

ASEAN AHEAD:

Embracing Change, Empowering Progress



ASEAN STI ECOSYSTEM FORESIGHT 2035 AND BEYOND



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2025



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ASEAN STI Ecosystem Foresight 2035 and Beyond

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FOREWORDS



Anwar Ibrahim

Chair, ASEAN 2025 and Prime Minister of Malaysia



For decades, ASEAN has stood as a cornerstone of peace, stability, and shared prosperity. From a region of great diversity, we have grown into a dynamic and resilient community, united by our commitment to dialogue, cooperation, and mutual respect. As global realities shift, Malaysia remains confident in ASEAN's capacity to adapt, lead, and seize new opportunities.

As Chair of ASEAN in 2025, Malaysia has chosen the theme Inclusivity and Sustainability. It reflects our conviction that growth must be equitable, innovation must be purposeful, and progress must leave no one behind. This spirit is embodied in the ASEAN Community Vision 2045, which marks a defining milestone in our collective journey as it pledges to place our people at the centre of regional progress.

Building on this Vision, the ASEAN Ahead: ASEAN Science, Technology, and Innovation (STI) Ecosystem Foresight 2035 and Beyond report presents a bold, foresight-driven agenda that positions ASEAN to harness science, technology, and innovation as engines of sustainable and inclusive growth. It calls for a mission-oriented approach that mobilises collective strengths, harmonises standards and protocols, and deepens cooperation across borders.

To realise this aspiration, all ASEAN Member States must share ownership of this report. It is not merely a document of intent but a strategic call to action. We must align national priorities with regional ambitions, cultivate a culture of innovation, and invest in human capital, infrastructure, and governance that sustain long-term progress.

Let us move forward with unity of purpose, deepening partnerships through knowledge sharing, co-innovation, and capacity building. By transforming collective foresight into tangible action, ASEAN can unlock its full potential and secure its place as a global leader in inclusive, sustainable, and future-ready development.

Together, as One ASEAN, we can shape a region that is resilient, confident, and prepared for the challenges and opportunities of the decades ahead.



Dr Kao Kim Hourn

Secretary-General of ASEAN

ASEAN stands at a defining moment in its pursuit of an innovative and sustainable future. With a population approaching 700 million and a rapidly expanding digital economy, the region continues to serve as a dynamic hub for global investment, trade, tourism, and economic development. Yet this remarkable growth trajectory is built upon a foundation of continuous adaptation, strategic evolution, and transformation.

Throughout its history, ASEAN has demonstrated remarkable adaptability to global shifts, embracing new economic paradigms from the circular economy to the green economy, and now pioneering the blue and digital economies. This ongoing transformation reflects our commitment to fostering inclusive and forward-looking development that harmonizes economic progress with environmental stewardship, digital innovation, and social well-being.

To navigate this pivotal moment and chart our region's future, I am pleased to present the ASEAN AHEAD: ASEAN STI Ecosystem Foresight 2035 Report, the culmination of months of intensive collaboration and strategic foresight. This landmark publication provides a comprehensive strategic outlook on ASEAN's future trajectory, emphasizing the critical role of STI in driving sustainable economic growth and deeper regional integration. The insights and recommendations within this report have shaped the foundation of the ASEAN Plan of Action on Science, Technology and Innovation (APASTI) 2026-2035, positioning STI as a cornerstone for the region's continued economic advancement.

The report identifies ten pivotal Forces of Change that will fundamentally reshape our societies and economies over the coming decade, including demographic transitions, technological disruptions, and governance reforms. These transformative forces highlight the urgent need for ASEAN to strengthen its STI capabilities and readiness, not merely to maintain competitiveness, but to future-proof our regional integration in an era of uncertainty. Notably, the report reveals that while ASEAN's population will continue to increase, the growth rate has declined significantly from 2% to 1.1% today, signalling a demographic shift towards an aging society in the future, hence the strategic imperative to enhance productivity and uplift the well-being of our people before the region's demographic dividend diminishes.

The scenarios explored in this report demonstrate that ASEAN's transition to an innovation-driven future depends not solely on financial investment, but on embracing values-based governance that champions inclusivity, sustainability, and strategic long-term thinking. Therefore, the report serves as a call to action for governments, businesses, and research institutions, among others, to synergize their efforts in driving innovation, leveraging STI as key enablers to unlock new opportunities and foster deeper economic integration.

I extend my sincere appreciation to all contributors who made this initiative possible and encourage ASEAN's policymakers, researchers, and all stakeholders invested in the region's future to engage deeply with this comprehensive analysis as we work collectively to build a stronger, more resilient, and future-ready region.



FOREWORDS



Chang Lih Kang

Minister of Science, Technology and Innovation Malaysia



The Ministry of Science, Technology and Innovation (MOSTI) stands at the forefront of STI development in ASEAN, committed to driving regional progress through strategic policies, investment in research, and fostering innovation driven industries. As we navigate an era of rapid technological shifts, economic challenges, and environmental uncertainties, ASEAN must take collective action to embrace the change and build a resilient, future-ready region.

The ASEAN Ahead: ASEAN STI Ecosystem Foresight 2035 and Beyond report provides a vital roadmap for ASEAN's STI ecosystem, charting the region's trajectory towards 2035 and beyond. It examines key transformative forces known as global forces of change, presents four plausible future scenarios, and underscores the urgency of regional cooperation, strategic foresight, and innovation-driven policies to ensure sustainable growth and resilience.

To remain competitive in an evolving global landscape, ASEAN must proactively leverage STI as a catalyst for economic leadership, technological advancement, and social inclusivity. This report serves as both a call to action and a guide for policymakers, researchers, and industry leaders, ensuring that a prosperous, thriving, and resilient ASEAN in 2050 and beyond is well within our reach.

This report has received endorsement not only nationally at the National Science Council chaired by the Prime Minister of Malaysia, but also regionally from Sub-Committee on S&T Infrastructure and Resources Development (SCIRD), Committee on Science, Technology and Innovation (COSTI), and ASEAN Ministerial Meeting on Science, Technology and Innovation (AMMSTI), reflecting ASEAN's collective commitment to advancing science, technology and innovation.

