SPECIAL ISSUE / APRIL 2024

INFOCUS

IN ASSOCIATION WITH
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NAVIGATING GLOBAL ECONOMIC Transformation

Economic outlook: trends, risks & opportunities

Harnessing the halal advantage

Investing in youth: skilling refocus

Islamic finance, ESG & green economy: sustainable future

Following the money, economic centre of gravity shifts

Impact of AI models on digital health

Paving the path towards net zero

KDN number: PP19552/09/2022(035344)

WIEF
WORLD ISLAMIC ECONOMIC FORUM
FOUNDATION

It is with great pleasure that I introduce this special issue of WIEF Foundation's in-house magazine, a collaborative effort between the Foundation and Frost & Sullivan. Titled ***Navigating Global Economic Transformation***, this edition encapsulates a profound synergy between two entities committed to fostering economic growth and innovation on a global scale through accurate facts.

At the helm of WIEF Foundation, our mission transcends mere rhetoric – it embodies a steadfast dedication to catalysing positive change globally. Our ethos is rooted in the belief that economic progress is intricately linked with social development and knowledge acquisition. With each initiative, forum and partnership, we strive to create platforms where ideas flourish, partnerships thrive and opportunities abound.

This partnership with Frost & Sullivan, a renowned transformational growth journey company, underscores our shared commitment to unlocking economic potential inherent in every corner of the world. Through rigorous analysis, insightful forecasts and strategic guidance, Frost & Sullivan has consistently illuminated pathways to prosperity for businesses, governments and communities worldwide.

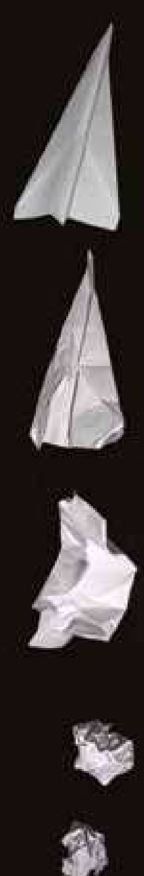
In this special issue, you'll find a treasure trove of knowledge, insights and perspectives from experts and practitioners in the fields of economics, business and beyond. Each article contributes to the shaping the future of our global economy.

As we face complex challenges and unprecedented opportunities of this century, collaboration becomes not only a necessity but also a source of strength. By bringing together the expertise and experience of organisations like Frost & Sullivan and WIEF Foundation, we unlock new frontiers of growth, prosperity and progress.

With that, I extend my heartfelt gratitude to Frost & Sullivan for this partnership and commend the contributors who have worked tirelessly to bring this special issue to fruition. May the insights contained within these pages inspire, inform and ignite a renewed sense of purpose in our collective pursuit of economic empowerment and inclusive development. ■

Tan Sri Syed Hamid Albar
Chairman
WIEF Foundation

CONTENTS



EDITORIAL INFORMATION

About *IN FOCUS*

IN FOCUS is a complimentary bi-annual publication by WIEF Foundation. Its inaugural issue was published in November 2017 and it is an extension of the Foundation's online bank of articles that is constantly growing to cater to the reading pleasure of the global business community. Drop us a line if you'd like to contribute articles or tell us what economic and business-related matters you think we should report on.

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On the cover of Special Issue
Navigating Global Economic Transformation
Photo by Joshua Dixon

Enlightening Collaborations

This special issue is our small way to help crack the code to today's frantic economic puzzle. We're doing it with facts and foresight from Frost & Sullivan. This global knowledge partnership brings forth insights, analysis and forecasts that will cut through the noise and reveal what's beneath the surface to guide industries through the ambiguity and into prosperity.

From trends, opportunities as well as risks of this year's economic outlook, right up to future-proofing youths by skilling refocus, the collection of articles will bring valuable understanding into the multifaceted realm of global economics. Each article provides a unique vantage point from which to view the ever-evolving, erratic economic landscape we're navigating.

As expected, paving the path towards net zero remains a critical agenda for many governments. In fact, Frost & Sullivan observes, and reaffirms, how governmental policy alignment with green economics guarantees economic resilience. This is explained in the article, *The Path Towards Net Zero.*

More and more, Islamic finance is gaining traction and popularity. The close association between Islamic finance and green finance offers significant benefits in terms of ethical alignment, diversification of investment opportunities, access to new markets, positive impact on communities, enhanced reputation and brand value.

Through these synergies, Islamic financial institutions can play a pivotal role in driving sustainable development and addressing pressing environmental as well as social challenges. Still, don't just take our word for it. Frost & Sullivan's data and analysis will attest to all that and more.

Complexities of the global economy, I believe, is what keeps us on our toes these days – stakes are too high and the ability to harness economic insights is more crucial than ever. Whether we are policymakers seeking to formulate effective strategies, entrepreneurs navigating uncertain terrain, or just someone who's trying to make sense of it all, access to real-time economic analysis, macroeconomic and business foresight from a reputable source is essential for informed decision-making and meaningful action.

And that was how this partnership with Frost & Sullivan came about. It is necessary that we embrace a spirit of collaboration and exchange – share knowledge, expertise and best practices. It's how to unlock new pathways to sustainable growth, inclusive development and shared prosperity. This is how we can survive unscathed.

We didn't do it alone. Huge shoutout to the brilliant minds at Frost & Sullivan for helping us put this special issue together. Of course, a big thank you to all of you readers, for your continued support and enthusiasm.

So, buckle up. Get ready for the ride and keep turning the pages, you'll soon realise that there's no economic puzzle too tricky for us to crack! ■

Su Aziz

2024 Global Economic Outlook: Trends and Growth Opportunities

*An in-depth analysis of the world economy in 2024 by **Neha Anna Thomas**, Associate Director – Economic Analytics at Frost & Sullivan, uncovering economic predictions, emerging trends and growth opportunities shaping regions worldwide. Gain valuable insights into key economic indicators and strategic recommendations to navigate the evolving landscape.*

The world economy has had to navigate a series of shocks in the recent past, beginning with the US-China trade war which rattled global supply chains and the onset of the pandemic which led to deep economic contractions. Also, the Russo-Ukrainian war which pushed up energy costs and further disrupted trade as well as supply chains.

Central banks world over had to undertake a delicate balancing act last year to curtail surging inflation levels while not raising interest rates towards levels that would push economies into recessionary territories. 2023 data, nonetheless, points to the economic resilience of the world economy despite challenging times. Initially predicted recessionary expectations were largely avoided and global economic estimates for 2023 were revised upwards on account of better-than-expected performance.

Mild Global Slowdown Expected for 2024, Emerging Market Economies to Lead Growth

With lingering pressures from factors such as the Russo-Ukrainian war and now the Israel-Hamas war, as well as elevated interest rates, global GDP growth is expected to slow from 3.0 per cent in 2023 to 2.6 per cent in 2024[1]. The group of emerging market and developing economies will retain growth at around 4.0 per cent into 2024, while advanced economies register just 1.0 per cent growth.

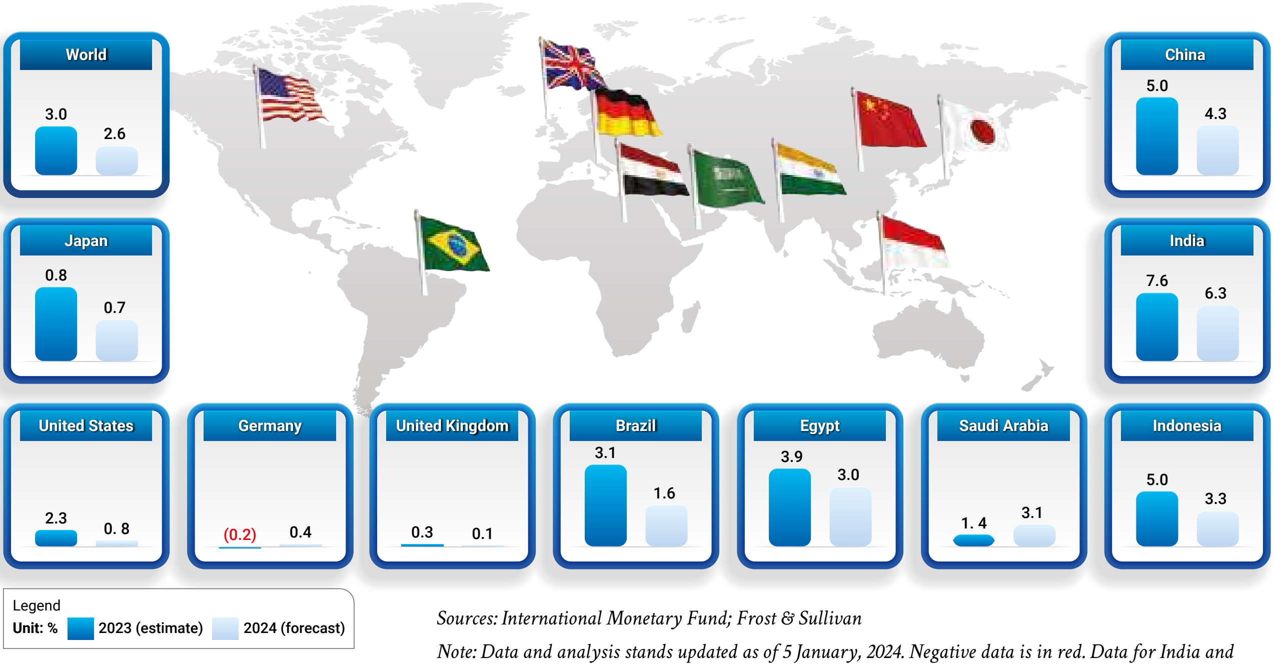
[1] Global economic data and forecasts are highly volatile and subject to changes based on policy, geopolitical changes, and other factors. Estimates and forecasts in this article are based on prevailing global economic conditions from early January 2024.

GDP Growth, Global, 2023 and 2024

The US will face restraints emerging from a combination of factors including raised interest rates and the restart of mandatory student loan repayments, because of which weak 0.8% growth is forecast for 2024. Growth in Western Europe will also be constrained, as seen from data for Germany and the UK. China's growth will weaken from 5.0% in 2023 to 4.3% by 2024 as the economy comes under pressure from muted business confidence, the property crisis, as well as weak external demand.

Growth across Middle Eastern economies, including Saudi Arabia, the UAE, Kuwait and Oman, will be restrained in H1 2024 as a result of oil production cuts to match waning demand. Economic diversification, however, will continue to gain momentum, with non-oil GDP continuing to play a key role in supporting the growth trajectory of Saudi Arabia and the UAE.

Asia Pacific will be the region witnessing solid growth of 4.0% in 2024, despite weakness emerging from China. Major economies such as India, Vietnam, and Philippines are expected to register over 5% growth.



Sources: International Monetary Fund; Frost & Sullivan

Note: Data and analysis stands updated as of 5 January, 2024. Negative data is in red. Data for India and Egypt are presented for fiscal years. For example, India's 2023 data refers to fiscal year April 2023 to March 2024; Egypt's 2023 data refers to fiscal year July 2022 to June 2023. All 2023 figures are estimates and 2024 figures are forecasts, unless otherwise mentioned.

Reversal of Tight Monetary Policy in 2024

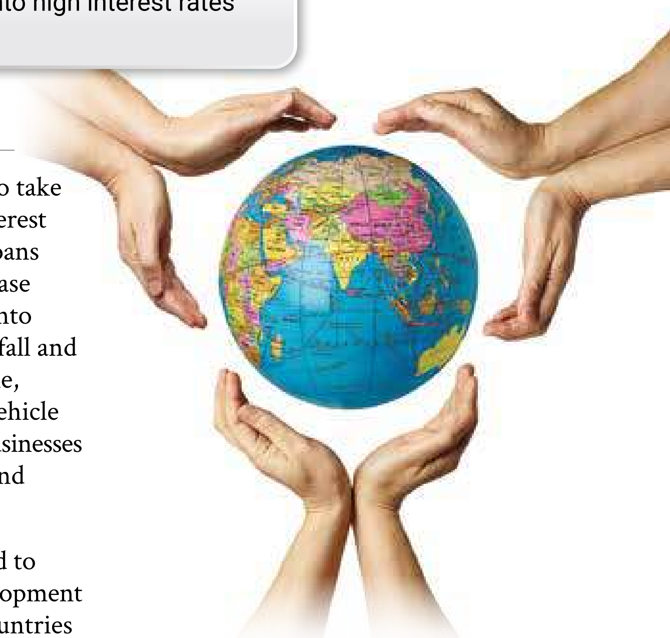
Central banks have had to hike interest rates drastically to quell inflationary pressures. As a result, headline inflation (including energy, food and other volatile items) is successfully seen to be coming under control – central banks, therefore, now have some leeway to reverse tight monetary policy conditions. In the US, for example, headline inflation declined from 3.7 per cent in September 2023 to 3.2 per cent in October 2023, with inflation forecast to continue to trend lower in 2024. The fall in global core inflation – excluding energy and food – on the other hand, is expected to be modest.

With headline inflation falling, advanced economies are expected to largely start cutting interest rates by the second half of 2024 or H2 2024 (an earlier start is also a possibility under optimistic conditions). In the United States and the United Kingdom, for example, the key interest rate is expected to be held steady at the current level of around 5.0 per cent in H1 2024, followed by rate cuts in H2 2024.

Scenario Projections for Inflation and Interest Rates, Global, 2024

Optimistic	2024 achievement of headline inflation targets in advanced economies (compared to 2025 and beyond under baseline). Marked decline in core inflation as well. Global interest rate cuts from Q2 2024.
Baseline	Global headline inflation will fall from 6.9% in 2023 to 5.8% in 2024. Core inflation is expected to be more persistent. Advanced economies will start cutting interest rates by H2 2024, compared to an earlier start for emerging market economies.
Pessimistic	Shock events such as an escalation of the Israel-Hamas war into a larger Middle Eastern conflict would cause a surge in inflation. This would force central banks to hold onto high interest rates for longer or hike rates further.

Source: Frost & Sullivan



Emerging Growth Opportunities for 2024 and 2025

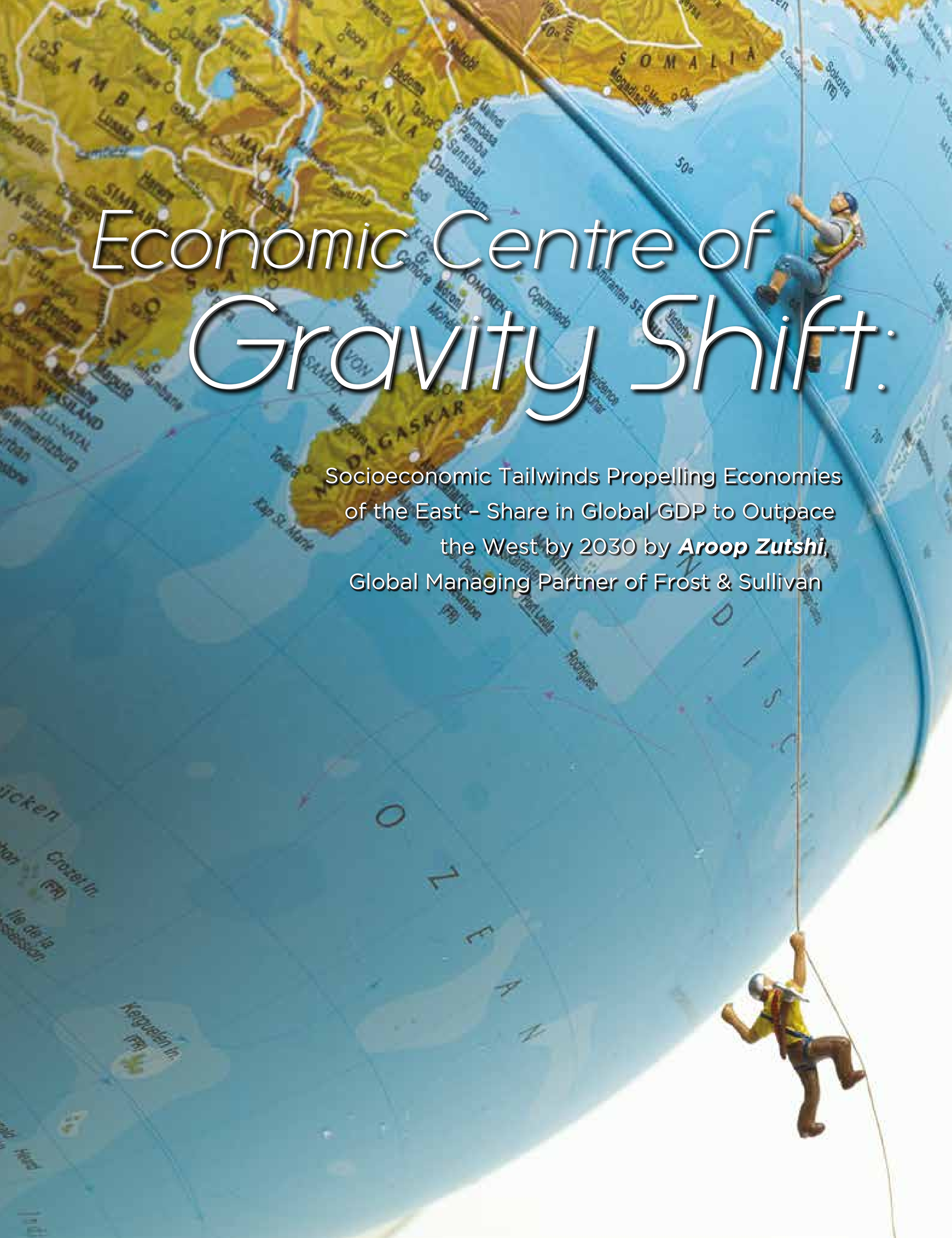
Robust growth from Asian economies such as India and Vietnam will intensify the China+1 supply chain pivot into India and ASEAN (The Association of Southeast Asian Nations), whereby companies maintain presence in China while continuing to expand into locations which offer higher growth, manufacturing incentives and stable policies, among other factors. Manufacturing FDI inflows into these economies should therefore receive a boost, creating growth opportunities across local value chains as well.

