

ASIAN

MANAGEMENT INSIGHTS



DOES ELITE QUALITY MATTER?

Leading by Example and Giving Back to Society

An interview with
N.R. Narayana Murthy,
Founder and former
Chairman of Infosys

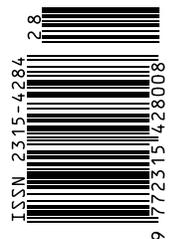
Reimagining Sustainable Urban Communities

In Hong Kong

Increasing the Acceptance

Of cultivated
meat

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Do elites contribute to a society more than they extract from it? In many countries where populism has surged in tandem with declining trust in elites in the political and other spheres, the answer is an emphatic 'No'.

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FROM THE EDITOR

Building urban sustainability with quality elites

Do elites contribute to a society more than they extract from it? In many countries where populism has surged in tandem with declining trust in elites in the political and other spheres, the answer is an emphatic 'No'. The hashtag #TaxTheRich reflected growing resentment and dismay at worsening income inequality, all while activists organised the Global Protest to Fight Inequality during the same week the rich and powerful congregated at the World Economic Forum in Davos in January this year.

Alwyn Lim was part of a research collaboration that produced the Elite Quality Index, which examined the role elites in different countries play in creating value for society at large. Mediation by a strong government is a proven path to elite value creation, but a business-driven approach where corporate profits fund social goals is an alternative. At a fundamental level, he opined a commitment to economic openness and free enterprise dynamism will be crucial for elite value creation.

N.R. Narayana Murthy is a bona fide value-creating elite, founding Infosys and sparking India's ascent to be among a select group of nations at the forefront of information technology. Murthy shares his thoughts on fostering innovation and the importance of creating trust. He also reflects on his lessons learnt as a businessman and citizen, assesses India's current stage of development, and gazes into the future to speak about technology's next big thing post-digital transformation.

Some of the popular anger witnessed today stems from increasingly overcrowded urban dwellings, and much can be learnt from Hong Kong's experience in building New Towns post-World War II, which has contributed vastly to creating high-quality, high-density developments globally. As the city embarks on building its third-generation New Towns, Jeroen van Ameijden, Sifan Cheng, and Junwei Li examine integrated planning strategies that effectively address 21st-Century concerns such as environmental and social sustainability.

In this issue's The Entrepreneur's Corner, Jimmy Thai shares about how the Primer Group, which he formed with his brother and three friends in the Philippines, expanded to become a regional retail giant in one generation without much high-tech wizardry. From quitting a stable job to distributing global brands and establishing Primer's own retail brands, Thai looks back at Primer moving up the value chain and how it built employee loyalty during the pandemic, not forgetting the impending handing over of the business to the next generation in the era of Artificial Intelligence (AI) and digital transformation.

AI is a powerful tool for innovation, but it is not a magic wand. Integrating AI into an organisation's innovation process requires deep understanding of the technology involved and a clear-eyed approach to how AI can help. Adam Tatarynowicz and Utz Claassen propose a Factory Model of Innovation that drives a continuous data-driven innovation cycle which generates more, and better, solutions than the traditional Funnel Model.

AI is also widely known as a key component in ride-sharing services that matches drivers with passengers. What is less well-known is drivers' 'multi-homing' behaviour, i.e., using more than one ride-hailing app to bolster their income. Wang Hai explains the costs of multi-homing and strategies to maximise earnings, as well policy implications for transport and urban planners.

The real estate and construction industry is not the most environmentally-friendly—buildings take up 12 percent of the world's drinkable water and produce 40 percent of Earth's carbon dioxide emissions. Much of this is a corollary of meeting economic targets which are often thought to be achieved at the expense of the environment. Tracy Xie explains how E2 innovation—achieving *environmental goals* without sacrificing *economic ones*—is possible. Above all else, committed leadership to building essential capabilities will make all the difference.

The shipping industry is relatively friendlier to the environment: marine transport carries nearly 80 percent of all transported goods but consumes roughly 20 percent of total energy expended. BHP, the world's largest mining company, decided to improve that further by increasing the use of Liquefied Natural Gas (LNG), which produced 30 percent less emissions than conventional fuel. This issue's Case In Point by Shantanu Bhattacharya, Flocy Joseph, and Mahima Rao-Kachroo details how the mining giant convinced multiple stakeholders such as vessel owners, regulatory authorities, and fuel suppliers to make the switch.

All these changes will be reflected in financial statements, which increasingly highlight performance not measured in dollars and cents. Financial reporting is evolving beyond the traditional bean-counting functions to transform into a stewardship role, says Yvonne Chan. A thorough understanding of accounting standards will be essential, she adds, but culture-building and change management will be key steps to take along an organisation's sustainability journey.

We also look at sustainability from the food angle and a communication point of view. Cultivated meat, also known as lab-grown meat, is the closest thing to replicating the sensory and nutritional attributes of conventional meat without the attendant animal welfare and environmental concerns. However, considerations over its 'unnaturalness' and cost, among others, have translated into slow consumer acceptance. Mark Chong explains how marketing and message framing can address consumer reluctance and boost cultivated meat consumption.

The merit of cultivated meat is far down the list of priorities for developing nations, whose citizens often lack basic healthcare. Edward Booty makes the case that US\$5 per resident would solve healthcare access issues for the vast majority of the underserved. Perhaps even more importantly, the developing world represents a business opportunity for healthcare and pharmaceutical companies. The key to success is accurate field data.

It all perhaps comes together: as global inequality drives an expanding wedge between the haves and the have-nots, we invite you to turn the page and read for yourself why elite quality matters, and how AI and sustainability will provide the backdrop for the coming years. Does it sound like fiction? Until 1969, going to the moon did too.



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Leading by Example and Giving Back to Society



N.R. Narayana Murthy, the founder and former Chairman of Infosys, a global provider of next-generation digital services and consulting, speaks with Havovi Joshi about the Indian growth story, digitalisation, and his leadership philosophy.

You once said, “Let us build an India where every child has access to education, healthcare, and opportunity.” How has India fared in achieving this goal?

India is currently the fastest growing country among the top 20 economies in the world, and the government has done a good job of encouraging economic growth. My statement echoes the vision of the founding fathers of our country. They fought for our freedom to ensure that the poorest children in the remotest village have decent access to education, healthcare, nutrition, and shelter, and hope for a better quality of life for themselves and their progenies. Therefore, this clarion call of our founding fathers is a very important action item for the entire country. Given that we are a 1.4-billion-people country and rank low on the United Nations (UN) Human Development Index, there is work cut out for us. We must bring the impact of economic growth not just to urban India where it is very visible, but also to the remotest parts of our country. We can do this by

creating jobs for our semi-literate and illiterate Indians who live mainly in rural India. India’s literacy rate is about 75 percent, and we have about 20 percent of semi-literate people, so it is fair to say that we have over 500 million people who must be provided with jobs that do not require a college education. We should learn from other countries that have managed this well, particularly China.

We must focus on rural India and provide it with good infrastructure for corporations and businesses to create quality jobs that offer an adequate income. Also, we must bring rural India into the mainstream of our economic progress. That is a vision every single Indian should embrace. Our youth, especially those who are educated, are our biggest asset. They are the ones who can lead India to become a nation that has better equality, opportunity, prosperity, and a robust rate of economic expansion for everyone.

For India to become a prosperous country for every citizen, our economic growth must also come from rural India, from the weaker sections of our society, from those who are not literate, and from every section of society, including all religions, castes, and economic classes.

How have the Infosys Science Foundation and the Infosys Prize been instrumental in enabling educational and research investment, and shining the spotlight on Indian scholars?

When we established the Infosys Foundation in 1996 and the Infosys Science Foundation in 2009, we were addressing two important needs of our country. Infosys Foundation primarily focuses on the problems of the ‘here-and-now’. So far, it has set up about 75,000 libraries in rural India. At the same time, it has built hospitals in several parts of the country and donated equipment to them. It has further contributed to the work of the Akshaya Patra Foundation in providing quality midday meals to 2.3 million school children every school day, and offered scholarships to children who attend government schools.

On the other hand, looking ahead, we believe that the hopes and dreams of our country to become a developed one will only be achieved if India embraces higher education and research. We realised that one way of encouraging that was to identify role models in higher education and research. Therefore, we started the Infosys Prize which awards US\$100,000 annually to those who have excelled in each of the following six categories—Engineering and Computer Science, Humanities, Life Sciences, Mathematical Sciences, Physical Sciences, and Economics and Social Sciences. By doing so, we believe we would be creating role models in research for our youth to emulate. These role

models will be the leaders who can use the power of research and advanced knowledge to solve the grand challenges our country faces.

As technologies mature, what was once innovative, such as generative Artificial Intelligence (AI), including ChatGPT, will one day become commoditised. How can organisations identify such turning points and wean themselves off as cutting-edge technology dulls away?

I had thought about this problem as early as 1976-77 when I realised that the coming years would be full of challenges and opportunities. Our modern world is a rapidly changing one, and the only constant for us is change. Technology and business models change rapidly, and different countries grow fast at different points in time. As a result, there are always opportunities for a company like Infosys in various business domains in different parts of the world, in new technologies, and in new businesses.

We realised that the best way to succeed in such a fast-changing world is to embrace what I term ‘learnability’. To me, learnability is the ability to extract generic inferences from specific instances and use those learnings to solve new unstructured problems. Thus, every candidate who applies to Infosys for a job must first clear the learnability test, which is primarily a set of puzzles, before advancing to the next stage in the recruitment process.

The second thing we realised was that innovation is the most important instrument to obtain, sustain, and enhance our market share. Dominant market share is achieved when a corporation offers products and services with a highly differentiated and not-easily-beatable business value. To do so on a sustainable basis is to leverage the power of continuous innovation. For us, the challenge was to make innovation a permanent feature of Infosys. We wanted to create an environment where everybody believed in innovation and wanted to be innovative. The mindset of innovation had to become part of the DNA of the organisation. It had to be from the janitor to the chairman of the company. To do this, we had to make everybody in the company understand what innovation was. Innovation, to me, is about seeking answers every day to the following three fundamental questions: How do I do whatever I am doing today faster tomorrow? How do I do whatever I am doing today cheaper tomorrow? And how do I do whatever I am doing today to deliver a higher level of quality, a greater level of comfort, a better level of user interface, and better value for money tomorrow?

To achieve this, we had to adopt new processes, improve the devices we use, and employ entirely new methods to get to the next level of cost reduction and improvement in business value, productivity, and quality. Our task was to ensure that there was an environment that encouraged everybody in the company to experiment, discuss, debate, and offer suggestions on how the corporation could improve. So at least 35 percent of the people in every strategic decision-making committee were less than 30 years old. The reason was very simple. Such people were going to spend a lot more time in the company than I would, because I am much older. Therefore, they would have a much bigger stake than me in making the company better.

I have also found that each generation of students, academics, and professionals happens to be much better than the previous one. Hence, to enable the staff to come up with new ideas and strategies, we created an environment where nobody was afraid of offering suggestions. At Infosys, we had a day called *Ideation Day* where only people below 30 years of age made presentations on how to make the company better. Meanwhile, we, the senior people, took the responsibility to evaluate and implement the suggestions that were accepted.

By doing some of these things, we embraced innovation and improved our productivity and quality, and offered value for money to our customers. I believe that is the best solution to embrace and benefit from the barrage of new technologies that come a corporation's way from time to time. At the end of the day, science is about unravelling nature, and technology is about using the power of science to make the lives of people better and more productive. This must simply be accepted, and corporate leaders must prepare their employees to use these fast-changing technologies without fear to make the corporation a better and more productive place.

What do you think will replace digital transformation as the next big growth engine?

As an engineer, I feel that the Internet of Things (IoT), AI, Big Data, robotics, and machine learning will play a very important role in the future. AI and machine learning are developing very fast, but Big Data and IoT have not been progressing as quickly as I would have liked. The reasons are very clear. There is a large amount of data generated every day in every country, but we still have not put in place the infrastructure that is needed for collecting and storing Big Data, at least in the developing world. Some countries like the US, Singapore, and some European countries may have been successful in doing so, but this is not the case for every country. It is only when every country in the world understands the power of Big Data

and machine learning, and creates suitable infrastructure for them, will we have the ability and infrastructure to collect more data and tap its full potential, because once you have the data, you can then analyse it using machine learning and deep learning. And that is when you can use supervised algorithms, unsupervised algorithms, and semi-supervised algorithms to leverage the power of AI.

But the bigger challenge we have is to tap into the power of IoT in our daily lives in fields like education, transportation, healthcare, manufacturing, public governance, and public and private services. For us to leverage the power of automation, we must enhance the use of digital process control in every country, which is a big challenge. Still, I am very excited about IoT and want it to become part of our lives, not just in developed countries, but throughout the world.

What are some of the key global and regional trends and challenges that you are observing very closely?

The first trend that I have seen in the last 10 years is the issue of nationalism and of focusing less on globalisation. Earlier in the eighties and the nineties, globalisation was always on the front burner. Everybody in the boardrooms of large corporations extolled its virtues. However, there were two problems with the rapid growth of globalisation. Some extraordinarily competitive countries like China built up huge trade surpluses. This made some developed nations unhappy with these high-growth countries that were not buying enough from the developed world, and only exporting more and more. So, the inability to maintain a desirable trade balance between nations led to the rise of nationalism. The second issue is that in many parts of the world, especially in emerging markets where there are large countries with huge populations like those in South Asia, Africa, and South America, globalisation has not improved the lives of most of the rural and poorer people. As a result, politicians began to wonder whether globalisation is indeed the solution for a better and more prosperous world for everybody.

There is also a tide of opinion in several boardrooms that despite having a well-intentioned institution like the UN and leaders all over the world professing the importance of peace and harmony, we have not been able to develop enduring solutions for regional conflicts. This has created a lot of tension amongst the poorer sections of each of these warring factions, and they are becoming desperate.

The third important change that has happened, thanks to the previous focus on globalisation, is that many developed countries have moved manufacturing to certain parts of the

world like East Asia and Southeast Asia, choosing instead to concentrate on high-end services and precision manufacturing. But there are only so many jobs that you can create with such a strategy, so this has created a huge disparity between the well-to-do and well-educated professionals on the one hand, and the lower-middle class and the poor people who worked in manufacturing and services on the other hand. This tension has created distrust and a certain amount of unspoken hostility among the lower-middle class and the poor people in the developed world.

Therefore, in my opinion, nationalism, dissatisfaction with globalisation, the inability to bring peace and harmony to warring factions in different parts of the world, and the gradual erosion of the middle class in developed nations are some of the key challenges we face. In addition, there is the issue of economic cycles. Every nation goes through ups and downs in its economy periodically. For example, Europe is experiencing high inflation now. So is the US to some extent. This has created political turmoil, and these are the issues that we are discussing in various corporate and advisory boards that I am part of.

As an experienced leader who has been through several crises, has your leadership philosophy changed over the years?

It has not. I have had the fortune of having parents and early teachers who helped me embrace time-invariant and context-invariant values. The first thing that was taught to me was what Mahatma Gandhi professed—that is, leadership by example in honesty, transparency, teamwork, hard work, fairness, discipline, and putting the interest of the nation ahead of one's personal interest. I believe that leadership by example is the most powerful instrument that a leader possesses to create trust in his or her people. Walking the talk is the essence of leadership. The late Singapore founding prime minister Lee Kuan Yew was another great example of leadership by example.

The second thing that I learned early on was to always seek respect from my stakeholders. It does not matter whether you are a student, professional, bureaucrat, corporate leader, or political leader. One has to learn to ask oneself before one makes a decision whether that decision would enhance respect for the leader from the people who will be impacted by his or her action.

The third thing that I was very fortunate to have learned from my parents is austerity. My father often told me that one must learn to enjoy the simple things in life because that is the best way to be happy, whether one has much money or not. He gave me three examples of how one could do so. The first

habit was reading. Newspapers, magazines, and books were available for free at the public library in every small town in India then. Second, listening to music was free in those days since music would be played on a loudspeaker daily for an hour or two in public parks. We did not have a radio at home then. Finally, he wanted me to make friends with people who had a good set of values—people from whom I could learn something valuable, with whom I could laugh. This is what I do even today. It does not cost much money to read, listen to music, and spend time with friends with good values. My mother used to say that we must live like a saint, think like a scholar, and act like a warrior.

So my leadership philosophy has not changed, because my values continue to be the same—leadership by example, good work ethic, discipline, transparency, accountability, honesty, putting the community's interest ahead of my personal interest, and fairness. Fairness is following the Golden Rule: "Do unto others what you would like them to do unto you". These values are time- and context-invariant.

What advice would you have for the next generation and the youth entering the workforce today?

For this, I will use the example of Singapore. I would request the youth in Singapore to remember that this extraordinary achievement of becoming one of the wealthiest nations in the world happened because of its great leader—Lee Kuan Yew. Lee demonstrated high aspiration, intelligence, discipline, hard work, teamwork, honesty, and openness to learning from other countries and cultures. In addition, the ability to debate and disagree without being disagreeable is an attribute I would like the current generation of Singaporeans to continue to have.

I believe in what was taught to me by my high school teacher, who said that performance leads to recognition; recognition leads to respect; and respect leads to power. Therefore, you simply must continue to do your best in everything you do to be respected and economically powerful. 

N.R. Narayana Murthy

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DOES ELITE QUALITY MATTER?



Yes, it can make or break a society.

by Alwyn Lim

Elites are an inevitability in society. In recent years, emerging populist movements across different countries have highlighted stark problems with growing levels of global inequality. Are elites the cause of these problems associated with inequality, and can they be a solution? More fundamentally, what can elites do to bring about a positive impact on society? Recent research and a new global ranking index have shed light on these questions.

WHO ARE THE ELITES?

According to economists Tomas Casas and Guido Cozzi, elites are “narrow, coordinated groups that run the largest income generating business models in an economy and which successfully accumulate wealth”.¹ This includes not only segments such as economic interest groups, technology entrepreneurs, oil cartels, and bankers and financiers, but also prominent individuals in society, such as politicians, religious leaders, as well as media and cultural figures. Elites are thus not simply wealthy persons or families but also coordinated groups whose ideas and business models have considerable influence on the whole of a society’s economy and well-being.

This perspective on modern elites has much historical precedence: already in the 1950s, sociologist C. Wright Mills wrote of the ‘power elite’ in American society, noting how elites dominated major political and economic institutions in the United States.² Interlocking government, business, and military elites in Southeast Asia were also a consistent feature in the developmental trajectories of countries in that region. In New Order Indonesia³, for example, patronage was organised through the president’s office, extending through government bureaucracies, state-run businesses, and even charitable foundations. In post-1990s Thailand, business elites exerted direct influence on political parties, elections, and even government bureaucracies to advance their business interests.⁴ As history shows, elites are a sociological feature in all societies across time, making elite existence a mathematical certainty in all social formations.

WHY ELITE QUALITY MATTERS

In recent years, growing levels of global inequality across the developed and developing worlds have led observers to question the role that elites play in society, specifically whether they have contributed to worsening inequality. For example, national populist ideologies and movements have emerged to critique global elite decision-making when it comes to issues like trade, outsourcing, and immigration. Popular observations often portray elites as enriching themselves at the expense of the rest of society. In the US and Europe, these sentiments have been articulated by populist movements led by figures like Donald Trump and Marine Le Pen.⁵ In Southeast Asia, political populism focuses less on immigration but critiques elites by assessing them through ethnic and religious lenses.⁶

Are society's elites guilty as charged? A recent social scientific endeavour helmed by the Foundation for Value Creation has sought to investigate the issue. Researchers at the University of St. Gallen, with international collaborators from several institutions, including Singapore Management University, devised an annual global elite quality ranking called the Elite Quality Index.⁷ In its fourth iteration, the 2023 edition ranked 151 countries based on how well their elites contributed to society. For the previous three iterations of the Index, Singapore had ranked first for elite quality, while Switzerland was placed first in 2023.⁸

The core idea behind the Elite Quality Index is this: because elites have greater influence and coordination capacity over society's resources, their business and social models can have either positive or negative impacts on society. On one hand, elites can engage in rent-seeking practices. This may lead to them extracting more value than what they have created for society. One example is Vietnam's economy as it transitioned to a market-based model in the 1980s. During this period, the political elites had restricted entry into Vietnam's textiles, telecommunications, and motorcycle industries.⁹ Conversely, elites can create broader social and economic benefits when they produce more value than what they have taken. For instance, profits from Singapore's sovereign wealth funds are channelled into the country's reserves and operating revenue.¹⁰ Thus, elite quality clearly matters as their practices can either be more beneficial or detrimental to a country's economic performance and human development.

HOW TO MEASURE ELITE QUALITY

The Elite Quality Index does not examine specific individuals or groups in particular countries. Rather, it uses aggregate measures of political economy at the country level to

approximate the combined influence of elite models and practices.¹¹ Some of these measures include the Gini coefficient, regulatory quality, billionaires' wealth as a proportion of Gross Domestic Product (GDP), life expectancy, environmental protection, trade freedom, and health efficiency. Unsurprisingly, the measures encompass a wide range of political, economic, and social outcomes. In fact, the Index uses over 100 of these political and economic measures from cross-national data collected by international organisations like the United Nations and the World Bank.

The Index uses these measures to determine how much 'power' elites have in a country in relation to how much 'value' they create for that country. A country where elites have a higher power score suggests a greater possibility for them to take advantage of their dominance in politics and the economy to engage in rent-seeking behaviour. Meanwhile, a country where elites have a higher value score suggests that the elites' business models and practices have contributed substantially to the economic and social development of that country (Table 1 shows the top 20 countries ranked in the 2023 Elite Quality Index).¹²

ELITE QUALITY INDEX 2023 – TOP 20 COUNTRIES

Country	Rank	Change from 2022	Score
Switzerland	1	1	68.0
Singapore	2	-1	67.1
New Zealand	3	11	65.7
Japan	4	14	65.3
Israel	5	-1	64.9
Netherlands	6	-1	64.8
Australia	7	-4	64.4
Germany	8	3	64.4
United Kingdom	9	-1	64.4
Sweden	10	-4	64.0
Denmark	11	1	63.7
Canada	12	-5	63.5
Norway	13	-4	63.1
Finland	14	2	62.5
Austria	15	2	62.4
France	16	8	61.9
Belgium	17	6	61.8
Estonia	18	-8	61.5
South Korea	19	0	61.4
United Arab Emirates	20	0	61.0

TABLE 1

The core idea behind the Elite Quality Index is this: because elites have greater influence and coordination capacity over society's resources, their business and social models can have either positive or negative impacts on society.



WHERE DO THE COUNTRIES STAND?

As in previous years, Switzerland and Singapore dominated the 2023 Elite Quality Index, with countries like New Zealand and Japan climbing several notches to rank among the top five countries. The list of top 20 countries in 2023 shows a large concentration of European countries but also includes the UK, Canada, South Korea, and the United Arab Emirates. According to the Index, these countries have the highest quality elites, and their elite business models have contributed significant social and economic value in relation to their coordinative power in the respective countries. Elites that have higher coordinative power—a reflection of their ability to act in concert to influence outcomes—are in a greater position to seek rents for themselves rather than contribute to the wider society. Perhaps unsurprisingly, countries with lower levels of human and economic development also have the lowest elite quality. Countries like Sudan, Afghanistan, Haiti, Syria, and Yemen rank among the lowest on the Elite Quality Index.

The case of Singapore is instructive for making sense of high-quality value creators. Singapore's elites have a high degree of political and economic power (ranked 23rd on the power sub-index), suggesting a very high degree of control and coordination. On this dimension, Singapore scored well on measures like the control of corruption, government responsiveness to change, regulatory enforcement, economic complexity, and venture capital finance. Nevertheless, Singapore elites' models and practices have contributed significantly to value creation, enabling the country to rank first on the value sub-index. Several measures like mean Programme for International Student Assessment or PISA scores, natural resource rents, health efficiency, labour productivity, economic globalisation, and trade freedom reflect the economic and human development value created for Singapore.

Among the major world economies, the US and China, ranked 21st and 22nd respectively, are in similar positions when it comes to elite quality. Strikingly, the US elite quality ranking fell six positions compared to that of 2022, suggesting that elite practices there have contributed less political and economic value in relation to how much power and coordination capacity they have in the country. That the US and China have come to parity in elite quality has implications for the increasing rivalry between the two major world powers. As they vie for global power and regional influence, elite contribution to value creation will become more crucial to maintaining growth and competitiveness in a climate of increasing de-globalisation.

