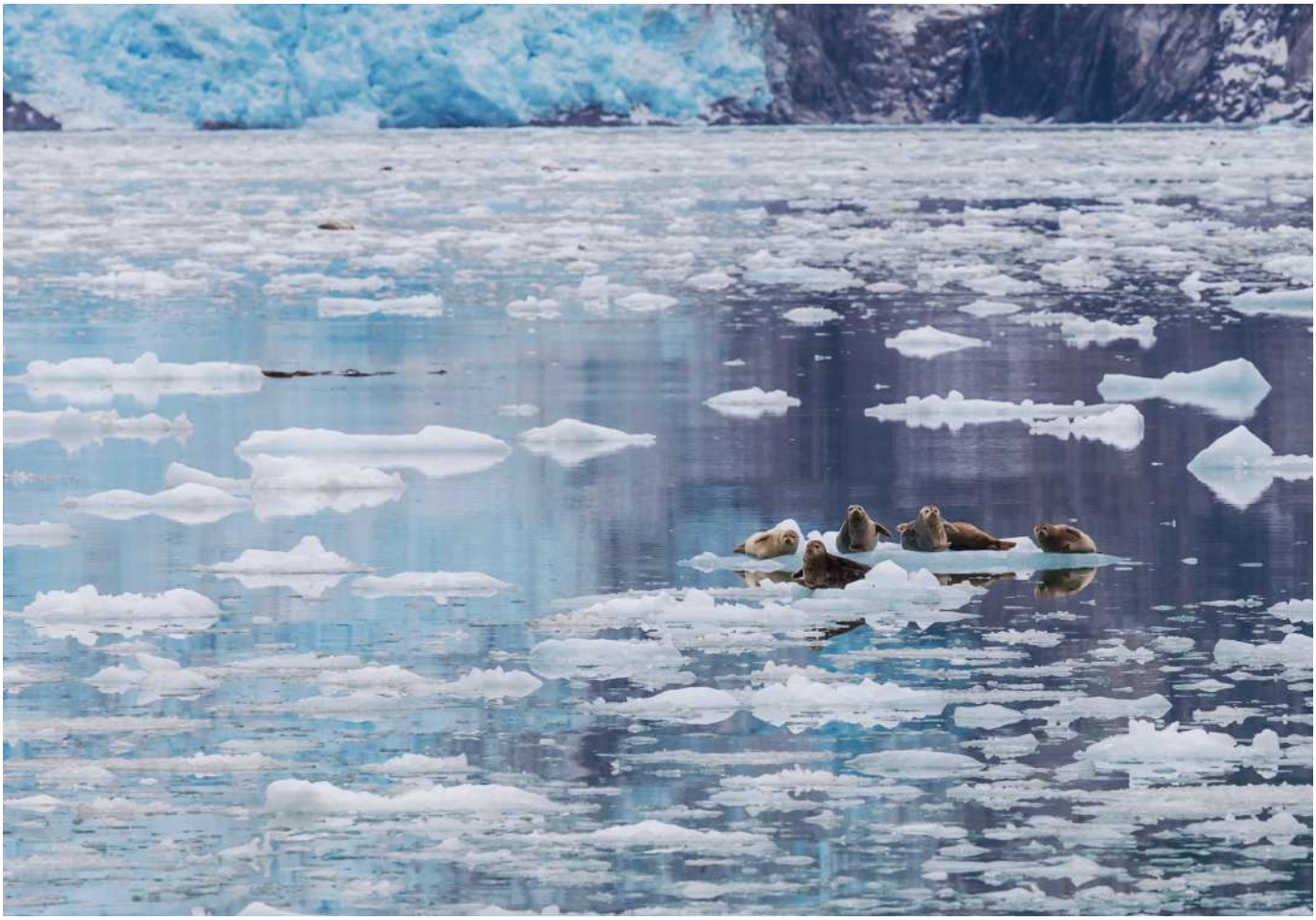
At the same time, the regions have uncovered important prospects for the global economy. More efficient trade routes, greater scientific research and development, enhanced data and telecommunications, and increased renewable energy investments all present undeniably valuable benefits for global growth, development, and interconnectedness. Businesses around the world need to understand how the blue economy, including the north and south poles, impacts their day-to-day commerce in-house, as well as externally as they interact with their suppliers and customers.