A combination of the high inflation levels and high interest rates and the 2022 to 2023 cost-of-living crisis would have restrained big-ticket purchases, as households focused on managing essentials. Now, as central bank interest rate cuts start to take shape from 2024, general interest rate levels, including on car loans and mortgages, will start to ease from end-2024, continuing into 2025. Once borrowing costs fall and inflation becomes manageable, more housing demand and vehicle purchases can be expected. Businesses should be prepared for demand revival in these segments.

Business opportunities linked to sustainable growth and development will continue to mount as countries continue to prioritize clean energy policies and green growth. Cross-border and cross-industry partnerships for critical minerals will be a top theme shaping the global economy in 2024.

In a Nutshell

In summary, while global economic slowdown is anticipated for 2024 overall, some turnaround and recovery can be expected especially towards H2 2024 with the support of interest rate cuts and demand revival. Global growth could also defy expectations and surprise in 2024, similar to the trend in 2023, under more optimistic scenario conditions driven by factors including additional fiscal support in China or earlier-than-anticipated interest rate cuts and consumer demand resurgence. ■



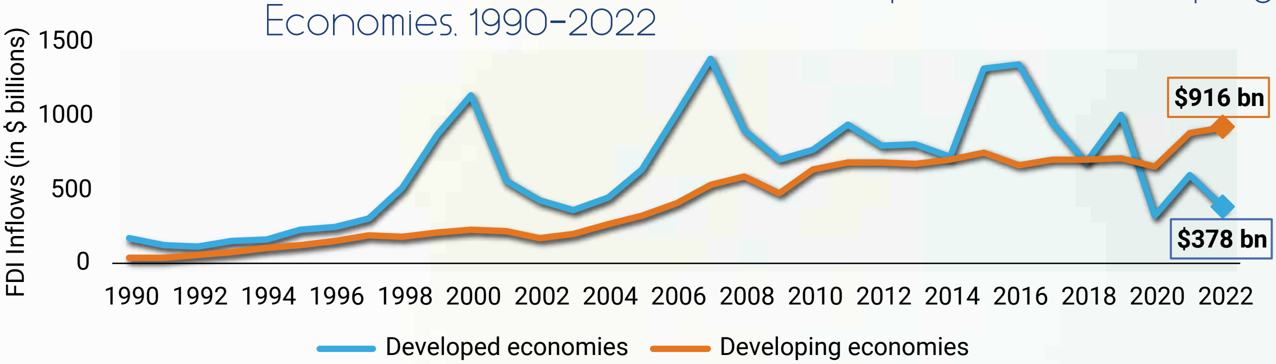
Economic Centre of Gravity Shift:

Socioeconomic Tailwinds Propelling Economies of the East – Share in Global GDP to Outpace the West by 2030 by ***Aroop Zutshi***, Global Managing Partner of Frost & Sullivan

The West, particularly Europe and North America, has been the epicentre of wealth creation, trade and innovation for centuries. However, the tides are turning, with global emerging markets (EMs) becoming the new frontier of economic prowess. In 2001, Foreign Direct Investment (FDI) inflows in the developed economies were 2.6 times that of developing economies. More than two decades later, in 2022, developing economies raked in USD916 billion in FDI compared to advanced nations' USD378 billion.[1]

Follow the MONEY

FDI Inflows (in USD billions), Developed and Developing Economies, 1990-2022



Source: United Nations Conference on Trade and Development (UNCTAD); Frost & Sullivan

The East[2] is on the precipice of an unprecedented economic boom. With a combined population of 3.76 billion, burgeoning economies and steady GDP growth coupled with robust manufacturing and technological ecosystems, the likes of China, India, ASEAN[3] and the GCC[4] are not merely participants in this tectonic shift – they will be the architects of a new world order.

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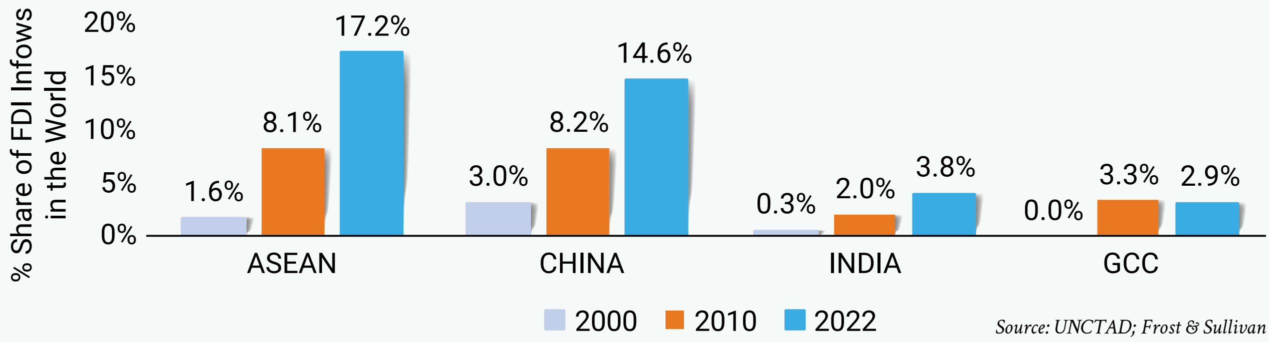
[1] *World Investment Report 2023, UNCTAD.*

[2] *The East here includes India, China, Hong Kong SAR, Japan, South Korea, Taiwan, 10 members of ASEAN, and 6 members of the GCC (21 nations combined).*

[3] *ASEAN stands for Association of Southeast Asian Nations, which includes Myanmar, Cambodia, Brunei Darussalam, Indonesia, Lao PDR, Malaysia, the Philippines, Singapore, Thailand, and Vietnam.*

[4] *Gulf Cooperation Council (GCC) comprises of Saudi Arabia, Kuwait, the United Arab Emirates, Qatar, Bahrain, and Oman.*

% Share of FDI Inflows in the World, Select Regions, 2000, 2010, and 2022



Source: UNCTAD; Frost & Sullivan

A Confluence of Economic, Demographic and Technological Megatrends are Driving the Eastward Pivot and Fostering Multi-sector Growth Opportunities

Several global megatrends such as offshore manufacturing, exploding middle class with rising purchasing power, coupled with expanding policy focus on sustainability and decarbonisation and digital transformation have been transforming the global socio-economic fabric over the past two decades.

Structural as well as Supply Chain Transformations and Manufacturing Take-off

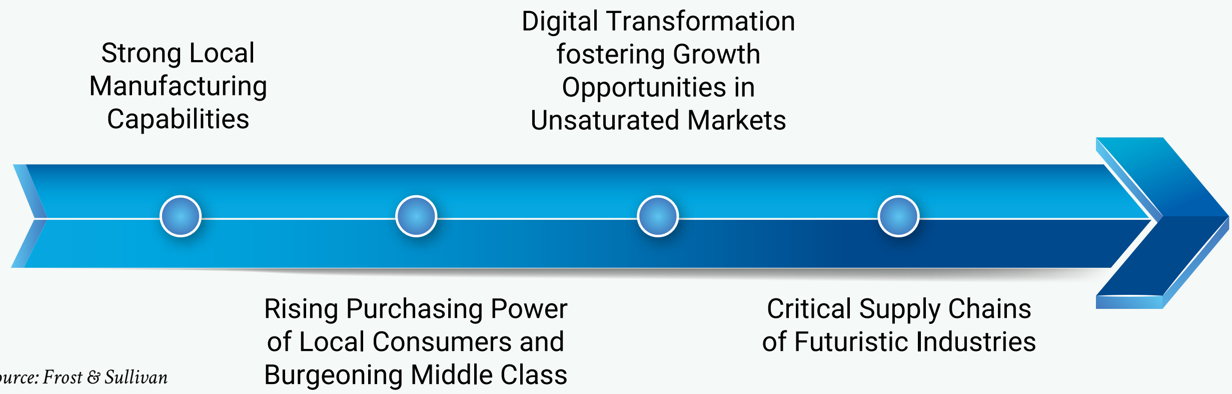
China became a global manufacturing hub owing to its huge labour pool and talent base, low production costs, and attractive economies of scale. In 2019, China's manufacturing value added as a percentage share of GDP stood at 27 per cent, far outstripping the global giants Germany and United States at 20 per cent and 11 per cent, respectively.[5]

Moreover, Vietnam, Philippines, Malaysia, Indonesia and India have undergone massive structural transformations in the past 15 years and have rapidly industrialised. As a result of their local manufacturing prowess, they are widely benefitting from the recent China de-risking trends and the increased focus of global conglomerates on building multiple sourcing and production lines. Recently, we are also witnessing China increasing its role in high-tech production.

Pharmaceutical (China, India); chemicals (China, South Korea); semiconductors (China, Taiwan, South Korea, Japan); automotives and EVs (China, India, South Korea, Thailand); food and beverage (Indonesia, Thailand) and textiles and apparels (China, India, Vietnam) are some of the industries where Asian countries have become the go-to manufacturing, sourcing and exports destinations.

[5] *World Bank.*

Megatrends Driving the Eastward Pivot



Source: Frost & Sullivan

Massive Consumer Base with a Rising Purchasing Power

In 2022, the combined population of the East stood at 3.76 billion, which is forecast to surpass 3.87 billion by 2028 as per the IMF. Coupled with the massive consumer base, the region's purchasing power is increasing manifold. The Gross National Income (GNI) per capita has seen a robust compounded annual growth rate (CAGR) in EMs like India, Vietnam and China at 4.8 per cent, 5.0 per cent and 8.0 per cent, respectively in the 2000-2019 period.[6]

Consumer-centric sectors such as fast-moving consumer goods (FMCG), tourism and wellness, sports, entertainment and recreation have a huge scope for expansion as the East enjoys an expanding middle-class and young consumer base. Almost all nations have set up comprehensive tourism roadmaps to boost the economic contribution of the tourism sector as a part of their structural transformation journey.

Unparalleled Pace of Digital Transformation driving Startup Ecosystem

Possibly one of the best success stories of inclusive digital transformation in the 21st century is India. 46 per cent of the global real-time payments across the world in 2022 were from India, with the Asian giant recording 89.5 million digital transactions, while China, Thailand and South Korea stood at 17.6 million, 16.5 million and 8 million, respectively.[7]

China and India currently hold the second and third global rank with 275 and 65 unicorns.[8] However, the rising prominence of traditionally fossil fuel-dependent economies such as Saudi Arabia and UAE in the technology startups segment can't be ignored, with forecasts indicating 45 Middle East and North Africa (MENA) startups reaching USD1 billion valuation (unicorn status) by 2030.

With significant entrepreneurial push and regulatory reforms bolstering the local startup ecosystem, coupled with access to a vast young and skilled talent pool, sizable growth opportunities are emerging in fintech, healthtech, edtech, insuretech and agritech sectors.

[6] *World Bank.*
[7] *MyGovIndia.*
[8] *PitchBook Unicorn Tracker.*

Global Decarbonisation Warrants Strategic Co-operation with Resource Rich Economies and Regional Manufacturing Powerhouses

Green energy transition journey, requiring steady supply of natural resources like nickel, cobalt, lithium and rare earth minerals, will be heavily reliant on China and ASEAN – because of their natural resource and industrial strengths. For instance, China not only accounts for 70 per cent of mine production of rare earth minerals, but also houses 80 per cent of the global rare earths processing capacities. Indonesia, on the other hand, has 22 per cent of the world's nickel deposits and happens to be the globe's largest nickel producer as of 2022.

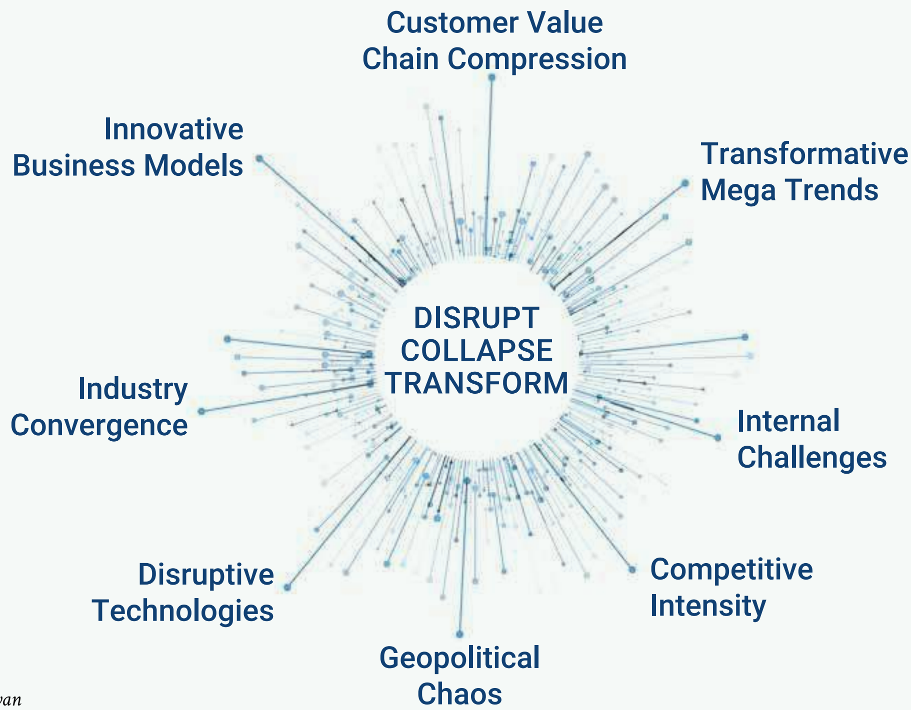
Manufacturing in the green energy sector, be it for solar panels, electric batteries, or wind turbines will be highly dependent on Eastern nations either for the raw materials, their processing, or their cost-effective manufacturing. The East, owing to its natural resource base and strong internal manufacturing ecosystems, is an integral stakeholder in the futuristic industry value chains.

East will Account for 45 per cent of Global Nominal GDP by 2030 to Become the Epicentre of Wealth Creation

A conducive policy environment, demographic dividend, steadily rising purchasing power, natural resource wealth and long-term digitalisation and manufacturing thrust will ensure that the East, historically known for its lacking economic development and instability, will become the wealth creator of the future. Moreover, innovation in the East will be consumption-driven rather than disruption-driven, wherein the massive demand potential and need for last-mile inclusion will warrant out-of-box solutions to overcome key challenges. Frost & Sullivan expects the East's nominal GDP to grow at a CAGR of 6.0 per cent in the 2010-2030 period, surpassing USD110 trillion by 2030, with the region accounting for a mammoth 45 per cent of the global economy.