ELITE QUALITY IN ASIA

Elite quality in Asia is as diverse as the many cultures and countries that make up the region. As mentioned, Singapore and Japan both ranked in the top 10 of the Elite Quality Index, suggesting that their high quality elites have contributed significantly to value creation. South Korea and China, both countries that have seen rapid economic growth, are ranked 19th and 22nd respectively. Together, these countries lead elite value creation in Asia.

Southeast Asian countries also demonstrate no small measure of elite value creation. Malaysia and Thailand experienced rapid industrialisation after the 1950s and embraced economic restructuring after the 1997 Asian Financial Crisis. Despite enduring problems with inter-ethnic tensions and social inequality, both countries have fared well in areas such as collective bargaining and openness to business and free enterprise, reflecting quality elite value creation. Vietnam has also experienced dramatic economic growth since the 1980s, as reflected by its rise on the Elite Quality Index. Like Malaysia and Thailand, Vietnam has quality elites that have

contributed to value creation. However, the areas of concern for Vietnam include human rights, social mobility, and environmental performance. Indonesia's elite quality has also risen, but their contributions to value creation have been more modest compared to those of other Southeast Asian countries. Nevertheless, initiatives by the elite in Indonesia like government support for entrepreneurship and favourable corporate tax rates show promising avenues for value creation in the future.

TWO PATHS TO VALUE CREATION

As is evident from this overview, elite quality varies considerably across countries and the Elite Quality Index demonstrates that elite practices can have either positive or detrimental consequences for a country's human and economic development. Despite ambivalent portrayals of elites, the potential for elite contribution to inclusive value creation has often been underestimated. The results of the Elite Quality Index reveal one consistent and crucial point: a country's commitment to economic openness, international free trade, and a free enterprise system is central to generating the resources needed for value creation in society.

However, there also appear to be two paths to elite value creation. Singapore and Switzerland have both topped the Elite Quality Index for several years now but their elite models reveal different pathways. In Singapore, elite value

creation is mediated by a powerful state capitalist system, where the government coordinates public and private actors, with centralised planning by its technocratic elite. For instance, government agencies like the Economic Development Board and Enterprise Singapore facilitate business activities both domestically and abroad, promoting Singapore as an investment destination and targeting industries with high growth potential. For example, profits from Singapore's sovereign wealth funds contribute directly to significant social transfers, mobilising economic opportunities for its citizens, and supporting its massive public housing system. Because a significant portion of those profits go into the government's operating revenue, the Singapore government is able to administer various infrastructural, housing, education, and healthcare and social support programmes. Where the context of Singapore's elite value creation is concerned, it is very much a case of mediation by the state.

In contrast, elite value creation in Switzerland is less dependent on state mediation. The country has a long tradition of political and administrative decentralisation, and businesses have considerable autonomy in the use of resources for investment, research, innovation, and development. Switzerland's federal structure cedes most governance decisions to the local and canton levels, giving local areas the flexibility to experiment with initiatives like lowering tax and regulatory burdens, introducing new financial technologies like cryptocurrencies, and providing support for small businesses. Economic networking and openness in Switzerland are also primarily business-driven, as is business contribution of profits to social and development goals.

This article is not the place to adjudicate between these two national models. In fact, we believe that state-driven and distributed value creation can both be valid pathways to enable the elites to generate social value. Both models offer lessons for countries with different developmental trajectories.

THE FUTURE OF ELITE VALUE CREATION

It is a certainty that elites in society will continue to have considerable impact over how value is created, and how inclusive and sustainable that value creation will be for their respective societies. Moving forward, we can anticipate the following trends that will be of great interest to public actors and policymakers. To begin with, despite emerging de-globalisation, economic openness will remain crucial to many countries as a source of elite value creation. In addition, free enterprise approaches that encourage business autonomy and innovation are more likely to boost elite value creation rather than state-centred approaches with little provision for free enterprise dynamism. Nevertheless, governments still play important roles in facilitating elite business models while channelling profits towards sustainable social objectives.

We also expect that ecological sustainability will feature more prominently in future elite value creation. Environmental issues are now mainstream concerns and business elites are becoming more aware that value creation also includes environmental impact. Crucially, innovation in ecological business practices, rather than just state regulation, will drive value creation. Additionally, social sustainability has been found to relate significantly to human and economic development. Elite models that generate returns for social cohesion and public security will be more determinative for value creation.

In summary, elites are an inevitability in society but elite quality matters. Elite business models can take more than they give but they can also create more value than they extract from society. Countries vary in their elite quality and there are different paths to elite value creation. In the coming years, however, economic openness and free enterprise dynamism will remain central to elite value creation. Ecological and social sustainability issues will become new frontiers of value creation where elites can take the lead. [AMI](#)

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Endnotes

- 1 Tomas Casas and Guido Cozzi, "Elite Quality Report 2023: Country Scores and Global Rankings", Foundation for Value Creation, 2023.
- 2 C. Wright Mills, "The Power Elite", Oxford University Press, Oxford, 1956.
- 3 This refers to the period after the late Suharto, who was the president then, took over in 1966. The term is meant to contrast with the period when his predecessor Sukarno was in power, which was termed Old Order Indonesia.
- 4 William Case, "Interlocking Elites in Southeast Asia", *Comparative Sociology* (2), 249-269, 2003.
- 5 Roger Eatwell and Matthew Goodwin, "National Populism: The Revolt against Liberal Democracy", Pelican Books, London, 2018. See also John B. Judis, "The Nationalist Revival: Trade, Immigration, and the Revolt against Globalization", *Columbia Global Reports*, New York, 2018.
- 6 Thomas B. Pepinsky, "Migrants, Minorities, and Populism in Southeast Asia", *Pacific Affairs*, 93(3), 593-610, 2020.
- 7 See Elite Quality Index website at <https://elitequality.org>.
- 8 Tomas Casas and Guido Cozzi, "Elite Quality Report 2023: Country Scores and Global Rankings", Foundation for Value Creation, 2023.
- 9 Christine Ngo and Vlad Tarko, "Economic Development in a Rent-Seeking Society: Socialism, State Capitalism and Crony Capitalism in Vietnam", *Canadian Journal of Development Studies*, 39(4), 481-499, 2018.
- 10 Saw Swee-Hock and Linda Low, "Sovereign Wealth Funds", *Saw Centre for Financial Studies*, Singapore, 2009.
- 11 Céline Diebold, "How Meaningful is the Elite Quality Index Ranking?", *Social Indicators Research*, 163, 137-170, 2022.
- 12 Readers may refer to the Elite Quality Index website for the full report and ranking of countries.

Despite emerging de-globalisation, economic openness will remain crucial to many countries as a source of elite value creation.



REIMAGINING SUSTAINABLE URBAN COMMUNITIES IN HONG KONG



Using environmental and social urban design principles to create future new towns.

by Jeroen van Ameijde, Sifan Cheng, and Junwei Li

Hong Kong began building New Towns in the 1970s in response to a post-war period of rapid population growth. From the first-generation developments (Tsuen Wan, Sha Tin, and Tuen Mun) to the second-generation ones (Tai Po, Yuen Long, and Fanling/Sheung Shui) built in the 1980s and early 1990s, the continued development of the Special Administrative Region's (SAR) new towns has had a significant impact globally, especially in Asia.¹

The territory's approach has provided pivotal insights into population decentralisation and housing supply, as well as the creation of self-contained communities, and public transport nodes within a high-density urban form.² These insights have been applied to the design of its third-generation new towns, as well as to a series of new planned "New Development Areas" (NDAs) located near the border with Mainland China. From land-use mix to transport planning and the creation of social space, Hong Kong's city planners are refining their strategies to address emerging challenges such as environmental sustainability, social sustainability, and community placemaking.³

In this article, we explore three conceptual strategies that draw on lessons from the planning achievements of existing new towns to improve the long-term vibrancy and sustainability of these new settlements. They include The Hybrid City, The Ecological City, and The Happy City.

TOWN PLANNING IDEAS HONG KONG-STYLE

Inspired by British construction methods and European Modernist planning theories, Hong Kong has devised a unique model of urban development, distinct from its traditional urban areas. The towns were planned as self-contained communities comprising public and private housing, industrial areas for employment, and a town centre that offered social, cultural, and commercial facilities. The designs aimed to balance density and liveability by combining compact high-rise building typologies with abundant public spaces and facilities. Similar to what was envisioned under English urban planner Ebenezer Howard's Garden City concept,⁴ living and working zones were separated from each other, but in view of the territory's land scarcity, compact high-rise districts were constructed

with vertically-separated systems for vehicular traffic and pedestrian flow. This high-density urban design promoted walking and public transport use, and improved access to facilities and services for residents, while also reducing environmental impact.

Compared to Hong Kong's organically-expanded urban core, the new towns offered planned urban environments that support health and well-being, implementing the latest design standards for public space and recreational facilities. The increased accessibility and diversity of facilities encourage social interaction and a sense of belonging, which can enhance the social sustainability of communities.⁵ However, such high-density cities can also produce negative effects such as increased prices, reduced access to green spaces, and social exclusion.⁶

We highlight four key considerations from Hong Kong's experience of designing new towns.

Planning balanced and mixed land-use patterns

A key consideration in creating vibrant, diverse, and socially-inclusive new town environments is the underlying planning philosophy of land-use planning. Hong Kong's first generation of new towns emphasised 'balanced development', which meant that equal proportions of public and private housing were spatially mixed. This was done to prevent segregation between the low-income and middle classes. In turn, the land-use planning of the second generation of new towns separated industrial and residential land, using landscape features as buffer areas. As the third-generation new towns were planned around high-connectivity transport nodes, there has been less emphasis on the integration of living and working spaces. Nevertheless, the large Transit-Oriented Development (TOD)-based commercial centres⁷ (such as in Ma On Shan and Tseung Kwan O) and the SAR's highly distributed education and healthcare networks offer a range of local employment opportunities and services.

Our study of the land-use condition of the three generations of new towns found that the proportion of residential land is similar across all towns (30 to 35 percent). In fact, the third-generation new towns have increased proportions of commercial land, while the size of industrial land has been significantly reduced. The open space land ratio has remained constant at 15 percent throughout the new town planning stages. This corresponds with the 'compact city' development model, in which the size of public open spaces is restricted by planning regulations and the economic parameters of high-density development. Surveys, however, have found that while Hong Kong residents are satisfied with the

quality of public space facilities provided in most districts, the accessibility to and variation of activity spaces should be improved.⁸ To enable universal access to sports and recreation, a range of public spaces should be distributed across urban districts, instead of being grouped together in a large central park. Also, quantity-based planning requirements should be accompanied by qualitative design principles, so that there are more engaging and supportive open spaces.⁹

Promoting public transport use and walking

Hong Kong's new towns are served by efficient public transport systems such as the metro, bus, and light rail, which enhance social connectivity and facilitate the economic interaction among different urban nodes. As a result, the SAR is amongst cities with the highest use of public transport per capita.¹⁰ Its relatively low degree of private car use also contributes to its environmental performance, air quality, and pedestrian-oriented streetscapes. These qualities are most apparent in the territory's older urban districts, where historic planning layouts have created narrow roads, which are easy to traverse with pedestrian crossings or elevated footbridges. In the new towns, however, vehicle roads are planned as multi-lane arteries, creating spatial barriers between different housing estates and communities.¹¹ As the majority of residents live in public housing and do not possess cars, cycling and walking could be integrated more prominently.

While the new towns were built with the intention of creating self-sufficient communities, a significant number of people commute between the new towns and the historic urban core. As most higher-value companies prefer to be located in proximity to one another, and close to the opportunities and services of the central areas, there is pressure to expand existing road and rail networks across the territory. A lack of street-facing retail spaces in some new towns is an additional factor affecting the walkability and liveliness of the street environments, leading to a lack of social integration and opportunities for local entrepreneurialism. While the improvement of these issues in existing new towns is yet to become a policy focus, lessons are being incorporated into the planning of novel new towns, so that there are better quality walking environments and cycling systems.¹²

Designing public spaces for residents' quality of life needs

The development of public space in new towns has undergone significant changes over time. In the early stages of new town development, public spaces such as playgrounds and sports

Surveys have found that while Hong Kong residents are satisfied with the quality of public space facilities provided in most districts, the accessibility to and variation of activity spaces should be improved.

fields mainly served as functional spaces for the residents' daily needs. However, with communities becoming more prosperous and having higher expectations, public space design has gradually evolved to provide a diversity of uses and experiences, such as incorporating more greenery and recreational facilities, and providing spaces for social interaction. As a result, new town residents now have access to a range of public spaces that not only meet their functional needs but also enhance their overall well-being.

Our study explored the relationship between the number of social activities and the spatial distribution of public spaces within the new towns. The third-generation new towns, which were designed with more widely distributed open spaces and greenery, have a higher probability of social activities occurring in public areas. In comparison, the second-generation new towns, which feature limited recreation spaces in and around their urban core, show fewer outdoor activities taking place. The findings suggest that the design, availability, and accessibility of open spaces play an important role in promoting social activities and community interactions within the new towns.

Designing for better urban micro-climates

Principles to design urban forms in relation to environmental qualities such as urban ventilation, shading, and climate comfort have become significantly more advanced through

scientific research in recent decades.¹³ Well-designed openings in the urban massing in relation to prevailing wind directions help to prevent the urban heat island¹⁴ effect,¹⁵ cool public spaces, and disperse pollution.¹⁶ Urban climate comfort is closely connected to the improvement of the public realm and quality of life of urban residents, as more comfortable public spaces are also more conducive to recreation and socialising activities which contribute to healthy lifestyle and communities.

Extensive studies have shown that urban greening can lower ground temperatures, and improve air quality and psychological well-being, in addition to their carbon-capturing properties.¹⁷ Green features can include trees, shrubs, grasses, and flowerbeds incorporated in public spaces such as parks, plazas, road and sidewalk elements, and the roofs and facades of urban buildings.¹⁸ Our study found that Hong Kong's new towns are relatively green compared to its older urban districts, and later generations of new towns have higher degrees of greening. As global warming will result in more frequent and intense periods of high temperatures, shaded public spaces and urban ventilation are crucial factors to help residents cope with the effects of climate change. The territory's urban design solutions around urban greening, breeze corridors, and covered walkways could thus be useful for deployment in other cities located in subtropical climate zones.

INTEGRATED PLANNING STRATEGIES FOR SUSTAINABLE URBANISM

Hong Kong is currently developing detailed planning strategies for several new urban expansion projects, including the Kau Yi Chau Artificial Islands, projected to house 550,000 residents, and the Northern Metropolis, aimed at housing 2.5 million inhabitants.¹⁹ Lessons from the planning achievements of existing new towns can be instrumental in ensuring the long-term vibrancy and sustainability of these new settlements. We will now elaborate on a series of conceptual strategies to help create healthy and vibrant urban districts for future communities.

The Hybrid City

Hong Kong's urban vibrancy has long since been fuelled by neighbourhoods with dense combinations of different types of people and activities. While some new towns have separated social and economic functions, this proposal embraces the fine-grained mixing and interaction of live, work, and play for organic forms of innovation. Instead of traditional planning approaches based on land use, which use zoning and single ownership of

urban plots, this vision assumes a three-dimensional function mix model which responds more effectively to the opportunity offered by vertically-separated circulation systems.

An example of this approach is illustrated in Figure 1, which is part of a catalogue of planning studies that explores different public space networks, function mixes, and urban densities. It achieves a development density (floor area ratio) of eight, which is similar to that of Hong Kong's existing transit-connected new town areas. At ground level, cars are kept outside of the cluster to prioritise walking and cycling. A group of separated podium blocks surround internal garden plazas and

The Ecological City concept explores how urban planning measures can promote eco-friendly behaviour and activity routines, such as using sustainable forms of commuting, including walking and cycling.

EXAMPLE OF A THREE-DIMENSIONAL PLANNING MODEL FOR HYBRID URBAN NEIGHBOURHOODS

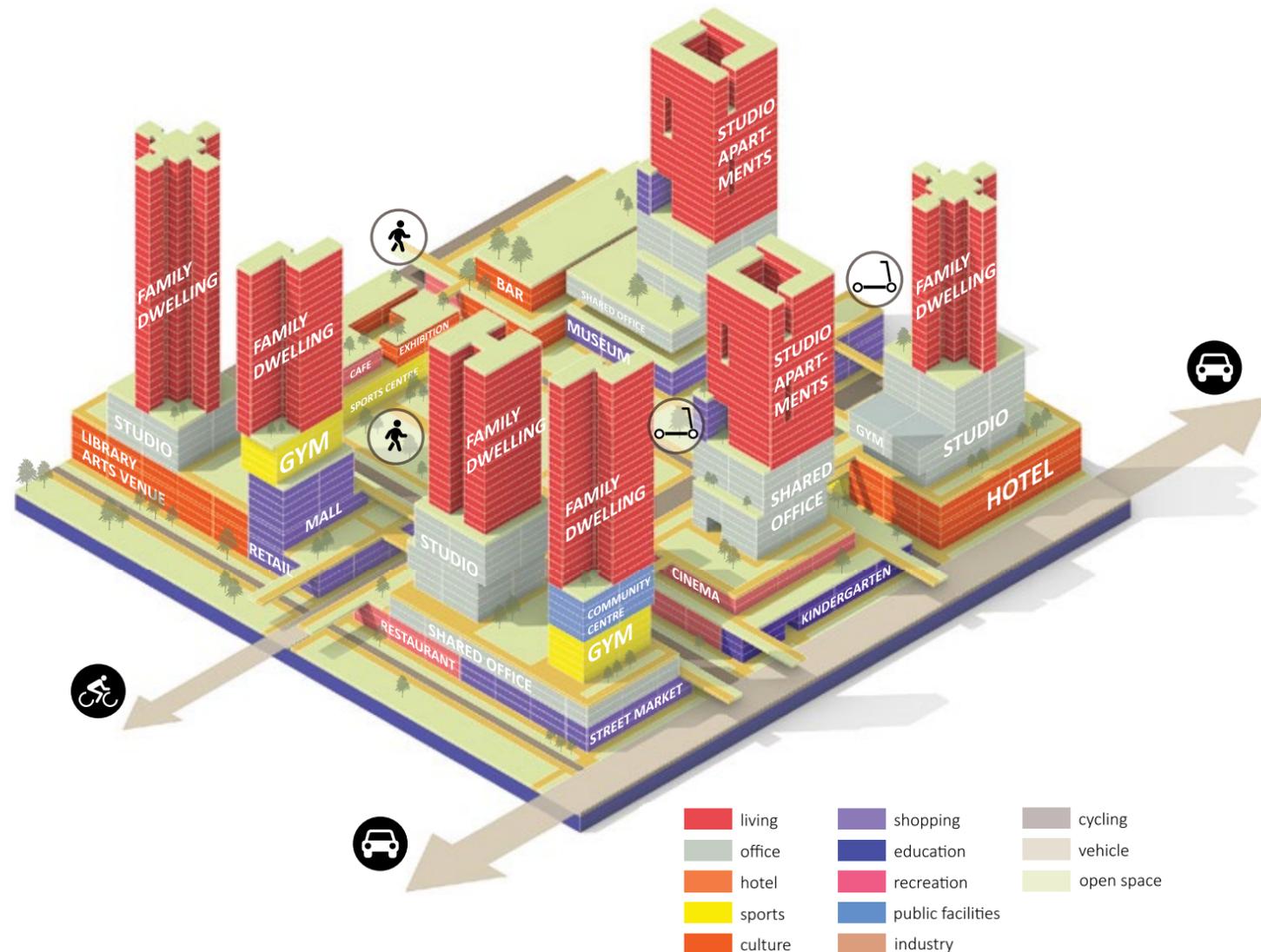


FIGURE 1²⁰

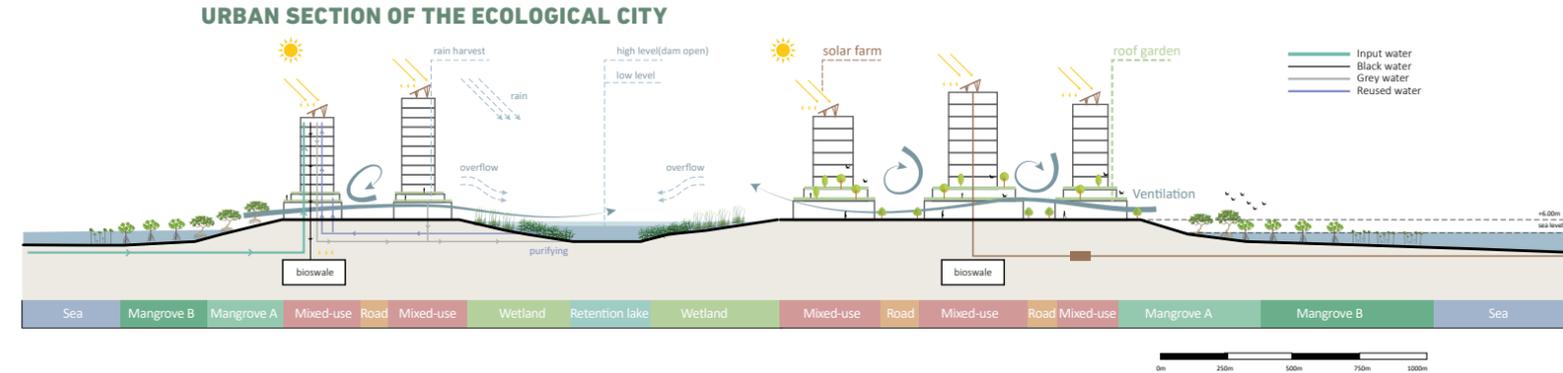


FIGURE 2²¹

has schools, healthcare, and sports and cultural venues. At the top of this first layer, an elevated second pedestrian level connects a mixture of shops, co-working offices, and restaurants housed in a second layer of podium blocks. Family and studio apartment towers are positioned above, to bring together residents from different backgrounds or social classes.

This vision calls for rational and modular architectural structures to ensure long-term flexibility, and the possibility for adaptation to changes in the economic and lifestyle preferences of local communities. Generic building structures which can easily be converted among retail, office, and residential uses are accessed by a centrally-designed and managed system of ground-level and elevated pedestrian walkways and plazas, which becomes a vibrant mixing chamber for diverse urban functions, people, and cultural events. Underground metro nodes and trunk roads are combined with ground-level low-speed traffic and multi-level walkways, using a volumetric massing and function planning system to create pedestrian-friendly and green urban environments.

The Ecological City

To create environmentally-sustainable and liveable high-density urban neighbourhoods, comprehensive planning and urban design strategies are needed. This novel new town vision is rooted in detailed research on circular processes relating to energy use and resource consumption. Rainwater retention and household water recycling systems shape the urban form, while coastal parks help create neighbourhoods which support ecological regeneration and human health.

The conceptual arrangement of the neighbourhoods revolves around creating a series of self-contained communities, which are grouped by ecological zones that increase contact between housing and nature. Sustainable mobility systems such as self-driving electric buses and 'pay-per-ride' self-driving cars connect the communities, and private vehicles are banned. One of the

key intentions of this conceptual design is to explore how urban planning measures can promote eco-friendly behaviour and activity routines, such as using sustainable forms of commute, including walking and cycling.

The Ecological City concept uses design thinking for urban plans and section. Figure 2 illustrates how different sustainable planning principles can be integrated into a comprehensive architectural and urban design approach. Gaps among small-scale podium blocks allow natural ventilation at ground level and connect pedestrians from external to internal waterfront parks. At the seaside, indigenous mangrove species protect the coast from erosion, provide animal habitats, and support residents' health and well-being. Retention lakes within the neighbourhood allow for rainwater harvesting, waste-water filtration, and recycling. Buildings are equipped with roof gardens and solar farms which contribute to urban cooling, biodiversity, and renewable energy production.

The Happy City

Taking urban quality of life and residents' health and well-being as a starting point, this planning vision explores new ways to plan stimulating and diverse neighbourhoods. Building on Hong Kong's 'modular' planning approach to construct new towns out of a series of individual neighbourhoods, the plan explores a system of varied self-contained communities connected by social and cultural infrastructure. The cultural system consists of a network of pathways, spaces, and facilities for sports, recreation, and participation in cultural events.

The overall planning approach of this vision is anchored in the principle of circle-packing, combining differently-sized neighbourhoods with varying mixtures of housing types and facilities, to give residents a wide range of lifestyle and community atmosphere choices. Figure 3 shows how the clustering strategy of small, medium, and large island

communities can create a rich urban configuration with close contact with nature. The different neighbourhoods include a 'high-synergy' creative and innovative district, and a 'holiday' area which promotes socialisation and the exploration of new forms of recreation. The 'active' communities feature vibrant, fine-grained street networks that promote entrepreneurship and exchange, while the 'slow-life' communities have large residential courtyards as safe havens for children and senior citizens.