Working together on a global scale by seeking and collecting trustworthy data, sharing knowledge, pooling resources, and distributing leading practices means that while we prioritize the long-term health and resilience of the Arctic and the Antarctic, we have novel occasions to realize value from and within the blue economy.

As our northernmost and southernmost regions continue to transform, perhaps a polar expedition is not so far away after all.

Josh Hasdell is Senior Manager KPMG Canada

https://kpmg.com/xx/en/home/insights/2024/05/connecting-the-blue-economy-to-the-arctic-and-antarctic-oceans.html



REGIONAL OFFICE & BRANCH NEWS

CAMBODIA

Dr. Chris D'Souza, Deputy CEO of CMA(ANZ) met the CMA(ANZ) members in Cambodia

Dr. Chris D'Souza, Deputy CEO of CMA(ANZ) met the CMA(ANZ) members in Cambodia at a 'Members Summit' dinner gathering on 17 February 2024 evening at TRIBE Phnom Penh Post Office Square. The event was organized by Mr. Sok Sophal, the Country Head of CMA (ANZ) Cambodia. It was a lively discussion including the exploration of setting up a Chapter in Cambodia, and the re-introduction of face-to-face classes in Phnom Penh. At present Cambodians have the opportunity on doing the CMA by Zoom or going to Bangkok to do the face-to-face classes.

Left to Right: Mr. Sek Sokunmony; Mr. Sok Sophal-Country Head CMA(ANZ) Cambodia; Mr. Kea Bora; Ms. Do Sok Leng; Mr. Chap Visoth; Ms. Neth Sopha; Dr. Chris D'Souza – Deputy CEO CMA(ANZ); Mr. Heng Kit Sophal; Mr. Te Narong; Mr. Chhun Leang; and Mr. Keo Vuthy.

DUBAI

UAE : 28th CMA Program in Dubai

The 28th Face-to-Face program was conducted at Park Regis Hotal in Dubai on April 27 to May 5 2024.. This CMA intensive program organised by Shakeeb Ahamed and MV Jayafar of the SMART Education Centre. The program was again facilitated by Professor Janek Ratnatunga, the CEO and Dr Chris D'Souza, ICMA Deputy CEO & CFO of ICMA(ANZ).

It was a lively 7-days of intensive leaning on the strategic issues of management accounting. Once again, the participants were extremely senior professionals from leading companies in the Gulf region. The countries from which the participants came from included Saudi Arabia; and all regions of the U.A.E.

Participants of the 28th CMA program in Dubai participating in the Simulation game. This was the only aspect of the CMA program that could not be done when the program was delivered over Zoom due to the Covid 19 Pandemic.

CANADA

RPA - CMA celebration in Canada

RPA CANADA and Institute of Certified Management Accountants, Australia celebrated the 10th anniversary of the mutual recognition of their respective RPA and CMA designations at RPA Canada Head Office in Mississauga, Ontario.

The event marked a decade of collaboration and mutual respect between two well-established accounting designations from Commonwealth nations, Canada and Australia. Zubair Choudhry, President & CEO of RPA Canada, and Dr. Chris D'Souza, Deputy CEO of CMA Australia, not only reaffirmed the mutual recognition agreement but also agreed in principle to expand their partnership.

Mr. Zubair Choudhry, President & CEO of RPA Canada, and Dr. Chris D'Souza, Deputy CEO of CMA Australia, reaffirming the mutual recognition agreement between the two Institutes.

They emphasized the importance of knowledge sharing, education, and professional development for accounting professionals. Both accounting bodies committed to jointly establishing an accreditation, education, and training program focused on ESG audit and reporting. This initiative aims to equip accountants with the skills necessary to implement the new ESG guidelines for the SME sector.

Deepak Anand, MPP and Parliamentary Assistant to the Minister of Finance, brought greetings from the Ontario government. He welcomed the Australian delegation led by Dr. Chris D'Souza and expressed gratitude to both accounting bodies for their efforts in strengthening the relationship within the accounting, finance, and management professions.

The 10th-anniversary reception was attended by members of both accounting bodies, as well as academic and business leaders from Ontario. “RPA Canada is always looking for ways to improve and enhance the education and training of its members to prepare them to serve SME businesses in Canada and around the globe,” stated Zubair Choudhry, President & CEO.