MOSTI remains committed to advancing research, technology and innovation as core drivers of national and regional economic growth. The ASEAN Ahead report presents the Triple-10 Framework, an evolution of the

10-10 Malaysia Science, Technology, Innovation, and Economy (MySTIE) Framework launched in 2020 alongside Malaysia's National Policy on Science, Technology and Innovation (NPSTI) 2021-2030 which outlines a strategic vision for transforming Malaysia into a high-tech, innovation-driven nation, positioning STI at the core of sustainable development and economic growth.

I am proud that this report also served as the main reference document for the upcoming ASEAN Plan of Action on Science, Technology and Innovation (APASTI) 2026-2035, guiding the region's strategic direction in building a resilient and forward-looking STI ecosystem in the next decade. Aligned with APASTI, this report provides strategic insights to strengthen regional STI ecosystems, fostering sustainable development, economic resilience, and regional integration. By enhancing collaboration among ASEAN Member States, the report underscores the transformative role of STI in shaping a competitive and future-ready ASEAN, ensuring the region remains adaptive and responsive to global shifts and emerging opportunities.

I commend the Academy of Sciences Malaysia (ASM), ASEAN Foresight Alliance, focal points of ASEAN and all contributors for their dedication to this report. Together, with the guidance of this report, ASEAN as a community will be able to take collective action to drive economic growth through innovation, foster social progress with inclusivity and empowerment, and lead sustainability efforts in shaping ASEAN towards becoming a global powerhouse.

Academician Datuk Dr Tengku Mohd Azzman Sharifadeen FASc

President, Academy of Sciences Malaysia & STI Advisor to the Prime Minister and the Nation



The ASEAN Foresight Alliance (AFA) was formed in 2019 to nurture a culture of proactive planning through foresight and futures studies among ASEAN member states. The Academy of Sciences Malaysia (ASM) is honoured and privileged to lead the development of the first-ever ASEAN-wide foresight study. The resulting report, ASEAN Ahead: ASEAN STI Ecosystem Foresight 2035 and Beyond, to be launched during Malaysia's chairmanship, is a true reflection of the ASEAN spirit of inclusive and active participatory collaboration.

This report is indeed timely given that the world is undergoing a paradigm shift. Anomalies are building up that cannot be reconciled, creating heightened uncertainty, characterised by chaos, complexity, and contradictions. Futurists call this era the post-normal times. Norms that were once widely adopted are decaying in value and relevance. They need to be re-examined and replaced by new norms that reflect emerging realities. Technological advancements, economic competition, and geo-political shifts are some of the powerful forces of change that are rapidly converging to create instability and disruption.

Science, technology and innovation (STI) rises in prominence as a primary force of change due to its disruptive influence. Systemic links with the economy and other factors of change will give rise to enabling governance systems that can accelerate growth while safeguarding the natural environment. It is thus essential for ASEAN as a region to strengthen its STI ecosystem in order to navigate the increasingly complex world and thereby secure a sustainable and prosperous future.

The foresight report outlines four plausible scenarios. Proper appreciation and understanding of these future possibilities is vital. A scenario of ASEAN as a region of collective prosperity, characterised by a robust and well-functioning STI ecosystem, and an ASEAN community that is cooperative, coherent and cohesive can become a reality if the necessary factors are put in place. Achieving this scenario necessitates a paradigm shift in mindset, strategies and approaches. ASEAN as a community must embrace an out-of-the-box mindset to remain competitive and resilient. Adoption of the integrated framework proposed in this report will enable the region to be better positioned to advance economically, socially and politically, ultimately elevating ASEAN to become a global powerhouse.

At the core of this foresight study is the Triple-10 ASEAN STI Framework, which builds upon Malaysia's 10-10 MySTIE Framework which was introduced in 2020. The original framework facilitates alignment of ten national socio-economic drivers with ten science and technology drivers to enable the development of high-impact STI initiatives that advance national progress. On the other hand, the enhanced Triple-10 Framework introduces a third dimension that incorporates ten global drivers shaping ASEAN's trajectory in the global innovation landscape. The Triple-10 framework shows how STI interacts with the economy, generating positive spillovers to drive wealth creation. These interactions affect, and are affected by, the forces of change to facilitate production of desired outcomes.

By working interdependently as a region, ASEAN member states can complement each other and leverage on each other's strengths to achieve specific national objectives. In navigating through the complex challenges ahead, ASEAN member states need to proactively future-proof themselves. This will permit them to assert their sovereignty and secure their proper positions in the global community. Working together to address common challenges through mission-oriented research and development will further empower the ASEAN community. The ASEAN Ahead report provides a strategic framework to position the region as a global powerhouse, ensuring that we are not only reacting to change but proactively shaping it.

As ASM commemorates its 30th anniversary in 2025, it is very meaningful to all our fellows and partners that the ASEAN Ahead report will be launched in conjunction with Malaysia's ASEAN Chairmanship this year. I am honoured that ASM as a national STI think tank has been able to make this regional contribution towards building an inclusive, knowledge-driven and future-ready society. I extend my deepest appreciation to all contributors in producing this report. Their hard work and dedication will help to forge a prosperous, thriving, and resilient ASEAN in 2035 and beyond.





The ASEAN Foresight Alliance (AFA) was created in 2019 to establish a foundation of foresight expertise in the region. This groundwork then allows ASEAN members to use foresight analysis to strategically plan for future collaboration. Under the AFA banner, the ASM led the development of the ASEAN Ahead: ASEAN Science, Technology, and Innovation Ecosystem Foresight 2035 and Beyond, a deep exploration of global megatrends and their implications for the region. At its core lies a powerful message: ASEAN nations must come together to navigate these changes, not just individually, but as a unified community working toward shared progress.