All areas promote walking, community-forming, and synergies among living, working, and education. Their urban form and function mix adapts to location-based opportunities such as the proximity to transport nodes and valuable elements of the natural environment. The urban density is carefully balanced to aim for programmatic synergies and

economic productivity, while creating a high-quality public realm in close connection to extensive waterfront spaces.

CONCLUSION

The review of Hong Kong's past and present approaches to the development of new towns, as presented in the article, highlights the significant challenges and opportunities associated with large-scale urban development. Hong Kong's new towns, inspired by the Modernist town planning ideal of healthy and well-organised urban lives, have incorporated a set of unique and context-specific architectural and urban design principles. Their compact, high-density urban configurations produce efficient and sustainable qualities such as highly integrated public transport networks and fine-grained mixed-use areas for economic and social vibrancy.

CONCEPTUAL LAYOUT OF AN ALTERNATIVE VISION FOR THE KAU YI CHAU ARTIFICIAL ISLANDS



FIGURE 3²²

An increased understanding of environmental principles has resulted in improved micro-climate design, which addresses comfort, safety, and well-being needs in the context of global warming and climate change.

As Hong Kong plans a series of additional new towns to fulfil its aims to deliver economic, social, and sustainable development, the successes and challenges of its existing new towns can inspire truly 'new' planning visions for urban communities of the future. The three speculative planning visions presented in this paper explore the potential of innovative urban design thinking, in response to the specific challenges of the territory's urban expansion, as well as the global need for sustainable development and societal progress. Each of the projects is focused on a different key concept, exploring the spatial implications of planning for high degrees of function mixing and flexibility, the systematic integration of ecological principles, or the prioritisation of community diversity and quality of life. Beyond the key themes, each project is in fact aimed at addressing all of these aspects, as the practice of urban design development involves a complex balancing act of economic, technical, and social planning objectives. An overarching theme across these studies is that future urban settlements should no longer be conceived through top-down technical and economic optimisation, but through a focus on human-centric values, their environmental needs, and long-term aspirations. The new models for the new town of the future envision cities as open-ended systems, capable of dynamic adaptation to the inevitable changes in our social, technological, and ecological environments.²²

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Cover image illustration by Xiaoya Liu and Qian Zhang, CUHK

Endnotes

- Tan Zheng, "The Changing Planning Concept of Postwar Hong Kong: Contract, Welfare, and Space", *China City Planning Review* 26, 2017.
- Richard Peiser and Ann Forsyth, "New Towns for the Twenty-First Century: A Guide to Planned Communities Worldwide", University of Pennsylvania Press, 2021.
- Quazi Mohd Mahtab-uz-Zaman, Stephen Lau Siu-Yu, and So Hing Mei, "The Compact City of Hong Kong: A Sustainable Model for Asia?" in: Elizabeth Burton, Mike Jenks, and Katie Williams, eds., "The Compact City: A Sustainable Urban Form?", Routledge, March 21, 1996.
- Ebenzer Howard, "To-Morrow: A Peaceful Path to Real Reform", Cambridge University Press, 2010.
- Kwok Yu Lau and Alan Murie, "Residualisation and Resilience: Public Housing in Hong Kong", *Housing Studies*, 2017.
- Elizabeth Burton, Mike Jenks, and Katie Williams, "The Compact City: A Sustainable Urban Form?", Routledge, March 21, 1996.
- Transit-Oriented Developments (TODs) are based on an integrated development model which involves the construction of a new transit station together with housing and/or a large retail centre. In Hong Kong TODs, these functions are often stacked vertically, which promotes accessibility, urban compactness, and sustainable development.
- Jeffrey Chow, "Public Open Space Accessibility in Hong Kong: A Geospatial Analysis", *Civic Exchange*, October 2018.
- David Rosser Phillips, Siu Oi Ling, Anthony Yeh Gar On, et al., "Factors Influencing Older Persons' Residential Satisfaction in Big and Densely Populated Cities in Asia: A Case Study in Hong Kong", *Ageing International*, 2004.
- International Association of Public Transport, "Mobility in Cities Database, Synthesis Report", *Advancing Public Transport*, June 2015.
- Hendrik Tieben, "Public Space Trends in Hong Kong: A View from the New Territories", *The Journal of Public Space*, 2016.
- Civil Engineering and Development Department, the Government of the HKSAR, "Preliminary Proposals: Kau Yi Chau Artificial Islands".
- Edward Ng, Yuan Chao, Liang Chen, et al., "Improving the Wind Environment in High-Density Cities by Understanding Urban Morphology and Surface Roughness: A Study in Hong Kong", *Landscape and Urban Planning*, May 15, 2011.
- The 'urban heat island effect' refers to a condition where the temperature in cities is higher than in the surrounding areas, usually caused by high building densities blocking the wind flow at ground level. The sunlight-absorbing surfaces of buildings and streets, combined with man-made heat sources such as air-conditioning, can cause temperature differences of up to 10 degrees Celsius between rural and urban zones.
- Wong Man Sing, Janet Nichol, Pui Hang To, et al., "A Simple Method for Designation of Urban Ventilation Corridors and Its Application to Urban Heat Island Analysis", *Building and Environment*, August 2010.
- Yuan Chao, Edward Ng, and Leslie Norford, "Improving Air Quality in High-Density Cities by Understanding the Relationship Between Air Pollutant Dispersion and Urban Morphologies", *Building and Environment*, January 2014.
- Rosa Reyes-Riveros, Adison Altamirano, Francisco De La Barrera, et al., "Linking Public Urban Green Spaces and Human Well-Being: A Systematic Review", *Urban Forestry & Urban Greening*, June 2021.
- Tobi Eniolu Morakinyo, Alan Lai, Kevin Lau Ka-Lun, et al., "Thermal Benefits of Vertical Greening in a High-Density City: Case Study of Hong Kong", *Urban Forestry & Urban Greening*, January 2019.
- Civil Engineering and Development Department, the Government of the HKSAR, "Kau Yi Chau Artificial Islands", Development and Conservation of Lantau, July 14, 2023; The Government of the HKSAR, "Northern Metropolis Development Strategy", October 6, 2021.
- Illustration by Chen Ruilin, Wan Xiaohang, Wang Jiayao, Yan Yubin, Yao Xiaoyin, and Yu Yue.
- Illustration by Wei Naiqi, Gu Chenxuan, Chang Zhilin, Jiang Youjia, and Liu Runze.
- Illustration by Yang Liyuan, Wang Xiaoxue, Cui Yu, Zhang Zejian, and Zhu Sanghong.



INCREASING THE ACCEPTANCE

OF CULTIVATED MEAT

Factors to consider when designing communication strategies for diverse nations.

by Mark Chong

Global meat consumption is at an all-time high, having doubled from an average of 23 kg of meat per person in the 1960s to 43 kg in 2019—and it is still rising.¹ All agricultural activities require the extensive use of resources like land, machines, and water, causing greenhouse gas (GHG) emissions of varying extents. But animal farming—the breeding and raising of cows, pigs, and other livestock for food, and feed production—is the most resource-intensive form of agriculture, accounting for 57 percent of GHG emissions by the global food industry, which is more than that from all the world’s transportation systems combined.^{2,3}

Moreover, 99 percent of animals raised for food live in factory farms under extremely cruel conditions, with nothing seemingly natural about the process anymore.⁴ These livestock are often packed tightly together in small spaces, regularly injected with antibiotics to keep diseases away as they are highly vulnerable to infections spreading quickly from one another, fed abnormal diets (e.g., corn instead of grass) to fatten them up, and genetically modified and selectively bred through artificial insemination.⁵ It is not surprising that consuming meat produced under such conditions is leading to serious health issues, such as antibiotic resistance and the transmission of animal-borne epidemics.

Yet, despite increasing awareness, global meat consumption continues to rise as the world population grows and consumers remain resistant to altering their meat-centric diets and shifting towards non-animal-based alternatives.

Compared to a vegetarian source, the production of 1 kg of protein from beef requires:



Source: National Institute of Medicine

Additionally, meat production at its current levels of 345 million metric tonnes in 2022 is simply not sustainable (refer to Figure 1). This will make countries dependent on food imports highly vulnerable during extraordinary times or crises, as witnessed during the COVID-19 pandemic, when there were major disruptions in the global food supply chain with the supply of meat, fish, dairy, and eggs especially affected.

CULTIVATED MEAT: A NOVEL FOOD

To promote the much-needed transition towards healthier and more sustainable food consumption, experts have been actively researching and developing innovative alternative proteins that are accessible as well as appealing in taste to consumers. One type of alternative protein proposed is cultivated meat, also variously known as lab-grown meat, cultured meat, cell-based meat, in vitro meat, and clean meat. It is specifically engineered to replicate the sensory and nutritional attributes of conventional meat. Production of cultivated meat involves extracting muscle-specific stem

cells and subsequently cultivating them into muscle tissue. Hence, this process could also potentially augment existing traditional meat (protein) supply. Moreover, its production does away with industrial farming practices, uses less water and arable land, eliminates the need to slaughter animals, and enhances food security.

But despite its health and environmental benefits, along with a taste profile that could potentially resemble that of actual meat, the penetration of cultivated meat into the consumer market remains low. The first hurdle is regulatory approvals, as they are slow in coming. Singapore's approval of lab-grown chicken for sale and consumption in 2020 made it the first country in the world to do so. It was only in November 2022, more than two years later, that the US Food and Drug Administration (FDA), regulator of the biggest market in the world for alternative proteins, declared cultivated meat products safe for human consumption.⁶ In June 2023, the US Department of Agriculture granted its first-ever approval to two cultivated meat companies to sell the product.

GLOBAL MEAT PRODUCTION FROM 2016 TO 2022 (MILLION METRIC TONNES)

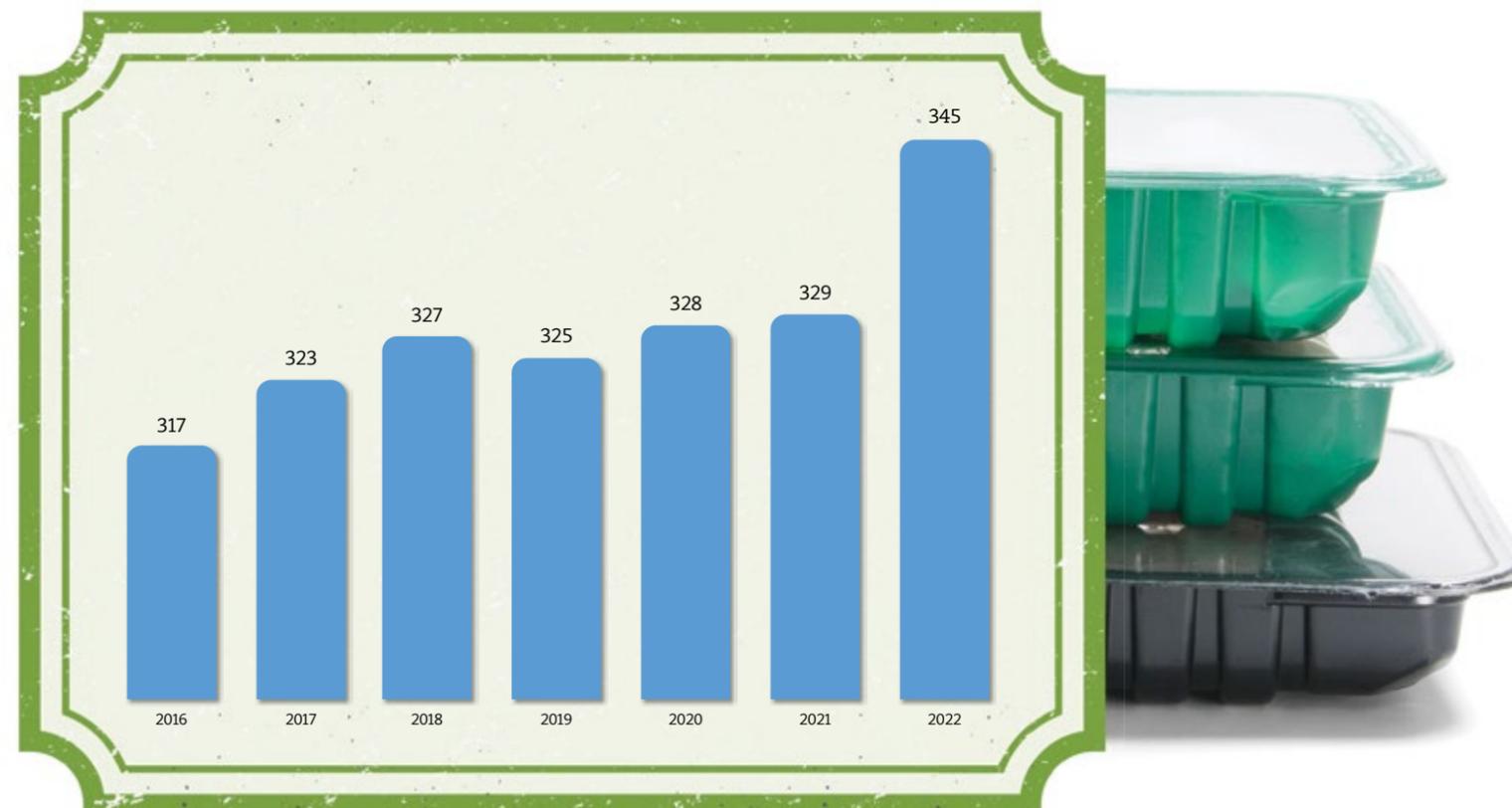


FIGURE 1

Source: Statista

But even if regulatory approval is received, the main challenge faced by the novel food industry is consumer acceptance, or the lack thereof. Consumers are generally seen to have food neophobia, which is a wariness of novel or unusual food, and labels such as 'lab-grown' make it worse as the thought of eating meat grown from cells makes people feel 'icky' and squeamish.⁷ Furthermore, it does not help that the cultivated products have yet to achieve price parity with conventionally-produced meat. This will not happen unless the industry is able to build tremendous scale to bring costs down, which in turn depends on consumer demand.

While there are many factors that may drive consumer acceptance and hence demand, there are three key aspects novel food manufacturers must consider when developing their market strategies: cross-country factors, communication elements, and individual psychological well-being.

CROSS-COUNTRY FACTORS

Managers need to understand that people from different cultural backgrounds react differently to the idea of novel foods.

Social image motivations

Social image motivations significantly contribute to the varying levels of acceptance of cultivated meat among individuals in Western countries like the US as compared to Asian countries like Singapore. People choose foods not only for nutritional and sensory reasons but also for their desire to stand out or convey a particular impression of themselves to others, especially in social situations. For example, several studies have indicated that men engage in impression management via their food intake to boost their masculine identity.⁸ However, cultural factors determine which social motivation—e.g., the desire to stand out or create a positive impression—predominates within a country.

Countries like the US are often characterised as having a 'loose' culture because of weaker social norms and a higher tolerance for deviant behaviours. They tend to be individual-centric and encourage people to express themselves in unique ways and do things differently from others. Therefore, the motivation to stand out through eating behaviour or food choices as a means of self-expression is more closely aligned with Americans than Singaporeans.

Countries such as Singapore are more likely to put a greater emphasis on the social image motivation of impression management. This is because of Singaporeans' distinguishing cultural trait of 'kiasuism', which is a mindset that constantly entails "comparison with others ... to avoid falling behind or losing out to others".⁹ Another relatable way of explaining

Cultivated meat is specifically engineered to replicate the sensory and nutritional attributes of conventional meat.

kiasuism is that it can be seen as a distinct mix of 'fear of missing out' (FOMO) and 'keeping up with the Joneses'. Due to this cultural motivation to be ahead of others, Singaporeans may engage in impression management practices. For instance, by being the first to try cultivated meat, they strive to be perceived as trailblazers in their social circles.

In fact, we find Singaporeans' acceptance levels of lab-grown meat to be even higher than that of Americans. This is driven by their desire to project an image of being 'ahead of the curve' in their thinking and behaviour (compared to other nationalities) by being more receptive to novel foods such as cultivated meat.¹⁰

Aversion to tampering with nature

An aversion to tampering with nature has been found to increase one's resistance to novel technologies and a bias towards natural products.¹¹ Consumers tend to judge cultivated meat as unnatural because it is not of conventional animal origin, and hence harbour doubts about its alleged health benefits and safety.¹²

However, this perceived (un)naturalness varies across countries. For instance, in the US, not only does the general public consider cultivated meat to be 'unnatural' since it comes from laboratories and not farms, but many organisations such as the Center for Food Safety also consider FDA's favourable assessment of cultivated meat as grossly inadequate.¹³ In contrast, we find that even though most of the respondents in our study on the 'effects of framing, nomenclature, and aversion to tampering with nature on consumer acceptance of cultivated meat in Singapore' perceived cultivated meat to be unnatural, all of them were willing to try it. We posit that our survey may have led our respondents to reconsider some of the purportedly undesirable elements of conventional meat (versus the desirable elements of cultivated meat) and made them realise that conventional meat production has its downsides too.¹⁴

COMMUNICATION ELEMENTS

How a message is framed and how a product is named affect overall consumer perception and acceptance. They may also be more important and impactful than what the message is about. Cultivated meat producers therefore need to manage extrinsic properties such as the core message and product name to position their products favourably in the consumer's mind.

Message framing

The framing of a message is an important issue, as consumers often do not know what to expect of novel products. It can be done in many ways, one of which is positive framing, which has been found to have positive effects on consumer attitudes. Cultivated meat marketers can create positive framing on two dimensions—by emphasising the personal benefits and highlighting the societal benefits of consuming the product. Studies based in Western countries show that messages that focus primarily on benefits for consumers, such as improvements in health and safety, are more effective in promoting consumer acceptance of cultivated meat than others that emphasise the benefits for society, the environment, or animals.¹⁵

On the other hand, a study that my co-researchers and I conducted in Singapore found that no single frame is most effective in promoting the acceptance of cultivated meat among meat eaters.¹⁶ However, 'animal welfare/reduction of animal slaughter' and 'reduction of carbon emissions and global warming' frames are exceptions, as they notably increase acceptance among individuals who identify themselves as Buddhists. This is because the principle of compassion for all sentient beings is central to Buddhist beliefs. Therefore, the frame emphasising animal welfare resonates more strongly with them than frames focusing on benefits for consumers. As Buddhism is a dominant religion in Singapore (31 percent of the population is Buddhist¹⁷), this finding may have practical implications for communication about cultivated meat in Singapore.

Frames centred around sustainability and food self-sufficiency may also become more influential in Singapore, given that the island nation, located near the equator, is particularly vulnerable to the impacts of climate change. The country's record-breaking temperatures in recent years have heightened awareness among consumers about the risks associated with global warming. Moreover, with food imports becoming increasingly expensive (in addition to being unreliable in times of crisis), the potential of cultivated meat to help Singapore achieve its "30 by 30" food sustainability goal (sustainably produce 30 percent of its nutritional needs by 2030)

becomes more prominent in the minds of its people. Accordingly, the "good for society" frame may become more salient and effective if current conditions persist.

Product naming

William Shakespeare's famous quote, "What's in a name? That which we call a rose/ By any other name would smell as sweet", does not always hold true. It is widely acknowledged that the name given to something can influence how people evaluate it. For example, the renaming of the unappetisingly named 'Patagonian toothfish' to 'Chilean sea bass' enhanced its marketability and sales.¹⁸ Naming can also be used to make something less appealing. For instance, it was noted that replacing the word 'beef' with 'cow' and the word 'pork' with 'pig' on a menu increased consumer empathy, disgust, and the willingness to pick an alternative vegetarian dish; it also decreased one's willingness to eat meat.¹⁹

We find that most Singaporeans dislike the term 'lab-grown meat' mainly because it sounds clinical or scientific. Their preferred choice and the one that evokes the most positive responses is 'cultivated meat', while they also like terms such as 'clean meat' and 'cultured meat'. 'Clean meat' evokes an impression of healthiness, a healthier alternative, or clean eating, and also piques consumers' curiosity to find out more about such products, while the term 'cultured meat' sounds like a New Age term and is considered a choice they are 'comfortable' with.²⁰ American consumers meanwhile have been found to be less averse to the term 'cultured meat', compared to 'artificial' and 'lab-grown' meat.

Social media influence

Social media influencers have been credited with inducing changes in consumers' attitudes and behaviours across a range of products and services. For instance, the acceptance of plant-based meats in the US has been greatly influenced by celebrity endorsements from notable figures such as Madonna, Miley Cyrus, Natalie Portman, Mark Wahlberg, and Chrissy Teigen.²¹

Typically, there are two types of social media influencers: either they show referent power based on their popularity and attractiveness to the target audience (e.g., celebrities), or expert power owing to their knowledge in a given area (e.g., scientists). We found no significant difference in the influence of both celebrities and experts on consumer acceptance of cultivated meat in Singapore as well as the US. This allows for the application of influencer engagement to promote cultivated meat acceptance in either country and even in other regions that have similar socio-economic characteristics.²²

PSYCHOLOGICAL WELL-BEING OF INDIVIDUALS

The psychological well-being of an individual plays a central role in food choice and consumption. People with higher subjective well-being have lower food neophobia and thus are willing to try novel foods. This is because people with a higher sense of well-being are generally found to have a stronger health motive, implying that if they consider cultivated meat to be a healthier alternative, they would be more inclined to consume it.²³ Similarly, they also have a stronger ethical motive and are driven by the desire to engage in moral and pro-environment behaviours. Hence, the potential of cultivated meat to enhance sustainability and eliminate animal cruelty would appeal to them. In contrast, people with poorer well-being, who are anxious or unhappy, seek familiar foods for comfort and exhibit food-neophobic tendencies. We find this to be particularly true in the case of Singaporeans: those with better psychological well-being have a stronger grasp of the potential benefits offered by cultivated meat; the benefits offered by cultivated meat also align well with their motives.

LESSONS FOR CULTIVATED MEAT COMPANIES

The dramatic drop in the sales volume of plant-based meat products in the US in 2022 has worried the industry. Specifically,

the decline of eight percent in the unit sales of plant-based meat, the leader of the novel food pack in the US and its largest market, does not seem to augur well for the future of the new kid on the block (i.e., cultivated meat).²⁴

However, cultivated meat companies and brands must look at this as an opportunity, since consumers dissatisfied with existing products such as plant-based meat are looking for other environment and animal-friendly products that offer both health benefits and good taste.²⁵ It would be wise for them to keep in mind the following points when devising their go-to-market strategies:

- Use the term 'cultivated meat' and avoid using 'lab-grown meat' to describe the product.
- In countries with significant Buddhist populations, focus the messaging on how cultivated meat contributes to animal welfare/reduces animal slaughter and minimises carbon emissions/global warming. Highlight not just the benefits of cultivated meat, but also the undesirable elements of conventional meat in the messaging.
- Prioritise product launches in collectivistic countries, as people in these societies (like Singapore) are more likely to focus on social image concerns. Target their high social image concerns by focusing marketing communication on product 'firsts', e.g., the first cultivated chicken meat to



be served in restaurants. Also, ensure high visibility of a product's usage to others through social media. Because collectivistic consumers are more concerned about saving and gaining face, they will be more driven to present a desirable impression of themselves or gain higher prestige by using or endorsing a product that is visibly popular among others.

- Keep in mind the well-being profile of potential customer groups and offer them more targeted information regarding the advantages of cultivated meat in terms of health, safety, and positive impact on society. In addition, use search advertising to target advertisements and other messages to communicate these messages.²⁶
- Target marketing communication efforts in countries with populations that show a higher happiness or well-being index.

CONCLUSION

Cultivated meat has the potential to address several of the health, environmental and ethical issues associated with conventional farming. However, the widespread acceptance and adoption of cultivated meat by consumers cannot be taken for granted. Through this article, I have highlighted key findings from my studies that may help cultivated meat companies to foster the acceptance of cultivated meat. More specifically, they may wish to pay attention to consumers' social image motivations and their psychological well-being as well as message framing, product naming, and aversion to tampering with nature. 