While the megatrends discussed above are tailwinds cementing East's trajectory towards becoming an economic behemoth – global policy makers, businessmen, conglomerates as well as investors need a comprehensive framework to analyse and navigate the complexities emerging from shifting tides. Frost & Sullivan's The Strategic Imperative 8™ framework paints a clear picture of the factors creating pressure on growth.

Why is it Increasingly Difficult to Grow? The Strategic Imperative 8™: Factors Creating Pressure on Growth

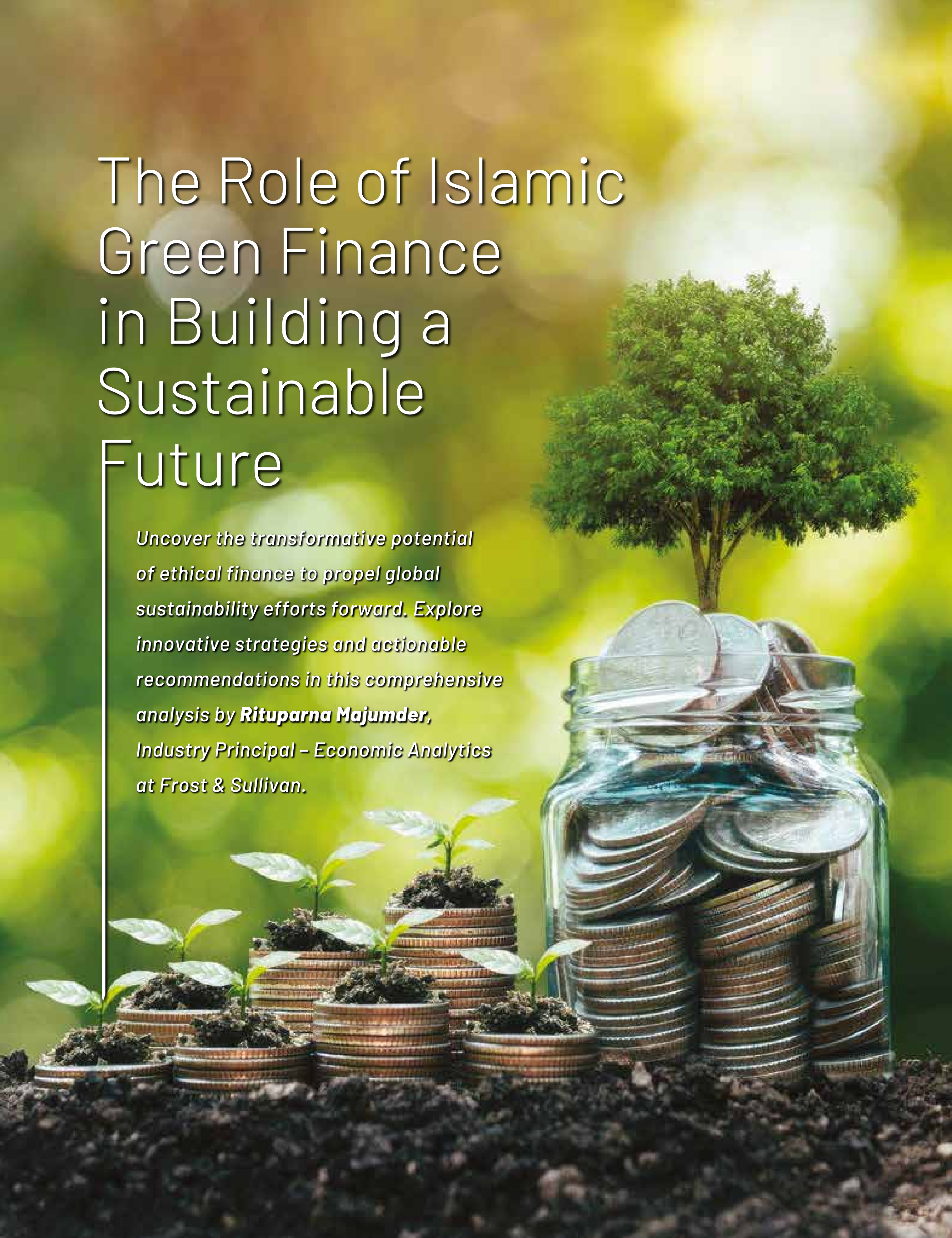


Source: Frost & Sullivan

Disruptions being a true constant, entrepreneurial push, rising R&D investments and pace of digital transformation will see innovative business models increasingly coming out of the East, driving global competitive intensity to set new standards. While the transformative mega trends of burgeoning middle class and young consumers in the East need to be capitalised through comprehensive opportunity evaluation and go-to market strategy formulation, the need for compressing value chains to reach the end-consumers faster will mandate firms to diversify their geographical presence.

Additionally, geopolitical frictions in an increasingly multipolar world will continue to push companies to build diversified manufacturing and multi-pronged sourcing and procurement strategies to ensure resiliency. China+1 strategy, stemming from recent supply chain vulnerabilities, has bolstered the likes of ASEAN and India as the go-to manufacturing and sourcing locations.

In the current macroeconomic landscape with fragile geopolitical relations, long-term strategic co-operation will remain key to insulating the world economy. The East, in many aspects, is becoming a safe haven in context of the above challenges, underscoring the fact that the world's economic centre of gravity is Eastward bound – a trend which will be set in stone, sooner rather than later. ■



The Role of Islamic Green Finance in Building a Sustainable Future

Uncover the transformative potential of ethical finance to propel global sustainability efforts forward. Explore innovative strategies and actionable recommendations in this comprehensive analysis by ***Rituparna Majumder****, Industry Principal – Economic Analytics at Frost & Sullivan.*

Sustainability-driven investment inflows have increased over time, especially post-pandemic. However, this growth has been skewed more towards major developing markets (over 80 per cent), especially characterised by investments into agriculture and clean energy. With only seven years left to achieve the 2030 SDGs, emerging market economies are well behind in meeting SDG targets, as highlighted in the below chart.

Progress towards key SDGs, Global, as of 2023

Region/SDG Goals	SDG 1: No Poverty	SDG 2: Zero Hunger	SDG 3: Good Health and Well-being	SDG 4: Quality Education	SDG 6: Clean Water and Sanitation	SDG 7: Affordable and Clean Energy	SDG 11: Sustainable Cities and Communities	SDG 13: Climate Action	SDG 14: Life Below Water	SDG 15: Life on Land
Eastern Europe and Central Asia	Moderately off-track	Moderately off-track	Moderately off-track	Significantly off-track	Moderately off-track	Critically off-track	Moderately off-track	Moderately off-track	Moderately off-track	Critically off-track
Latin America	Moderately off-track	Moderately off-track	Critically off-track	Significantly off-track	Moderately off-track	Moderately off-track	Moderately off-track	Significantly off-track	Critically off-track	Critically off-track
Middle East and North Africa	Moderately off-track	Critically off-track	Critically off-track	Moderately off-track	Moderately off-track	Critically off-track	Moderately off-track	Moderately off-track	Critically off-track	Critically off-track
South Asia and Pacific	Significantly off-track	Critically off-track	Critically off-track	Significantly off-track	Moderately off-track	Moderately off-track	Critically off-track	Moderately off-track	Critically off-track	Critically off-track
Sub-Saharan Africa	Critically off-track	Critically off-track	Critically off-track	Critically off-track	Critically off-track	Critically off-track	Critically off-track	Significantly off-track	Critically off-track	Critically off-track
Advanced Countries	SDG goal achievement on-track	Critically off-track	Significantly off-track	SDG goal achievement on-track	Moderately off-track	Moderately off-track	Significantly off-track	Critically off-track	Moderately off-track	Critically off-track

Legend: SDG goal achievement on-track; Moderately off-track; Significantly off-track; Critically off-track

Source: United Nations; Frost & Sullivan

The above list includes only key SDGs out of a total of 17 SDGs. Advanced countries include from North America, Western Europe, Japan, Korean, Singapore, Australia and New Zealand.

Limited funding is a critical restraint causing delays in SDGs achievement, with USD5 and USD7 trillion needed annually[1] to achieve the SDGs. Moreover, the pandemic exacerbated the gap between funding demand and supply, particularly in emerging market economies, where the funding gap has grown by USD1.7 trillion annually.

Achieving the Paris Agreement climate targets and SDGs require countries to undertake urgent policy measures and implement a robust green finance[2] framework, as well as align with green taxonomy standards. Businesses also play a pivotal role in meeting SDGs through aligning investments with SDGs to create profitable and impactful opportunities in new markets and business models. The prevalent funding gap offers huge opportunity to sustainable finance market players in emerging economies.

[1] *United Nations.*

[2] *'Green finance covers the financing of investments that would generate environmental benefits including reducing all types of pollution and greenhouse gas (GHG) emission, improving energy efficiency such as wind energy as well as taking measures to mitigate climate change.' – Islamic Green Finance Development, Ecosystem and Prospects, World Bank.*

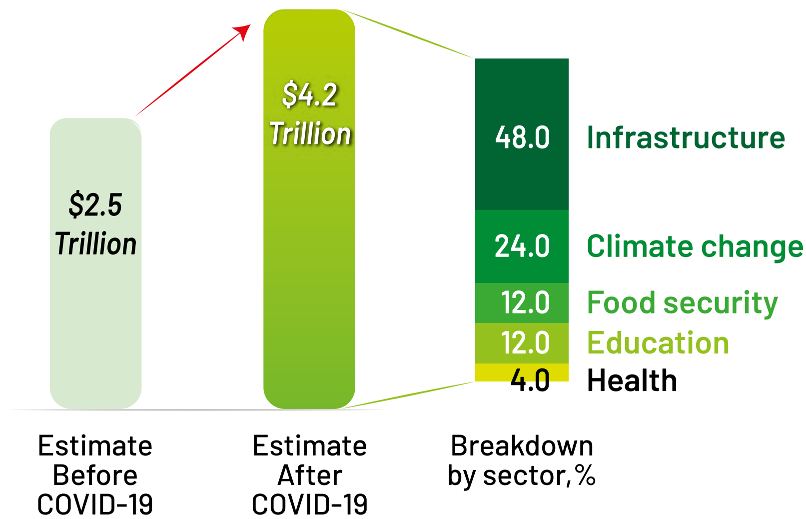
The Close Association Between Islamic Finance and Green Finance

The integration of Islamic finance principles with green finance aims to promote sustainability through ethical and fair practices, rooted in the principles of shariah. This synergy offers a significant value proposition through the role of Islamic finance initiatives in combating climate change among the OIC member countries. While institutional investors increasingly seek responsible investments, there is limited availability of shariah-compliant green financial tools globally. To foster Islamic green finance[3] growth, government backing in the form of transparent reporting guidance, for example, is crucial to boost issuance.

The ESG Mandate and Growth of Islamic Green Finance

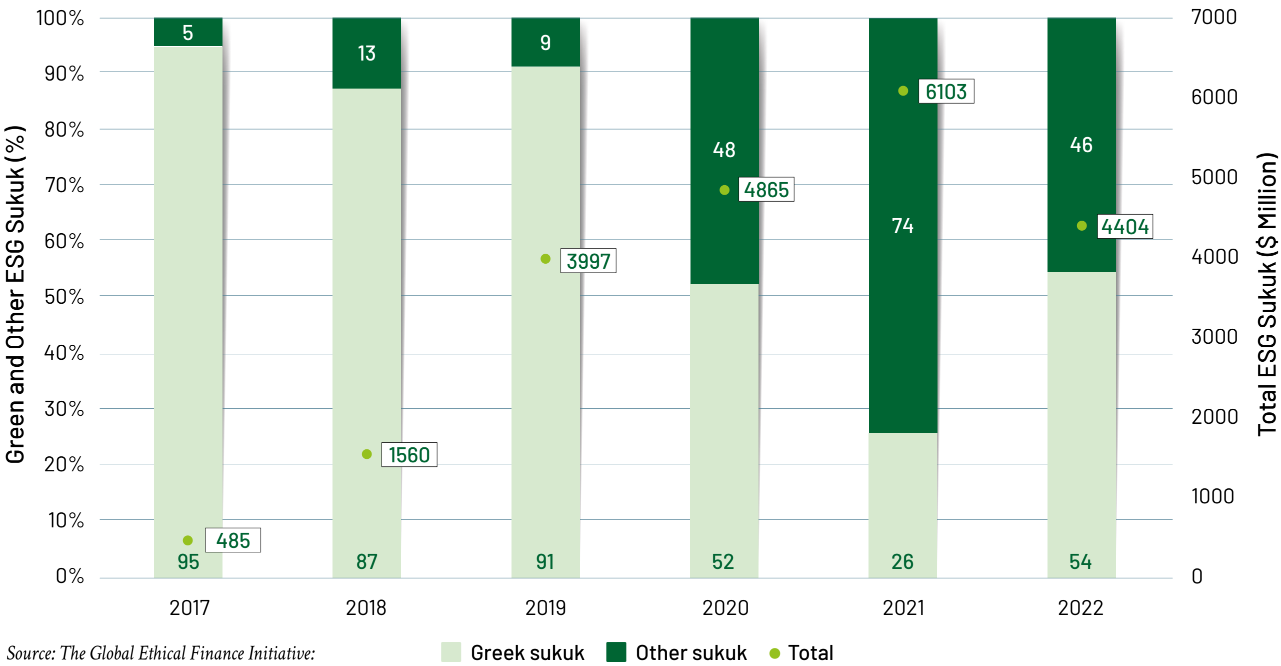
ESG sukuk can be classified into green sukuk (renewable energy and utility related), social sukuk (infrastructure, housing, workforce related), sustainability sukuk (a combination of green and social), SDG-linked sukuk (to achieve a certain SDG target), transition sukuk (to reduce firms' carbon footprint) and blue sukuk (marine related). Even before the COVID-19 pandemic, green sukuk had seen huge growth momentum, more than doubling in 2019.

Funding gap in developing countries to meet SDGs, Annual Estimate until 2030



[3] The provision of financial services in accordance with shariah Islamic law, principles and rules: Islamic Finance and the Role of the IMF.

ESG sukuk issuance by type, 2017 – 2022



Source: The Global Ethical Finance Initiative: Frost & Sullivan
2022 figures are for H1 2022

The pandemic not only amplified the adoption of sukuk, but also reshaped market dynamics, leading to a surge in sustainability sukuk issuances in tandem with the broader ESG bond market. As shown in the exhibit, green sukuk accounted for 26 per cent of the total value of ESG sukuk issued in 2021, a decline from 91 per cent in 2019, influenced by the focus on social funding during and after the COVID-19 recovery.

Nevertheless, the significant increase in total ESG issuance, soaring from just USD0.4 million to over USD6 million by 2021, strongly indicates the future growth potential of ESG sukuk, underlining the necessity for other ESG sukuk types (not just the green one), imperative. Looking ahead, as funding needs create a significant opportunity for ESG sukuk, the Islamic Finance Council UK (UKIFC) estimates that by 2025, the ESG sukuk market could be worth between USD30 billion to USD50 billion.

Global Prospects of Islamic Green Finance

In the Gulf Cooperation Council (GCC), green and sustainability sukuk have dominated ESG debt issuance, comprising 80 per cent of GCC-based issuances, with the alignment between ESG and shariah principles helping to attract a wider investor base. With significant investments planned over the medium to long term in renewables and social development, GCC markets, especially that of the UAE and Saudi Arabia offer growing ESG opportunities aligned with economic diversification goals. Corporates in the region are integrating ESG principles, responding to both domestic development plans and pressure from international investors seeking ESG-linked products, potentially opening access to global capital markets.