**Academician Professor Emerita Tan Sri
Dato' Seri Dr Mazlan Othman FASc**
Founding Chairperson of the ASEAN Foresight Alliance

“

ASEAN has the potential to become a formidable global economic powerhouse by pursuing an integrated and collective strategy that leverages on its abundant natural resources, diverse talent base, and strategic geopolitical position within one of the world's most dynamic regions. Realising this potential requires sustained investment in science, technology, innovation, and economic (STIE) ecosystems that foster nature-based innovations, advance values-driven industries, create high-income employment opportunities, and promote inclusive growth—delivering greater Return on Values (ROV) for all stakeholders across the region.

Professor Dr Mahendhiran Sanggaran Nair FASc & FCPA (Australia)

Chairperson of ASEAN Ahead: ASEAN STI Ecosystem Foresight 2035 and Beyond Study

”



ASEAN POISED FOR PROGRESS

We're facing a new reality, one that is a compelling journey filled with opportunities that call for the collective action of all ASEAN member states (AMS). In these post-normal times marked by chaos, complexities and contradictions, ASEAN is poised to solidify its position as a global powerhouse, staying ahead of the curve through strategic cooperations and forward-thinking initiatives.

By anticipating and responding to emerging trends, ASEAN can build a robust science, technology, innovation, and economy (STIE) ecosystem. This proactive approach will empower the region to overcome challenges and fully capitalize on the unique opportunities ahead through collaboration, coherence and cohesion. ASEAN's population size and a combined economic output that ranks among the world's largest highlight its significant global standing. The region's melting pot of cultures and economies is complemented by a populous and skilled workforce, making it a key driver of global economic dynamism and a source of unique opportunities for innovation and growth. At a glance, this is where ASEAN is at currently:



// POPULATION

690⁺ million

// ECONOMIC SIGNIFICANCE

ASEAN combined GDP ranks the 3rd largest in the world after China and the United States.

// TALENT

ASEAN has the 3rd largest labour force in the world behind China and India.

// MARKET

By 2030, ASEAN is expected to have 38 million new high-and-upper-middle income households, reflecting the increasing purchasing power of ASEAN consumers.

// CULTURAL & ECONOMIC DIVERSITY

With over 1600 tribes and ethnic groups, ASEAN is characterised by a rich tapestry of cultures, languages and economic conditions, providing unique opportunities for innovation and economic growth.

// GEOPOLITICAL ADVANTAGE

Positioned at the crossroads of major global trade routes, ASEAN serves as a vital hub for international trade and investment, whereby 9 ports from 6 AMS are among the top 50 world ports.

WHOLE-OF-ASEAN APPROACH

This foresight study adopts the 4F Foresight Framework, a holistic and comprehensive approach encompassing the core activities of a foresight process. The framework comprises four interconnected elements: forensics, forecasting, future-sighting, and future-proofing. While these elements may appear sequential in the illustrative Figure 1, they are in fact iterative, with continuous feedback loops between them until the exercise reaches completion.

Through each stage of the 4F Foresight Framework, the study identifies key Forces of Change (FoC), develops four plausible scenarios for ASEAN, and outlines strategies to future-proof the region.

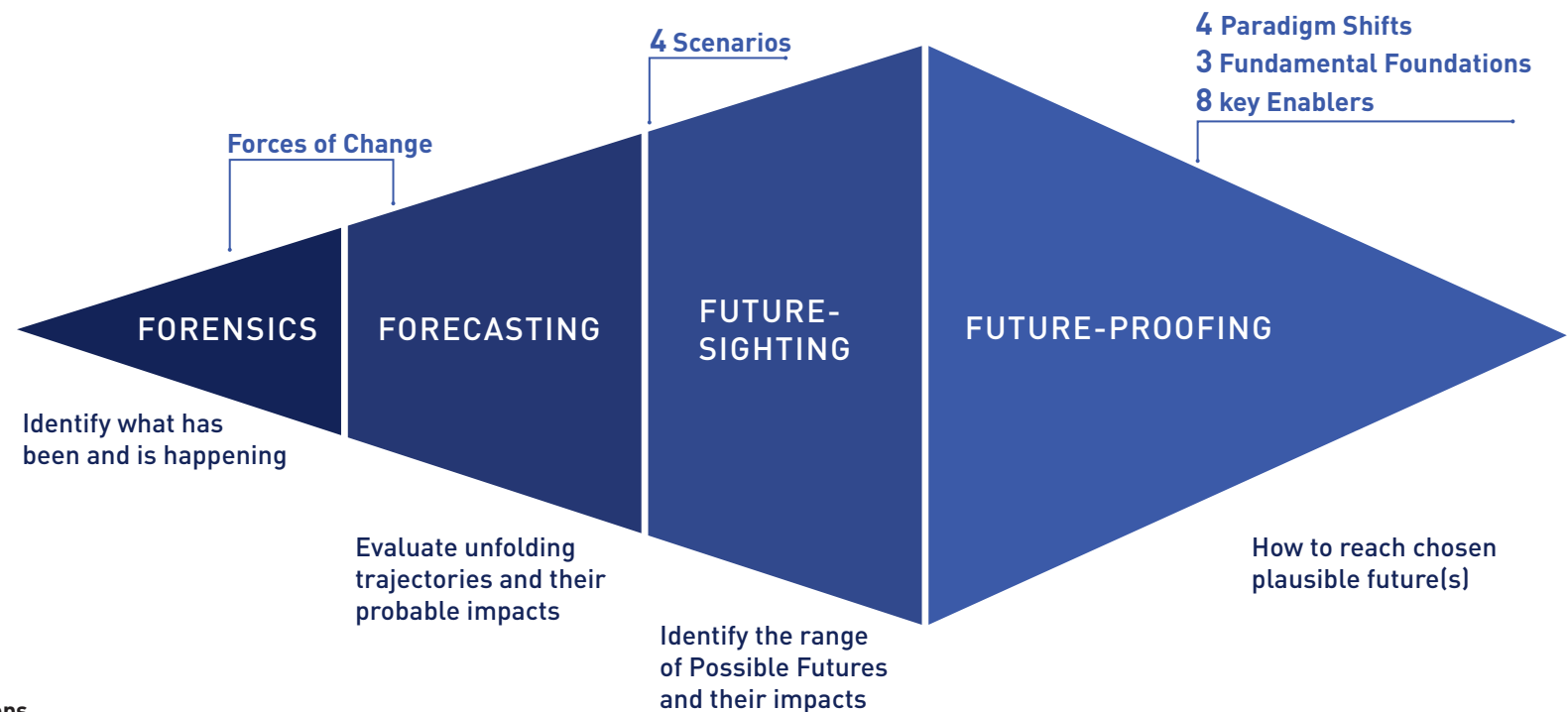


Figure 1 The 4F framework, Comprising Four Key Steps
Sunway IGSC, 2024

The ASEAN foresight study aimed to gather insights from a diverse group of experts and stakeholders across AMS to guide future initiatives within the ASEAN context, while exploring and suggesting solutions to support the development of an inclusive, dynamic, resilient, and sustainable ASEAN community.