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References

- Wulf Wilde, "Fact Check: How Bad is Eating Meat for the Climate?", DW, October 30, 2022.
- Ibid.
- PETA, "How Does Eating Meat Harm the Environment?".
- Brian Kateman, "Don't be So Quick to Dismiss Lab-Grown Meat", Think, November 21, 2022.
- Ibid.
- Leah Douglas, "Insight: Lab-Grown Meat Moves Closer to American Dinner Plates", Reuters, January 24, 2023.
- Savannah Maher, "What will it Take for Consumers to Accept Lab-Grown Meat?", Marketplace, February 6, 2023.
- Mark Chong, Angela Leung Ka-Yee, and Verity Lua, "A Cross-Country Investigation of Social Image Motivation and Acceptance of Lab-Grown Meat in Singapore and the United States", *Appetite*, Vol. 173, 105990, 2022.
- Olwen Bedford and Sheryl H. Chua, "Everything Also I Want: An Exploratory Study of Singaporean Kiasuism (Fear of Losing Out)", *Culture & Psychology*, Vol. 24(4), 491-511, 2018.
- Mark Chong, Angela Leung Ka-Yee, and Verity Lua, "A Cross-Country Investigation of Social Image Motivation and Acceptance of Lab-Grown Meat in Singapore and the United States", *Appetite*, Vol. 173, 105990, 2022.
- Kaitlin T. Raimi, Kimberly S. Wolske, P. Sol Hart, et al., "The Aversion to Tampering with Nature (ATN) Scale: Individual Differences in (Dis)comfort with Altering the Natural World", *Risk Analysis*, Vol. 40(3), 638-656, 2020.
- Mark Chong, Angela Leung Ka-Yee, Tricia Marjorie Fernandez, et al., "Effects of Framing, Nomenclature, and Aversion to Tampering with Nature on Consumer Acceptance of Cultivated Meat in Singapore", manuscript under review.
- Brian Kateman, "Don't be So Quick to Dismiss Lab-Grown Meat", Think, November 21, 2022.
- Mark Chong, Angela Leung Ka-Yee, Tricia Marjorie Fernandez, et al., "Effects of Framing, Nomenclature, and Aversion to Tampering with Nature on Consumer Acceptance of Cultivated Meat in Singapore", manuscript under review.
- Ibid.
- Ibid.
- Singapore Department of Statistics, "Census of Population 2020: Religion", June 2021.
- Ibid.
- Jonas R. Kunst and Sigrid M. Hohle, "Meat Eaters by Dissociation: How We Present, Prepare and Talk about Meat Increases Willingness to Eat Meat by Reducing Empathy and Disgust." *Appetite*, Vol. 105, 758-774, 2016.
- Mark Chong, Angela Leung Ka-Yee, Tricia Marjorie Fernandez, et al., "Effects of Framing, Nomenclature, and Aversion to Tampering with Nature on Consumer Acceptance of Cultivated Meat in Singapore", manuscript under review.
- Mark Chong, Angela Leung Ka-Yee, and Verity Lua, "A Cross-Country Investigation of Social Image Motivation and Acceptance of Lab-Grown Meat in Singapore and the United States", *Appetite*, Vol. 173, 105990, 2022.
- Ibid.
- Angela Leung Ka-Yee, Mark Chong, Tricia Marjorie Fernandez, et al., "Higher Well-Being Individuals are More Receptive to Cultivated Meat: An Investigation of Their Reasoning for Consuming Cultivated Meat", *Appetite*, Vol. 184, 106496, 2023.
- Simon Harvey, "US Plant-Based Meat Volumes Fell 4% in 2022-GFI", *Just Food*, April 13, 2023.
- Ibid.
- Angela Leung Ka-Yee, Mark Chong, Tricia Marjorie Fernandez, et al., "Higher Well-Being Individuals are More Receptive to Cultivated Meat: An Investigation of Their Reasoning for Consuming Cultivated Meat", *Appetite*, Vol. 184, 106496, 2023.

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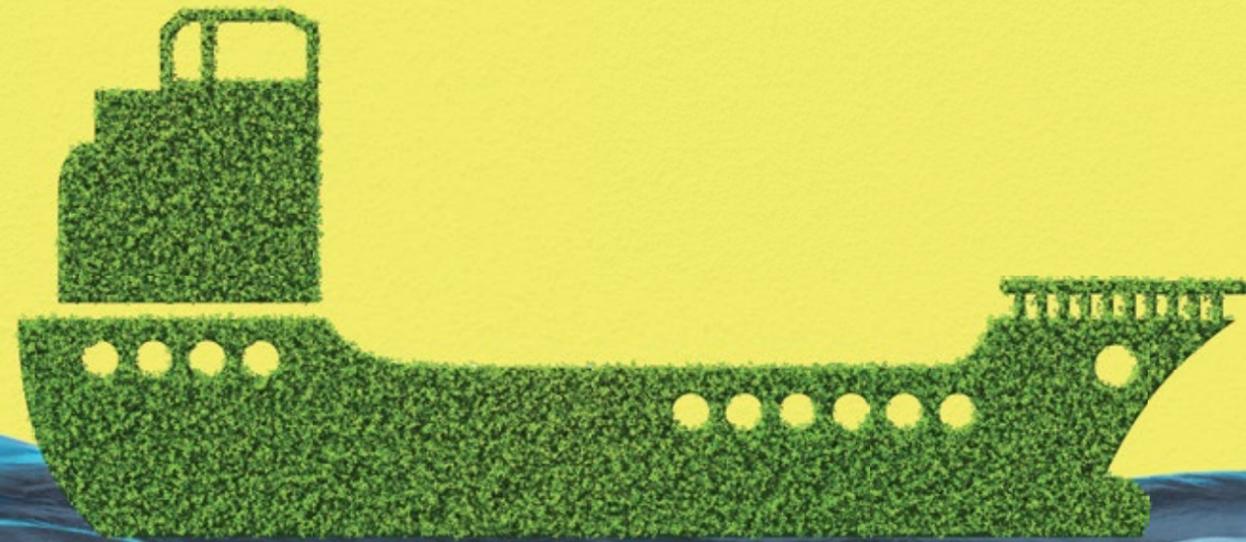
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Riding the Decarbonisation Wave:

BHP and Its LNG Dual-Fuelled Vessels



What does it take to decarbonise charter-related shipping?

by Shantanu Bhattacharya, Flocy Joseph, and Mahima Rao-Kachroo

It was a breezy morning in February 2022 at Jurong Port, and Rashpal Bhatti was filled with immense pride as he watched the world's first Liquefied Natural Gas (LNG)¹ dual-fuelled Newcastlemax vessel, Mt. Tourmaline, pull into the port for its first LNG bunkering². The bunkering signalled a significant transition from fuelling ships with highly pollutive conventional marine fuels to using LNG, which had the potential to reduce greenhouse gas (GHG) emissions³ by nearly 30 percent per voyage. Mt. Tourmaline's journey was thus the start of a promising new era towards shipping sustainability.

REDUCING GHG EMISSIONS IN SHIPPING

With more than 80 percent of globally transported goods shipped by sea, maritime transport was the backbone of the global economy. It played a vital role in international trade as it was an energy-efficient and economical way of transporting goods.⁴ Such efficiency saw a growth in maritime trade, and between 1990 and 2020, trade volumes had more than doubled.⁵ As maritime transport grew, so did carbon dioxide (CO₂)-heavy GHG emissions.

The growth in maritime trade led to higher demand for fossil fuels. Heavy fuel oil (HFO)⁶ was the traditional and inexpensive option as it had a high energy density—a small amount could fuel ships over great distances. However, it produced pollutants which resulted in acid rain and airborne toxic particulates that contributed to respiratory diseases.⁷

Moving towards net-zero maritime emissions

To curb the release of pollutants, regulatory authorities like the International Maritime Organization (IMO)⁸ had implemented multiple measures over the years. In 2018, it mandated that using 2008 as the base year for comparison, ships had to reduce their emissions, per international transport route, by an

average of at least 40 percent by 2030, with the aim to reduce them by 70 percent by 2050.⁹

The mandates called for the industry to analyse the fuel consumption of ship types and subsequently, whether they were well-placed to use alternative fuels. Since it was possible to forecast fuel requirements and consumption based on the ship's specifications, its route, and schedule, this made it easier to plan which fuel bunkering facilities to use along such routes if alternative fuels had to be tapped on.

Exploring alternative fuels and innovations

Using alternative fuels to decarbonise was challenging. The industry typically comprised large, capital-intensive, long-life assets with lifespans of around 25 years, which operated on fuels like HFO. It was especially difficult to find sustainable fuel solutions for transoceanic large vessels as this required coordinated efforts within the maritime ecosystem—shipyards, vessel owners, ports, regulatory bodies, and fuel suppliers—to facilitate long-distance maritime travel with carbon abatement technologies.

Despite the hurdles, the maritime industry began to explore the use of fuels such as LNG, hydrogen, ammonia, and biofuels as alternatives to HFO, even though they all came with limitations. Over the years, various shipping companies had studied the use of biomass fuels.

Many within the shipping industry agreed that using alternative and emerging fuels required more than just technological know-how. Biofuels were produced from biomass, so it was imperative that the shipping industry implement sustainability criteria to manage potential biomass shortages and subsequently, biofuel availability. This way, supply and price risks could be mitigated along the fuel supply chain.

In spite of the existing solutions for shipping-related GHG abatements, most came with multiple barriers while other solutions were met with growing distrust. It became increasingly clear that the adoption of low-carbon or carbon-neutral fuels required a push from regulatory authorities to convince companies to adopt such practices.

COLLABORATION IN THE MARITIME ECOSYSTEM

It was clear that the maritime industry needed market-based interventions from multiple stakeholders, including regulatory authorities, to push for the use of zero- and low-carbon fuels. However, the global maritime fleet was highly fragmented—there were thousands of shipowners, including some that owned only a few ships. The top 10 shipowners comprised just 20 percent of the group.¹⁰ Such fragmentation often led to a lack of consensus when it came to decision-making.¹¹ On the other hand, private companies such as financial institutions saw an opportunity and were more willing to fund sustainable industries.¹² Sustainable shipping targets required a large portion of investments for land-based infrastructural changes. Of the estimated US\$1.65-trillion investment needed to reduce shipping-related emissions by 2050, 87 percent was required for land-based infrastructure changes that comprised fuel production, storage, and bunkering facilities.¹³

BHP: MAPPING THE ROUTE FOR SUSTAINABLE SHIPPING

BHP began operations as a mining company in 1885 in Broken Hill, Australia. The company discovered, developed, and marketed natural resources such as metals, coal, oil and gas, and diamonds before it diversified into creating value-added flat steel products.¹⁴ In 1915, BHP chartered the steamer Emerald Wings to transport the first shipment of iron ore from South Australia to Newcastle, England. Nearly a century later, BHP became one of the largest dry bulk charterers in the maritime trade industry.

BHP's Maritime and Supply Chain Excellence (MSCE) team oversaw the company's maritime transportation strategy and ocean freight charters to meet its transportation needs. Over time, BHP's MSCE team grew to become an important part of the business. In 2019, the company had chartered ships to perform more than 1,500 voyages and transported 250 million tonnes of commodities globally.

As BHP's maritime business grew, and the company became a key player in the industry, the sustainability agenda quickly became a key priority. The company believed that more had to be done to truly support its mission of bringing

“people and resources together to build a better world”. It decided to focus on reducing its charter-related GHG emissions from ships.

BHP, SUSTAINABILITY, AND THE MARITIME ECOSYSTEM

Tasked with overseeing BHP's maritime sustainability efforts, Bhatti saw that more had to be done to help shipowners reduce their GHG emissions. He needed the company's internal buy-in before exploring technological options for shipping-related decarbonisation efforts and also, he needed to garner the support of the maritime ecosystem to make decarbonisation a long-term focus for the shipping industry.

Securing internal buy-in

Bhatti first needed his team to be aligned with BHP's focus. “Your team must enable you, and see the same bigger picture as you,” he maintained. To facilitate this, he hired headhunters to look for people better suited to his vision. “I inherited a wonderful team but today, we have retained only three out of the original 70 team members we had.”

He worked just as hard to convince his peers to see the value in his efforts. “Not many shared my vision, but at the same time I was told plainly to just go ahead and do it. After all, BHP was a mining company that decided to have a ship chartering arm. We had to make a mark in our efforts towards supporting decarbonisation in this part of our value chain or not do it at all,” he said.

Exploring decarbonisation technology

To reduce GHG emissions, Bhatti and his team decided that BHP and the maritime industry needed a two-pronged approach: first, find a reliable way to measure emissions, and second, explore the use of alternative fuels.

GHG emission ratings in action

BHP aimed to measure the GHG emissions of its charters, which would then translate into tangible action that supported sustainability. For this, Bhatti turned to RightShip¹⁵, an organisation that developed industry-wide safety standards to avoid the loss of human life at sea. RightShip created a GHG rating that, by 2017, enabled it to steer charterers towards using vessels with a lower emissions rating. The rating system was on a scale from ‘A’ to ‘G’, with ships holding an ‘A’ rating releasing the least emissions and those with a ‘G’ rating discharging the most emissions. BHP stayed the low-emissions course and did not charter vessels

that had the lowest (‘F’ and ‘G’) ratings. Through this, BHP saw a 12-percent reduction in GHG emissions from the vessels that it chartered.

Using green fuel

Determined to see greater GHG abatements, BHP, in a trailblazing move in 2019, released a world-first tender for LNG-fuelled Newcastlemax bulk carriers, which were capable of transporting up to 27 million tonnes of iron ore, or nearly 10 percent of the company's annual transportation volume of iron ore.

LNG was the fuel of choice for this endeavour as it resulted in significant reductions in polluting oxides, compared to conventional fuel. Additionally, LNG bunkering infrastructure existed in the industry, as LNG was being used as a marine fuel for smaller vessels. Furthermore, BHP collaborated in a joint industry project to establish an LNG-dual fuel Newcastlemax vessel design, which indicated that LNG was a viable commercial prospect.

BHP's tender was open to shipowners, LNG fuel providers, and even financial organisations. When Bhatti and his team evaluated the tender proposals, they realised some companies offered vessel design options with 30 percent or more reduction in emissions.

Through the tender exercise, it was found that there was a multitude of partners who could bring value to their GHG emission reduction endeavour. BHP eventually awarded the tender for a five-year charter in 2020 for five Newcastlemax bulk carriers capable of being fuelled on LNG to Eastern Pacific Shipping (EPS).¹⁶ Bhatti lauded EPS's foresight, and commented, “EPS had pre-empted the market's requirements and already had vessels in the build phase, in slots in the shipyards. This

meant that it could deliver the vessels to us at least a year before anybody else in the market, and at a more cost-effective rate. Additionally, when we specified our requirements, it agreed to customise the vessels accordingly.”

BHP subsequently ran a tender for the supply of LNG bunker fuel and signed an LNG supply agreement with fuel company Shell Eastern Petroleum.

Despite a successful tender, many of Bhatti's colleagues were sceptical. He recalled, “Risk assessments were a mile long. Our ex-CFO (Chief Financial Officer) rightfully played the devil's advocate and brought my attention to all the risk factors and liabilities—what if the LNG leaked? What if the ship didn't turn up? How would this affect BHP's reputation?” However, Bhatti was adamant that the potential for GHG emissions reductions ought to be prioritised. “As a leader, you must have conviction about something, either because it makes financial sense or it's the right thing to do for the company, the industry, or the people. This was smack bang in the middle of it all.”

His efforts paid off and in February 2022, the vessel Mt. Tourmaline was delivered into service under the charter between EPS and BHP and berthed at Jurong Port for its first LNG bunkering before it sailed to Western Australia for iron ore loading. The ship was bunkered through the FuelNG Bellina, the first LNG bunkering vessel in Singapore, which was a joint venture between Shell and mobile offshore platform company Keppel Offshore & Marine.

Everyone present then was jubilant. EPS CEO Cyril Ducau saw the maiden LNG-fuelled trip as a solid step in the right direction: “Today's historic LNG bunkering is further evidence that the industry's transition is in full swing...” Bhatti reflected on the journey, “We saw nearly 30-percent GHG emission

It became increasingly clear that the adoption of low-carbon or carbon-neutral fuels required a push from regulatory authorities to convince companies to adopt such practices.



abatements compared to existing ships, with a significant reduction in pollutants. The best part was, because the vessels were leased on a charter basis, they became part of our operational expenditure—we didn't need to shell out a single dollar of capital expenditure towards the project."

A collaborative maritime ecosystem

It was a validating moment for Bhatti to see Mt. Tourmaline berth at Jurong Port, a feat made possible only because many parties within the maritime ecosystem had pulled together to realise a vision. He recollected, "Government officials were there, CEOs from across the industry were there, and BHP employees from the office were there too. It had become a movement because it was good for us, good for them, and good for the ecosystem. That was the moment the penny dropped for us. That was a solidifying moment for BHP."

For Bhatti, perhaps the greatest enabler of them all was the Singapore government. The Maritime and Port Authority of Singapore (MPA) had shared information and provided pathways for operational discussions that helped BHP prepare for a safe and efficient LNG bunkering operation. "Singapore enabled companies like BHP because it was willing to share its network of connections and support a good idea."

BEYOND THE HORIZON

Bhatti felt the Mt. Tourmaline experience had proven the experts right—a collaboration among vessel owners, regulatory authorities, and fuel suppliers was necessary for the industry to progress towards decarbonised shipping.

Achieving long-term emission goals required long-term planning and collaboration. Although some companies in the shipping industry had taken to investing in the research and development of sustainable fuels, Bhatti's experience had shown him that investments alone were not enough. The support of the Singapore government had helped enable this endeavour, but some wondered what the ideal role of regulators should be in driving sustainability in the maritime sector in time to come. How else could governments enable the growth of sustainable or green fuels? Furthermore, since the development and use of sustainable fuels in the maritime sector required a collaborative effort across governments, fuel suppliers, shipowners, and other industry participants, what else could the maritime sector do to develop the ecosystem for sustainable fuels? Lastly, could the lessons learned from their maritime experience be transferred to BHP's other business verticals? ¹⁶

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Endnotes

- LNG was a form of natural gas that had been converted to a liquid state for the purpose of safe transport.
- LNG bunkering was the process of fuelling a ship with LNG.
- GHG emissions comprised mostly carbon dioxide, followed by methane, nitrous oxide, and other fluorinated gases. All GHG emissions and operational energy consumption data or references to GHG emission and operational energy consumption volumes (including ratios or percentages) in this case were estimates and, due to differences in emissions calculation methodologies, they might not be comparable with one another or with data provided by other parties.
- United Nations Conference on Trade and Development, "Review of Maritime Transport 2021".
- Statista, "Volume of International Seaborne Trade from 1980 to 2020, by Cargo Type".
- HFO was the residue after crude petroleum had been treated and distilled to create more valuable fuels like automotive diesel and gasoline.
- Mitch Jacoby, "The Shipping Industry Looks for Green Fuels", Chemical & Engineering News, February 27, 2022.
- Set up in 1948, the IMO was an international organisation that promoted maritime safety and facilitated administrative and legal matters pertaining to shipping in international trade.
- International Maritime Organization, "Greenhouse Gas Emissions".
- Shell Global, "Decarbonising Shipping: All Hands on Deck".
- Ibid.
- Henrik Hagberg and Ingrid Skjelmo, "Norway: Towards a More Sustainable Shipping Industry—Where are We Now?", Mondaq, March 4, 2021.
- Raucci Carlo, Bonello Jean Marc, Suarez de la Fuente Santiago, et al., "Aggregate Investment for the Decarbonisation of the Shipping Industry", UMAS.
- Value-added flat steel products referred to special grade semi-finished sheets and plates of steel that were used in the power, shipping, defence, and automobile industries.
- Launched in 2001, RightShip was the result of a collaboration between BHP and mining company Rio Tinto.
- EPS was a Singapore-based ship owner and management company.

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Innovation managers must learn how to harness AI's transformative potential.

by Adam Tatarynowicz and Utz Claassen

Elekta, the global Swedish medtech giant with over 3,000 engineers and scientists on its payroll, has long been a pioneer of innovation in radiation therapy and radiosurgery-powered brain disorder treatment. In early 2018, the company harnessed the power of Artificial Intelligence (AI) to sift through vast clinical trials and patient datasets, unveiling patterns and correlations that remained elusive to many competitors. The result was Elekta Unity, a groundbreaking mixed reality (MR) linear accelerator ('linac') platform used for external beam radiotherapy, the most common form of cancer radiation treatment in which radiation is targeted at the cancer site with minimal effects to surrounding tissue.

Elekta Unity's visualisation capabilities help clinicians track elusive soft tissue changes during radiation therapy, so that they can adjust the radiation doses in real time based on the patient's unique anatomy. This transformative change is testament to the power of AI in healthcare,¹ and Elekta has since relied on AI-powered innovation that has resulted in the automation of its imaging and treatment delivery systems, ensuring unparalleled accuracy and speed. In the rapidly evolving landscape of medical technology, where continuous innovation is becoming the norm, Elekta's AI-driven approach has not only solidified its position as an industry leader, but also showcased the boundless potential of AI in addressing some of the most pressing challenges in healthcare today.

AI, of course, is revolutionising industrial and business operations far beyond healthcare. Understanding and harnessing its power is thus essential for driving continuous innovation and maintaining a competitive edge. Yet, the journey to seamlessly integrate AI technology into an organisation's innovation practices is filled with challenges. It demands not only a strategic approach and a deep understanding of AI's capabilities, but also an organisational culture that champions innovation, adaptability, and continuous learning. This article aims to guide innovation managers through this intricate terrain, offering insights and strategies to effectively leverage AI's immense potential.

DEMYSTIFYING AI'S CREATIVE POTENTIAL

AI's ability to analyse large amounts of data ('big data') and identify patterns that might otherwise go unnoticed, and in the process generate creative ideas, can be a gamechanger for businesses across a vast number of industries. Entertainment giant Netflix, famed for its recommendation engine, has been leveraging AI since 2010 to fuel its content suggestions. It has invested in understanding user behaviour, and developing a personalised streaming experience for each user that translates to screens that are "designed in real time" by an AI algorithm.² Many boundaries and parameters are specified by human designers at the outset of the process, but the decisions about which movies to show, how to display them, which pictures to represent them with, and many other design decisions are made by algorithms embedded in the so-called *AI problem-solving loops*.³ Moreover, Netflix uses unsupervised learning to discover related groups of customers and even to decide which content to create in the first place. Its application of predictive analytics, for instance, was instrumental in evaluating the potential of the hit TV series *House of Cards* back in 2013.

In fact, the adoption of AI in innovation management is increasingly compelling managers to shift from a traditional *artifact-centric* model of innovation, as seen in the Netflix example, to a more holistic *system-centric* model. In the traditional artifact-centric model, the emphasis is on the creation of tangible products or services, which are the end result that customers can see, touch, or experience. But with the advent of AI, the system-centric view of innovation has emerged. Here, the focus is not just on the end product but also on the entire ecosystem that supports it. It is about creating a dynamic organisational framework that continuously learns, adapts, and improves.

This is where AI shines. With its ability to process big data, recognise patterns, and make predictions, AI can automate many *problem-solving* tasks that were traditionally the domain of humans. This does not necessarily mean that humans become obsolete. On the contrary, it frees them to concentrate on *problem-finding*. By identifying and defining the right problems to solve, and using those inputs to train AI algorithms, humans are still needed to guide AI systems to come up with more meaningful and impactful innovations.

In essence, the shift to system-centric innovation is about seeing the bigger picture. It is about understanding that in today's fast-paced, AI-driven world, innovation means thinking beyond the product to build an adaptable, responsive organisation that can keep up with changing customer

needs, market dynamics, and technological trends. It means seeing a future where AI and humans work in tandem, each amplifying the other's creative potential.

STRATEGISING AI ADOPTION IN INNOVATION MANAGEMENT

The successful integration of AI into the fabric of your organisation is a strategic initiative that demands a meticulous and thoughtful approach. This journey encompasses several key steps, including identifying suitable AI use cases, assessing organisational readiness for AI adoption, and crafting a holistic roadmap that charts the course for seamless implementation of AI within your firm.

The first step is identifying where to dig, or in this context, determining the range of suitable AI use cases where technology can unearth value. Using small or inexpensive tools, address a specific challenge and learn from it, and then progressively deploy bigger tools as your confidence and understanding of the terrain grow.