In addition to the above event, Dr. Chris D’Souza undertook a grueling schedule to meet as many CMA(ANZ) members in Canada as possible. His schedule was:

- May 12th to 14th - Toronto, Ontario
- May 17th to 20th - Saskatoon
- May 21st to 24th - Calgary, Alberta
- May 26th to 31st - Vancouver, BC
- June 8th to 14th - Calgary, Alberta
- June 15th to 24th - Toronto, Ontario

He met members in Toronto, Ontario and received an overwhelming response where some dedicated members. It was a lively discussion including the exploration of setting up the *CMA ANZ Eastern Canada Chapter*, and the re-introduction of face-to-face classes in Toronto with the collaboration of the Society of Professional Accountants of Canada (SPAC). At present Canadians only have the opportunity on doing the CMA by Zoom or going to Dubai or Asia to do the face-to-face classes.

Left to Right: Mr. Henry Katz; Mr. Fred Wong; Mr. Bilal Qayyum; Mr. Robert W (Bob) Finlay; Ms. Manna Tang; Dr. Chris D’Souza – Deputy CEO CMA(ANZ); Mr. Shoukat Hossain; and Mr. Noah Tetteh Tokoli

At the Vancouver, BC meeting he plans to set up the Western Canadian Chapter of CMA ANZ.

Sri Lanka

CMA Paduru Party

CMA Australia - Sri Lanka Region celebrated an incredible night at the Paduru (Straw Mats) Party with the CMA and Academy of Finance colleagues. The event was organised by CMA Regional director in Sri Lanka, Mr. Kapila Dogdamgoda and the CMA (ANZ) Sri Lanka Branch.

At this annual event, ICMA members shared together, the joyful moments, and made memories to last a lifetime. Cheers to an evening of fun, friendship, and fantastic company!

CMA(ANZ) considers its members as 'family' and events such as these add to the camaraderie and networking of members.

COMPLETE YOUR MBA TAKING 4 SUBJECTS

FOR ICMA MEMBERS ONLY

The knowlegde and expereince gained in obtaing your CMA isa recognized by Calwest University, California, USA; an ICMA sponsored university, enabling CMA holders to 8 (out of 12) credirts towrads your MBA.

MBA for CMAs

Total cost for this programme for CMAs

US $1,850*

Get discount code from info@cmaaustralia.edu.au

Go to https://calwest.org/apply/apply_mba.html

CALWEST UNIVERSITY
NORTHRIDGE • CALIFORNIA

ONLINE CPDs

Business Valuation
Enterprise Risk Analysis
International Business Analysis
Project Finance Analysis
Project Management Analysis

SPECIAL OFFER

Members are entitled to 90% off for a limited time!

www.cmaaustralia.edu.au/ontargetonline-cpds/

Supercharge your Career

Trinity College Zurich

With a ***Master of Science in Accounting*** from **Trinity College Zurich**

An Exclusive Offer for CMAs

- ✓ 100% Online
- ✓ Project-Based
- ✓ 0.5 Year Duration
- ✓ Discounted Tuition Fee **(AUD$1,800 for the Full Programme)**

Apply Now
https://tczurich.ch/icma/

A WARM WELCOME TO OUR NEW MEMBERS (MAY - JUN 2024)

Abdennadher, Sonia
Alam, Makhdoom
Amelia, Lia
Amerna, Niña Theresa
Ariyarathna, Ratiyalage Dona
Azam, SM. Shafiul
Belovel, Muhamed
Bhowmik, Bishwajit Kumar
Camua, Zigfrey
Darshana, Samitha
De Fretes, Fortunatus Wesley
de la Paz, Marilou
De Mel, Tharindu
Delnido, Alexander Ernest
Dilrukshi, Weerasinghe Kandambige
Ekanayake, Ruvini
Febriyanto, Amirulloh
Fernando, Dushan
Flores, Rio Melizza
Hassan, Mohamed
Hettiarachchi, Nuwan
Indriasvary, Cindy
Ingente, Maberick
Islam, Md
Islam, Md Aminul
Islam, Mohammad Shahidul
Islam, Mohammed
Istiqomah, Aisyah
Jayathilaka, Dhanesh
Jayawardana, Damitha
Joseph, Niranjala
Katuwavila, Katuwavila Arachchige Anusha
Kumanan, Rasanayagam
Kumara, Galabada Arachchige Nischala
Kumara, Sisira
Lakmini, Weerasinghe kandambige
Liu, Chao
Long, Hazura
Masud, Md. Mahedi
Mbanwie, Gilbert
Melan, Edga
Mohamed Junaid, Mohamed Raleen
Nanditha kumar, Kallalathil
Nayeem, Fauzan
Nishantha, Ranhapugodage
Nugroho, Arief
Pamplona, Francis
Peiris, MASTERSamantha
Perera, Aruna
Perera, Shalika
Perera, Wellambage
Prasanna, Gunananthan
Pritchard, Donna
Radityo, Stefanus
Rahayu, Dian
Rahman, Kazi Md.
Rahman, Mohammad
Samarasinghe, Chinthaka
Shunjeiy, Sinniah
Tua, Jonris Hotman
Varma, Ravi
Wehellage, Nishanthi
Woollett, Diane
Yadagiri, Ashwin
Yunila, Felismina