10

ASEAN FORESIGHT
ALLIANCE, BOARD
OF ADVISORS

12

ASEAN FORESIGHT
RESEARCH COHORT
MEMBERS

102

REPRESENTATIVES
ENGAGED THROUGHOUT
THE STUDY

43

MINISTRIES AND
INSTITUTIONS ENGAGED
ON NATIONAL PLANS
AND INITIATIVES

8

FOCUS GROUP
DISCUSSIONS
INVOLVING 8 AMS
AND 1 RESEARCH
INSTITUTE

5

ENDORSEMENTS OF
HIGH- LEVEL COUNCILS
(BOA, NSC, SCIRD,
COSTI, AMMSTI)

1

REFERENCE
DOCUMENT FOR
APASTI 2026-2035

This ASEAN AHEAD: ASEAN STI Ecosystem Foresight 2035 and Beyond report presents a forward-looking and multi-disciplinary perspective on ASEAN's capacity to navigate the future. The report is based on an approach in which key forces of change are identified, and their potential impact and influence are presented through four plausible scenarios. This foresight was proactively conducted and funded by the Academy of Sciences Malaysia (ASM) to provide valuable insights in navigating ASEAN's future premised on STIE.

ASEAN STI ECOSYSTEM: KNOWING THE PRESENT

The process of understanding the current state of play of ASEAN ecosystems involved a thorough examination of each AMS. Despite the unique features of each country, three distinct groups emerged, each exhibiting shared characteristics in structure, behaviour, and activities that define their ecosystems. These groups are identified as Pace-Setter, Maturing, and Emerging, each representing different stages of ecosystem development shown listed in Figure 2.

Each group's STI ecosystems was analysed using eight interconnected enablers, collectively known as the 8i framework. These enablers encompass institutions, which reflect the quality of governance and stewardship; interactions, highlighting collaboration among key stakeholders; integrity, addressing governance structures across different levels; infrastructure, encompassing both natural and man-made elements; infostructure, which involves the realm of the Internet of Things and advanced technologies; intellectual capital, indicative of the availability of talent resources; incentives, covering both fiscal and non-fiscal incentives; and internationalisation, focusing on the establishment of global networks and partnerships.



Figure 2 ASEAN STI Ecosystem

WHOLE-OF-ASEAN 8i ECOSYSTEM ANALYSIS

INSTITUTIONAL STEWARDSHIP

- Strong institutional governance system with efficient policy implementation
- World-class public research institutes and R&D-driven higher education institutions, with sophisticated linkages to industry players to promote technology and knowledge transfer
- Face varying degrees of challenges in quality public services and efficient policy implementation
- The key institutions are generally less involved in R&D and knowledge transfer activities
- More vulnerable institutional governance systems with lower government effectiveness
- Public research and higher education institutions struggle with their R&D performance

INTERACTION

- Robust collaborative ecosystem that involves close interaction and cooperation among government agencies, research institutes, universities, and industry players
- Limited and fragmented collaborations between government bodies, industry players, research institutes, and universities
- Lack of well-established public-private partnerships to foster knowledge-sharing culture

INTEGRITY

- Strong national integrity system that advocates high accountability, transparency, regulatory quality, and the rule of law
- Regulatory environment conducive to business operations, as demonstrated by its high ranking on the Ease of Doing Business Index
- Face varying degrees of challenges in improving their national integrity systems
- The absence of a strong legal framework and impartial judicial bodies has led to low rankings of these countries on the Ease of Doing Business Index
- Power dynamics and human rights violation remains a concern, reflecting a degree of political uncertainty in these countries

INFRASTRUCTURE

- Developed transportation, power and water supply, healthcare infrastructure, and sustainable infrastructure
- Still face challenges in upgrading their transportation, energy, water, and social infrastructure, especially in remote areas
- Suffer from a severe lack of investment in basic infrastructure, resulting in poorly maintained roads, limited water supply, and sanitation

WHOLE-OF-ASEAN 8i ECOSYSTEM

- Pace-Setter
- Maturing
- Emerging

INTERNATIONALISATION

- Actively building regional and international cooperation
- High involvement in the global value chains
- Its robust R&D ecosystem enables it to participate actively in high value-added activities in the Global Value Chains (GVCs)
- Comparatively less integrated into the GVCs
- Often involved in the services and manufacturing sector, which produces intermediate goods and final products for export to other countries
- The least involved in the GVCs across the ASEAN region
- Specialise in low-skilled and labour-intensive industries and export low-value-added products

INCENTIVES

- Offer a comprehensive range of incentives to promote R&D, expedite green growth, attract FDIs, and foster social welfare
- Similar to the pace-setter ASEAN country, maturing ASEAN countries also offer various incentives to promote R&D, transition to green economy, and attract FDIs
- Although offer wide range of incentives to attract FDI, the tax incentive systems lack transparency
- Lack of incentives to promote R&D activities and technology adoption

INTELLECTUAL CAPITAL

- Possesses a highly skilled and industry-ready workforce supported by strong education systems and workforce training programmes
- Have a moderate level of talent competitiveness.
- Struggle with low STEM enrolment rates and skills gaps
- Portray lower literacy rates and talent competitiveness levels due to poverty, limited investments, and lack of access to education facilities
- Low STEM and TVET enrolment rate
- Persistent skills mismatch in the labour market