Once that is done, you must assess the readiness for AI adoption by evaluating your organisation's human, tangible, and intangible assets.⁴ First, the human: is there enough technical expertise to not just adopt but also adapt to AI's continuously evolving nature? The presence of such technical acumen is a crucial prerequisite to not only implement but also steward AI initiatives. Next, the tangible: does your company have the robust data infrastructure that AI demands? A robust data infrastructure is the bedrock upon which AI systems thrive, and ensuring its technical adequacy is paramount. And finally, the intangible: the cultural milieu. An organisation's culture should be malleable: ready to mould itself around the innovations AI brings, and foster a spirit of continuous learning and adaptability. A culture that champions innovation, cherishes a growth mindset, and is receptive to change is indispensable for the fruitful adoption of AI.

The role of the 'design strategist'

In the evolving narrative of AI adoption, one strategy stands out, which is the changing role of the human designer. In the AI-driven world, designers are no longer just people who create new products. They are evolving into 'design strategists'—adept professionals equipped with the knowledge and know-how to navigate the complex maze of AI technologies and the problems they entail.⁵ These design strategists possess the capability to discern the opportunities and constraints of AI, wielding them as potent tools to trigger continuous innovation. Their role is

multi-faceted. They are tasked with identifying meaningful innovation challenges, framing the innovation narrative, and setting up the algorithms and data infrastructure to tackle these problems. It is a holistic approach that goes beyond mere product or service design.

This paradigm shift also underscores the importance of pivoting towards a *system-centric* innovation approach, ensuring a continuous cycle of innovation and refinement. As an illustration, consider VFlowTech, a Singapore-based maker of long-duration energy storage solutions based on low-cost, modular batteries. Traditionally, the designers in this business-to-business (B2B) sector would focus on the technical aspects and functionality of the product. However, at VFlowTech, designers have transcended this role, morphing into strategists who harness the power of AI to craft innovative energy storage solutions tailored to the specific needs of their customers.

The company's groundbreaking work on the Vanadium Redox Flow Batteries (VRFBs) is an example of this approach.⁶ Instead of merely focusing on the battery design, VFlowTech's design strategists employ sophisticated AI algorithms to delve deep into various operational parameters, such as temperature dynamics, pressure variations, and flow rates. By doing so, they can fine-tune the battery's performance, and enhance its efficiency and longevity. This meticulous approach not only amplifies the product's operational prowess but also curtails maintenance and support expenses, delivering significant value to the end users.

But VFlowTech's AI-driven innovation strategy does not stop there. By leveraging AI's predictive capabilities to anticipate energy consumption patterns, the company draws from both historical data and real-time grid inputs. This approach enables the energy storage systems to adjust energy output in real time, ensuring peak performance and high energy efficiency.⁷ The design strategists at VFlowTech are no longer confined to the traditional realms of design. They are visionaries, pioneering different ways to harness AI to drive innovation by sculpting technological solutions that resonate with the dynamic demands of the energy sector. This case underscores a crucial shift in the design landscape, where the emphasis is not just on crafting products but also creating holistic solutions that leverage AI's transformative power.

CATALYSING CREATIVITY AND INNOVATION WITH AI

To harness AI's creative potential, you must understand the nuances of its application throughout the innovation journey. The traditional innovation management model, also known as the Funnel Model, is linear, where managers progressively gather, process, and analyse data to make informed product decisions. A large number of ideas and opportunities is gradually narrowed down and refined to select the most promising ones for implementation. The funnel shape represents the decreasing amount of data as it progresses through the four stages from the initial opportunity identification to the actual launch (refer to Figure 1).

THE FUNNEL MODEL

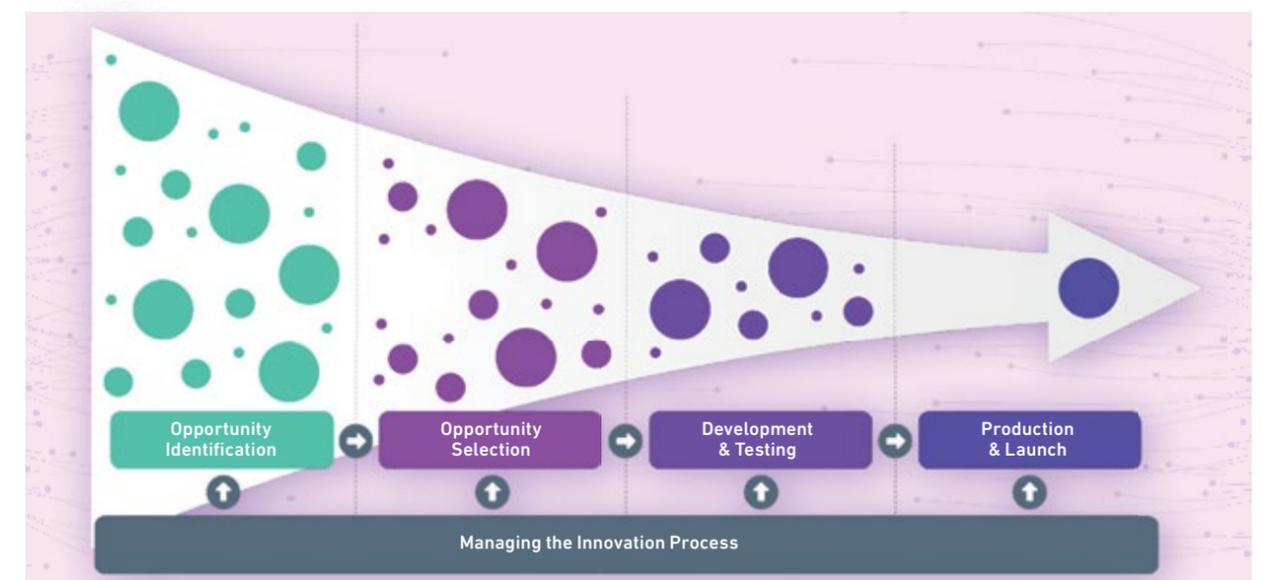


FIGURE 1

However, with AI and its vast data processing capabilities entering the fray, this model is likely to undergo a major shift as its scale and scope limitations become evident. AI can be a gamechanger in managing the innovation process in several ways. First, AI can significantly amplify the ideation stage. By sifting through vast datasets, it can identify patterns and trends that might be invisible to the human eye. These insights can serve as a catalyst, sparking new solutions and fuelling organisational creativity. For instance, AI can suggest product features or service enhancements based on ongoing customer feedback and market trends. Second, AI can improve decision-making by providing real-time data analytics. Innovation managers can receive more accurate and timely information, which can guide their strategic decisions, reducing risks and ensuring that innovations are in line with market needs. And third, AI can accelerate product development and streamline the product or service development and refinement stage. For instance, by analysing customer preferences, AI can suggest features that can make a product much more appealing to the target audience.

From funnels to factories: The IDEA process for AI-powered innovation

Rather than using the conventional linear model, which will yield less and less data as we go along, we propose adopting an unconstrained, cyclical approach instead. Our Factory Model of Innovation embraces a continuous data-driven innovation cycle, underscoring AI's game-changing effect on the ability of the organisation to process information at every step. This model represents a dynamic, continuous approach

to innovation management, integrating AI at every stage of the innovation journey. By emphasising iterative learning and refinement, it underscores the pivotal role of AI in unleashing system-centric innovation (refer to Figure 2).

Our IDEA model comprises four stages and embodies the symbiotic relationship between AI and innovation. Consider it a strategic roadmap that will guide your organisation through the complexities of system-centric design.

Invent & Learn: This foundational stage is all about the genesis of innovation. AI plays a pivotal role in recognising areas ripe for innovation in your industry, discovering untapped opportunities, and generating groundbreaking ideas. It is not just about brainstorming; it is about using the power of AI to sift through vast datasets, identify patterns, and use intricate predictive models to bring forth innovative solutions that might otherwise remain hidden.

Develop & Refine: Once ideas are on the table, they need to be moulded, shaped, and perfected. This stage leverages powerful AI analytics to transform the data on these fresh ideas into tangible offerings—whether they are products, services, or processes. It is about taking the raw potential of an idea and refining it to the point where it is almost ready for the real world.

Evaluate & Select: Not all ideas, no matter how groundbreaking, align with your business strategy and resources. At this stage, AI comes into play to evaluate the data on product feasibility and potential impact. By analysing various parameters, AI helps in cherry-picking the most promising solutions, ensuring that only the best ones move forward.

FACTORY MODEL OF INNOVATION

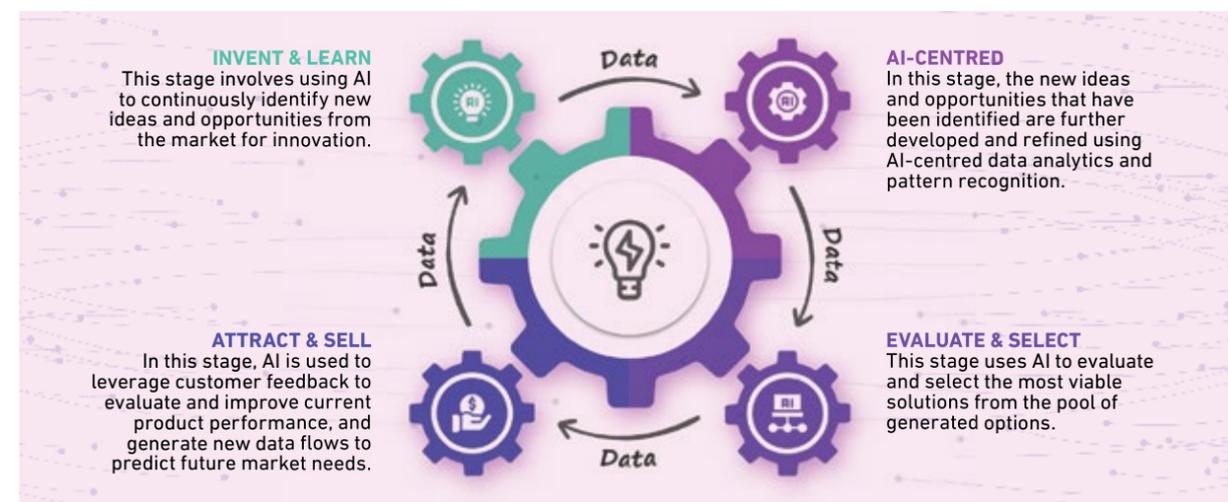
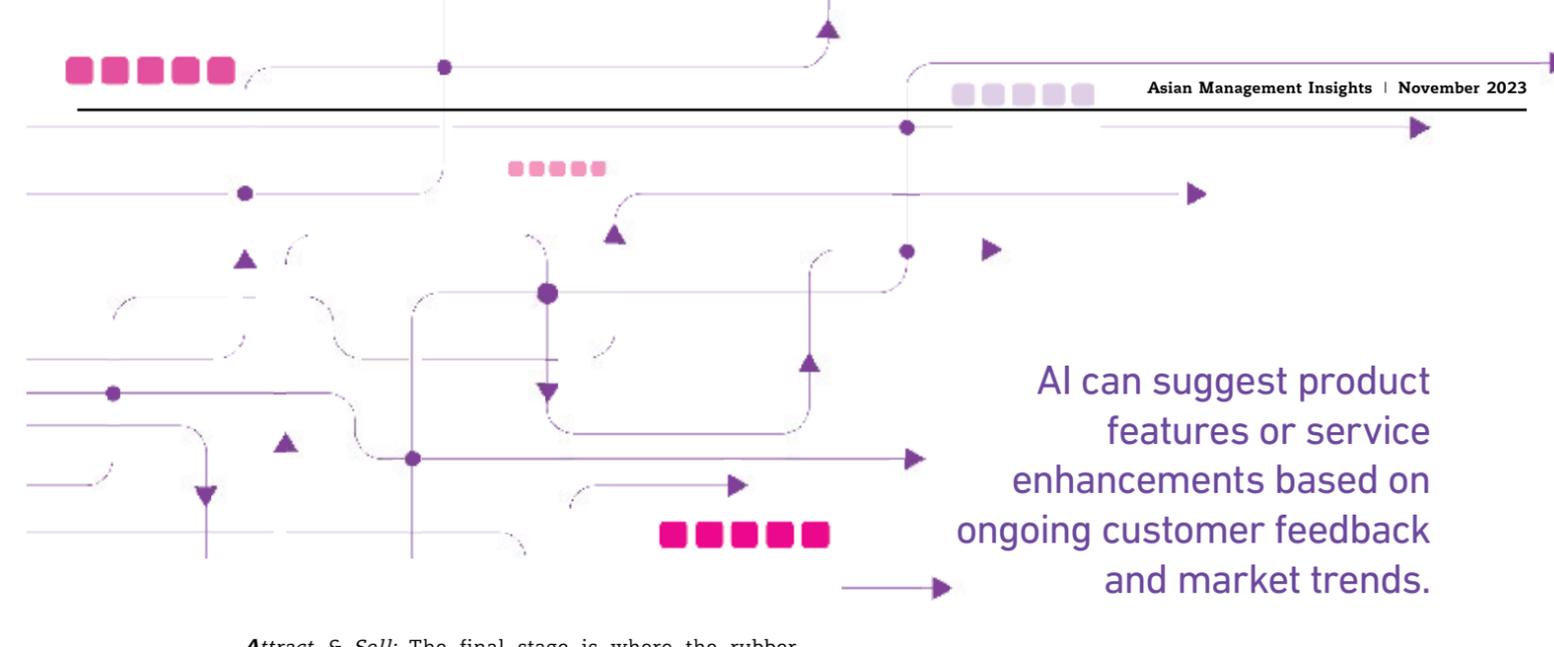


FIGURE 2



Attract & Sell: The final stage is where the rubber meets the road. After rigorous testing and validation, the product is unveiled to the world. But the role of AI does not end here. Using real-time data from customers and stakeholders, the relentless AI analytics help to refine the offering, ensuring that it remains relevant and effective in the long run.

While the Funnel Model has been a powerhouse for innovation, particularly in fields that blend science and intuition like materials science, the Factory Model brings a new level of systematic, interconnected thinking to the table. This is not just about tech or natural sciences; it opens new frontiers in diverse fields from linguistics to law. The real magic happens when these domains intersect, creating fertile ground for disruptive innovations in complex interdisciplinary areas like biomedicine and bioelectronics.

Take Syntellix, a bio medtech innovator with roots in both Germany and Singapore. This start-up has created a groundbreaking magnesium-based implant technology that eliminates the need for implant removal surgeries, benefiting millions globally. This success was achieved by marrying the ingenuity of traditional pioneering innovation with the systematic, data-driven approach of the IDEA model. It enabled the firm to secure product registrations in over 70 countries within just 15 years, all while operating with a lean, highly specialised team of global scientists and engineers. But what makes Syntellix's story even more compelling is its culturally diverse core team with its unique blend of perspectives and backgrounds. This creates a fertile *cultural milieu* for continuous patient-centred innovation, turning a goldmine of material opportunities into the new gold standard of cutting-edge implant technology.⁹ It is a vivid illustration of how the IDEA framework serves as a universal blueprint for AI-powered innovation management, which is adaptable and effective across diverse cultural and business landscapes.

NAVIGATING CHALLENGES AND RISKS

As organisations venture deeper into the AI realm, they must grapple with multifaceted challenges ranging from data security to ethical dilemmas and workforce readiness.⁹ Navigating these complexities while ensuring that the AI integration strategy is both responsible and effective will be critical.

One key concern surrounding AI adoption is data privacy and security. In an era where data breaches can tarnish reputations overnight, organisations must prioritise robust data protection mechanisms. This goes beyond mere compliance with evolving data privacy regulations, and entails a holistic approach that addresses secure data storage, transmission protocols, regular security assessments, and more. Additionally, fostering a culture where employees are well-versed in data privacy norms and best practices is crucial. Regular training sessions, workshops, and awareness campaigns can fortify this first line of defence against potential breaches.¹⁰

Yet, as AI systems become ubiquitous, the challenge is not just about safeguarding data but also equipping the workforce for this new era. Upskilling becomes essential. The AI-driven future demands a workforce fluent in AI's programming language and its myriad libraries. Organisations should invest in comprehensive training programmes, workshops, and hands-on sessions, ensuring employees are both familiar with AI and adept at leveraging its extensive capabilities. Cultivating an environment of perpetual learning and innovation is key, where curiosity is rewarded and experimentation with novel technologies is the norm.

However, beyond these tangible challenges lies the more nuanced realm of ethical AI. As AI systems increasingly influence decision-making, ensuring they are transparent, reliable, and fair becomes paramount. This triad—transparency, reliability, and fairness—offers a robust framework for innovation managers. It is a compass guiding them through the intricate maze of AI adoption, ensuring their journey is both responsible and impactful (refer to box story). These ethical dimensions, while technical in nature, have profound organisational and managerial implications, and demand a blend of technical oversight, corporate social responsibility consideration, and stakeholder engagement.

THE AI TRIAD

Transparency: This signifies that the operations and decision-making processes of systems are not just efficient, but also clear and interpretable to their users and stakeholders.¹¹ For innovation managers, this means venturing beyond viewing AI as a mere ‘black box’ that churns out results. Instead, they must actively collaborate with their technical teams to grasp and subsequently explain the underlying algorithms and models that drive these outcomes. Comprehensive documentation becomes essential—detailing the AI’s design, its programming language, data sources, the algorithms at play, etc. This documentation, while technical, should be offered in a manner that is accessible to a diverse range of stakeholders, ensuring that they can place their trust in the system’s output.¹² To further foster trust, innovation managers can take the initiative to engage with those stakeholders, perhaps through regular workshops or training sessions, so as to demystify the often complex assembly of different functions and their abstraction levels that underpin AI.

Reliability: This refers to AI’s ability to perform dependably across various scenarios and over extended periods of time. For innovation managers, this translates into a commitment to rigorous testing. AI systems should be subjected to a battery of tests, from stress scenarios to real-world simulations, thus ensuring their robustness.¹³ Managers should also champion the implementation of feedback mechanisms, allowing users to report any inconsistencies or system errors. This continuous feedback loop ensures that the AI system remains on its toes, constantly learning, refining, and improving. Furthermore, just like software, AI models are dynamic and might require

The AI-driven future demands a workforce fluent in AI’s programming language and its myriad libraries.

updates. Innovation managers must ensure a seamless system for rolling out these updates, one that ensures uninterrupted operations and maintains a clear logbook of changes for future reference and accountability.

Fairness: This ensures that AI’s operations are devoid of biases, thus eliminating discrimination against certain groups.¹⁴ For innovation managers, ensuring fairness implies a proactive approach. Regular bias audits, conducted in collaboration with data scientists, are therefore essential. These audits delve deep into the system’s outputs, checking for any unintended biases that might disadvantage particular groups (such as certain segments of end users based on their ethnicity and gender). Fairness starts at the source, which is the data. Managers must ensure that the datasets used to train AI systems are not just vast but also diverse, representing a broad spectrum of user groups. This emphasis on diversity and inclusivity in data collection and curation ensures that the outcomes of AI models are equitable. To anchor these efforts, innovation managers should champion the creation of and adherence to a set of ethical guidelines for AI deployment and operation. These guidelines, while serving as a technical roadmap, should also act as a moral compass, prioritising fairness at every stage of the process.

CONCLUSION

We stand on the brink of a new AI-driven era. In this rapidly changing landscape, embracing AI is no longer a choice—it is a necessity for organisations aspiring to lead in innovation and digital transformation. By harnessing AI’s creative potential, meticulously crafting new strategies—like the IDEA process model we have introduced here—and adeptly navigating the risks of AI adoption, you can put your organisation at the forefront of this metamorphic change.

Throughout this article, we have underscored that AI is not just another tool in the shed. It is a seismic force, reshaping the very bedrock of organisational innovation. Yet, to truly harness its game-changing impact, organisations must not only understand AI’s vast capabilities but also seamlessly integrate it into their strategic agendas. This will also require agility to recalibrate traditional roles, processes, systems, and structures.

The journey towards AI mastery may be difficult, but the rewards—innovative products, market leadership, and unparalleled growth—are alluring. As AI paves the way for new pioneering innovations, businesses have a clear choice: ride on this AI-driven wave and harness its potential to redefine the rules of the game, or risk being left in its wake. [AMI](#)

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References

- Bloomberg, “Elekta Wins 2019 ‘Medical Device Engineering Breakthrough’ Award from MedTech Breakthrough”, June 6, 2019.
- Marco Iansiti and Karim R. Lakhani, “Competing in the Age of AI: Strategy and Leadership When Algorithms and Networks Run the World”, Harvard Business Review Press, January 7, 2020.
- Roberto Verganti, Luca Vendraminelli, and Marco Iansiti, “Innovation and Design in the Age of Artificial Intelligence”, *Journal of Product Innovation Management*, 37(3), 212-27, 2020.
- Johann Füller, Katja Hutter, Julian Wahl, et al., “How AI Revolutionizes Innovation Management—Perceptions and Implementation Preferences of AI-Based Innovators”, *Technological Forecasting and Social Change*, 178, May 1, 2022.
- Marco Iansiti and Karim R. Lakhani, “Competing in the Age of AI”, Harvard Business Review, January-February 2020.
- Arjun Bhattacharai, Nyunt Wai, Rüdiger Schweiss, et al., “Vanadium Redox Flow Battery with Slotted Porous Electrodes and Automatic Rebalancing Demonstrated on a 1 KW System Level”, *Applied Energy*, 236, 437-43, February 15, 2019.
- Cameron Murray, “VFlowTech Bags US\$10 Million for 200MWh Vanadium Battery Plant”, *Energy Storage News*, February 7, 2023.
- Thevandran Gowreeson, “Congress Statement at the 67th Continuing Orthopaedic Education (COE) Meeting of Indonesian Orthopaedic Association”, April 2019.
- Marco Iansiti and Karim R. Lakhani, “Competing in the Age of AI: Strategy and Leadership When Algorithms and Networks Run the World”, Harvard Business Review Press, January 7, 2020.
- Christian Rammer, Gastón P. Fernández, and Dirk Czarnitzki, “Artificial Intelligence and Industrial Innovation: Evidence from German Firm-Level Data”, *Research Policy*, 51(7), September 1, 2022.
- Johann Füller, Katja Hutter, Julian Wahl, et al., “How AI Revolutionizes Innovation Management—Perceptions and Implementation Preferences of AI-Based Innovators”, *Technological Forecasting and Social Change*, 178, May 1, 2022.
- Naomi Haefner, Joakim Wincent, Vinit Parida, et al., “Artificial Intelligence and Innovation Management: A Review, Framework, and Research Agenda”, *Technological Forecasting and Social Change*, 162, January 1, 2021.
- Roberto Verganti, Luca Vendraminelli, and Marco Iansiti, “Innovation and Design in the Age of Artificial Intelligence”, *Journal of Product Innovation Management*, 37(3), 212-27, 2020.
- Jeanne Liedtka, “Perspective: Linking Design Thinking with Innovation Outcomes through Cognitive Bias Reduction”, *Journal of Product Innovation Management*, 32(6), 925-38, November 2015.



They need to start preparing for this new role now.

by Yvonne Chan

‘Sustainability’ is a broad term that varies in meaning for different people and industries. Given my training as an accountant, it entails the triple bottom line¹ for me. What this means is that for a sustainability effort to be enduring, it starts with bringing bottom line value to the organisation, harvesting the best of human capital, and taking care of our larger community and environment, including the planet we live on. However, this is easier said than done in a world with competing needs and limited resources.

As the gatekeepers of governance, accountants were better known as bean counters in the past, who tended to be transactional in their conduct due to the technical and repetitive nature of the job. But as society evolved, accounting became a financial and strategic partnership, moving beyond ticking a list of checkboxes for compliance. It evolved into the evaluation of how each assignment elevates the organisation’s business leaders to best achieve the goals they have set. In recent times, this has included the goal of sustainability, which requires accountants to help their stakeholders go beyond a short-term financial mindset to consider the long-term survivability of the organisation.

Accountants must be cognisant of potential enterprise risks: pressure from competition, shifts in government regulations, and other externalities that have become threats over time. At the same time, they must recognise opportunities for growth, be aware of new markets and products, and drive the completion of strategic programmes. All this is necessary for organisations to become nimbler and more forward-focused, such that they can reap the benefits of productivity by adopting tech-enabled solutions. This helps to generate bottom line value.

It is also imperative for an organisation to attract good talent, care for their well-being, and empower them to grow with pride. This differentiates good firms from their average counterparts. Gone are the days when long in-office working hours are glorified and decision-making is top-driven. Employees now crave the co-creation of solutions, empowerment to take responsibility, and an environment that allows experimentation with new ideas. While these ostensibly human resource (HR) issues may not naturally fall under the job scope of accountants, they account for a sizeable financial component of the profit and loss (P&L) statement and hence are an evolving area of concern that will continue to engage the attention of management. Addressing this issue would enable the harvesting of the best human capital.