Drivers of ESG sukuk among GCC countries

Government Initiatives Driving ESG Sukuk Demand: UAE and Saudi Arabia commit to net zero by 2050 and 2060 with significant funding allocations

Private Capital Requirements: Companies increasingly turn to ESG sukuk for funding infrastructure and sustainable projects amid the pandemic

Regulation Support: Growing frameworks promoting governance and transparency in ESG sukuk issuance, for example, the UAW's Sustainable Finance Framework

COP27 and COP28* conferences: Green and sustainability remain the key themes in both conferences highlighting opportunities offered by ESG sukuk

Sources: Global Ethical Finance Initiative; World Bank; Frost & Sullivan
**The 27th and 28th meeting of the Conference of the Parties were the 27th and 28th United Nations Climate Change conferences.*

- In addition to GCC countries, other OIC member states such as Indonesia and Malaysia have emerged as key ESG sukuk markets. As per ADB estimates, developing Asian countries require USD26 trillion worth of investments (from 2016-2030) across power, transport, telecommunications and water sectors, indicative of a huge medium-term sukuk opportunity.
- As of July 2022, Kazakhstan's ESG market reached USD250 million. The Astana International Financial Centre (AIFC), Kazakhstan's Green Finance Centre, is a key stakeholder in ESG initiatives.
- Pakistan might be the first country to issue nature bonds[4], with the potential to raise up to USD1 billion.

Key Policy Recommendations

The alongside exhibit outlines key policy priorities which are important in the acceleration of sustainable finance flows and development of the green sukuk market.

At present there is limited understanding of ESG sukuk in the market. Issuers need to develop frameworks aligning with global best practices such as Green Bond Principles, requiring new skills and processes alongside shariah compliance. Globally, the contribution of both public and private entities is pivotal in establishing standards and guidelines for the green bond market and in driving the expansion of Islamic green finance.

The Sustainable and Responsible Investment (SRI) sukuk framework introduced by the Securities Commission Malaysia (SC) and the active advocation for SDG-alignment and sustainability among Islamic banks by the General Council for Islamic Banks and Financial Institutions (CIBAFI) in the GCC chart out clear roles of the capital market in driving global sustainability agenda. Key market players such as the Indonesian government, Saudi Electricity Company and Islamic Development Bank are seen to be setting benchmarks by issuing large-scale global green and sustainable sukuk.

[4] *Nature Performance Bond (NPB) is a proposed green financial instrument to link issuances to biodiversity and ecosystem restoration.*

Islamic Green Finance Policy Priorities

Developing an effective policy framework for green sukuk

- Formulate long-term national strategy for sustainability
- Develop a universal green and sustainability sukuk taxonomy aligned with international standards
- Support programmes like interest rate subsidies and tax incentives for green sukuk
- Develop ecosystems, national green investment funds and green certification services

Promoting investor awareness and capacity-building

- Enhance financial inclusion by improving access to underserved groups like SMEs and low-income households
- Launch educational programmes and workshops to raise awareness among traditional investors
- Engage investors in the development of sustainable infrastructure pipelines and encourage ESG capacity-building within investment teams

Boost market depth and breadth to build capcacity

- Include green and sustainable sukuk in the government funding mix
- Provide issuers with cost-reduction incentives
- Set up ESG segments within stock exchanges
- Encourage increased issuance of transition and blue sukuk ■

SUSTAINABILITY

THE PATH TOWARDS

Amid a rapidly evolving economic and geopolitical landscape and with the world economy routinely faced with polycrisis, climate change, environmental preservation and sustainable development have gained prominence in global policy planning as governments work to navigate present vulnerabilities while ensuring future development. The green economy, once a buzzword, is a major driving force behind the changing world order. Alignment with green economics not only helps countries in achieving targets from the Paris Accord and the United Nations Sustainable Development Goals, but also ensures economic resilience through sustainability objectives.

Frost & Sullivan's recent thought leadership on ***Sustainable Investment Ensuring Economic Resilience and Unlocking New Growth Opportunities*** reveals a strong positive correlation between sustainability and economic resilience[1]. Frost & Sullivan predicts that under an accelerated sustainability adoption scenario (ASAS), world GDP will reach the USD200 trillion mark by 2029, which is a decade earlier than the baseline forecast by the International Monetary Fund.

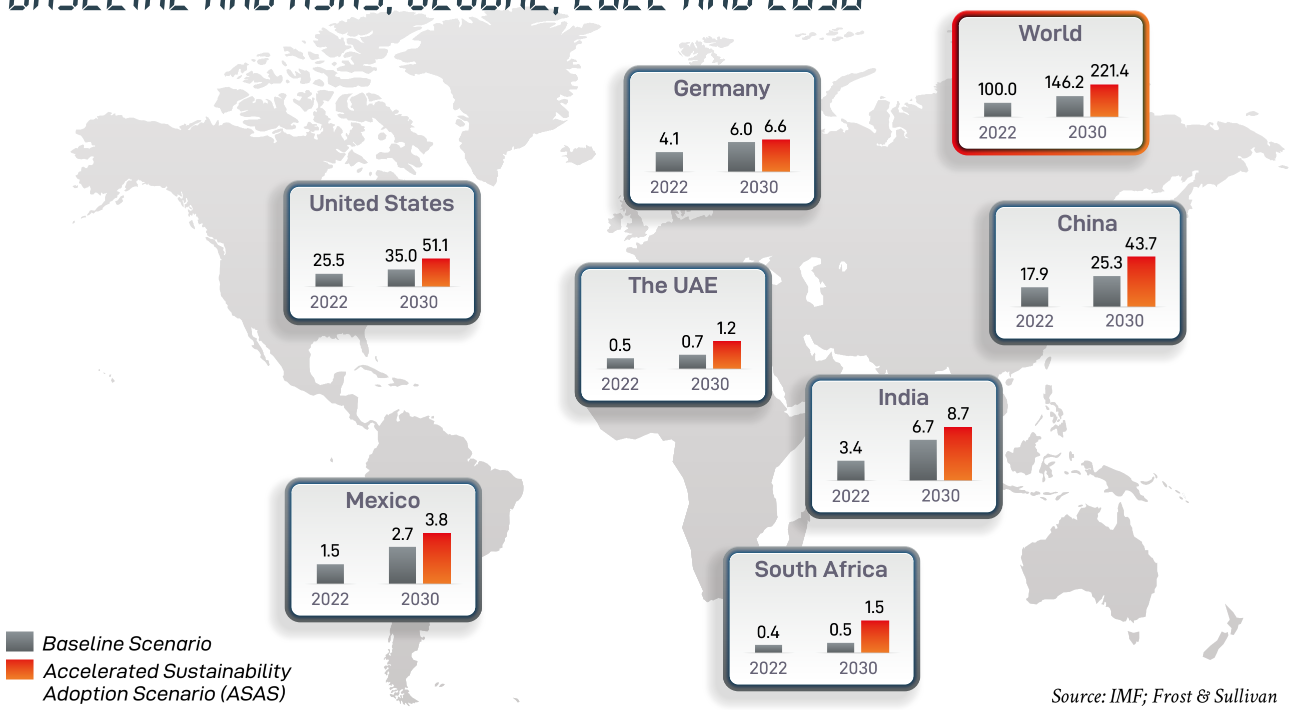
The below exhibit shows projected GDP under the two scenarios for key countries.

[1] *Economic Resilience has been assessed through a composite score comprising six key pillars: Economic Stability, Economic Diversification, Infrastructure Development, Political Stability, and Social Protection.*

NET 0

Affirmative policy needs to increasingly align with on-ground action to drive an accelerated growth scenario. Analysis by ***Rituparna Majumder,*** *Industry Principal - Economic Analytics, Frost & Sullivan.*

NOMINAL GDP (USD TRILLION) PROJECTIONS UNDER BASELINE AND ASAS, GLOBAL, 2022 AND 2030



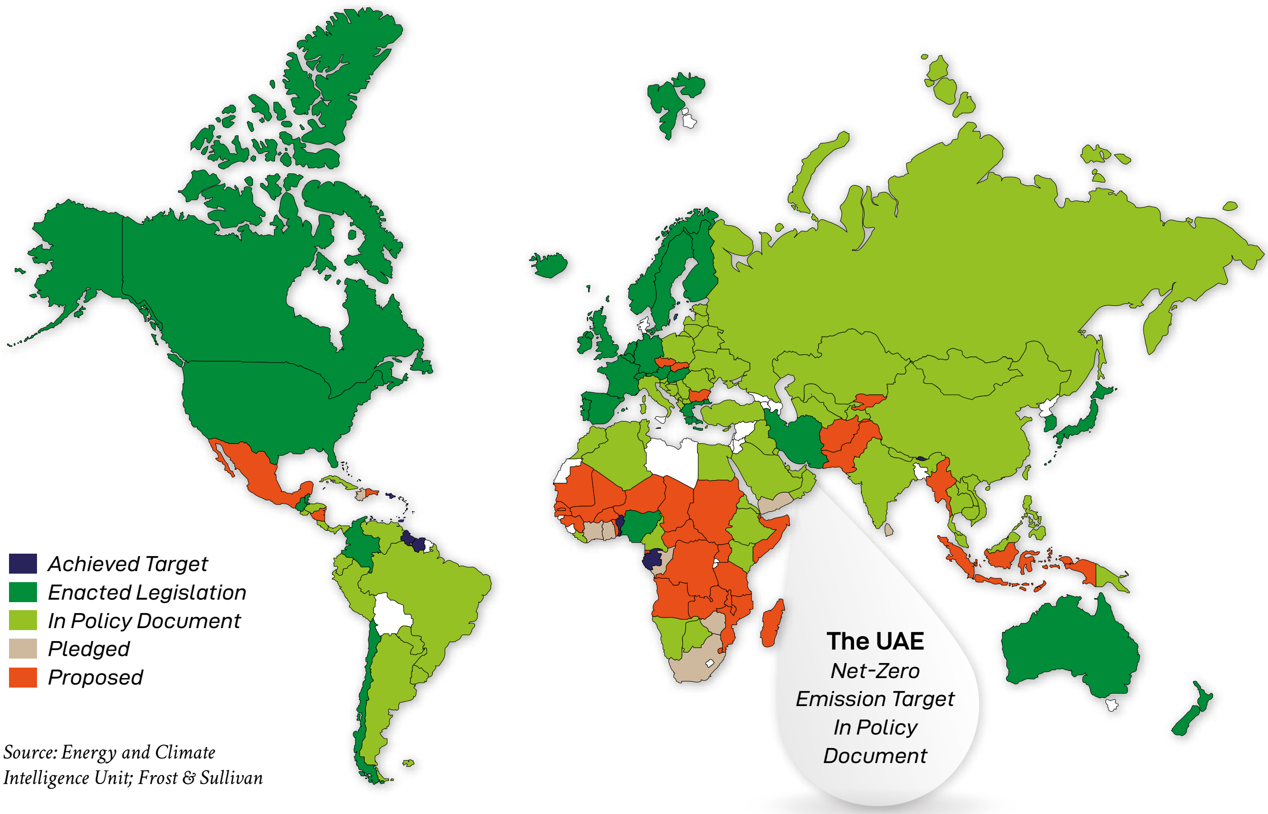
Source: IMF; Frost & Sullivan

Under ASAS, UAE's GDP is forecast to cross USD1 trillion mark before 2030, about 15 years before the basecase, corroborating the imperative of the sustainability agenda.

Global Net Zero Commitments and the UAE's Key Initiatives

Globally, there's a concerted push toward net-zero emissions, with over 140 countries committing to net-zero targets. This encompasses approximately 88 per cent of the world's emissions, showcasing a growing alliance among nations, cities, businesses and institutions in this crucial endeavour. However, the efforts fall short of doing enough. The exhibit below indicates that most carbon-neutral goals are in the mere discussion phase without concrete plans of action in place.

NET ZERO CARBON EMISSION COMMITMENT STATUS, GLOBAL, 2023



Source: Energy and Climate Intelligence Unit; Frost & Sullivan

Nations are benchmarked according to the status of their net zero targets. 'Enacted Legislation' is considered more binding than 'in policy document'; 'Declaration/pledge' is more serious than 'proposed/in discussion'.
– Net Zero Tracker Methodology

While Saudi Arabia has a 2060 net-zero emissions target, the UAE is driving energy transition with policies like net zero by 2050 and the Green Agenda (2015–2030), with the UAE being a frontrunner of climate action in the Middle East and North Africa region. UAE targets a 19 per cent reduction in GHG gases by 2030 from 2019 levels, driven by plans including a reduction in industrial emissions from 103 metric ton CO_2e[2] in 2019 to seven million metric ton by 2050[3]. Emphasising renewables, efficiency, electric vehicles and green building materials, the UAE aims to meet its targets and positions itself as a sustainable development leader.

Abu Dhabi is rapidly shifting to sustainable energy, aiming for 55 per cent clean energy by 2025 with projects like the Barakah nuclear plant and Al Dhafra Solar Photovoltaic (PV), while slashing building energy consumption by 40 per cent. The UAE has invested over USD50 billion in global clean energy initiatives, prioritising emission reduction targets. Efforts like Masdar City's USD15 billion commitment and the UAE-US PACE initiative, focusing on innovation and USD100 billion investment for 100 GW of clean energy by 2035, underscore the urgency for fossil fuel divestment.

GCC's Sustainable Energy Momentum is Harnessing Growth Opportunities

Progress towards a sustainable world is driving humungous short to long-term opportunities across sectors. Listed below are a few innovations and opportunities that are likely to disrupt the GCC energy sector in the coming decade.

Investment Opportunities, GCC Energy Sector and Allied, 2023 – 2030

Market/ Technology	Context	Call to Action
Renewable Railways	Saudi Arabia began trials for hydrogen-powered trains in November 2023.	Opens up opportunities for rolling stock and battery manufacturers, hydrogen companies.
Green Desalination	With 16,000 desalination plants worldwide, solar-powered desalination has potential of over 90 GW of installed capacity in the UAE.	Leading independent water and power companies can potentially look to tap into the potential and roll-out large-scale investment projects.
Carbon Capture and Storage	Abu Dhabi National Oil Company (ADNOC) aims for 10 Mt/year of CO_2 capture and storage by 2030.	The project will attract investment from carbon capture and energy services companies, gas treatment and recovery companies
Solar-Powered Biodigester	UAE's National Food Loss and Waste Initiative, Ne'ma, aims to reduce food waste by 50 per cent by 2030.	Power Knot's first solar-powered biodigester to come in Dubai. Opportunities for green startups to partner with local businesses.
Solar PV Value Chain	Saudi Arabia aims to localise its solar value chain, which is still largely untapped. The Kingdom has the potential to produce at least 10,0000 tons of polysilicon annually.	Market entrants can partner with Qatar Solar Technologies – the sole value chain participant in GCC.

[2] *metric tons of carbon dioxide equivalent (MTCO2e).*
[3] *Accelerating Action Towards a Green, Inclusive and Resilient Economy, Third Update of Second Nationally Determined Contribution for the UAE, UNFCCC.*

Strategies and Decision-Making Frameworks for Public and Private Stakeholders

To achieve net zero goals, both the public and private sector must proactively work to expand capabilities, engage in collaborative models and support institutions across sectors. Outlined below are key roles and best practices for each stakeholder group.

Revamping Strategies and Decision-Making Frameworks in Public and Private Stakeholders

Business Best Practices	Public Sector Roles
• Upskilling, risk management capabilities, scenario-based modelling and improved emission tracking. • Agile growth plans aligned with the net zero economy, requiring transformative changes in assets, products, partnerships and supply chains. • Evaluation of the need for near-term higher capital outlays to decarbonise operations and drive new products innovation and plant retrofitting. • Active engagement with peers through joint investments or industry-wide technology plans to solve mutual issues.	• Incorporate climate considerations into urban planning, infrastructure and tax regimes. • Expand policy measures such as subsidies, carbon prices and R&D support. • Establish funds for low-carbon investment, utilising blended-finance mechanisms and multilateral funds like the Green Climate Fund. • Implement worker reskilling programmes for a low-carbon economy, support lower income consumers and coordinate industrial development efforts.

Transitioning to net zero emissions poses a complex challenge, yet it holds vast opportunities. Urgent and decisive action is essential to fast-track sustainability goals and ensure a smoother path to net zero. ■

Harnessing the Halal Advantage

The halal economy growth potential should not be underestimated as businesses seek to drive new offerings, capture new markets and navigate economic uncertainties. ***Neha Anna Thomas****, Associate Director – Economic Analytics at Frost & Sullivan, explains more on harnessing the halal advantage on the road to economic recovery and diversification.*

The economic, business and policy narrative following recurrent shocks from US-China trade wars, the pandemic, and the Russo-Ukrainian conflict has shifted towards risk mitigation, resilience enhancement and growth insulation. Under this changing world order, the halal economy[1] has a larger role to play as a pathway to unlock new growth opportunities and achieve adaptability. Some policymakers are seen to be prioritising the halal economy in plans and initiatives to foster growth, while businesses also can drive new revenue generation through halal-certified solutions.