INFOSTRUCTURE

- Leading hub for the digital economy with widespread internet access and extensive 5G network coverage
- Despite the active rollout of the 5G network, they still struggle with limited high-speed internet, poor connectivity, and lack of access to advanced digital infrastructure, especially in rural areas
- Limited and unevenly distributed digital infrastructure, which restricts their involvement in the digital economy

ASEAN Triple-10 Framework

In conducting this study, ASEAN STI ecosystems and their interactions with key forces of change and the impact thereof were analysed through the ASEAN Triple-10 STIE Framework as illustrated in Figure 3. The framework captures the dynamics between the FoC, STI drivers, and socioeconomic drivers for the region. It also provides insight into the endogenous relationships between the three drivers to generate Return-on-Values (ROV), which comprises economic prosperity, environmental sustainability, social transformation, and political empowerment. As a result, the study highlights how STI drives socioeconomic sectors, wealth creation within the economy and emphasises the importance of leveraging these forces in navigating the future of ASEAN.

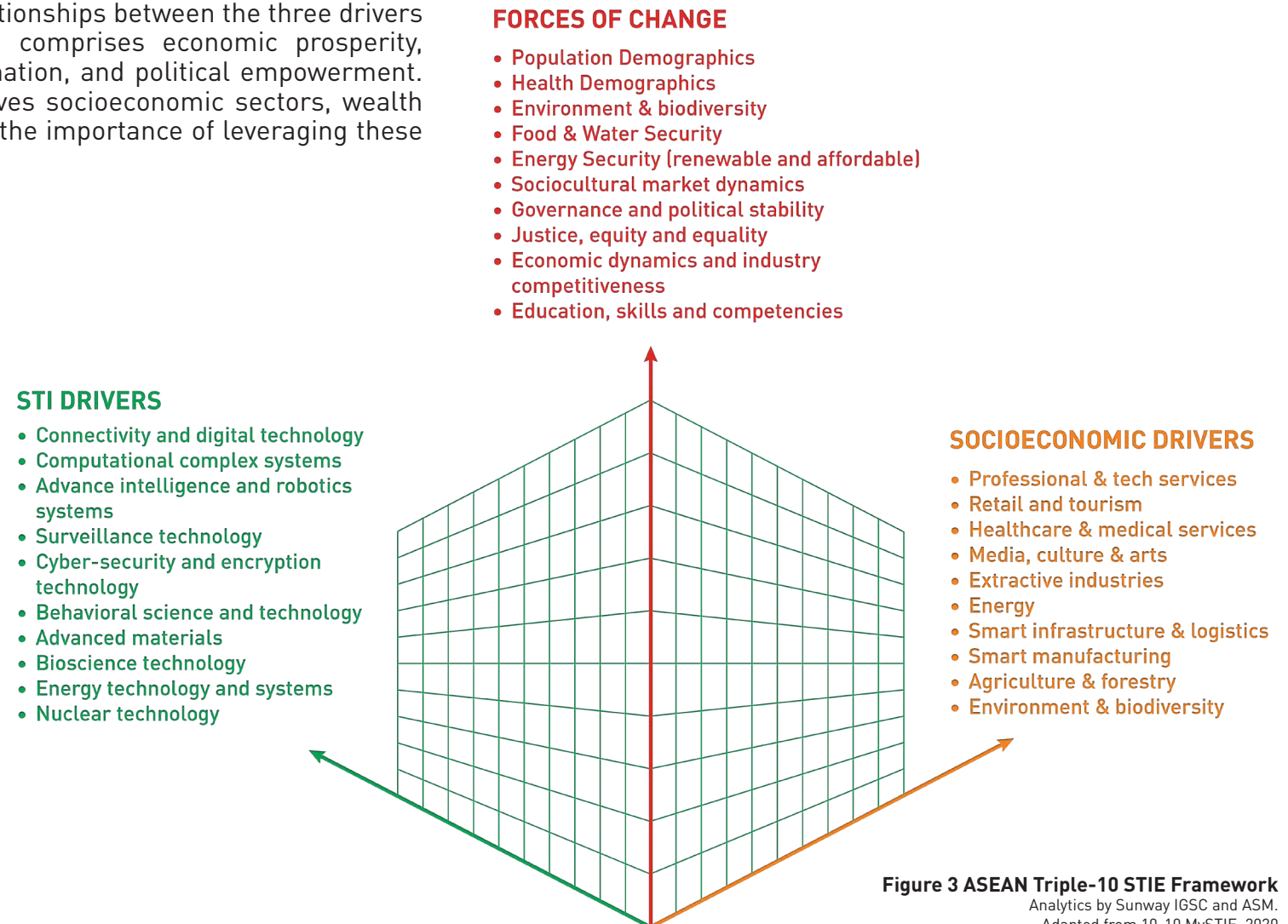


Figure 3 ASEAN Triple-10 STIE Framework
Analytics by Sunway IGSC and ASM.
Adapted from 10-10 MySTIE, 2020

SHAPING THE FUTURE OF ASEAN: THE 10 FORCES OF CHANGE

The report identified 10 key FoC, that are impacting the future landscape of ASEAN. These 10 pivotal FoCs represent the driving currents that will shape the socioeconomic, cultural, and environmental dimensions of AMS in the coming years.