Finally, the need to understand the impact of decisions made on the environment and the larger community has also created mounting pressures on governments to regulate the negative impacts on the planet to preserve it for future generations. Although many have claimed that it is too late, any effort to slow the harm is still a move in the right direction. Such regulations might lead to higher taxes and penalties which would translate into higher compliance costs, but it ultimately takes care of the larger community and Planet Earth.

SUSTAINABILITY REPORTING: THE STATE OF PLAY TODAY

With crucial global megatrends such as changing demographic dynamics, widening socio-economic disparities, technological advancements, and climate change intertwining with the increasing weight of environmental burdens, sustainability has become a regular theme at conferences and seminars, as well as a key challenge for governments worldwide. Sustainable business practices meanwhile are gaining traction to become mainstream due to their capacity for value creation, leading to the differentiation of poor, good, and best businesses through the lens of sustainability measurement and monitoring.

The world has done away with the old wineskins of reacting to sustainability with sporadic and reactive actions. Today, sustainability is a worldwide movement that has become more pre-emptive and proactive. Since the first major United Nations Conference on the Human Environment in 1972, the progress in the adoption of sustainability has accelerated in the 2010s. The year 2015 brought the Paris Agreement that legally bound 195 countries to a global climate deal, while the 2018 ASEAN Social Bond Standards and ASEAN Sustainability Bond Standards launched by the ASEAN Capital Markets Forum or ACMF put forth standards to reinforce transparency, consistency, and standardisation of the region's social and sustainability bonds. With more formal international decisions made, such as the formation of the International Sustainability Standards Board (ISSB) post-Conference of Parties or COP26, the accounting community has sat up to take note of the potential influence that such decisions may have on International Financial Reporting Standards (IFRS) specifically and financial reporting in general.

In June 2023, ISSB issued its inaugural standards IRFS S1 and S2 to reduce fragmentation and facilitate the comparability of climate-related data. This formalises a new push for sustainability-related disclosures worldwide with the intent

to enhance trust and confidence in the capital markets. Both standards were developed after extensive consultations with global markets and leaders. Although it is not explicitly stated that the compliance will be done by accountants, the fact that sustainability-related information is required alongside financial statements built on the IFRS Accounting Standards suggests this is likely to be so.

S1 lays out the disclosure requirements to help companies communicate sustainability risks and opportunities over the short, medium, and long term. S2 spells out specific climate-related disclosures to be used with S1. In the words of Emmanuel Faber, ISSB Chair, the standards were “designed to help companies tell their sustainability story in a robust, comparable and verifiable manner.”⁹² There is now a push for more information to be revealed on a forward basis, so as to better guide investors providing capital to responsible firms that are willing to share and communicate their plans. After all, financial reporting used to provide more historical data on a firm's performance, which may not reflect the future that investors would buy into. Hence, this move is likely to be celebrated by the investor community. However, the extent of full adoption in this relatively new space remains to be seen.

The task at hand is to educate those who have prepared statements the old way to comply with new standards, albeit with systems not yet ready to capture relevant data holistically for reporting. This also presents a huge market for educational institutions to cultivate and modify their syllabus, and capitalise on the large potential of transformative sustainability learning, especially in adult higher education. On the flip side, subpar disclosures may lead to higher capital costs and difficulty in attracting the talent required for higher sustainability compliance. To facilitate adoption, ISSB has formed a Transition Implementation Group to support the various jurisdictions and prepare communities for implementation across the globe. It has been forecast that Europe is more ready to lead the pack and progress may be slow in other parts of the world.

THE ANATOMY OF A SUSTAINABILITY REPORT

A sustainability report must have elements encompassing four broad categories: economic, environmental, social, and governance.

The economic perspective suggests that sustainability reporting must be resilient, and include long-term financial modelling and plans. In the world of accountants, this used to follow a concept known as ‘going concern’. Given the quick pace of our environment, which has been accelerated by the



The world has done away with the old wineskins of reacting to sustainability with sporadic and reactive actions. Today, sustainability is a worldwide movement that has become more pre-emptive and proactive.

introduction and adoption of new technologies, plans have become more short-term and may change more often than leaders prefer. Hence, it is becoming rarer to see 10- or even five-year plans. That said, it is still important to ‘crystal ball’ the future to develop a general direction to steer the organisation, which would enable it to prepare for large capital and operation expenditure requirements, and new products and services, as well as plan for manpower succession resilience and take action to defend itself against potential threats.

For the environmental aspect of sustainability reporting, the minimum requirement is to report on environmental emissions, energy and water usage, and waste. They can be aligned to the Greenhouse Gas or GHG Protocol 2003 of Scopes 1, 2, and 3. Scope 1 refers to direct emissions from owned or controlled sources such as from companies' facilities and vehicles. Scope 2 refers to indirect emissions from the generation of purchased energy. Scope 3 refers to value chain emissions from the reporting entity including upstream and downstream tracks that are split into 15 categories such as business travel, waste generated in operations, and finance investments, to name a few key ones.

Within the social domain, reporting must engage the community to ensure and promote health, safety, labour, charity, and human rights; include the declaration of human-centric

goals and responsibilities to attract talent while factoring in diversity considerations; and provide for responsible procurement (or a sustainable supply chain) of goods and services.

When viewed from the transparent governance perspective, anti-bribery and anti-corruption measures are key to ensuring ethical reporting. Strong business ethics and management of the evolving regulatory landscape, enterprise risk management, sustainability governance, and technological risk management can ensure that the sustainability report will be credible and effective. In companies serious about enhancing such governance, frameworks are officially posted on their staff intranet with details of persons holding key roles such as the Chief Risk Officer and the supporting panel (usually made up of double-hatting staff). A good governance framework should ensure compliance from judiciary and statutory set-up to internal policies, and put in place processes and procedures for operations supported by a robust ops-tech plan for execution, and a balanced scorecard for monitoring the responsibilities of officers in charge. It would be best if such responsibilities can be subjected to performance appraisals.

As for social enhancement, a clear and well-defined HR policy should list the guidelines for ethical, fair, and unbiased recruitment. Hence, in most interviews, a neutral HR personnel sits in to ensure that such principles are upheld.

CARRYING OUT SUSTAINABILITY REPORTING

Sustainability reporting is a means to establish an organisation's current vision and focus areas for survivability, and better value creation in the future. Potential pitfalls might occur when the target audience for the report is not clearly defined, clouding the clarity and cascading direction of the organisation. These issues could be addressed by identifying key stakeholders, gathering feedback on sustainability issues, identifying material matters, and documenting how key decisions are made. This helps to deliver a strategic report that will focus on what would be the most crucial issues for the organisation and stakeholders in the future. Any report produced is then subjected to regular reviews and enhancements to drive the organisation towards the common achievement of its mission and vision.

For beginners, the five stages involved in sustainability reporting are described below.

Stage 1: Engage key stakeholders

Poor corporate emphasis on sustainability matters can be a serious challenge, especially where it has been exacerbated by resistance to change the status quo. Sustainability initiatives may also be driven in silos, thus lacking comprehensive engagement across leadership teams. It is hence imperative to set the right tone at the top, starting with the board and leadership championing sustainability as a top agenda topic for the organisation.

An Asian company known for leading sustainability efforts would be City Developments Limited (CDL). It was a pioneer when sustainability reporting was relatively unknown in this part of the world in the mid-1990s. The late Kwek Leng Joo, then Managing Director, championed corporate social responsibility (CSR) actively together with Esther An, CDL Chief Sustainability Officer. In 2008, An led CDL to publish its first sustainability report and in 2017, issued Singapore's first green bond. Today, CDL ranks amongst the top 100 global sustainable corporations in the world,³ participating in many international events across sectors and providing a Singaporean voice on many standard setting bodies.

The board and key management levels must be the pioneers for sustainability efforts, establishing a direction that can cascade down. With an aligned vision and tone, a sustainability culture can be nurtured, influencing behaviour, and encouraging strong corporate governance.

Key stakeholders should be identified and engaged by a core sustainability committee. To be successful, members of this committee should preferably be individuals who are

naturally passionate about this topic and are willing to build a network in similar communities. In organisations where this is done mechanically, it would rarely amount to anything more than tabletop plans.

When there is a meaningful plan to engage the relevant parties, and the feedback received is sound and relevant to the desires, needs, and expectations of the various stakeholders, this can enhance the execution of the organisation's sustainable development vision. One main group which is often overlooked are employees of the firm, who form an important group as readers of the sustainability report.

Stage 2: Identify material matters

One downside of reporting is the overwhelming task of collecting and managing sustainability data, which is aggravated in organisations whose staff lack a sense of ownership. It is key to establish a clear, structured, and standardised data collection process. The organisation needs to form dedicated teams that would be the data owners responsible for defined metrics, who would use existing data for disclosure, and maintain a continuous cycle of reviewing and refining data usage. When commencing such a data-gathering exercise, one may begin with simple manual collation before transitioning to automated means. Organisations tend to see this as the cumbersome non-value add to reporting as most are non-financial in nature, and the duty for this may rest with units outside of finance. Using CDL as an example, its sustainability report is compliant not only with the Global Reporting Initiative Standards but those of other institutions, including the Climate Disclosure Standards Board and Sustainability Accounting Standards Board. This is possible due to the many years of institutionalising a firm-wide data-gathering protocol.

Environmental, Social, and Governance (ESG) issues should be identified and ranked based on strategic importance to ensure that support will be broad-based and disclosed. Some material matters include those related to governance and policy, as well as environmental, social, and economic matters. These would normally align with the organisation's vision and mission. Often, there may even be a need to revise the current ones to preserve the principles of sustainability when pursuing long-term possibilities. Over time, certain non-material matters may also creep into business plans which could distract management's attention and divert resources elsewhere. These should be eliminated. A good way to prevent scope creep is to do zero-based budgeting and review non-performing programmes to root them out.

Stage 3: Set sustainability policies, practices, and targets

This is where clear internal policies, practices, and performance targets need to be set out, based on the material factors identified above. Quantitative and qualitative information will form the basis of data to be collated for the reporting period. Additionally, performance should be contextually described according to past disclosed targets. Following this, short- and long-term targets for each identified ESG factor will be set for subsequent reporting periods, with companies ensuring that these targets are specific, measurable, achievable, relevant, and time-bound. An example would be to measure the firm's initial carbon footprint generated by overseas business travel, and then setting a target to reduce it year on year. Some more forward-looking companies have begun to set carbon budget targets in addition to financial targets.

In annual planning cycles, these are then cascaded to all levels with key performance indicators (KPIs) set for regular review and monitoring. External benchmarking could also aid in gathering best practices from organisations with similar functions. An HR performance matrix should be formulated to recognise contributions on sustainability fronts, rewarding such efforts even when related roles are secondary to core functions. An example will be to track sustainability initiatives as part of annual workplan submissions. This could range from the use of utilities, stationery, and offsite storage of hardcopy documents at one end of the spectrum to staff using public transport and corporate trips carpooling at the other end. A good start would be to get the company certified as "Eco Office" by the Singapore Environmental Council.

Stage 4: Data collection and compilation, and report drafting

In this stage, approved processes, systems, and controls where appropriate will be executed to compile reliable data that is aligned to the identified sustainability KPIs. This can be done by ensuring that people responsible for different tasks are identified, regular checks on progress are conducted, and information is collected and compiled in a systematic way. As the compilation progresses, these principles should be incorporated into the report: impactful narrative of key sustainability issues, compliance with reporting standards, effective communication, and timely delivery. Consistency in methodology could also be used to facilitate continuity in trend analysis.

The board and key management levels must be the pioneers for sustainability efforts, establishing a direction that can cascade down.



Stage 5: Performance management

During the implementation of a sustainability performance management process, deliverables from Stages 3 and 4 will be taken to identify performance gaps against targets, as well as feedback gathered from internal and external stakeholders. With this, policies, practices, and targets can be further refined. Subsequently, the planning and execution of new projects can be done to further improve the organisation's performance. Additionally, the organisation can choose to obtain independent external assurances to strengthen the case for further sustainability disclosures.

WHAT HAS WORKED (FOR ME)

In pioneering sustainability reporting in my previous roles, the most important issues are culture-building and change management. For organisations starting on their sustainability journeys, I would encourage them to take the following steps.

First, get a sponsor at the highest level, who is invested in making sustainable reporting succeed in the organisation and is ambitious enough to scale with incremental progress as this is a marathon.

Second, start with a pre-determined series to spread out timelines and set feasible targets. Do not aim to start with a big bang as the process itself needs time and energy to unfold and evolve. Think of it as different milestones to be achieved over five years and plan for all parts at the beginning through an easy-to-understand vision, which is supported by an executable framework with different owners taking charge of their individual portions.

Third, have a small, dedicated core team supported by a virtual team of like-minded champions who have the passion to lead this project. Recognise that not everyone has the same level of enthusiasm to be involved in a fairly new domain which is ever-changing, and they will need to constantly stay on top of it. Bringing individuals on board with prior experience will be a plus.

Fourth, benchmark your organisation against the best in class from around the world, and do not be afraid to try, learn, and even relearn. More self-organised interest groups should be formed to share information on specific topics within the organisation. In any case, it may also serve the organisation well to be positioned as a leader in its industry and be a magnet for thought leadership.

And finally, develop a network of friends in the community to support similar initiatives.

LOOKING AHEAD, BEYOND THE BUZZWORD

Sustainability is no longer just a buzzword. Its adoption will be uneven across sectors and industries due to varying international pressures, regulations, and peer expectations. As practitioners gain momentum, they may bring along like-minded supply chain partners into the ecosystem, leading to an exclusive green partnership for early adopters. This poses a threat to those who may embrace it later. Hence, rather than wait for regulations to be mandated, why not start reporting on a smaller scale and then increase your intensity over time so that sceptics in your organisation can catch up? This way, you can also profess a commitment to collaborate with your fellow partners.

That said, it is a matter of time before sustainability reporting becomes part of the annual reporting to boards and the authorities. This is a fact that must be accepted. Closer to home, Singapore Exchange has mandated a 'comply-or-explain' sustainability reporting policy for public-listed companies since 2017. Over the years, it has implemented more reporting conditions in line with Task Force on Climate-Related Financial Disclosures requirements after a public consultation in 2021. From 2025, climate reporting has been mandated for issuers in the finance, agriculture, food and forest products, energy, materials and building, and transportation industries.

Many professional bodies around the world are stepping up on awareness creation, developing publications on updates, conducting forums to gather feedback on exposure drafts to propose new standards, propagating knowledge through seminars, and getting their organisations to lead by example. It is time for accountants from all sectors to be aware of the progress made along the sustainability front and start getting involved in sustainability reporting in their organisations. ^{1,2}

Yvonne Chan

is Chief Financial Officer and Vice President, Finance at Singapore Management University. She has steered her previous organisations to achieve international standards compliance in sustainability reporting, issued guidance papers in forums, and served as a guest speaker at seminars. She is a member of the Institute of Singapore Chartered Accountants Climate Change and Sustainability Committee

Endnotes

- ¹ The triple bottom line is a sustainability framework which evaluates the degree of a business's success in three domains: profit, people, and the planet.
- ² Bryan Strickland, "Historic Global Standards for Sustainability Reporting Released", Journal of Accountancy, June 2023.
- ³ Mike Scott, "100 Most Sustainable Companies of 2023 Still Flourishing in Tumultuous Times", Corporate Knights, January 18, 2023.

EXECUTIVE DEVELOPMENT

Growing Infrastructure

Enabling & Structuring for Private Sector Participation in Finance and Innovation

26 FEB – 1 MAR 2024

Overview

Infrastructure Asia (InfraAsia), World Bank Group (WBG) and Singapore Management University (SMU) have joined hands to develop a bespoke course that builds leadership capabilities within the infrastructure sector across the region.

Titled "*Growing Infrastructure – Water & Waste Management*", this course was co-designed by all three organisations and will be delivered by SMU in partnership with InfraAsia.

Course Highlights

The course combines the strengths of each partner – InfraAsia's connections with the regional infrastructure ecosystems, SMU's industry collaborative networks, and the WBG's global development expertise. Called "*Growing Infrastructure – Water & Waste Management*", it aims to support regional infrastructure development and raise participants' awareness of solutions from Singapore-based companies. In particular, it will equip participants with the knowledge and skills to create a regulatory environment that is friendly towards private sector involvement in infrastructure.

Who Should Attend

Senior and mid-level decision makers and policymakers in the infrastructure sector, from South and Southeast Asia. For this upcoming run, InfraAsia is inviting government officials working on Transportation & Urban Development to apply.

Selection Criteria

All registered participants will go through a selection process by InfraAsia before receiving confirmation to attend the course. Application to the course does not constitute a guaranteed admission.

Visit our website to find out more!

<https://exd.smu.edu.sg/short-courses/growing-infrastructure-course>

For more information, please email to exd@smu.edu.sg.

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Pursuing Profit and Sustainability



in the Age of Climate Change

Building dual-agenda innovation capabilities is the way to go.

by Tracy Xie

At the end of the Copenhagen Climate Ministerial in March 2023, Dr Sultan Al Jaber, President-Designate of the 28th Conference of the Parties to the United Nations Framework Convention on Climate Change (or COP28), said, “The international community must unite in promoting bold, ambitious, and practical solutions while prioritising inclusivity, enhanced accountability, and transparency. All stakeholders, particularly big industries, must go further and faster to get the world back on track.”¹

The clear and open call to the world’s business heavyweights reflects the current zeitgeist appealing to corporates to help repair the overextended natural environment that has served as the source of industrial and economic growth for over a century. Investors now expect companies to build sustainability into their corporate strategies, and companies have responded to this pressure to address environmental issues.

The question is, can organisations pursue and attain environmental and economic (E2) goals simultaneously? I believe this can be done via dual-agenda innovation, which requires adopting a new idea or process to deliver a new product, process, or business model with a clear, pre-defined objective to achieve both goals simultaneously. This, in turn, requires organisational capabilities in digital transformation, cross-boundary collaboration, and stakeholder management.² The critical challenge is *how* to implement these concepts in practice, and this article uses an example from the real estate sector—specifically CapitaLand, a Singapore-based global real estate firm focusing on investment management and development with operations in over 40 countries—to illustrate how these capabilities play out in reality. It offers a pathway for companies to achieve superior E2 performance and build sustainable competitive advantages.

This article will first discuss the increasingly pressing nature of sustainability practices in companies driven by the expectations of the general public and the progressively exacting sustainability reporting standards. It underscores the challenges that companies face in pursuing E2 goals, and how dual-agenda innovation can help address both goals simultaneously. It then dives into the four core capabilities that underpin dual-agenda innovation.

THE GROWING IMPORTANCE OF CORPORATE SUSTAINABILITY EFFORTS

The clarion call has been ringing for a while: sustainability is no longer optional; it is an imperative. Investors believe sustainability leads to stronger returns,³ with some studies showing that it is so.⁴ Research has also found that environmental, social, and governance (ESG) factors have become recognised drivers of returns, especially among institutional investors.⁵

And from 2024, some 50,000 companies will be subjected to mandatory sustainability reporting under the EU's Corporate Sustainability Reporting Directive or CSRD, with reports to be published the following year.⁶ Throw in the International Sustainability Standards Board's (ISSB) publication of its first two Sustainability Disclosure Standards in June 2023,⁷ and the US Securities and Exchange Commission's proposal to "include certain climate-related information in its registration statements and periodic reports",⁸ and it is apparent that big companies must build sustainability reporting into their financial statements regardless of how they feel about it.

However, businesses struggle to balance their environmental and social obligations with achieving business growth, especially with cost concerns and capability gaps. For instance, the building and construction sector contributed nearly 40 percent of process-related carbon dioxide (CO₂) emissions in 2018, and companies have neither been meeting their sustainability goals in cutting emissions during the construction of the buildings nor have they been making themselves more energy-efficient.⁹ Coupled with population growth and the extreme weather brought about by climate change, it is likely that the energy consumed in buildings will continue to grow, bringing with it a direct impact on the many people living and working in these buildings.

REGULATING SUSTAINABILITY

According to the International Energy Agency (IEA) around half of the CO₂ emissions reductions by 2050 require technologies that are not yet commercially available.¹⁰ In fact, as the world attempts to build back post-COVID-19, less than one percent of that recovery spending is going into green research and development (R&D). That is even though such R&D positively addresses environmental issues in multiple sectors.

This is where governments and regulations can make a difference. In July 2023, Singapore's Accounting and Corporate Regulatory Authority and Singapore Exchange Regulation proposed mandatory requirements for public and private companies in the country to provide climate-related disclosures that are aligned with ISSB's newly-issued Sustainability Disclosure Standards.^{11,12} This is a step up from the current requirement where only listed companies in select sectors (e.g., finance and agriculture) are required to provide Task Force on Climate-Related Financial Disclosures (TCFD)-aligned climate reporting, while others apply TCFD on a 'comply-or-explain' basis.¹³

All these pressures require organisations to develop novel, transformative, and even potentially disruptive ways to address conflicts during E2 innovation. Specifically, solutions must be devised to resolve short-term versus long-term goal conflicts, resource constraints, and the functional/design dilemma.

DUAL-AGENDA INNOVATION: DIFFICULT BUT POSSIBLE

It is possible to achieve environmental goals without sacrificing economic ones, and vice versa. Some researchers observe a positive correlation between the two goals if companies pay proper attention to stakeholder management,¹⁴ while other studies have explored the driving factors behind the relationship

between economic and environmental performance, as well as the mediating and moderating effects.¹⁵ Researchers have found that innovation contributes to the apparent holy grail: simultaneous uptick in both economic and environmental performance via cost optimisation, and increased revenues linked to improved environmental metrics.¹⁶

From the resource-based view, innovation refers to a process and a set of distinctive capabilities that help companies create competitive advantages through superior products and services. There are many ways to slice and dice innovation: product/service innovation; process innovation; business model innovation; organisational innovation; as well as radical, breakthrough, or incremental innovation.

What about environmental innovation? Also known as 'green innovation'¹⁷, or 'eco-innovation' according to the United Nations Environment Programme or UNEP, it is "a new business approach which promotes sustainability throughout the entire life cycle of a product, while also boosting a company's performance and competitiveness".¹⁸ The expected benefits of such innovation include lower greenhouse gas (GHG) emissions, more efficient energy use, and waste management that reflects the 'reduce, reuse, and recycle' principle. As a corollary, it may also produce cost efficiency that improves short-term bottom-line performance, although evidence has been mixed.¹⁹

Hence dual-agenda innovation in this context represents the adoption of a new idea or process to deliver a new product, process, or business model with a clear, pre-defined objective to achieve E2 goals simultaneously. What is unique about dual-agenda innovation is that it has a specific, desired intention to achieve E2 performance concurrently. The dual-goal was imbedded in the process from the beginning as a guide to decide what to innovate and how to innovate, and serves as the success measure of the outcome of innovation.

Dual-agenda innovation has several challenges. Short- and long-term goals are sometimes contradictory, with significant upfront investment needed for environmental improvement. For example, heavyweights in the notoriously emissions-heavy fashion industry such as Lululemon and H&M are putting money into a US\$250-million fund to cut these emissions.²⁰ The expected benefits will come later, requiring patience and a commitment to absorb the initial outlay.

Meanwhile, these companies must generate enough revenue to cover their costs, or deal with a temporary rise in expenses that they would rather do without. Tesla, whose environmental performance (long-term goal) is clear to all, struggled for years to turn in a profit while waiting for consumers to embrace its

products. Tesla executives had to manage the balance sheet and cashflow (short-term goals) while waiting for the macro environment to mature in their favour. Even as recently as 2023, Tesla has had to aggressively cut prices to drive up its revenues, albeit in light of rising sales.²¹

The resource constraints described above can cause companies to deprioritise the environmental agenda. Sometimes companies face a design or functional dilemma regarding issues of implementation, such as technological limits or a reluctance to use disruptive and/or emerging technology even when it may be more profitable. Change management would be required to address these issues.

BUILDING FOUR CORE CAPABILITIES TO ACHIEVE E2 GOALS

Dual-agenda capabilities are anchored upon a company's ability to explore and exploit opportunities. By 'explore', it means the company is able to attain and understand the information promptly, as well as assimilate the information acquired into the firm's routines and processes to analyse, interpret and understand it. By 'exploit', the company can reassemble the internal and external knowledge, build new connections among the various bits of information obtained, and apply the knowledge to generate solutions.