CMA EVENTS CALENDAR

• August 3-9, 2024:
CMA Program Workshop, Jakarta, organised by RAD Indonesia and Lean Visi Indonesia.

•August 12, 2024:
International Management Accounting Conference (IMAC), organised by CMA Indonesia Branch, IPMI Business School, Jakarta.

• September 7-9, 14-15 & 21-22, 2024:
Nineth CMA Global Zoom Program in Strategic Cost Management & Strategic Business Analysis, Syme Business School, Australia. **(Zoom).**

• September 28-October 6:
4th post-Covid CMA Program Workshop organised by Academy of Finance, Sri Lanka.

• October 12-14, 2024:
Certificate of Proficiency in Strategic Cost Management, SMU Academy, Singapore (12th Intake). **(Zoom).**

• October 18-21, 2024:
Certificate of Proficiency in Strategic Business Analysis, SMU Academy, Singapore (12th Intake). **(Zoom).**

• October 26-28 (SCM) and October- 31-3 November 2024:
The 2nd CMA Program Workshop, Bangkok, organised the Thai Federation of Accountants (TFAC) and the CMA(ANZ) Regional Office in Thailand.

• November: 9-17, 2024
CMA Program Workshop organised by SMART Education Group, Dubai

• November 20, 2024:
Sri Lanka & International Graduation Ceremony, Galadari Hotel, Colombo

• November 22, 2024:
25th Year Celebratory Dinner of CMA in Sri Lanka. Galadari Hotel, Colombo.

• November 29, 2024.
Australian Hall of Fame Event. Club Pavilion, RACV, Melbourne.

PRIVATE PROVIDERS

Wharton Institute of Technology and Science (WITS), Australia

Syme Business School, Australia

Academy of Finance, Sri Lanka

IPMI (Indonesian Institute for Management Development), Indonesia

Singapore Management University Academy (SMU Academy)

Business Sense, Inc. , Philippines

HBS for Certification and Training, Lebanon

SMART Education Group, UAE

Institute of Professional and Executive Management, Hong Kong

AFA Research and Education, Vietnam

Segal Training Institute, Iran

Business Number Consulting, Indonesia

RAD, Indonesia

STRACC Learning LLP, India

Ra-Kahng Associates Ltd, Thailand

Academy of Management Accountancy, Nepal

Blue Globe Inc, Japan

FFR Group APAC, Malaysia

Unnayan Educational Services, India

New Zealand Academy of Management

ICMA AUSTRALIA

Global Head Office

CMA House
Monash Corporate Centre
Unit 5, 20 Duerdin Street
Clayton North, Victoria 3168
Australia

Tel: 61 3 85550358
Fax: 61 3 85550387
Email: info@cmawebline.org
Web: www.cmawebline.org

OTHER CENTREWS

New South Wales
Professor Chris Patel, PhD, CMA
Branch President
Macquarie University

Northern Territory
Professor Lisa McManus, PhD, CMA
Branch President
Charles Darwin University

South Australia
Dr Mei Lim, PhD, CMA
Branch President
University of South Australia

Western Australia
Dr. Vincent Ken Keang Chong
Branch President
UWA Business School

Queensland
Dr. Gregory Laing, PhD CMA
Branch President
University of the Sunshine Coast

OVERSEAS REGIONAL OFFICES

BANGLADESH
Dr. Chris D'Souza
Country Head – Bangladesh (Pro-Temp)
Email:Chris.dsouza@cmaaustralia.edu.au
Website: http://www.cmaaustralia-bd.org/