01

**POPULATION
DEMOGRAPHICS**

- Rising of aged society and youth population surge
- Inter ASEAN Migration and Urban shift: Urban growth influencing social cohesion and infrastructure



02

**HEALTH
DEMOGRAPHICS**

- Communicable Disease and Non-Communicable Disease
- Access to Universal Health Coverage
- Rising of Healthcare Expenditure



03

**ENVIRONMENT &
BIODIVERSITY**

- High rate of deforestation
- Biodiversity loss
- Water, land and air pollution



04

**FOOD & WATER
SECURITY**

- Water and staple food supply to improve self sufficiency
- Depleting water resources



05

**ACCESS TO
ENERGY**

- Increasing energy demand
- Transition to renewable energy sources
- Meeting net zero target



06

ECONOMIC, DYNAMICS & INDUSTRY COMPETITIVENESS

- Digital transformation (Generative AI)
- Participation in global value chain



07

SOCIOCULTURAL MARKET DYNAMICS

- The rise of middle income and purchasing power
- Rise of e-commerce reshaping market change preferences
- Expanding of green market



08

EDUCATION, SKILLS & COMPETENCIES

- Mastery of basic education and skills
- Skills mismatch with industry needs



09

GOVERNANCE & POLITICAL STABILITY

- Governance Effectiveness
- Political stability and regional cooperation



10

JUSTICE, EQUITY & EQUALITY

- Addressing income disparities
- Access to basic needs
- Gender equality and social inclusion

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POPULATION DEMOGRAPHICS

Post World War II, improved healthcare, sanitation, nutrition, alongside rising urbanisation and cross-border migration have surged ASEAN population to 693 million in 2024. Yet growth has slowed to 1.0% annually, with stark fertility gaps and shifting population flows calling for policies that balance the needs of ageing citizens, growing youth cohorts, and increasingly mobile communities.

Key Areas



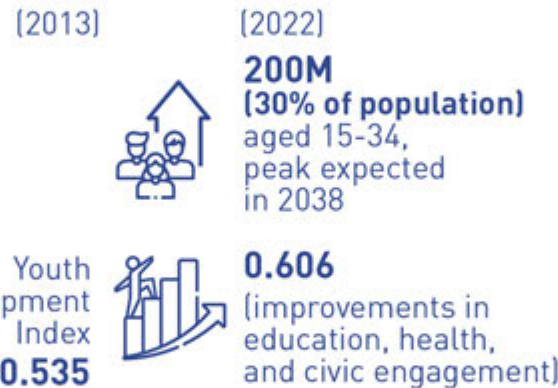
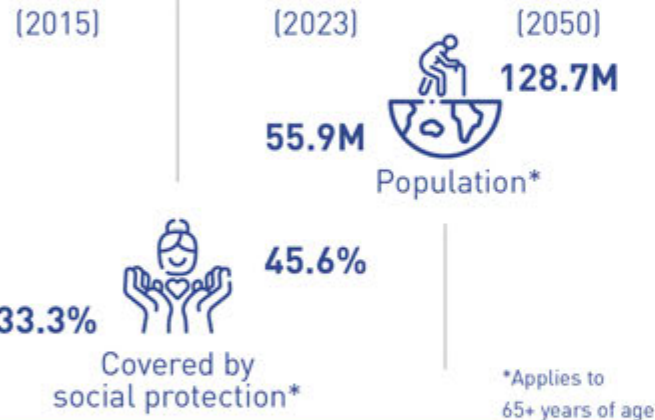
Age of Ageing



ASEAN's Youth Surge



Population Mobility



Major migration flows: Singapore, Malaysia, Thailand have positive net migration rate; Myanmar, Indonesia, Cambodia have low net migration rates.



50.1% (2020) ASEAN population resides in urban, projected to grow to 68% by 2050. Driven by search for better jobs, education, and family support.

Consequences

- Fertility rates fell (1990–2020) due to family structure, family planning, and social norms.
- Elderly employment in ASEAN (2009–2024) differs by country and policies.
- More investment needed in AI healthcare, telemedicine, and age-friendly infrastructure.

Consequences

- High youth-dependency ratios in Cambodia, Lao PDR, & Philippines
- Education/training systems are challenged.
- Urban-rural disparities in quality job accessibility.

Consequences

- Rapid urban growth reshapes infrastructure needs - Strain on housing, transport, healthcare in receiving areas.
- Integration and cultural adaptation challenges.
- Exploitation and poor labour conditions for migrants.
- Loss of green space, urban inequality, and informal settlements.



For more information and references, please scan this QR to read the full report



HEALTH DEMOGRAPHICS

The health dynamics of ASEAN present a complex landscape shaped by socioeconomic, cultural, and environmental factors. From Singapore's urban megacity profile to Cambodia's rural contexts, member states display diverse health indicators, systems, and challenges. Understanding these varied health demographics is crucial for effective policy, addressing emerging health threats, and fostering regional well-being. This section covers historical background, communicable diseases, non-communicable diseases, healthcare quality, and their respective challenges and consequences.

Key Areas

Communicable Diseases 1 Dengue and Malaria



Dengue peaked and resurged during COVID-19. Malaria still affects ~200M people, mainly in Indonesia and Myanmar.



Consequences

- Persistent outbreaks strain health systems and economies. Dengue management and malaria control remain critical.

Communicable Diseases 2 Tuberculosis



Highest incidence in Philippines, Myanmar, Timor-Leste; lowest in Singapore (2023).



Consequences

- TB transmission persists despite long-standing regional initiatives. Requires sustained investment.

Communicable Diseases 3 DPT (Diphtheria, Pertussis, Tetanus)



Immunisation rate >90% in Brunei, Singapore, Thailand, Malaysia. Cambodia & Laos improving; Vietnam declined in 2022–2023.



Consequences

- Uneven coverage leaves populations vulnerable. National immunisation programmes remain limited.

Non-Communicable Diseases 1 – Overall Burden



NCDs (cardiovascular disease, cancer, diabetes, chronic respiratory diseases) cause 2/3 of deaths in ASEAN. Burden is highest in Timor-Leste, Laos, and Myanmar.



Consequences

- NCDs drive mortality and morbidity across all AMS, creating long-term health and economic pressures.

Non-Communicable Diseases 2 – Undernutrition & Food Insecurity



63.4 million undernourished people in ASEAN; Cambodia records highest food insecurity while Singapore, Indonesia, Thailand lead in food security.



Consequences

- Early-life undernutrition increases risk of NCDs in adulthood. Food insecurity perpetuates poverty, reduces productivity, and worsens health outcomes.