Firms are more likely to achieve superior E2 performance by engaging in innovation that integrates its environmental goals with economic ones, and making deliberate decisions along the innovation process to achieve both goals. Be it a new product, process, or business model, dual-agenda innovation can be achieved by building on four core capabilities: value identification and quantification; stakeholder management; cross-boundary collaboration; and embarking on digital transformation.

This article will discuss the four capabilities using CapitaLand (refer to box story) as an illustration. The urgency and the critical need to improve sustainability are particularly salient for the real estate sector it comes under: buildings take up 12 percent of the world's drinkable water and produce 40 percent of the planet's CO₂ emissions.²²

1. Value identification and quantification

To lay the foundations for the pursuit of dual-agenda innovation, businesses must identify and translate the positive effects of environmental initiatives into understandable baseline benefits. This could come in many forms, ranging from quantifiable boosts in revenue and cost savings, to improved brand reputation and customer experience.



In the case of CapitaLand, it involves integrating sustainability into the Group's real estate life cycle from the earliest stage of the investment process: design, procurement, construction, operations, and redevelopment or divestment. Sustainability targets are built into policies and processes, as well as how business operations are assessed. Best practices are encouraged, and progress is monitored and reported to ensure transparency on sustainability efforts. All performance metrics, including its global sustainability reports, are validated by external assurance agencies, and aligned to international standards.

2. Stakeholder management

Clear communication of identified value from ESG initiatives to all involved stakeholders will go a long way in enabling companies to pursue dual-agenda innovation. When the value of imbuing sustainability into the company's ethos is made clear to senior management staff, it would be easier to enact top-down change for these initiatives through all levels in the organisation. Obtaining and allocating resources to justify the company's involvement in going green would also be met with less contention, as key decision-makers are able to understand the rationale behind these proposals.

Besides internal stakeholders, effective engagement with external stakeholders is also critical to achieving E2 results. Research shows that companies that are able to identify and communicate with different stakeholders are also the winners through E2 innovation. However, poor (or worse still, misleading) communication could lead to allegations of greenwashing, and create obstacles. For example, McDonald's

supposedly eco-friendly paper straws turned out to be non-recyclable,²³ while Volkswagen infamously cheated on emissions tests while touting its vehicles' eco-friendly features.²⁴ Companies that cause such self-inflicted damage may have to devote even more resources to restore their brand image, which could have been avoided with proper stakeholder management policies in the first place.

CapitaLand has laid out its commitment to better engage its various stakeholder groups (including employees, customers, suppliers, investors, etc.) in its sustainability masterplan, so that it can achieve its 2030 targets. Sponsored at the board level, sustainability was established as part of CapitaLand's long-term strategy, and this has been communicated via different channels from the Group CEO to function and business unit heads. The leadership has been actively advocating the concept across different forums, inviting like-minded partners to join its mission.

3. Cross-boundary collaboration

Given the complexity and challenges of pursuing E2 goals simultaneously, no single company possesses all the resources required to be successful. Generally defined as one's ability to work with separate teams that individually bring unique perspectives and resources to the drawing board for innovation, cross-boundary collaboration helps address this challenge, allowing for a better exchange of fresh ideas, and possibly even resulting in open innovation networks being formed as companies band together to share their knowledge about going green for the greater good.

Cross-boundary collaboration can manifest in various forms. For instance, other than inter-departmental cooperation between the engineering and product management teams, collaboration can occur among companies in the same industry and/or across other industries to fulfil E2 goals. Research shows that E2 winners demonstrate the highest cross-boundary collaboration capability compared with that of their peers.²⁵

Within the building sector, sustainability innovation and collaboration can be strengthened by working with like-minded partners to create shared values, and sourcing globally for new ideas and technologies to meet sustainability ambitions. To that end, CapitaLand launched the CapitaLand Sustainability X Challenge (or CSXC) in 2021, the first sustainability-focused innovation challenge by a Singapore real estate company to be held on a global scale.²⁶ As an open innovation initiative that sourced ideas globally in certain domains, but with no problem statements, CSXC offers individuals and companies opportunities to test-bed and

Skills training is essential to ensure a smooth transition to net zero and could help firms to mitigate the impact of increased commodity prices by improving production efficiency.

Research shows that companies that are able to identify and communicate with different stakeholders are also the winners through environmental and economic innovation.

operationalise their sustainability innovations in CapitaLand's properties worldwide. Furthermore, at least half of the newly-established S\$50-million CapitaLand Innovation Fund is earmarked for sustainability projects.²⁷ With funding of up to S\$500,000 per project, this fund serves as 'internal innovation' resources for staff to solve day-to-day problems through innovation. As for 'external innovation', CapitaLand has also set up the Smart Urban Co-Innovation Lab with the Singapore government's support to work on industry-wide challenges.²⁸

4. Embarking on digital transformation

Businesses should embrace digital transformation in their sustainability blueprints. With digitalisation in the form of data collection, storage, and analytics, companies will have an easier time quantifying the possible economic benefits they can reap by working on their ESG goals, and also using data to predict future dividends or revenue streams.

Digital transformation also lends credibility to the environmental cause, as stakeholders are likely to be more easily convinced when proper data is available to back sustainability initiatives, as opposed to having only theoretical deductions for decision-making. Other than supporting ESG measurement and reporting, my research found that digital transformation has an amplifier effect on the other three capabilities' contribution to E2 performance. Not only can it help solve the functional/design dilemma in pursuing environmental benefits, it can also make other activities more

effective if deployed properly, making it the most important capability for achieving E2 performance.

Companies in the building and construction sector could leverage sustainability trends and data analytics to track critical progress in energy, water, waste, and carbon emissions. For example, CapitaLand has implemented a cloud-based platform enabled by the Internet of Things (IoT) technology to centrally monitor key equipment, such as chiller plants, and conduct early fault detection and rectification.²⁹ Such data analytics-based insights help optimise equipment performance. In fact, these measurements, along with social indicators, are key to driving performance improvement across its properties.

To be clear, for digital transformation to succeed, there must be a focus on people and organisation-based capability-building. Skills training is essential to ensure a smooth transition to net zero and could help firms to mitigate the impact of increased commodity prices by improving production efficiency. In addition, vocational training and re-skilling are needed to allow workers to efficiently navigate the structural adjustment of the economy that high energy and commodity prices may bring.³⁰ However, green skills training accounts for very little in recovery plans, comprising no more than one percent of such budgets.³¹ CapitaLand's sustainability initiatives have meanwhile contributed significantly to its financial performance, such as a 10 to 20-percent cut in operations cost from energy and water usage, and lower interest rates from sustainable finance.³²



CONCLUSION

Sustainability, particularly the environmental agenda, has become a new mandate for companies. By building greater capabilities, the E2 performance of the firm can be improved. It is worth noting that the four capabilities listed vary in their level of importance towards contributing to successful dual-agenda innovation. Digital transformation is the most important as a standalone organisational capability and an amplifier of other capabilities, followed by cross-boundary collaboration, stakeholder management, and value identification and quantification capability. If companies are truly keen to reshape their identity and associate themselves with dual-agenda innovation, building on any single one of these approaches is insufficient.

Companies can start by assessing their current capabilities compared to those of their peers and identify focus areas

for improvement. For complex problems of this scale to be resolved efficiently and effectively, they require an integrated strategy involving varying combinations of these core capabilities. By leveraging a multi-pronged, synergistic approach, companies can then achieve their economic targets while upholding their ESG commitments.

Finally, strong and consistent leadership plays a critical role in engendering dual-agenda innovation both at the corporate and national levels. As governments start mandating reporting and set clear goals for sustainability, corporate leaders also need to set their transformational agenda, such as building their companies' core capabilities to tackle new challenges in achieving E2 performance and driving public-private partnerships to create early demand for their green products. Only then can we achieve the ambition that COP28 President-Designate Dr Sultan Al Jaber has articulated.

CAPITALAND

Incorporated in 2003, CapitaLand Investment Limited (CLI) is one of Asia's leading listed real estate companies, as well as one of the largest real estate investment management operations in the world. As of August 2023, CLI manages six listed funds valued at about S\$60 billion.³³ Its 2030 Sustainability Master Plan (SMP) has set ambitious targets that align with leading international standards and benchmarks, focusing on reducing its GHG emissions in line with the stipulations of the Paris Agreement.

The company is planning to use US\$6 billion in proceeds and interest rate savings to strengthen sustainability innovation. To effectively measure the impact of these efforts, it is developing a new metric, 'Return on Sustainability' (ROS), to complement its regular financial reporting. Its proprietary ROS metric includes interest rate savings from the organisation's sustainability-linked loans and utilities cost avoidance.³⁴

CapitaLand's sustainability efforts have been recognised by leading benchmarks such as the Global 100 Most Sustainable Corporations in the World Index and Dow Jones Sustainability World Index, as well as GRESB.³⁵

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is General Manager, E-Mobility & Strategic Growth, at Shell Mobility Asia

Endnotes

- ¹ Jack Board, "CNA Explains: What Does the Latest UN Climate Report Mean for the Planet?", CNA, March 21, 2023.
- ² Tracy Xie, "Dual-Agenda Innovation: How Firms Pursue Economic and Environmental Goals Simultaneously", PhD Dissertation, Singapore Management University, 2022.
- ³ Schroders, "'Expert' Investors Believe Sustainable Investing is Most Likely to Drive Long-Term Returns", September 27, 2022.
- ⁴ Steve Varley, "How Can Slowing Climate Change Accelerate Your Financial Performance?", EY, November 2, 2022.
- ⁵ Sara Bernow, Bryce Klemperer, and Clarisse Magnin, "From 'Why' to 'Why Not': Sustainable Investing as the New Normal", McKinsey & Company, October 25, 2017.
- ⁶ European Commission, "Corporate Sustainability Reporting".
- ⁷ IFRS Foundation, "General Sustainability-Related Disclosures".
- ⁸ U.S. Securities and Exchange Commission, "Fact Sheet: Enhancement and Standardization of Climate-Related Disclosures".
- ⁹ International Energy Agency, "2019 Global Status Report for Buildings and Construction", December 11, 2019.
- ¹⁰ OECD, "Assessing Environmental Impact of Measures in the OECD Green Recovery Database", April 21, 2022.
- ¹¹ Mark Segal, "Singapore Proposes Mandatory Climate Reporting for Both Public and Private Companies", ESG Today, July 10, 2023.
- ¹² The ISSB, formed in November 2021 by the IFRS Foundation, had proposed in June 2023 that organisations should disclose sustainability- and climate-related risks and opportunities, so that the public is sufficiently informed to make their investment decisions related to them.
- ¹³ PwC, "SGX Sustainability Reporting Guide".
- ¹⁴ Katja Grekova, Harry Bremmers, Jacques H. Trienekens, et al., "The Mediating Role of Environmental Innovation in the Relationship between Environmental Management and Firm Performance in a Multi-Stakeholder Environment", Journal on Chain and Network Science, 13(2), 119-137, 2013.
- ¹⁵ Ibid.
- ¹⁶ Hidemichi Fujii, Kazuyuki Iwata, Shinji Kaneko, et al., "Corporate Environmental and Economic Performance of Japanese Manufacturing Firms: Empirical Study for Sustainable Development", Business Strategy and the Environment, 22(3), 187-201, 2013.
- ¹⁷ Tim Schiederig, Frank Tietze, and Cornelius Herstatt, "What is Green Innovation? A Quantitative Literature Review", Working Paper, No. 63, Hamburg University of Technology, 2011.
- ¹⁸ UNEP, "Eco-Innovation".
- ¹⁹ Jeremy M. Wolfe, "Visual Search in Continuous, Naturalistic Stimuli", Vision Research, 1994 and Stephen K. Markham and Abbie Griffin, "The Breakfast of Champions: Associations between Champions and Product Development Environments, Practices and Performance", Journal of Product Innovation Management, 1998.
- ²⁰ Emanuela Kerencheva, "H&M, Lululemon Back \$250 Million Fund to Decarbonize Fashion Supply Chain", ESG Today, June 8, 2022.
- ²¹ Rob Wile, "Tesla Sees Record Global Deliveries after Lowering Prices and Tapping into EV Tax Credits", NBC News, July 4, 2023.
- ²² Multi Comfort UK, "How Do Buildings Affect the Environment", YouTube, January 31, 2018.
- ²³ BBC, "McDonald's Paper Straws Cannot be Recycled", August 5, 2019.
- ²⁴ BBC, "Volkswagen: The Scandal Explained", December 10, 2015.
- ²⁵ Tracy Xie, "Dual-Agenda Innovation: How Firms Pursue Economic and Environmental Goals Simultaneously", PhD Dissertation, Singapore Management University, 2022.
- ²⁶ CapitaLand, "CapitaLand Elevates Sustainability Innovation Drive with Increased Funding of S\$500,000 for Its Global Sustainability X Challenge 2022", December 9, 2021.
- ²⁷ CapitaLand, "CapitaLand Unveils S\$50 Million Innovation Fund and Crowns Winners of First CapitaLand Sustainability X Challenge", June 11, 2021.
- ²⁸ CapitaLand, "Smart Urban Co-Innovation Lab, Southeast Asia's First Industry-Led Lab for Smart Cities Solutions Development, Opens in CapitaLand's Singapore Science Park", October 28, 2020.
- ²⁹ CapitaLand, "Global Sustainability Report 2022".
- ³⁰ OECD, "Making the Green Recovery Work for Jobs, Income and Growth", October 6, 2020.
- ³¹ OECD, "Assessing Environmental Impact of Measures in the OECD Green Recovery Database", April 21, 2022.
- ³² Eco-Business, "The X Factor: CapitaLand's Quest for Innovation and Sustainability", YouTube, February 8, 2021.
- ³³ CapitaLand Investment, "About Us".
- ³⁴ CapitaLand, "CapitaLand Investment Commits to Net Zero by 2050", May 31, 2022.



Building Success

in the Philippine Retail Sector



Jimmy Thai tells us about how the Primer Group has expanded to become the retail giant it is now.

In 1985, Jimmy Thai, together with his brother and three friends, established a small trading company in the Philippines named Primer International Corp. Four years later, it acquired an exclusive distributorship with one of the world's best-known and biggest travel luggage companies. Fast forward to today, the Primer Group is a regional retail mammoth that has built relationships with over 100 leading global brands in the areas of outdoor, travel, action sports, footwear, fashion, wellness, and urban lifestyle, and more than 350 stores spanning a dozen countries. Thai shares his experience about building a business with not one but four co-founders, bringing in the second generation, and staying hungry and humble.

HOW WAS THE PRIMER GROUP ESTABLISHED? HOW DID YOU GO ABOUT SEEKING AND CAPITALISING ON OPPORTUNITIES?

The business started in 1985. Most of us were still bachelors back then, and all five of us had our own careers. It was a rough time in the Philippines, with inflation hitting over 50 percent and a huge capital flight was taking place. We did a couple of trading deals and made some quick money. Our big break came four years later, when we were introduced to a Singaporean who was visiting Manila. He asked us if we were interested in distributing a leading global luggage brand in the Philippines. We were not sure whether we could handle it, as until then we had done purely transactional trading. With this new brand, we would have to conduct new activities like pricing and place marketing. But the proposition sounded exciting, so I resigned from my job at a conglomerate to focus on this business. Once our Singaporean partner saw how hungry we were and how hard we worked, he introduced us to his network, so we got to meet his friends dealing in footwear, industrial products, and many more. From then on, we started growing exponentially.

But we quickly realised that, as a middleman, we're very vulnerable so we needed to evolve. We shouldn't rely on only

one brand but should work with a basket of them. When we carried this leading luggage brand, departmental stores in Manila refused to take it on as they considered it an upmarket brand. As a result, we developed our own concept store, The Travel Club. Then The Travel Club grew to a chain of about 50 stores, and other luggage brands began to approach us to represent them. And this was how we built categories, from travel and outdoor to footwear fashion, and concept stores. Today, we represent over 100 brands, including Primer-owned brands like World Traveler, Poler Outdoor, and Sledgers, and have Primer Concept Stores like Recreational Outdoor Exchange, which is an outdoor store concept, and Bratpack, a youth lifestyle store. While some principals have taken over, the brands still work with us because they need our real estate, which comprises the concept stores.

With globalisation, international brands such as Birkenstock, The North Face, Hydro Flask, and Herschel wanted to work with us. This was when we expanded beyond the Philippines. So instead of working with just one market, we present ourselves as a regional player. We have a single platform for communication, marketing, pricing, and logistics. It's standardised and this is how we deal with our international brands.

Then we went up the value chain to build unknown brands into mainstream ones. We started acquiring emerging brands as well. Very soon, we realised this was still not enough. So we further built our infrastructure, from just retail stores to setting up the whole ecosystem, which encompasses an e-commerce platform, digital marketing activities and fulfilment centre operations, among others. Each of these shared backend services is a standalone company with its own revenue stream and profit centre.

Today, physical and digital retail have converged, and we work with many formats, especially when dealing with international brands. Some give us full autonomy; others prefer to go direct to market. But they all still use our physical platform, which is our concept stores. Even when customers

buy online, the fulfilment is done by us. We're very much connected with our principals, as well as our consumers and their families. The ratio of physical to online retail varies considerably across markets, with Singapore leading the online sales. Overall, it's about 90 percent offline and 10 percent online.

AS WE BEGIN TO EMERGE FROM THE PANDEMIC, WHAT ARE THE MOST PRECIOUS LESSONS THAT YOU HAVE TAKEN FROM THIS CRISIS?

The pandemic has taught us major lessons. Primer has been around for 40 years, and before COVID-19 hit, we enjoyed double-digit growth each year and were always in the black. As entrepreneurs, we chart our own destiny and are not answerable to any other shareholder, so our risk appetite is bigger. And since we were always making profits, we just pushed on—forgetting about efficiency and where to cut the fat and focused only on chasing the top line.

The pandemic was a big blow, because all of a sudden, everything stopped and yet we still had our overheads. How could we continue to provide a livelihood to our employees and our partners? And that was the moment when the realisation came that we had to tighten our belts. We guaranteed our employees that there would be no layoffs, and instead asked them to accept a voluntary pay cut. The temporary cut was most drastic for those at the executive level.

As a result, over 2021-22, we saw savings of 20 to 30 percent in our operating costs. This is the key lesson that I have learnt—we must be prudent. Even today, when business is back to pre-pandemic levels, we're very conscious about managing our costs and resources. With the emergence of e-commerce platforms and digitalisation, we also don't have to open, say, 10 stores in one district. This is how our resources are being allocated today—to further build our technological capabilities. We're also focusing on digital marketing, as well as enabling our e-commerce and warehouse logistics. In fact, we're even forming a joint venture with a technology company. This would complement our offline businesses, making our online-offline interface much more seamless.

WHAT ARE THE AREAS THAT WORRY YOU THE MOST TODAY? CONVERSELY, WHAT DO YOU FIND MOST PROMISING?

I'm most concerned about the availability of talent. Today, with the growth of technology companies, there's very limited talent available, especially in the Philippines. There is so much buzz about data scientists and AI (Artificial Intelligence), but in terms of skill sets, there is still a big gap.

Our talent is also regularly poached by our competitors. We feel proud when we hear that when Primer staff apply at their companies, they don't even interview our staff and just grab them. But because of this, we've also become more vulnerable.

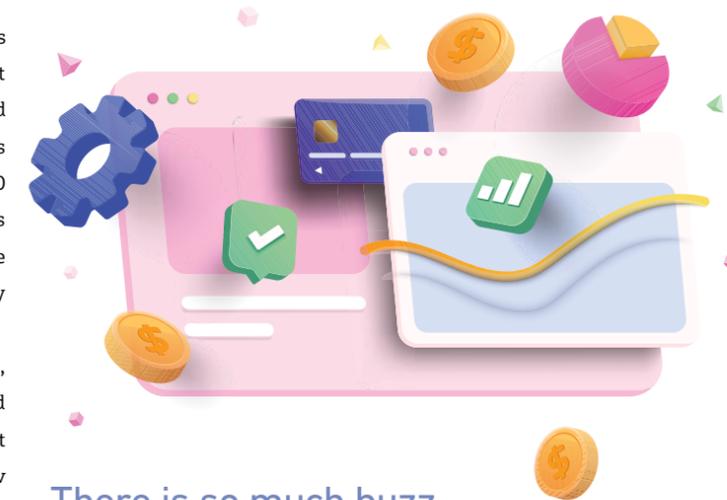
There are also several external factors, such as geopolitics, at play. Meanwhile, there are now new issues at the forefront such as climate change, which I never would have thought would bother us when we started the business 40 years ago. In the Philippines today, we have on average 20 typhoons a year, where three to four are major ones. So it's not just about the business but also taking care of the welfare and well-being of our people. The bigger issue for us is to really take on our responsibility to address climate change.

On the brighter side, especially in our area of business, I see technology as so much more than just a tool. It would definitely help us manage the talent issue. Another plus is that our main market is Southeast Asia which everybody is now paying attention to. It's a major emerging economy, with a growing middle class and a very young demographic. It makes me so glad that we have established our presence in this region. We continue to expect strong double-digit growth while monitoring the trends and offering new categories to our customers. For instance, we're creating a new wellness category. This is how we're going to grow—not only organically, but also by offering new categories.

HOW DID YOU AND YOUR PARTNERS FIGURE OUT HOW TO WORK TOGETHER, ESPECIALLY WHEN THERE ARE DISAGREEMENTS? HOW CAN THE NEXT GENERATION OF LEADERS HAVE THE SAME KIND OF CHEMISTRY AND CAMARADERIE THAT YOU ALL HAVE?

At Primer, we truly manage the business like a family; it's not just five individuals but five families. It goes back to how we started our business. The objective then was not to formally start a business or make great wealth—that was just accidental—we basically started out as friends. So we hung around so much, that even today, I would say communication remains the key to us working well together. Even during our board meetings, we talk about our personal life. The discussion is very informal, and it creates a bond. Of course, we also disagree, especially when doing business, so we simply follow the 'majority wins' principle. This works well, given that there we're an odd number with five of us! Even when we make the wrong decision, we never point fingers at one another. It's never personal and we just laugh it off. This is what makes our foundation so strong. It also makes the job 'lighter' because you don't have to worry about your relationship with your partners and friends.

Now, with the second generation coming into the business, we can't and shouldn't adopt the same methods.



There is so much buzz about data scientists and AI (Artificial Intelligence), but in terms of skill sets, there is still a big gap.

We have known one another for so many decades; the second generation though have their own lifestyle and friends. They went to different schools and have disparate interests. They are also more formal with one another than we are.

We crafted a partnership constitution about 15 years ago, but the younger generation was not involved then as they were still so young. We realise it's time to rewrite it with their involvement, as we're passing the baton on to them. The key though is still communication. We also organise activities to enable them to build their own group dynamics, like getting them to do projects together. While we already have our core values stated in the constitution, we need to get them to gel and develop respect for one another. They need to understand that everyone brings different strengths and talents to the table, and by coming together, they can complement one another.

Our key task now as founders is not so much to drive the day-to-day business, but to set the vision, and ensure that the second generation and our new generation of managers have that kind of cohesiveness that we do. Today, the second generation are reporting to professional managers, and a few of them are holding positions three to four job levels below the founders. We hope this arrangement cultivates humility. At the same time, we're observing them—are they hungry and driven, or are they complacent and entitled?



At Primer, we truly manage the business like a family; it's not just five individuals but five families.

WHAT ARE SOME OF THE MOST VALUABLE QUALITIES THAT BUSINESS LEADERS SHOULD PAY MORE ATTENTION TO?

To be a leader, you should be ready to make sacrifices. You should always think about the bigger picture and the greater good, rather than only for yourself. A leader should have this kind of character and values, and you've got to be very passionate about the business.

A leader must also have a long-term vision. What preoccupies me today is what will happen in the next 30 to 40 years—will our business models still be relevant? I think about what the purpose of our business should move towards, especially in this day and age when the youths are moving away from consumerism. You can say that we're creating wealth and jobs, but there should also be something more meaningful. We need to examine what kind of brands we plan to work with and what type of business we want to venture into. I'm also looking at the level to which the ESG (environmental, social, and governance) elements have developed.

Last year, we started a new campaign called "Reimagining Primer". We asked: what should "Primer 3.0" be like? We're in a very traditional business, so posing this question is actually getting ourselves to consider if we would still be relevant in 30 years' time. This means understanding what our assets are. In my mind, there are three such key assets. First, we own seven global brands and we're no longer only distributors. Second, we have our intellectual property (IP) in terms of our concept stores, but how could we further capitalise on this? And third, we need to talk about community marketplace partnerships if we want to become more collaborative.