OIC and non-OIC Halal Economy Dependency Grows as Resilience Building and Strategic Diversification Become the Order of the Day

Governments and businesses worldwide have had to increasingly navigate a shock-driven terrain in the aftermath of supply chain disruptions and other ripple effects emerging from the pandemic and other tectonic events. In this context, reorientation of trade and supply chains, exploration of new export markets and the like have become key to survive and thrive.

With the halal economy expanding across the OIC and non-OIC economies, Malaysia and Indonesia's vision to build local halal industry capabilities and serve export markets will help enhance their global positioning and drive export revenues. Malaysia's post-pandemic policies are reflective of the integral role of the halal industry in accelerating recovery time and boosting growth. The Twelfth Malaysia Plan (2021-2025) identifies halal as a strategic industry, with the Malaysia government following through with the launch of Halal Industry Masterplan 2030 in 2023.

Looking at the GCC region, economic diversification beyond oil is the key policy theme shaping the growth narrative. GCC economies have launched long-term vision plans to drive non-oil growth and the halal industry features as part of this diversification movement. Under the aegis of Saudi Vision 2030, an agreement was signed in 2023 for the establishment of a halal products accelerator programme which will help develop the local halal ecosystem – domestic companies will also receive support to penetrate global halal markets.

The vision of continued diversification can also be seen feeding into the initiatives of emirates of Dubai and Abu Dhabi. The Dubai Industrial Strategy 2030 focuses on encouraging halal-certified companies, with a dedicated halal cluster having been launched within Dubai Industrial City back in 2014 itself. Even Brunei, an oil and gas-dependent economy, has prioritised halal as a key cluster in its diversification journey.

Even in non-OIC economies, there are growing case examples for the role of halal in achieving strategic diversification and building new growth avenues. In 2020, German firms were known to have increasingly expanded into halal products to drive export potential. We also see that German-based Merck KGaA procured halal certification for a pharmaceutical product line in 2021. Philippines, positioned in proximity to OIC South Asian/Southeast Asian economies, is expected to launch a National Halal Strategy as part of efforts to boost halal-driven investment and jobs and meet halal demand emanating from neighbouring and other economies.

The Case for Halal: How the Halal Economy Contributes to Enhanced Resilience and Futureproofing

We see the concept of the halal economy expanding beyond just the adherence of Islamic principles, when it comes to consumers, for example, that associate halal foods with safe or healthy eating. In this context, halal certification becomes increasingly important to address potential consumer trust issues and tap into global consumer demand. Certification also helps drive halal trade between nations. However, there are variances in halal standards and accreditation that need to be addressed to fully tap into this potential. In India, in the recent past, the assurance of certification has helped boost the country's halal foods domestic and export potential.

Similarly, with halal production and consumption segments expanding beyond just OIC economies, there is global potential emerging from the halal economy. So, for example, in the event of possible oil production or price volatilities or trade disruptions which could potentially temper halal demand from traditional GCC or Southeast Asian markets, businesses could alternatively look to redirect exports to alternative markets such as the US or Europe.

Lastly, there are growing cases of digital transformation within the halal economy, be it the rapid growth of Islamic fintech or the leverage of augmented reality and virtual reality within halal tourism. Digital and technological advancement by nature is typically associated with risk mitigation and improved navigation through shocks. This can be seen in the case of the post-pandemic e-commerce surge or the rise of digitally-enabled and agile supply chains to circumvent trade disruptions. The digital reshaping of the halal industry will help better shock-proof and withstand volatilities. The integration of augmented and virtual reality in halal tourism, for example, will make travel more affordable and accessible, making this segment of travel and tourism more recession-proof.

Why Should you Build or Expand Your Halal Portfolio? Case Examples from Halal Sub-Sectors

Businesses should not overlook new growth opportunities arising from the halal economy, especially with rising global halal demand, fast-growing Muslim population demographics and expectations for higher halal trade growth.

High-End and Experiential Halal Tourism Can Defy Slowdown Cycles

Luxury halal tourism, for example including cruises to remote locations or the facility of private swimming pools, witnessed strong demand even pre-pandemic. Driven by factors such as aspirational demands and young, affluent Muslims, this sector is poised for growth. Demand from luxury tourism travellers will especially be more resilient to cases of economic slowdown.

Producing Halal-Certified APIs and Excipients to Draw new Export Markets

As OIC economies move towards halal pharmaceuticals standardisation, there will be growing demand for halal-certified APIs and excipients[2] which will in turn enhance traceability and speed-up the certification process. Indonesia, for example, has introduced a phased approach to mandatory halal pharmaceuticals certification. However, the Southeast Asian economy is heavily reliant on imported input materials for pharmaceuticals.

The halal economy has thus far successfully transformed from a niche to an emerging sector. The upcoming phase of growth will see more of halal embedded into strategy and decision-making as governments and businesses seek to secure new growth in an evolving global landscape. This would also need to be simultaneously accompanied by progress in the regulatory landscape for halal, along with steps to boost consumer awareness and trust. ■

[1] Halal refers to permissible under Islamic law. The halal economy ranges from halal foods to halal pharmaceuticals to Islamic finance and more.
[2] Active pharmaceutical ingredients (APIs) are chemically active substance which achieve the desired effect; excipients are chemically inactive substance which carry the APIs.

Abu Dhabi: The Future of Investing

*Discover the dynamic investment and economic landscape poised to redefine the future of Abu Dhabi. Analysis prepared by **Krisha Monish Mistry**, Research Analyst – Economic Analytics at Frost & Sullivan.*

With the world progressively focusing on sustainable, multi-dimensional and inclusive economic development, Abu Dhabi – one of the fastest growing Middle East economies – will take advantage of its strategic geographical location, robust infrastructural facilities, comparatively low operating costs, and favourable business environment to be at the forefront of this global transformation.

To achieve this, expanding the scope and scale of Abu Dhabi's non-oil economy is of primary importance. The emirate's long-term ambition is to establish itself as a knowledge-based and innovation-driven economy requiring greater policy support and business expertise.

In this regard, the emirate has initiated Abu Dhabi Economic Vision 2030. The primary objective of this vision plan is to bring about a cohesion of human, capital and physical[1] resources that will help establish a multi-disciplinary business environment to support the growth of cross-industry productive capabilities. Over the long term, Abu Dhabi Economic Vision 2030 is expected to yield results in terms of improved private sector competitiveness, enhanced entrepreneurship, greater adoption of technological innovation and increased operational feasibility.

[1] *Tangible/raw materials utilized to produce final goods and services*

Brief Framework of Abu Dhabi Economic Vision 2030

- Legislative and judicial reforms to facilitate investment.
- Prudent fiscal policy to aid revenue diversification and responsiveness to economic cycles.
- Accommodative monetary conditions to enhance operability of businesses.
- Workforce optimisation to bolster labor market productivity.
- Infrastructural development to support multi-sector growth across telecom, logistics, energy and real estate.

In alignment with Abu Dhabi Economic Vision 2030 and in conjunction with the emirate's long-term diversification and growth ambitions, Abu Dhabi has also announced another critical development initiative: The Abu Dhabi Industrial Strategy 2031 which will accelerate the emirate's industrial sector's transition to a sustainable future with primary emphasis on smart technologies, value creation and cost competitiveness.

Abu Dhabi Industrial Strategy 2031 for Enhanced Industrial Competitiveness

This transformational plan is cemented around six pillars of growth and innovation: circular economy, Industry 4.0, talent development, ecosystem enablement, homegrown supply chain and value chain development. While promoting talent upskilling, strengthening industrial expertise, bolstering manufacturing capabilities and ramping-up operational efficiency across value chains are the focus areas of this strategy, it also aims to bolster exports and create new job opportunities within Abu Dhabi.

Vital Objectives to be Achieved under the Abu Dhabi Industrial Strategy 2031

In tangent with these objectives, Abu Dhabi has prioritised certain focal industries that will be at the forefront of its development agenda. These include, but are not limited to, financial services, tourism, elderly care, healthcare and biopharmaceuticals.

Financial Services: With Abu Dhabi's financial sector expected to have grown by 13 per cent[2] in 2023, this industry forms an integral part of the emirate's efforts to diversify its economy beyond hydrocarbons. Following the recently announced plan to mobilise USD270 billion (AED1 trillion) in sustainable finance by 2030 by the UAE, Abu Dhabi's financial services sector will witness a greater tilt towards advancing financial resources that will encourage the adoption of sustainable solutions and technologies across industries.

Tourism: Tourism is a critical growth sector for Abu Dhabi from an investment and growth point of view. Expansion of the tourism industry will cause an uptick in development across associated industries such as retail, hospitality, entertainment and sports and culture within the emirate, benefitting local businesses. Abu Dhabi's global campaign, Find Your Pace, aims to encourage diversity and competitiveness in the industry through the introduction of personalised and immersive experiences.

Elderly Care: Abu Dhabi over the long-term will witness growth in its elderly population. To accommodate the demands of this population segment, Abu Dhabi has already laid the foundation for its age-tech industry. To build an inclusive and cohesive society for the elderly, Abu Dhabi aims to facilitate the adoption of age-tech across sectors such as transport, logistics, automotive, governance and healthcare.

Healthcare: To achieve widespread and equitable socio-economic development across Abu Dhabi, the emirate aims to expand the scope of healthcare services – particularly primary healthcare services – at the micro-level. Strengthening the emirate's healthcare portfolio to encompass maternity, neo-natal, pre-natal, visual and tech-enabled personalised treatment plans and medical solutions will take precedence. Medical tourism growth through policy efforts is also expected.

Biopharmaceuticals: Another healthcare sub-segment gaining traction in Abu Dhabi is biopharmaceuticals. With a growing population and rapid industrialization, Abu Dhabi is expected to witness growing R&D investments into pharmaceuticals that will also encourage the transfer of intellectual property rights, establishment of drug testing facilities and medical device manufacturing in the emirate.

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[2] *Department of Economic Development, Abu Dhabi*

Policy Support Towards Fostering Investment Competitiveness

In tandem with economic and industry transformation efforts, Abu Dhabi is witnessing a series of policy efforts targeted at improving the investment climate to facilitate higher foreign as well as domestic investment inflows.

The Abu Dhabi Chamber of Commerce and Industry signed a Memorandum of Understanding in November 2023 with First Abu Dhabi Bank for a partnership which will help improve hassle-free access to credit institutions, reduce regulatory restrictions, integrate emerging technologies within industry solutions and grow manufacturing capabilities.

An expected reduction in tourism fees from 6.0 per cent to 4.0 per cent by Abu Dhabi Department of Culture and Tourism from 1 September 2023 will boost the influx of tourists in the emirate, with spill over effects being recorded across allied industries. To broaden financial transformation towards SMEs, Abu Dhabi's Department of Economic Development launched the SME Finance Facilitator programme in 2023. The programme will streamline access to financial services for micro enterprises.

Within healthcare, Abu Dhabi is working towards amalgamating sustainability with the emirate's healthcare system through a process that will promote the growth of green healthcare products and recyclable medical devices and reduce the sector's carbon footprint. To achieve this, at the national level, the UAE's newly developed Ministry of Investment aims to devise a unified strategy that will foster the growth of foreign investments within the country. This strategy will act as a catalyst for boosting investment inflows and outflows and improving the efficiency and operability of local companies. This will propagate the growth of UAE's economy at the grassroot level, generating employment opportunities and encouraging greater private sector participation.

Localisation Policy to Complement Investment Efforts

Abu Dhabi, in recent years, has also recognised the role of localisation in bringing about long-term sustained economic growth. As a result, the emirate has introduced a host of measures that will bolster localisation within Abu Dhabi's business ecosystem.

Localisation plays an important role for the Abu Dhabi economy as it helps attract innovative companies in high-growth economic industries that are aligned with the emirate's long-term economic vision. It also brings about greater supply chain efficiency, contributing towards Abu Dhabi's plan to establish itself as a global investment and business hub. Localisation growth will be fostered by the availability of a culturally diverse skilled population, competitive labour costs, private-public partnerships and presence of an expansive transport and communication network.

With a GDP growth rate of 9.3 per cent[3], Abu Dhabi emerged as the fastest growing economy in the Middle East and North Africa in 2022. Growth momentum is likely to remain robust over the coming years, as the emirate undergoes a socio-economic makeover that will help cement its position as a thriving regional and global business, trade and innovation hub. Ongoing initiatives that prioritise human capital development, private sector competitiveness, technological advancement, environmental resilience, and industrial progress will only further foster economic as well as industry growth. This will enhance Abu Dhabi's go-to market competitiveness. ■

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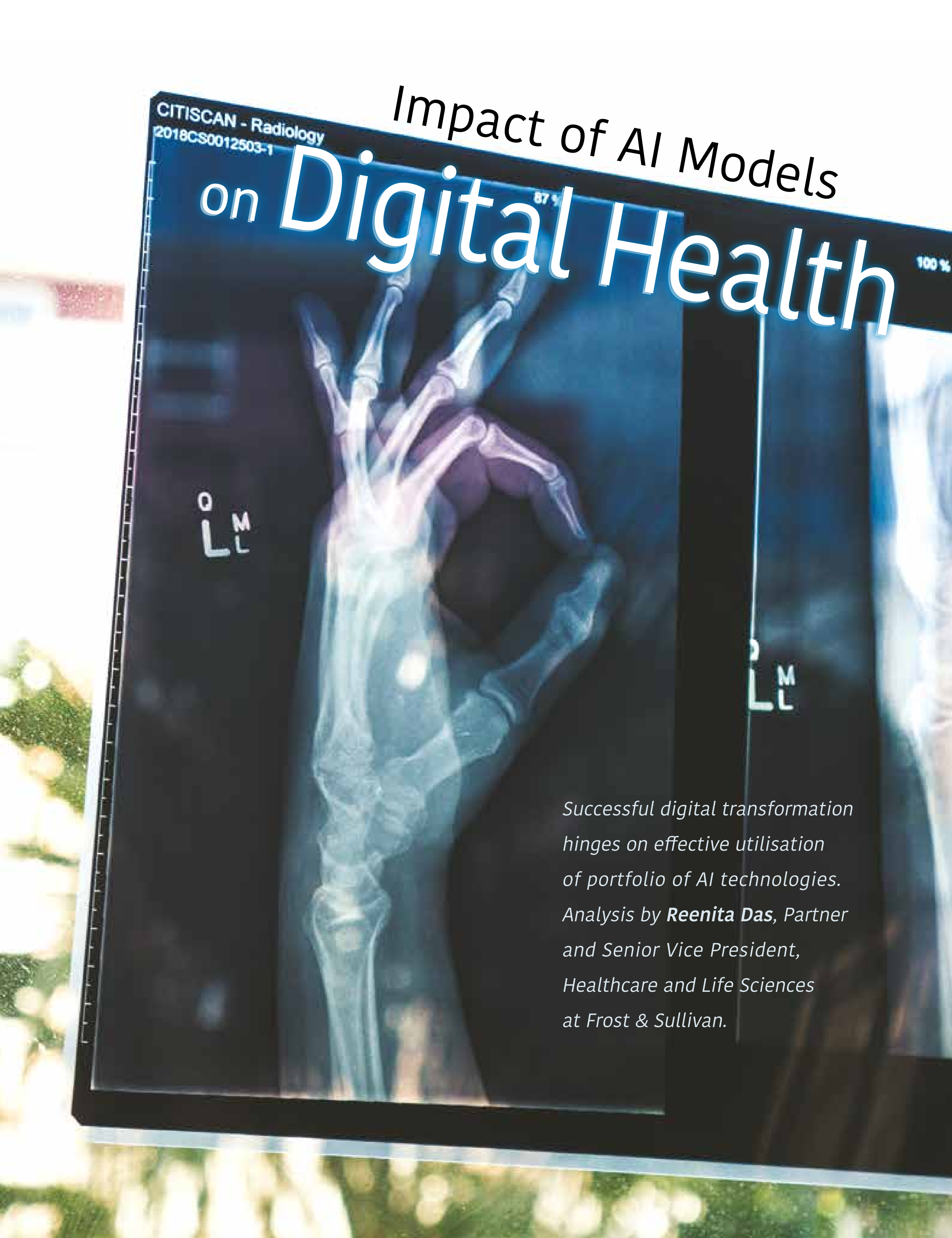
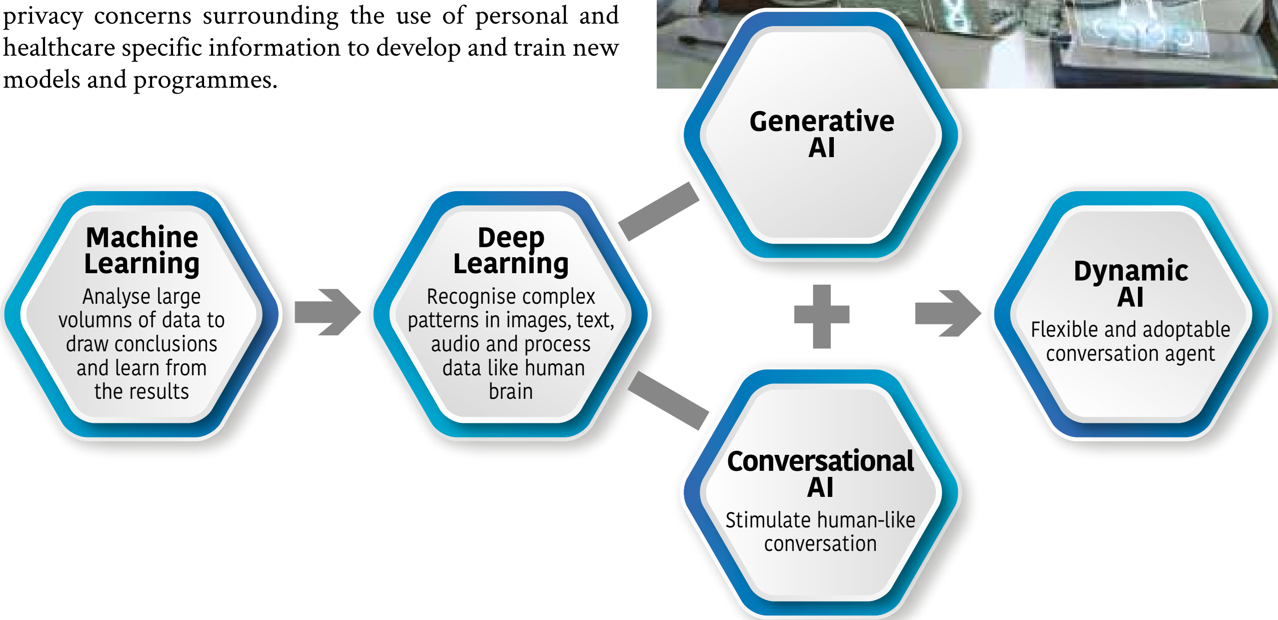
[3] *Statistics Centre - Abu Dhabi*