Non-Communicable Diseases 3 – Malnutrition & Diet-Related NCDs



Poor diets and reliance on processed foods heighten NCD risks. By 2030, treating nutrition-related NCDs could cost Indonesia nearly USD 4.5 trillion



Consequences

- High cost of healthy foods limits access for low-income households. Without intervention, malnutrition-linked NCD burden will escalate.



Healthcare Quality & Financing

Wide variation in health expenditure across ASEAN; Singapore highest, Laos, Myanmar, Timor-Leste lowest. Higher spending may improve outcomes, but access and quality remain uneven.



Healthcare Quality & Financing

Limited public funding in low-income AMS drives high out-of-pocket costs, causing financial strain. Policy measures needed to expand coverage, promote healthy diets, and invest in preventive care.

For more information and references, please scan this QR to read the full report





ENVIRONMENT & BIODIVERSITY

ASEAN has long been a custodian of rich biodiversity, home to three of the world's 17 mega-diverse countries — Indonesia, Malaysia, and the Philippines. Its environmental legacy reflects resilience, diversity, and the deep link between nature and economic growth. Yet today, the region faces pressing challenges, from climate change and deforestation to marine, river, and air pollution. This section explores these drivers, their impacts, and resulting consequences.

Climate Change



- Rising seas, extreme weather, and shifting rainfall threaten agriculture, water, and coasts. Southeast Asia's exposure and reliance on climate-sensitive sectors increase its vulnerability, with climate change potentially cutting ASEAN's GDP by up to 11% by 2100.

Consequences



- Climate impacts could displace up to 1.2 billion people globally by 2050, straining resources, fueling unrest, and marginalising climate refugees in ASEAN. As a biodiversity hotspot, the region also faces habitat loss and species decline from rising seas and temperatures, threatening ecosystem balance and resilience.

Marine & River Pollution



- 6/10 plastic polluting countries are the Philippines, Malaysia, Indonesia, Myanmar, Viet Nam and Thailand. } 580,000 metric ton plastic leakage annually
- Causes of pollution include industrial waste, sewage discharge, and plastic contamination, compounded by rapid urbanisation that includes urban runoff, agricultural activities, and deforestation.

Consequences



- Marine pollution causes habitat loss and damages vulnerable ecosystems like mangroves and coral reefs, reducing their natural protection against storm surges and increasing coastal vulnerability to floods and disasters.

Air Pollution



- Air quality in most AMS improved in 2024, but only few cities met WHO PM2.5 standards. Indonesia remains the most polluted, followed by Viet Nam and Lao PDR. In 2023, ASEAN emitted about 1,900 MtCO₂, mainly from Indonesia, Viet Nam, and Malaysia, while open burning continued to cause haze affecting Singapore and Malaysia.

Consequences



- Air pollution harms health, reduces productivity, raises healthcare costs, contaminates ecosystems, lowers crop yields, and worsens climate and environmental challenges.

Deforestation



- ASEAN holds 15% of the world's tropical forests, yet 35% has been lost to non-forest uses. Indonesia once led regional forest loss, contributing 14% of global tropical deforestation in 2019, but cut primary forest loss to a record low of 0.23 million hectares in 2023.

Consequences



- Ongoing deforestation erodes biodiversity, traditional knowledge, and cultural heritage, leaving communities with fewer resources and disrupted social ties.



For more information and references, please scan this QR to read the full report



FOOD & WATER SECURITY

Food and water security are critical to ASEAN's socioeconomic stability, yet the region faces persistent challenges from climate change, resource scarcity, and unequal access. While ASEAN is a major global producer of staple crops and fisheries, disparities in production, distribution, and quality threaten long-term sustainability.

Food security in ASEAN



- Declining trend in rice demand and consumption, while the demand for meat, eggs, and fish steadily rises, a pattern set to persist.
- This shift is driven by Indonesia and Malaysia's dominant palm oil production, which makes up over 88% of global output and surpasses rice and other crops. In 2021, ASEAN's agricultural area covered 32.4% of its land, contributing 20.9% of global agricultural exports, exceeding China (19.0%) and the USA (11.4%).

Consequences



- Migration reshapes agricultural systems and urban food demands.
- Increased reliance on imports makes ASEAN vulnerable to global shocks.
- Unequal food sufficiency levels among AMS.

Water Security in ASEAN



- In ASEAN, countries like Singapore, Malaysia, and Thailand have achieved over 90% access to safe drinking water, while Laos, Myanmar, and Indonesia continue to face major challenges in providing safely managed water services.
- Agriculture relies heavily on water supply (~70%)

Consequences



- Geopolitical issues –Mekong Delta relies on Chinese waters during rainfalls & South China Sea disputes affects fisheries & marine resources. This calls for a need for equitable cooperation because Mekong river impacts at least 5 AMS
- Uneven distribution of water resources among AMS further compounds the challenge, necessitating collaborative transboundary water management strategies

Effects of climate change on ASEAN's food and water dynamics



By 2050, global crop yields are projected to decline by 30% due to rising temperatures, shifting rainfall patterns, frequent droughts, floods, and cyclones, as well as rising sea levels threatening coastal agriculture.

Consequences



- Need for climate-adaptive agricultural practices and sustainable water management.
- Poor harvests, higher food insecurity, increased poverty.

For more information and references, please scan this QR to read the full report





ACCESS TO ENERGY

ASEAN's energy landscape shows significant disparities. Thailand, the Philippines, Singapore, and Viet Nam face notable gaps, while Lao PDR, Malaysia, and Indonesia are stronger. By 2035, all countries except Brunei are projected to experience energy deficits. Energy security depends on addressing resource availability, environmental sustainability, and energy equity, along with the challenges in each area.

Resource Availability



- ASEAN = 4th largest energy consumer (80% fossil fuels; 15.6% renewables in 2023)
- Energy demand to triple by 2050 (4% annual growth)
- Net oil importer since 2005; reserves declining
- Electricity demand increase 3.6% (2023), mostly fossil-fuel powered

Consequences



- Rising demand and shrinking reserves = supply risks, price volatility, energy security

Energy Equity



- Near-universal access in Singapore & Brunei
- Indonesia: (99.8%) and Lao PDR (95.3%) electrification but rural gaps persist
- National actions: rural electrification, renewable projects, grid upgrades.
- ASEAN Power Grid: 7,700 MW → 17,550 MW by 2040
- 76–80% of ASEAN natural gas exports go outside the region.