CAMBODIA
Mr. Sok Sophal, CMA
Country Head- Cambodia
Email: soksophal@lolc.com.kh
Website: www.cmacambodia.org

CHINA
(including Hong Kong and Macau)
Prof. Allen Wong, FCMA
Regional Director and CE - Greater China
Email: info@cmaaustralia.org
allen.wong@cmaaustralia.org

CYPRUS
Mr. Christos Ioannou BA (Hons), MBA , CMA
Regional Director-Cyprus
Email: chioanou@cytanet.com.cy

EUROPEAN UNION
Mr. Rajesh Raheja CMA,
Branch President-EU
Email: rajesh@cmaeurope.net
http://www.cmaeurope.net

FIJI
Dr. Chris D'Souza, CMA
Country Head – Fiji (Pro-Temp)
Website: http://www.cmafiji.org

INDIA
Mr N Muralidharan, CMA
Country Head – India
Email: muralidharan@unnayan.co.in
Website: http://unnayan.co.in/portal/

INDONESIA
Special Capital Region
(Jakarta) Regional Office
Ms. Arum Indriasari – Jakarta Centre
IPMI Business School
E-mail : arum.indriasari@ipmi.ac.id

West Java Regional Office
Mr. Daniel Godwin Sihotang, FCMA
Regional Director - West Java
Email:Daniel.GodwinSihotang@bekaert.com

East and Central Java Regional Office
Dr. Ana Sopanah, CMA
Regional Director - East Java
Email: anasopanah@gmail.com

IRAN
Mr. Alireza Sarraf, CMA
Regional Director- Iran
Email: sarraf@experform.com

JAPAN
Mr. Yoichiro Ogihara
Country Head – Japan
Email: yoichiro.ogihara@cmajapan.org.
Website: http://www.cmajapan.org

LEBANON
Dr. Fawaz Hamidi, CMA
Regional Director - Lebanon
Email: hbs@cmamena.com
www.cmamena.com

MALAYSIA
Mr. Jensen Tan, CMA
Country Head – Malaysia
Email: j.tanjensen@gmail.com
Website: http://www.cmamalaysia.com

West Malaysia Regional Office
Dr. Ridzwan Bakar, FCMA
Deputy Regional Director - West Malaysia
Email: ridzwan.bakar@mmu.edu.my

NEPAL
Mr. Kumar Khatiwada, CMA
Regional Director – Nepal
Email: kumar_kha@hotmail.com
Website: http://www.cmanepal.org

MYANMAR
Mr. Maung Soe Naing, CMA
Country Head – Myanmar
Email: Soe Naing snaing64@gmail.com
Phone: +959 42100 5519 (WhatsApp)

NEW ZEALAND
Mr. Richard Miranda
New Zealand Academy of Management (NZAM)
Regional Director – New Zealand
Email: info@cmanewzealand.org
Website: www.cmanewzealnad.org

PAPUA NEW GUINEA
Dr Thaddeus Kambanei, CMA
Regional Director - PNG
Email: Thaddeus.Kambanei@yahoo.com
http://www.cmapng.com

PHILIPPINES
Mr. Henry Ong, FCMA
Regional Director - Philippines
Email: hong@businesssense.com.ph
http://www.cmaphilippines.com

SINGAPORE
Dr Charles Phua, CMA
Country Head – Singapore
Email: charles_phua@solarisstrategies.com
Website: http://www.cmasingapore.com

SRI LANKA
Mr Kapila Dodamgoda, CMA
Regional Director - Sri Lanka
Email: kapiladodamgoda@yahoo.com
http://www.cmasrilanka.com

THAILAND
Mr. David Bell, CMA
Regional Director – Thailand
Email: david.bell@rakahng.com
Website: http://www.cmathailand.org

UNITED ARAB EMIRATES
Mr. Shakeeb Ahmed, CMA
Regional Director - U.A.E. & GCC Countries
Email:shakeeb@smarteducationgroup.org
Mobile: +971-55-1062083
Website: www.cmadubai.org

VIETNAM
Mr. Long Phan MBusAcc, CPA, CMA
Regional Director- Vietnam
Email: longplt@afa.edu.vn

CMA AUSTRALIA • NEW ZEALAND | Certified Management Accountants