Impact of AI Models on Digital Health

Successful digital transformation hinges on effective utilisation of portfolio of AI technologies. Analysis by ***Reenita Das****, Partner and Senior Vice President, Healthcare and Life Sciences at Frost & Sullivan.*

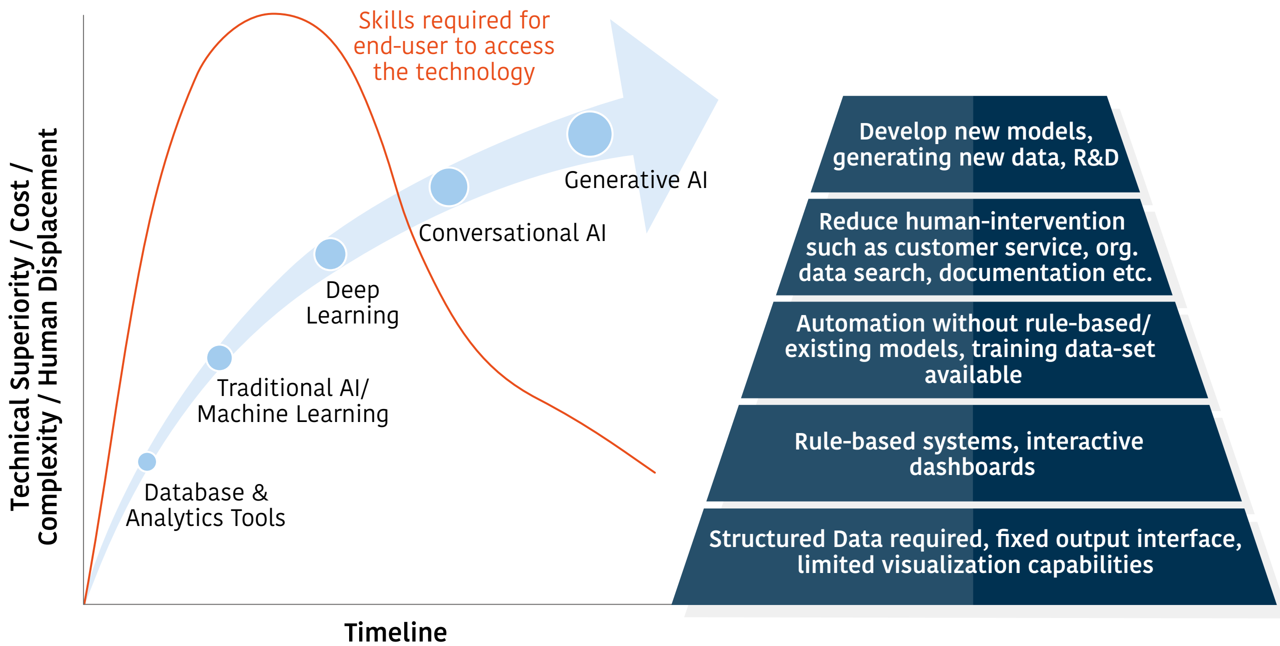
The healthcare industry is prone to the hype created by new technologies that promise to alleviate some of the foundational problems impacting the healthcare system. The introduction and development of data processing technologies from simple data analytics to complex machine learning to generative AI (Gen AI) have created an excitement within the healthcare community about the probable benefits of these technologies in everyday processes and workflows as seen below. The initial excitement is tempered by ethical, legal, regulatory and privacy concerns surrounding the use of personal and healthcare specific information to develop and train new models and programmes.



Globally, governments along with regional groups, vendors and other stakeholders are jointly developing guidelines to define how we can utilise AI to achieve maximum benefit while still maintaining data security and privacy. These guidelines would provide a framework for future development that will help dynamic AI technologies to achieve quintuple aim of better health outcomes, improved patient experience, improved care-giver experience, reduced cost of treatment and focus on value and better health equity.

AI Portfolio – A Key Arsenal in Your Organisation's Digitalisation Strategy

AI took the healthcare industry by storm due to its diverse applications and scalability. Today, we stand in the era of dynamic AI, where organisations need to incorporate a portfolio of different AI/ML models for different needs, as shown in below chart. The introduction of newer AI models does not degrade the power of earlier models. The launch of Gen AI is considered a game-changer because it has shifted the power of AI from just a handful of IT experts to the common person.



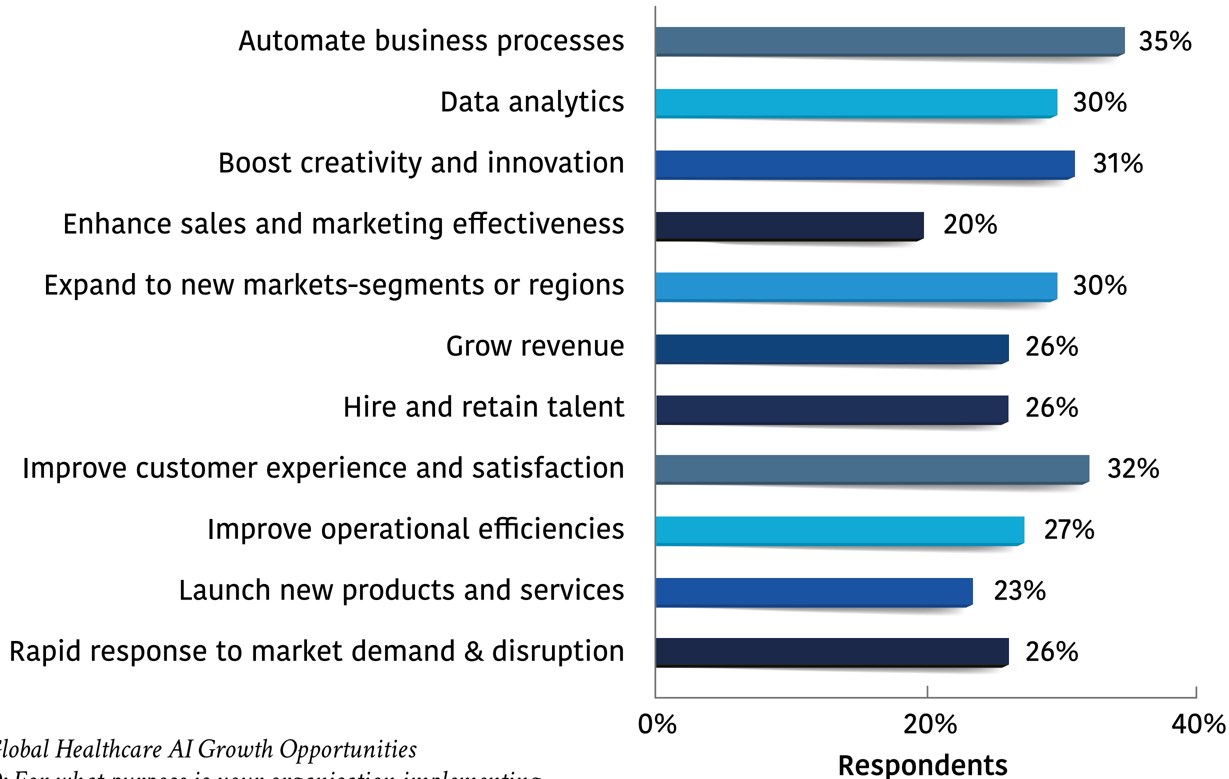
In the healthcare space, this means that all people have now got the resources to innovate and bring new products to the market. However, stakeholders need to take a cautious approach and ensure that their use of the technology is contained ethically and legally. The data used to train the new AI models needs to address the current challenges of bias and hallucinations that are making people hesitant to adopt new technology quickly.

The rise of Gen AI has also put focus on another category of AI – explainable AI. The model provides an explanation about its method and approach to decision making ensuring that the end user is aware of the logic behind the output. Explainable AI has tremendous applications in the healthcare sector, as it could address the biggest roadblock that impacts AI technology – trust in AI-based decision/output. By incorporating this model in the clinical solutions, vendors could increase the adoption of AI in clinical decision making and improve the overall efficiency of the healthcare system.

Priority Areas for AI Utilisation

A Frost & Sullivan survey conducted in 2021 highlighted the priority areas (within 2 – 5 years) for healthcare executives to improve using AI, see chart below. While business process automation was the clear priority, there was interest in using AI to improve patient or customer experience, boost innovation and for data analytics.

Frost & Sullivan survey on purpose of AI implementation in healthcare organisations, global



Global Healthcare AI Growth Opportunities
Q: For what purpose is your organisation implementing or planning to implement AI technologies?
Multiple answers. Base: n = 81

Organisations across the globe have taken a keen interest in improving both clinical and non-clinical processes using AI. Vendors large and small are looking to disrupt the market by deploying solutions to cater to the need of the healthcare stakeholders. The solution proposition has shifted from bolt-on or point solutions to enterprise-wide solutions as this results in more interoperable solutions with less vendors to manage.

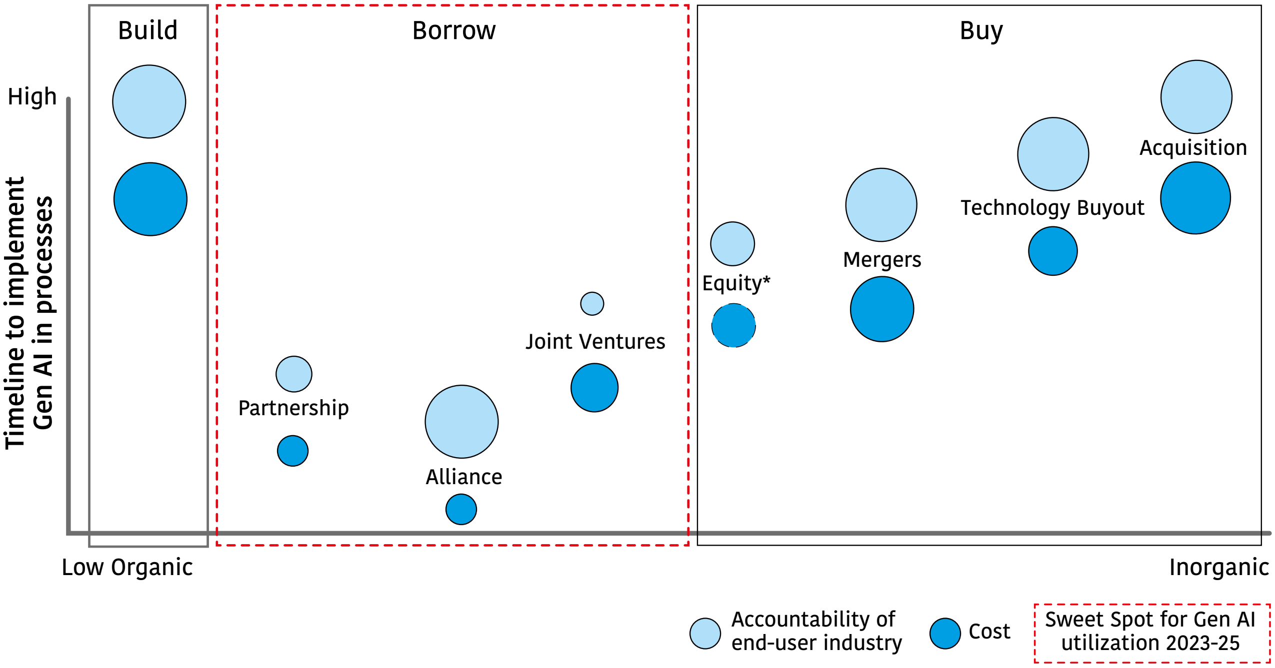
In terms of customer or patient experience, vendors are deploying AI powered digital front doors (DFDs) that engages patients for both preventive and treatment journeys. The conversational AI agents or chatbots provide near human experience and help patients find their way in the digital environment. In addition, these tools are also being utilised during physician-patient interactions to take notes and transcribe conversation so that the physician could spend more active time with the patients.

Lastly, the use of AI to develop predictive models is the need of the hour. Transition to value-based care models and the focus on population health initiatives cannot succeed if we just continue to conduct descriptive and prescriptive analytics. While these technologies are important to understand the impact of a solution post adoption, it has now become pertinent to predict the behaviour of the system before we implement any change. Predictive analytics will see use in both clinical and operational workflows and will help organisations build digital twins to induce simulated environments for achieving efficiency.

Build-Buy-Borrow Conundrum

New AI releases always renew interest in what this space has to offer as well as how different end-users could utilise it to tackle their current and future challenges. Healthcare organisations want to be at the fore-front yet cautious about deploying AI, including generative AI, in their workflows or processes.

The healthcare system leaders are still trying to untangle the web of technologies that appear on their horizon but can only be utilised or adopted slowly and progressively. These leaders need the support of internal and external stakeholders to navigate the technology and vendor mesh and select the best-fit tools. In addition, to account for the lack of IT expertise, the healthcare systems rely on vendor's support to implement and maintain the technology. Hence, they achieve quick and maximum gains from the new technology by 'borrowing' it from the vendors instead of building it in-house or buying it outright, see chart below.