I'm also spending more time reading about global economics and the trends in the 10 markets that we're in. People often make the mistake of believing that Southeast Asia is homogeneous when it's so diverse, be it religion, ideology, language, or culture. I would say the only homogeneous part is the weather!

TODAY'S ENTREPRENEURS ARE FACING VERY DIFFERENT MARKET CONDITIONS FROM WHEN YOU AND YOUR CO-FOUNDERS BUILT YOUR BUSINESS. WHAT ADVICE WOULD YOU OFFER THEM?

People tend to say that it's more challenging today to be an entrepreneur than when we set out 40 years ago. There are all these pressing global issues, especially the pandemic lockdown, typhoons, the Ukraine war, and other crises. But while these are all the challenges, what's the upside?

To begin with, during our time, we had no financial support. We had to do everything on our own. Some of us were not even very well-educated. But today, most of the youths are learned. They have knowledge, access to technology, and easier access to the capital market. So, while it's undoubtedly a very chaotic environment, at the same time the youths have what we did not 40 years ago.

If you are smart enough, and you are very hungry and determined, I think you would still have better opportunities than we did, especially if you have had a good education. The youths today also have a wide social network, and with globalisation, they travel so much and can build on it. I would say, focus on what you're doing, and there will surely be good opportunities for young entrepreneurs. ^{AM}



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THE RISE OF MULTI-HOMING IN ASIA'S RIDE-HAILING INDUSTRY

Getting it right secures environmental and economic wins for the present and future.

by Wang Hai

Grab, Gojek, Ola, and Didi, as well as many homegrown companies, are leading the charge in growing the ride-hailing market in Asia Pacific. In fact, the region is poised to become the world's largest ride-hailing market as it is projected to be worth US\$240 billion by 2028.¹ For example, Singapore-based Grab has fought head-on with the global transportation giant, Uber, and ultimately emerged the winner. In 2018, it went on to acquire Uber's Southeast Asian operations, steadily expanding its reach into domains such as food delivery and digital payments. Its primary regional rival is its Indonesian peer, Gojek. As of January 2023, the Indonesian ride-hailing market is split evenly between these two companies.² It is no surprise that many drivers in Indonesia use both Gojek and Grab to ensure a steady stream of passengers and optimise their earnings. In research, we call this behaviour 'multi-homing'. For sure, this is not limited to Indonesia; drivers in other parts of the region also work simultaneously for multiple ride-hailing companies. What are the costs and benefits of multi-homing, and why is it important to get the multi-homing mix right in Asia Pacific's promising ride-hailing sector?

NAY: THE HIDDEN COSTS INVOLVED WHEN MULTI-HOMING

It is never cost-free for ride-hailing drivers to work on multiple platforms. They invariably incur two types of costs when doing so: switching and multi-homing costs. Drivers encounter switching costs when they migrate from one platform to another, say from Grab to Gojek. When they choose to *concurrently* drive for both, this behaviour produces additional costs (or what economists call 'disutility'). In fact, multi-homing across more than two companies may not be as improbable as it sounds; for example, in the Philippines, there are several ride-hailing providers across the country, such as Grab, Toktokgo, and Hirna, with a few more dominant in some cities (e.g., Manila, Davao, and Cebu). Not to mention that many taxi

companies also have their own native ride-hailing apps such as MyBluebird by Bluebird Group, the largest taxi operator in Indonesia.

Drivers also incur switching costs when they need to install new apps on their smartphones, and undergo background checks, often forgoing income while waiting for approval to access the apps. Sometimes, upon obtaining approval, they may need to pay to upgrade or rent vehicles that meet the new platform's requirements. Such transaction costs vary across countries. For example, in Singapore, while a driver only needs one licence—the Private Hire Car Driver's Vocational Licence (PDVL)—to be a driver for any ride-hailing provider, Grab separately requires mandatory checks for older vehicles.

Apart from switching costs, there are multi-homing costs, which are additional costs incurred due to the very act of multi-homing. For instance, at a practical level, drivers may have to buy a second smartphone in order to monitor the apps at the same time effectively. They may therefore need to fork out more money as they consume more mobile data in the process.

YAY: MULTI-HOMING FOR MORE INCOME

Multi-homing may not necessarily entail losses. It can benefit drivers too. In Indonesia, drivers working on multiple platforms earn more than those who practise single-homing (i.e., they use one platform only). This has something to do with the pricing structure: while Grab enables drivers who commit to working more hours on its platform to earn more, Gojek pays more for the first three hours worked. In fact, the modelling that my co-researchers and I did tells us that to chalk up optimal earnings in a typical day, a multi-homer in Indonesia should spend 2.5 hours on Gojek and devote 13.5 hours to Grab.³

Our statistical analysis based on the Indonesian survey data also shows that the total supply of multi-homing drivers grows when multi-homing costs are reduced. Specifically, more Grab single-homers will also become Gojek drivers. This

is intuitive. With lower multi-homing costs, more drivers will switch from Grab-only gigs to multi-homing during their first few hours for the sake of earning a higher income from Gojek.

YAY, NAY, AND WHAT'S NEXT

Getting the multi-homing mix in the ride-hailing sector right is important not only because of the sheer promise of the Asia Pacific market, but also because of its impact on the environment. Ride-hailing trips produce a greater carbon footprint than the trips they replace. On average, one ride-hailing trip is estimated to produce 69 percent more carbon emissions than the trips it replaces (or rather, displaces), including ones that could have been made using modes with a lower carbon footprint, such as biking.⁴

Of course, we cannot wish away ride-hailing. Therefore, we need to consider it as part of a broader design of the urban transport system. For example, we need to do more to encourage pooled ride-hailing trips, which have become a permanent feature of many ride-hailing services. Upgrading ride-hailing vehicle fleets to electric vehicles (EVs) is another option, given that EV models are likely to become more affordable over time. Change is already afoot. For example, in Vietnam, Vingroup and ride-hailing company Be jointly launched the country's first EV taxi service in April this year.⁵

We must also remember that, to some extent, the rise of ride-hailing is an outcome, not the cause, of a public transport system that is unable to deliver sufficient convenience to commuters. By itself, it is not a perfect solution, especially in the context of the climate crisis that confronts us today.

Unsurprisingly, some ride-hailing companies have been more innovative than others. For example, in addition to carpooling, Didi in China enables users to plan a multi-modal journey, including mass transit, on its app. Policymakers and business leaders, as well as commuters, thus need to consider ride-hailing as part of a broader choice of existing urban transport modes, ranging from walking and biking to public transport (buses, trams, and subways), as well as emerging ones. For example, a trackless and driverless electric tram service (aptly named Autonomous Rail Rapid Transit or ART) has been running in multiple cities in China since 2018.⁶ The rubber-tyred, battery-powered, multi-carriage vehicle has in fact gained palpable interest from other countries. For instance, a hydrogen-powered ART variant is scheduled to start its trial run in Malaysia in September 2023.⁷

Rapid advancements in urban infrastructure and technology are creating numerous opportunities, inspiring a variety of emerging transportation and mobility solutions. These attempts at innovation in turn reshape the everyday life of urban residents. I believe that these innovative solutions have the potential to substantively contribute to the transition to a more sustainable, efficient, and adaptable future urban mobility landscape in smart cities. [Read more](#)

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Endnotes

- Statista, "Global Shared Mobility Market Size Forecast from 2021 to 2028, by Region (in Billion U.S. Dollars)", August 30, 2023.
- Statista, "Market Share of the Ride-Hailing Transportation Industry in Indonesia from January 2022 to January 2023, by Order Volume", June 1, 2023.
- From the 2021 survey, 12 percent of ride-hailing drivers worked for both platforms, and almost twice as many worked exclusively for Gojek (59 percent), as compared to that for Grab only (29 percent). See also Xiaotong Guo, Andreas Haupt, Hai Wang et al., "Understanding Multi-Homing and Switching by Platform Drivers", *Transportation Research Part C: Emerging Technologies*, 154, 2023.
- Union of Concerned Scientists, "Ride-Hailing is a Problem for the Climate. Here's Why", 2020.
- Tuoi Tre News, "In Vietnam, Food Delivery, Ride-Hailing Apps Embrace EVs", April 27, 2023.
- Erik Buch, "ART: Another Rail-Less Tramway in China", *Urban Transport Magazine*, April 6, 2023.
- Malay Mail, "ART: World's First Hydrogen-Powered Smart Tram Begins Journey to Sarawak (VIDEO)", July 20, 2023.

It is never cost-free for ride-hailing drivers to work on multiple platforms. They invariably incur two types of costs when doing so: switching and multi-homing costs.



DELIVERING HEALTHCARE to the UNDERSERVED

Non-profits, governments, and businesses need to come together and use a data-driven approach to improve local basic healthcare access.

by Edward Booty

Fifty-two percent of the world's population do not have access to essential healthcare. That adds up to 3.7 billion people, more than the combined total populations of India and China, the world's most populous countries. The majority of these people reside in underserved rural communities, where there are huge infrastructural, technological, and other barriers, such as vested interests of different stakeholders, which prevent basic healthcare from reaching them. From a financing point of view, people from these regions survive on an average of US\$2-10 a day and are unable to afford the most basic healthcare services, including maternal and child health, essential immunisation, and non-communicable disease (NCD) diagnosis and treatment. Besides, governments in these areas tend to have tight budgets and receive very limited global funding, especially for key new areas such as NCDs.

From a medical service provision perspective, there is a severe shortage of healthcare workers in most of these communities, some with a ratio of one doctor to 80,000 residents (the World Health Organization's recommended ratio is 1:1,000). This is coupled with poor public health facilities and infrastructure, as well as a lack of diagnostic equipment, medicines, and other consumables. In fact, according to a 2019 study by the Center for Global Development, some poor countries pay 20 to 30 times more for basic medicines than others, in part due to flawed procurement practices, broken generic medicines markets, and a lack of competitive supply to keep prices affordable.¹

At reach52, a Singapore-based social enterprise that uses digital technology, community empowerment, and innovative public-private partnerships to deliver affordable healthcare to areas where access is poor or non-existent, I have also observed that besides healthcare services costing more in these communities, there are often (in fact

over 30 percent of the time) less choice of products, counterfeits, and frequent stock-outs of essential health products. So with over half of the world's population without access to essential healthcare (and growing each year) and a widening financial gap, how do we find ways to do more with less?

OBSTACLES TO UNIVERSAL HEALTHCARE

While there have been plenty of advancements in modern digital health services, the majority of these innovations simply do not work in regions which typically suffer from low Internet connectivity, a lack of digital payment infrastructure, and an overall lack of digital maturity. Typically, digital health services are not designed to function in these regions; instead, they focus on helping wealthier people and others living in urban regions access better healthcare, even though low-resource communities stand to benefit the most from such technology. Digitalisation often widens the health equity gap, rather than solving it.

Of course, there is also a plethora of overarching blockers—corruption, monopolies, and entrenched businesses—that want to perpetuate the status quo, such as distributors of medicines who want to keep prices high to maximise their commissions and margins. We also personally see a lot of 'greenwashing' happening within the industry where big-name corporates say the right things that are just rhetoric with no concrete commitment to making change happen. This is certainly disheartening and paints a false reality of what is happening on the ground, creating a damaging rippling effect that prevents more funding from being allocated to those who need it most.

The frustrating thing is that we actually do not need bleeding-edge innovation. According to our estimate, basic

medicines and services costing less than US\$5 per resident would solve healthcare access issues for 80 percent of the people in need. The issue is that no one can or will pay for this—poorer people and governments do not have the money, and donors can only do so much. That said, there is clearly enough money in the world, so it feels like access is within reach, but it most probably comes down to financing, and perhaps a market of sufficient scale where a range of private sector organisations can come in to fill the gaps.

Beyond this, the efficacy of health literacy and the embedding of health-seeking solutions should not be underestimated. Many countries are moving towards prevention and self-management. It is therefore important that people in rural communities are educated and empowered to take care of their own health in the long run. As we have learnt, often even when you build a service (e.g., the supply of discounted diabetes medicines), it does not mean that people automatically become health-seeking, i.e., self-motivated to find solutions and treatment for their health problems.

In many of the underserved communities that we operate in, we find that disease awareness and the motivation to seek health solutions are often absent. Some of the reasons for this include a lack of education, and poor awareness of their own health status and common disease symptoms. Residents are also hesitant to visit healthcare facilities due to the distance from their homes and fear of diagnosis. One way that we overcome these barriers is to deploy a network of reach52

community healthcare agents who are often already trusted members of those communities (refer to box story). They go door to door to engage residents through educational and awareness health campaigns before referring at-risk residents to the nearest healthcare facilities for treatment.

In order to effect sustainable and scalable behavioural changes, intentional efforts need to be in place to ensure that there is an increase in both the supply and demand for healthcare—the former via the supply of affordable healthcare through innovative healthcare delivery models, and the latter in the form of education plus awareness and advocacy. Because having affordable products is only part of the solution; you need awareness, testing, and a prescription first. For example, you would not buy medication for diabetes if you did not know you were suffering from it.

IMPROVING HEALTHCARE DELIVERY MODELS IN RURAL REGIONS

We must appreciate that many of the fundamental challenges such as a shortage of doctors and nurses in rural areas will not go away. So we need to embrace innovation, specifically more suitable models of lightweight or frugal innovation, to improve healthcare access in under-resourced regions. You may find yourself thinking, “How can you give prescriptions if there is no doctor in the area? Or dispense medicine if all the pharmacists have moved to higher-paying jobs in the city?” We do recognise that to be sustainable, we need to have a

According to our estimate, basic medicines and services costing less than US\$5 per resident would solve healthcare access issues for 80 percent of the people in need.

better topline—that is, more funding to build a bigger market that can finance and entice more players to enter the market. However, the truth of the matter is, despite all the pledges to close the health equity gap, there will be a US\$176-billion health financing gap by 2030.² Historically, there has always been a dependence on donor capital, but global donors are only spending US\$35 billion on global health, resulting in a fight over where and which disease area this pool of funding goes to. There is simply not enough to go around. At the end of the day, if the topline or total market is too small, we need to do more with less, bringing us back to the need for lowering operating costs through frugal innovation.

There is also a need for better relationships with businesses and governments, so that corruption is minimised, governments can better support businesses entering the community, and businesses can reinforce government health priorities and help strengthen local health systems. Incentives for market-based models to encourage private sector innovators to enter this challenging market and the raising of greater

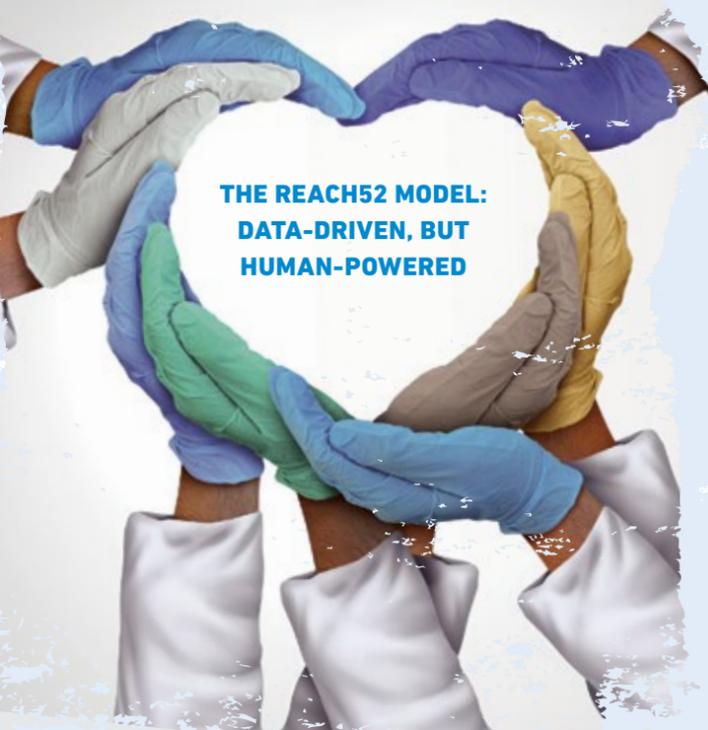
public awareness around the pressing health equity gap will go a long way to facilitate the congregating of people and businesses that are genuinely invested in finding a solution.

CONDUCTING LOW-RESOURCE, TECH-ENABLED FRUGAL INNOVATION

We need to scale solutions without adding cost and complexity, while also challenging the status quo and innovating low-resource, tech-enabled lightweight solutions that are sustainable for complex problems. To do so, frugal innovation is key to moving the needle in these communities.

Build on, rather than break existing capabilities

An example of frugal innovation from the reach52 experience (refer to box story) is the healthcare delivery platform, which can be designed specifically to be lightweight and compatible with the most basic Android phones. It is ‘offline-first’, allowing the app to be used in areas with low or no Internet connectivity, and data can be synced later when there is an



THE REACH52 MODEL: DATA-DRIVEN, BUT HUMAN-POWERED

Our mission is to re-design healthcare such that it can reach the 52 percent of the world’s inhabitants who are without access to essential health services. We do this by building an end-to-end health access platform that connects global and regional businesses and partners to rural communities, thus creating access for all. We know that the only way this could work is to create a win-win-win solution for all—underserved populations, global businesses and funders, and local governments and health systems. We have made some progress over the years, working with some of the biggest global pharmaceutical health service providers, fast-moving consumer good manufacturers, and multilaterals to pave a new way for delivering our low-resource, tech-enabled model to increase healthcare access for 2,500 communities across six countries including Kenya, the Philippines, and Indonesia.

We equip a large network of rural community health agents (mostly government-linked community health workers) and local community partners (e.g., stores, pharmacies, and health centres) with our ‘offline-first’ tech, designed specifically for rural areas with low Internet connectivity. Our agents and community partners are paid per engagement to deliver healthcare engagements, education, and marketing and awareness campaigns to their community. By training and equipping individuals and small local businesses with the tools to manage the health of their own communities, we empower them to take ownership of their health, gain financial independence, and strengthen their communities from within. Through one-on-one engagements, our community health agents collect individual-level health data from residents, which are then aggregated to give us rich insights into the

health needs of that community. This allows us to engage specific residents who are at risk, and implement hyper-targeted health campaigns that are cost-efficient and highly impactful.

We provide our ecosystem of partners insights into new emerging markets, thus helping them gain access to these markets by stocking their products at local community stores at affordable prices, and cutting out often expensive intermediaries and tedious processes. We build our platform to tear down barriers of entry, so that more players can enter these emerging markets and in turn, these communities can benefit by having a larger selection of affordable, quality health products and services, and access to jobs created through additional revenue-generating opportunities available on the app, whilst contributing to delivering healthcare services to their own communities.

Internet connection. This allows flexibility for the app to be used in many underserved regions, without the need to build additional infrastructure. It is also designed to be intuitive and simple to use, reducing the barrier to access.

We have found it important to work collaboratively with local governments, health officials, and community health workers and communities to find solutions that tap into existing capabilities and resources. Equally, we find it important to leverage strong community ties and interpersonal relationships to design our data collection and health campaign delivery. Rather than depending entirely on digital tools, we know that the human element is particularly crucial in these communities to gain trust and educate residents, while spreading awareness about the importance of health management, screening, treatments, and adherence.

Especially in communities where digital literacy is low, residents typically rely a lot on trusted 'frontliners' to educate them in order to embrace new systems and change. Hence, we find that the tech and our community agents work hand in hand to overcome existing barriers, and one will not work effectively without the other. This is why a lot of effort is put into training a strong and trusted network of reach52 community health agents across a range of topics including steps to use our app, information on diseases endemic in these areas, and soft skills needed when engaging residents.

This way, we are able to empower and complement the existing workforce, resources, and facilities, thus strengthening the healthcare system from within, rather than coming in and completely disrupting the existing local healthcare system.

Work with governments first, then the private sector

We believe in working with governments first, then providing more resources with the help of private sector partners. Working with local governments to strengthen health systems is important for multiple reasons. To begin with, when working with lower income groups and supporting social development, it is necessary to do this with governments that can provide a social safety net. It is also the only way to get nationwide scale—the private sector can never serve all corners of a country, but governments can. Finally, it is increasingly a requirement of funding partners and donors to ensure buy-in, as well as the potential transition of the product or service, as no external partner can or will fund a project forever. The benefits of working with governments can be simplified into three core concepts: genuine scale, long-term sustainability and ownership, and strategic alignment to our mission.

We have a history of working closely with local governments, training their cadres of community health workers as our reach52 agents. As we progress, we have seen notable examples of governments supporting our services and working with private partners. This could include funding events, providing vaccines, and adding diagnostic testing equipment to their hospitals. Governments also shape policy and help inform decisions, such as which segments to prioritise for health interventions with their limited resources (an example was determining the focus on adolescent females for stunting campaigns in Kenya, as that was the main population cohort with pressing health issues).

Of course, some obstacles include the slow progress of our launch processes, the potential for corruption, and other operational challenges that come with fostering partnerships among diverse stakeholders and aligning strategic priorities.

It is all about data, data, data

From our experience, the data-driven process is critical to cost-efficient hyper-targeted health engagements. We always start with collecting individual-level health data on each community, which would help us understand the pressing health needs of the community and drive efficient use of scarce resources. Using a standardised but customisable questionnaire in the reach52 access app, our agents create individual data profiles for each resident, collecting data across about 30 data points including height and weight, family history, existing medical conditions and medication, household income, alcohol consumption and smoking habits, accessibility to health amenities, vaccination status, and mental health status.



We then aggregate the data, which provides rich insights into the community's health needs. Having individual-level data allows agents to target specific residents who are at risk for a particular disease area by filtering the data using different criteria. By working closely with governments, we also ensure that they are fully involved and have access to the data for their decision-making too.

However, persuading stakeholders to move to digital platforms and adopt a data management system to facilitate the proper tracking of health records and better decision-making in communities where the norm for most health facilities is still pen and paper is no easy feat. On top of that, proper management, syncing and cleaning of data, and the training of our field agents on proper data collection procedures whilst ensuring data confidentiality and privacy are all common challenges that are crucial to the success of our model.

CONCLUSION

Healthcare access in emerging markets should not just involve non-profit organisations (NGOs) and multinational pharmaceutical companies. There is increasing demand in emerging markets for health-related and consumer health products and services across multiple categories, ranging from health insurance and e-wallets to nutritional products and mental health and wellness services.

We need to change the narrative that working in underserved communities is only for those who want to 'do good'. From a business and strategic growth standpoint, emerging markets are the new drivers of growth. Middle-class

expenditure is expected to grow to US\$64 trillion by 2030, most of it driven by emerging economies.³ Furthermore, 65 percent of employees now want to work for organisations with a strong social and environmental conscience.⁴ Additionally, 77 percent of investors make their investment decisions based on ESG (environmental, social, and governance) impact.⁵

We envision a future where businesses can tap into the local workforce to market their products and services, as well as gain access to a new segment of customers, while generating revenue for community partners and strengthening the local economy and health system, thus creating a marketplace of service providers which offers affordable healthcare products and services. At the end of the day, it needs to be a win-win-win—for communities, local governments, and businesses—so as to be a sustainable and scalable model for the uplifting of these underserved communities.

Ultimately, closing the health equity gap should not just involve a few lone players, governments, NGOs, and global pharmaceutical companies. If anything, the COVID-19 pandemic has shown us that nobody is safe until everyone is safe. As we move towards becoming ever more interconnected, everyone, especially businesses, needs to play a bigger role to ensure that no one gets left behind, in order to create a more sustainable future for all. [SMU](#)

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References

- 1 Rachel Silverman, Janeen Madan Keller, Amanda Glassman, et al., "Tackling the Triple Transition in Global Health Procurement", Center for Global Development, June 17, 2019.
- 2 Edward Booty, "9 Reasons Universal Healthcare Will Fail—if We Don't Act Now", World Economic Forum, April 28, 2020.
- 3 Knowledge For Policy—Competence Centre on Foresight, "Developments and Forecasts of Growing Consumerism", September 27, 2018.
- 4 Mary Baker, "Why Engaging with Social and Political Issues is a Non-Negotiable for Your Employee Value Proposition", Gartner, February 23, 2022.
- 5 Dave Goodsell, "ESG Investing: Everyone's on the Bandwagon", Natixis Investment Managers, 2021.

Especially in communities where digital literacy is low, residents typically rely a lot on trusted 'frontliners' to educate them in order to embrace new systems and change.

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