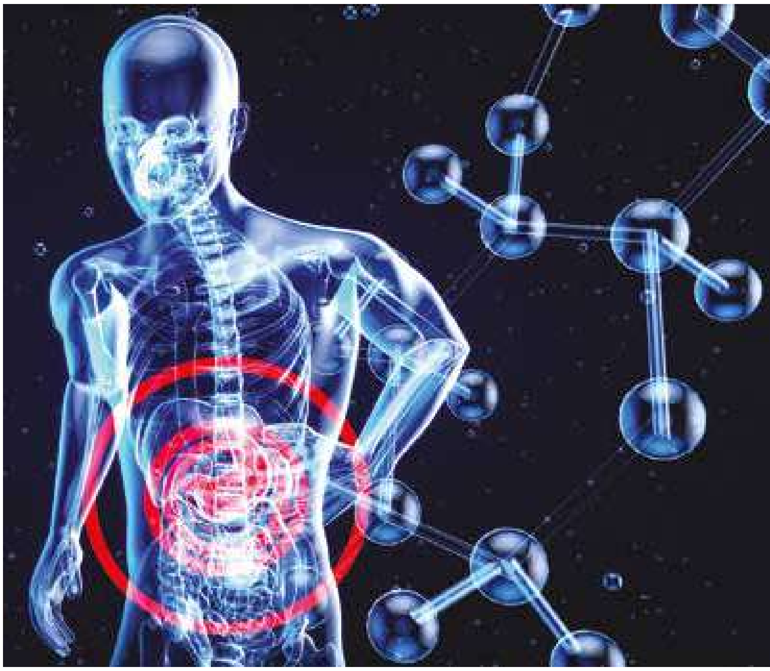


Governance: Create Foundation and Build Trust Internally and Externally

Healthcare has been one of the laggards in AI adoption due to the nature of the industry that hinges on dealing with the life of a person. Along with traditional problems of data bias and textual data, the adoption is impacted by the false-negative rates and interpretability challenges of earlier AI models. The limited and slow adoption of AI contrasts with the expectation of C-suite executives and developers who perceive the industry to be ripe for transformation through synchronous use of portfolio of AI technologies. This also pushes the regulatory bodies to set boundaries for ethical use of the technology.

AI as a technology is difficult to contain and regulate. A collaborative approach is required between the national governments and active players to develop boundaries around its use. Meanwhile, in the healthcare domain, the risks are far higher as a person's personal and health data is at risk. Stakeholders need to be extra cautious when developing technology that utilises these data points to build models. Hence, governments globally have taken a side on how they would like to adopt or restrict AI. On one hand, the developed nations are getting particular about the different guidelines of technology adoption and how it will facilitate governance of new tools or products developed by AI. On the other hand, developing nations are working with broad guidelines to combat bias, ethical and discriminatory concerns. In the Middle East, there is focus on using AI for innovations and the UAE has released guidelines to address opportunities and challenges.

In the future, governments and organisations need to build cohesive guidelines to extract maximum benefits from AI tools and regulate the broader technology than specific applications/products. Their proactive stance to develop regulations for current and future technical growth is of utmost important. From the organization's standpoint, it needs to protect the IP and personal data of the employees and hence, develop strict AI usage policies. In addition, technology developers need to focus on transparency to ensure ethical and legal compliance. Finally, all stakeholders need to create an agile governance structure so that they can incorporate new developments easily without compromising on the current structure.



AI Will Evolve: Will You?

Since COVID-19 pandemic started, we have seen a rapid pace of technological advancements disrupting the healthcare industry, including AI. The use of AI has evolved from just ML or pattern identification to becoming a personal assistant and generating new content. In this process, healthcare systems and vendors that kept pace with the technology and implemented planned adoption survived and proliferated, while the slow or unplanned adopters gradually phased out.

The story is similar for vendors – players who developed integrated or enterprise-wide solutions are reaping success around while bolt-on solution providers are now getting restricted to their niche market and eventually will lose their space to the big players. This depicts the complexity of the healthtech market and the need for all the stakeholders to continuously evolve both in terms of their offerings as well as their adoption in current workflows and processes. ■

Quick Bytes:

Technology plays a crucial role in reshaping inequality and poverty. From rural areas to cities, advancements in technology aren't just conveniences – they drive change, offer new opportunities and empowerment. Here, we explore how technology reduces inequality and poverty by breaking barriers and providing access to resources. This includes digital literacy programmes and healthcare technologies that level the playing field, creating pathways to prosperity. Today's digital revolution is where innovation meets aspiration, promising a more equitable future for all. Here's how tech bridges the gap in the fight against inequality and poverty.

1. Enabling Prosperity:

Financial inclusion is made possible through fintech innovations like mobile banking and digital payment systems, which have expanded access to financial services, particularly in underserved communities. Mobile money platforms like M-Pesa in Kenya enabled people without traditional bank accounts to store, send and receive money securely, fostering financial inclusion and economic empowerment. Meanwhile, economic opportunities encompass the gig economy and remote work opportunities facilitated by technology. This allows individuals to earn income irrespective of their geographic location or socio-economic status. Platforms like Uber, TaskRabbit and Upwork enable people to find flexible employment opportunities, reducing barriers to entry into the labour market. In the age of remote working, or work from home, has also lessen spending for both employee and employer. For example, an employee spends less on transportation and meals out, and savings on office space rental as well as utilities for the employer. It's a win-win for most organisations now.

2. Access to Information and Education:

Online educational platforms, such as Khan Academy and Coursera, provide free or low-cost courses, enabling individuals from disadvantaged backgrounds to acquire new skills and knowledge. Bridge International Academies is a network of low-cost private schools that leverages technology and standardised curricula to deliver quality education to students in underserved areas across Africa and Asia. Mastercard Foundation focuses on promoting financial inclusion and economic empowerment in Africa through initiatives like its Scholars Program and Youth Learning Partnership. Google.org promotes

TECH FOR EQUITY

access to quality education, digital literacy and economic empowerment for underserved communities. BYJU offers online learning programmes for students from kindergarten to college. It provides accessible educational content to students across India, including those in remote and underserved areas. Shaw Academy in Singapore offers affordable and flexible learning programmes of various subjects to individuals from diverse backgrounds with access to practical skills training and professional development opportunities. Tara Akshar provides literacy and numeracy classes to marginalised and disadvantaged communities in rural Nepal. Its innovative literacy programme empowers women with essential literacy skills, enabling them to access information, participate in community decision-making and pursue income-generating activities. TAL Education Group provides after-school tutoring services in China for K-12 students. They support academic achievement among students from diverse socioeconomic backgrounds.

3. Healthcare Technologies:

Telemedicine enables remote diagnosis and treatment of medical conditions through telecommunications technology. It facilitates access to healthcare services for individuals in rural or underserved areas where medical facilities are scarce, reducing the need for costly travel. Mobile health apps provide access to healthcare information, preventive care reminders, medication management tools and remote monitoring capabilities via smartphones and other mobile devices. They empower individuals to take control of their health, adhere to treatment plans and access healthcare resources regardless of their location or socioeconomic status. Portable and low-cost point-of-care diagnostic devices such as handheld devices for detecting infectious diseases like HIV and malaria enable rapid and accurate diagnosis in resource-limited settings. Thus, facilitating early detection and timely treatment that prevent disease progression and reduce healthcare costs. Remote patient monitoring systems utilise sensors, IoT devices and mobile technology to monitor patients' health status and vital signs outside of traditional healthcare settings. They are particularly beneficial for managing chronic conditions like diabetes, hypertension and heart disease. They enable proactive interventions, reduce hospitalisations and improve quality of life for patients, especially those with limited access to healthcare facilities.

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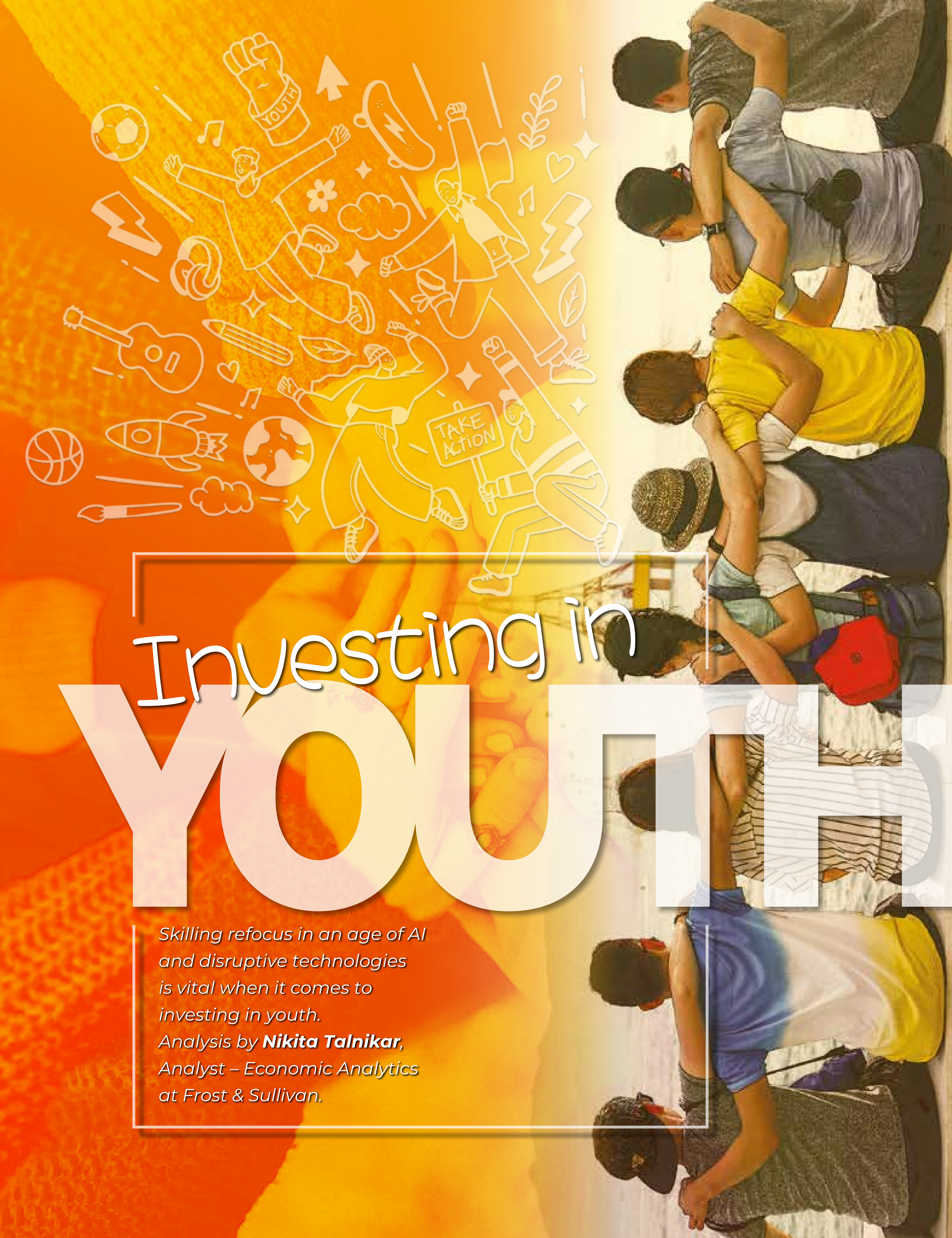
4. Environmental Sustainability:

Technological advancements contribute to sustainability efforts, which indirectly impact poverty alleviation. By transitioning to clean energy sources, countries decrease air pollution, mitigate climate change impacts and improve public health. Thus, reducing healthcare costs and enhancing economic productivity, which can alleviate poverty. Innovations in energy efficiency, including smart grid systems, energy-efficient appliances and building insulation materials, enable individuals and businesses to reduce energy consumption as well as lower utility bills. Lowering energy costs free up financial resources for other essential needs, improving household budgets and reducing economic vulnerability among low-income communities. Technology for precision farming techniques, crop monitoring sensors and agricultural drones optimise resource use, minimise environmental degradation and improve yields. This increases farmers' incomes and reduces rural poverty. Environmental monitoring and conservation technologies like remote sensing technologies and satellite imaging enable real-time monitoring of environmental changes, biodiversity conservation efforts and natural disaster preparedness. Early warning systems and data-driven decision-making enhance resilience to environmental shocks and disasters. Thus, safeguarding livelihoods and reducing vulnerability to poverty-related risks.

5. Policy and Advocacy:

Technology empowers marginalised communities to advocate for their rights and hold governments as well as corporations accountable. Social media platforms such as Facebook, and online campaigns on websites like Change.org, provide spaces for organising grassroots movements, raising awareness about social issues and amplifying marginalised voices. Livestreams and blogs facilitate citizen journalism, allowing individuals to document and share instances of injustice, corruption, or human rights violations in real-time. Data transparency and accountability tools promote government and corporate accountability by providing access to public records, budget allocations and regulatory information. Websites like OpenSecrets.org and Transparency International track political donations, lobbying activities and corporate influence, enabling scrutiny of vested interests and potential conflicts of interest. Platforms such as Ushahidi and Witness use crowdsourcing and mapping technology to collect, verify and visualise data on human rights abuses, environmental crimes and humanitarian emergencies – by engaging local communities as frontline reporters and watchdogs, they amplify marginalised voices and catalyse targeted responses from authorities and international organisations. ■

Information based on various sources



Investing in YOUTH

Skilling refocus in an age of AI and disruptive technologies is vital when it comes to investing in youth.

*Analysis by **Nikita Talnikar**, Analyst – Economic Analytics at Frost & Sullivan.*

In an era of unprecedented technological advancements, transformative forces of disruptive technologies are rendering business models obsolete and redefining conventional job roles. The emergence of technologies such as AI, ML, blockchain and IoT is fostering a profound shift in the nature of employment. For instance, increased automation is creating demand for a workforce equipped with advanced technical knowledge in terms of hard skills including IT, programming and data science, coupled with key soft skills of critical thinking, creativity and adaptability.

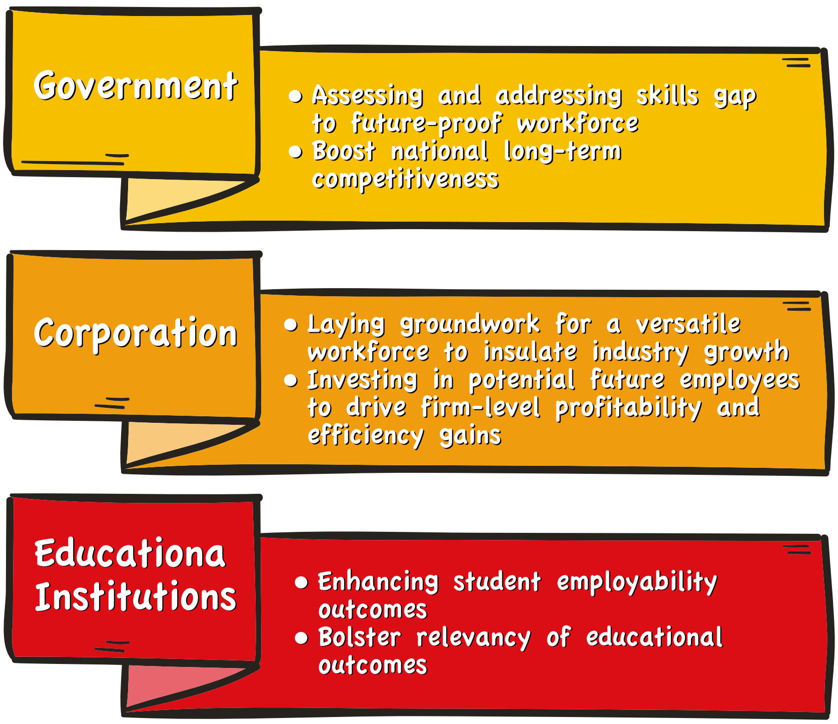
This speedy progress comes with a fair share of challenges, creating a global skills gap, wherein the demanded level of expertise often outpaces the skills possessed by the workforce. This problem becomes particularly alarming when considering the future workforce or today's youth. In 2030, the young population, of people aged 15 to 34 years, will total 2.5 billion persons across the globe.[1] Youth unemployment, already a global challenge, will exacerbate without adequate policy action to upskill and reskill the young workforce and equip them to navigate a highly technology-driven terrain.

Imperative for Collaborative Stakeholdership to Future-Proof the Youth

Three primary stakeholders — governments, corporations and educational institutions — must invest in upskilling and reskilling[2] initiatives to maintain competitiveness and ensure robust and sustainable growth amid tectonic shifts in the global macroeconomic landscape.

[1] *World Population Prospects 2022, United Nations Population Division.*
[2] *Continuous strengthening of existing skillsets for boosting productivity and performance in current role is termed as upskilling. Acquiring new skill/s that support the shift to a new role or significantly transform a current role is known as reskilling.*

Strategic Imperatives for Key Stakeholders to Invest in Youth Skilling



Source: Frost & Sullivan

Governments: Skill disparities between countries put lagging nations at a disadvantage as investments and talent are lost to countries with a highly skilled labour force. Conducive policy support is hence required to identify skills gaps and future-proof the young population and make the labour force globally competitive.

The government's role in building a nation and state-wide platforms for bolstering partnerships between private players and educational institutions cannot be overstated. Governments in partnership with companies and educational institutions should roll out specially designed AI and disruptive technology skilling programs to provide in-depth learning options accessible anytime and anywhere.

Corporations: Investing in youth training and development programmes will provide global firms with a competitive edge. This will attract top-tier talent and provide meaningful avenues for collaboration within the current and future workforce. Investments in potential future employees through internships and apprenticeships will drive long-term efficiency gains as full-time conversions result in sizable time and cost savings.

The utilisation of AR and VR -centered learning models for in-house skilling programs can be a great introduction of emerging

technologies to the new entrants in the company workforce. Additionally, to ensure larger participation, firms must tie in the acquisition of technical skills (varying from industry to industry) as a key performance metric and incentivize employees to ideate profitable use cases that leverage these technologies.

Educational Institutions: Building relevant skilling programs to meet industry needs will drive employability and boost students' success rates, while continuous evaluation of curriculums and incorporation of emerging technologies will ensure the relevancy of educational outcomes. Moreover, instilling a lifelong learning approach in students right from their schooling years will ensure the adoption of continuous skilling habits throughout their professional careers.

Colleges and universities must integrate technology-centric learning and development courses into bachelor's and master's degree syllabus. This holds true not only for the STEM[3] stream but also for fields such as law, finance, medicine, humanities and arts. Opportunities to opt for such sandwich courses/ dual degrees will provide the youth with early exposure to existing and emerging technologies and their impacts on respective fields.

[3] *Science, Technology, Engineering, and Mathematics.*

Global Case Examples of Public and Private Sector Contributions to Technology-Focused Youth Skilling

The UAE launched the National Program for Artificial Intelligence in 2018, which not only includes a specially designed bachelor's degree in AI but also prioritises AI internships and boot camps to armour young Emiratis for a tech-driven future. India's 2021 Big Data Initiatives Programme provides financial support for extensive R&D in Big Data analytics and Big Data education. The Asian giant, with 265 million enrolled school children in FY 2022[4], also rolled out the YUVAi (Youth for Unnati and Vikas with AI) programme, providing secondary and higher secondary school students an understanding of AI's utility through applied learning experience tools.

Several global corporations are heavily investing in reskilling and upskilling initiatives for their employees worldwide, which also covers the youth. IBM has announced 170 academic and industry partnerships aiming to reskill and upskill 30 million across the globe by 2030. Amazon.com, Inc. launched the USD1.2 billion Upskilling 2025 programme, which is expected to cover 300,000 employees for talent upskilling as the firm embraces automation technologies. Wipro has earmarked USD1 billion in investments for AI, including training for 250,000 employees covering fundamentals and responsible use of AI.

Early Exposure to Real-time Technology Evolution and Human-Intelligence Complemented AI will be a Core Demand

Analysing and understanding the exact impacts of AI and a variety of disruptive technologies on different industries is the need of the hour. For instance, AI platforms such as ChatGPT and Bard.ai are weighing on the services sector, while on the manufacturing front, automation and digitalisation are the key disruptors.

With these rapid shifts underway, education reforms that integrate technology-centric curriculum using engaging and hands-on learning tools at the higher secondary school, college and university levels will be highly beneficial. This will provide students with much needed insight into the fast-evolving operational environments in the secondary and tertiary sectors.

The role of human Intelligence as a complement to AI also warrants careful consideration. A burst of software AIs in recent months has created a market demand for AI prompt engineers, a position which is earning salaries northwards of USD300,000 annually, in the United States.[5] This clearly underscores those human traits of critical thinking, creativity and perception will continue to remain invaluable. Global stakeholders must parallelly invest resources into industry-centric technical skilling and soft skills development for future-proofing the workforce in an era of constant technological disruptions, hybrid-working models and multigenerational teams.

As the world stands at the intersection of AI and disruptive technologies, Joseph Schumpeter's characterisation of creative destruction[6] stands true in all walks of life, not just manufacturing. The ability to harness the potential of technological innovations will be determined by the commitment of individuals, institutions, corporations and governments to continuous learning and adaptation. Continuous reskilling is paramount to ensure long-term macroeconomic resilience, even more so amongst the youth, as their share in the total population surpasses the 29 per cent mark globally by 2030. ■

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[4] *Indian Ministry of Finance. Financial Year 2022 refers to April 2021 to March 2022 period.*

[5] *Forbes; AI Prompt Engineers Earn $300k Salaries: Here's How To Learn The Skill For Free.*

[6] *Joseph Schumpeter, an Austrian political economist, defined creative destruction as the "process of industrial mutation that incessantly revolutionizes the economic structure from within, incessantly destroying the old one, incessantly creating a new one."*

For the Love of Food

A 25 years-old farmer and founder of The Cacao Project paints a comprehensive image of her experiences and insights as a farmer, chef and entrepreneur in the Philippines. Not to mention the impressive impact she wants to have on the world. ***Su Aziz*** *writes.*

'My interest in farming stemmed from my deep love of food,' states Louise Mabulo, founder of The Cacao Project. She started her career as a chef very early when she debuted on MasterChef Junior in the Philippines. 'It launched me into what was probably one of my earliest culinary journeys, training as a chef and hosting pop-up dinners around the world,' recalls the 25-year-old. It was during this journey, she learned to reconnect with her roots and community. 'I discovered how our food was produced and grown. Also, what a noble job it is to steward the land and get these ingredients from farms to my kitchen. Then, to our tables.'

Louise started working on farm-to-table cuisine. Then, she went on to grow her own ingredients and food at home. 'Slowly, I found myself falling in love with farming and the alchemy of combining the right soil, air, sunlight and water to grow nutritious and delicious food.' Born and bred in the Philippines, she started The Cacao Project five years ago. It's an initiative to build sustainable, regenerative and resilient agricultural livelihoods in the Philippines, specifically, Camarines Sur. It provides skills training, resources, interventions and guidance for farmers to ensure their livelihoods are positioned to work with nature while restoring landscapes and provide them with a livelihood.

Challenges and Triumphs

Louise observes how in most parts of the world, especially in Asia, farming and being labelled as a farmer comes with stigmas. 'Farming is perceived as a low-income job and a predominantly male-dominated industry. The commonly heard aspiration is that it's an industry to work hard in, only to get out of. Part of my platform is to disassemble these stigmas and transform food systems to create a just, equitable and regenerative transition.'

Just as importantly, Louise wants to set a standard that farming can be cool, that becoming a farmer can be a role that one aspires to. One that's prosperous, ties inherently with land stewardship and creates economic services for the community. 'And that starts with setting that role for myself, while empowering others to become leaders in the industry as well. I think seeing more young people and women engage as well as step forward in their communities is a triumph in itself. To see farmers become business owners, and to see that alongside their successes, we see a positive environmental impact within the forests too, well, what a delight!'

Innovations and Contributions

'We work on the ground with farmers and tailor-fitting our work to local landscapes and dynamics to rethink our food production value chains,' Louise explains. 'This means being there for the whole process from planting, growing and post-harvest production, and building long-term relationships with the community over many years. Beyond that, we believe in working with our nature and ecosystems to grow our agroforests. This includes learning from older practices from our elders and bridging those knowledge gaps with modern farming know-how to produce harvests that work with nature.'

Being a firm believer that sustainable practice is also good business, Louise realises that a constantly evolving world and rapidly changing climate calls for the process of adapting to the planet instead of the other way around. 'For farming and agriculture, we see that the world is set to require 70 per cent more food by 2050. Yet, due to soil degradation, we're going to see a decline in harvests with FAO predicting only 60 years' worth of harvest available unless we change how we extract from our soils.'

Sustainable agriculture guarantees long-term harvests. Healthy ecosystems guarantee better pollination and biodiversity, which in turn results in better quality harvests. 'This [process] requires more patience and behavioural shifts. Living so close to a community that's heavily reliant on our nature and biodiversity, the economic benefits and resilience this afford us is ultimately more valuable,' reminds Louise.

Balancing entrepreneurship and farming can be demanding. 'I like to believe all the work feed into each other. So, one accomplishes the other. On the other hand, I believe in strict time management and discipline. I was home-schooled for many years. I was always in charge of managing my own time and growth, which required a level of focus. I'm grateful my parents trained me at an early age,' Louise says. 'In today's world it is more challenging to stay on top of everything and it's a constantly learning process.'

Staying on Trend and the Road Ahead

'I'd like to think that my youth gives me a unique advantage here. I tend to have a pulse on the trends because it is, ultimately, my generation [armed] with our devices, social media, consumption habits and access to the world's knowledge that can dictate as well as direct the flow and trend out there,' Louise admits. 'It has been useful in understanding the next steps, or even how to set the next trend, and change how we ultimately behave and direct our work.'

Looking ahead, Louise has a specific vision for the future of The Cacao Project. 'I'm really excited for it to grow. We're already seeing farmers successfully set up their businesses, sell out lines of chocolate products and we've launched our leaf fossilisation workshops, which create sustainable handicrafts from cacao leaves. In the future, we're looking forward to integrating more agritech into our work. Also, find ways to make farming technologies more accessible to rural communities.'

Last Words

So, Louise, what do you think can help shape future leaders? 'Grit and critical thinking. Especially in today's world where young people are growing up and training for careers that might not even exist yet. One more thing — systemic change. The stigmas, predetermined ideas of how our world operates need to shift if we're going to really make a difference and raise a new generation of leaders. Our industries need to be more intersectional. We have operated in silos for many years in a world that does not operate the same way. We now know that food systems affect environment, affect peace and security, affect economic prosperity, affect women and girls, and much more. The sooner we recognise these interconnections, the better we can equip future generations to address the gaps and build comprehensive systems that are circular,' she replies without hesitation.

Lastly, what impact does she want to have in this world? 'I want to be a catalyst for the world to shift its thinking. I want to be the person that makes this world recognise and redefine development — that maybe a rich and prosperous world can be quantified in the growth of forests, in the welfare of farmers, in rural prosperity. Maybe the big change we envision for the world isn't simply a stereotypical idea of a technological utopia. Maybe it's a world where stewardship, where caring for creation in a sustainable, equitable, accessible way is the baseline to a future green economy,' Louise concludes most impressively. ■

Voices on Economy, Arts and Sustainability

Delving into varied outlooks on economy, arts and sustainability. From divergent viewpoints emerge nuanced conversations shaping our perspectives and collective future.

Focus on sustainability by leveraging technologies such as AI to determine outcome and impact.

- ***Aroop Zutshi***, Global Managing Partner of Frost & Sullivan on a collaborative strategy essential in navigating today's complex economic landscape.

Setting a global economic agenda involves tackling complex challenges and balancing the needs of diverse nations, but there are three major areas that need our urgent attention: digital innovation, seamless global trade and sustainable development. Technology has profoundly altered the world we live in, especially in India. It's imperative that we further bridge the digital divide to make cutting-edge technology solutions available to as many people as possible. Also, we must reduce trade barriers and advocate for fair and open trade policies with the potential to create a more level-playing field for all countries, particularly at a time of geopolitical uncertainties. None of this is possible without the pursuit of sustainable economic development that addresses environmental concerns. It not only encourages economic diversification, reducing dependence on a single sector, but also offers greater resilience to economic shocks.

- ***Ritesh Agarwal***, founder and CEO of OYO Rooms on what should be the global economic agenda.

No one nation can solve the problems of climate change, biodiversity loss or microplastic pollution on its own. They need an international collaborative structure. Furthermore, the issues are underpinned by science. Scientific advancement is part of the problem, but also part of the answer. The scientific community hold the knowledge, but to make that knowledge relevant and useful, it must be articulated effectively to policymakers and political leaders.

- ***Tan Sri Dr Zakri Abdul Hamid***, scientist and educator, UTP Malaysia on how international cooperation can bridge the gap and provide support to developing nations in sustainability efforts.

I want to be the person that makes this world recognise and redefine development — that maybe a rich and prosperous world can be quantified in the growth of forests, in the welfare of farmers, in rural prosperity. Maybe the big change we envision for the world isn't simply a stereotypical idea of a technological utopia. Maybe it's a world where stewardship, where caring for creation in a sustainable, equitable, accessible way is the baseline to a future green economy.

- ***Louise Emmanuelle Mabulo***, farmer and Founder of The Cacao Project on the impact she wants to have in this world.

I think [my work] helps foster creativity, spark discussions, promote cultural understanding and contribute to the local economy by attracting myriad types of audience and tourists.

- ***Ghaliaa***, singer and songwriter from the UAE on the impact of her art on the community and economy.

Most new artistic creations are all about the story of our generation, and in this instance, my generation. The creative arts industry is like the voice [reflective] of what we are now and what we want to be.

- ***Saiful Razman***, visual artist from Malaysia on how the arts industry contribute and enhance his society's cultural identity.

Our industries need to be more intersectional. We have operated in silos for many years in a world that does not operate the same way. We now know that food systems affect environment, affect peace and security, affect economic prosperity, affect women and girls, and much more. The sooner we recognise these interconnections, the better we can equip future generations to address the gaps and build comprehensive systems that are circular.

- ***Louise Emmanuelle Mabulo***, farmer and Founder of The Cacao Project on what help shape future leaders.

The path to charting sustainable development in today's inter-connected world extends beyond a national lens. It requires a multi-pronged approach with a fair appreciation of economic and societal needs in different jurisdictions. Fostering inclusive growth requires curbing the escalation of geopolitical tensions and facilitating access to financing for sustainable development initiatives. Especially in areas that promote decarbonisation, digitalisation, innovation and infrastructure investments. This necessitates ensuring a just transition within societies and between nations at disparate economic maturities. Fundamentally, equitable distribution is attainable if grounded by sound ESG principles and transparent data-driven decision-making. Economic disparities can be addressed over time through implementation of supportive financial products or instruments, sharing of know-how and best practices from more advanced or richer nations, to drive effective capacity and capability building programmes. Where possible, harmonisation of policies, standards and regulations among regional countries or similar jurisdictions can help accelerate progress.

- ***Tan Sri Abdul Wahid Omar***, Chairman of Bursa Malaysia on how to strike a balance between promoting inclusive growth, addressing economic disparities and fostering international cooperation for a resilient and sustainable future.

Achieving and maintaining sustainable economic growth requires putting in place several elements. I focus on three: Stable and predictable macroeconomic policies including monetary, fiscal and exchange rate. Efforts to develop high quality and resilient infrastructure, the lifeblood of any economy. Focus on ecological preservation including conserving natural resources.

- ***Abayomi Alawode***, Former Head of Islamic Finance at The World Bank on how to shape a sustainable economic growth of a country to weather future adversities.

When I create art, it's the result of a lengthy cognitive process triggered by a visual or emotional stimulus. The resultant artwork must convey a message to the world, with an emphasis on our local culture.

- ***Jalal Luqman***, visual artist from Abu Dhabi on the impact on the community and economy that he wants from his art.

Strategic diversification and resilience-building should form a key part of the global economic agenda. This is in the aftermath of the pandemic, the Russo-Ukrainian war and the Red Sea crisis which have recurrently exposed the risks of overreliance on one or more trade partners, energy sources and more.

- ***Neha Anna Thomas***, Associate Director – Economic Analytics of Frost & Sullivan on what should be the global economic agenda.

The Guggenheim Museum Bilbao stands as a prime example of how investments in the creative arts can positively impact the local economy. This iconic museum's establishment transformed Bilbao into a global cultural destination, attracting tourists from around the world.

- ***Sasan Nasernia***, visual artist and calligrapher from Canada on an example of how investments in the creative arts have positively impacted the local economy. ■