Consequences



- Price volatility raises essential costs.
- Renewables <5% in most AMS.
- Slow reforms & limited financing hinder clean energy growth.

Environmental Sustainability



- Most AMS committed to net-zero by 2050 (Indonesia 2060, Thailand 2065, Myanmar forestry 2040).
- Renewables = 15/6% of TPES (2022), below 23% target (APAEC 2025)
- Nuclear energy plans: Thailand (2,000 MW by 2036), Indonesia (first plant by 2039), Vietnam (by 2030), Philippines (developing infrastructure).

Consequences



- Weak regulatory frameworks and tariffs hinder renewable adoption.
- Renewables <5% of generation in most ASM
- Limited financing and policy delays risk stagnation



For more information and references,
please scan this QR to read the full report



ECONOMIC, DYNAMICS & INDUSTRY COMPETITIVENESS

As a diverse coalition of nations with unique economic trajectories, cultural identities, and stages of development, ASEAN has emerged as a dynamic economic powerhouse. The region's economic dynamics and industry competitiveness play a pivotal role in fostering deeper regional integration, enabling member states to collaborate effectively in pursuing shared growth, sustainability, and enhanced global competitiveness. ASEAN has progressively advanced towards economic integration and growth from regional stability. Starting with initiatives like the ASEAN Preferential Trading Arrangement (1977) and the ASEAN Free Trade Area (1992), the bloc has expanded collaboration through digital connectivity, supply chain integration, and sustainable development strategies, with challenges in financing MSMEs, regulatory reforms and the green transition.

Key Areas



ASEAN's MSMEs: An economic driving force

- MSMEs form ~90% of ASEAN businesses, driving GDP and employment.
- Mostly in services (trade, accommodation, food).
- Manufacturing remains low-tech and domestic-focused.

Consequences



- Limited global value chain integration.
- Rising automation threatens competitiveness and long-term viability.



ASEAN's Growing Digital Economy

- ASEAN advancing in digital governance, cybersecurity, AI, and smart sectors (health, finance, logistics, education, tourism, agriculture).
- Digital economy worth USD 263 billion (2024), projected to hit USD 2 trillion by 2030, contributing 5–10% of GDP.
- Supported by 52 unicorns and strong FDI, boosting SMEs and regional trade.

Consequences



- Automation: Disrupts traditional sectors.
- Digital divide: Urban–rural gaps in internet access.
- Cybersecurity risks: Increased exposure to data breaches and fraud.



Market Trading Dynamics in ASEAN

- ASEAN strengthening integration via Regional Comprehensive Economic Partnership (RCEP) to attract FDI and expand services.
- Digital services, Industry 4.0, and commercial exports growing rapidly.
- ASEAN emerging as a key global trade and investment hub.

Consequences



- Protectionism: Rising nationalism threatens globalisation.
- Global dependency: Supply chain risks for import-reliant markets.
- Sustainability pressures: Demand for eco-friendly production heightens environmental challenges

For more information and references,
please scan this QR to read the full report





SOCIOCULTURAL MARKET DYNAMICS

With a population surpassing 693 million and a collective economic size exceeding USD 3.8 trillion in 2024, ASEAN ranks as the world's fourth-largest trading bloc. Sociocultural factors such as language diversity, religion, and cultural practices shape consumer preferences. Historical milestones i.e. ASEAN founding, AFTA, 1990s financial crisis, China WTO entry also influenced ASEAN's market trajectory.

Key Areas

Evolving Consumer Behaviour: Preference vs Values



- ASEAN's young, tech-savvy population drives demand for innovative, ethical, and sustainable products. Urbanisation fuels demand for convenience, e-commerce, and experiential shopping. Conscientious consumerism is rising.
- A 2022 World Economic Forum survey shows that 80% of ASEAN respondents value sustainability, indicating a persistent trend toward a greener consumer market.

Consequences



- Expanding premium market: growing demand for personalised and AI-driven experiences may widen inequality.
- Green shift: Companies failing to integrate sustainability risk reputational harm; lower-income groups constrained by high costs and low awareness average
- Tech-driven change: Businesses face cyber risks and unequal digital access.

Rise of ASEAN middle class



- By 2030, 64% of ASEAN's population will be middle class
- Vietnam stands out for its remarkable progress, cutting its poverty rate by more than half between 2016 and 2023. Indonesia, Malaysia, and Thailand also showed steady improvements, while Cambodia, Myanmar, Philippines and Laos continue to grapple with poverty.

Consequences



- Strain on supply chains: Rising demand challenges logistics and distribution, especially in regions with poor infrastructure.
- Rising demand for ethical/urban products requires business realignment.

Rise of e-commerce in ASEAN



- E-commerce reshapes retail, enabling SMEs and startups to scale, expanding consumer choice, and generating jobs in logistics and digital marketing. Social commerce strengthens brand engagement. Data-driven insights improve market strategies.

Consequences



- Infrastructure gaps: Poor internet/logistics hinder adoption in some AMS.
- Financial inclusion: Cash reliance limits digital payment use.
- Cybersecurity: Risks of fraud and data breaches undermine consumer trust.
- Last-mile logistics: Congestion affects cost/timely deliveries.
- Regulatory diversity: Different national laws increase compliance burdens.



For more information and references, please scan this QR to read the full report



EDUCATION, SKILLS & COMPETENCIES

Education, skills, and competencies stand as a cornerstone for sustainable growth and regional development. ASEAN's focus is on literacy among youth, education levels among the workforce, and moving towards the green agenda, with respective challenges and consequences. In the past, "Wats" or temples became centres for learning in certain AMS. Colonial powers introduced Western systems, establishing schools and universities. Post-independence, ASEAN embarked on educational reforms to address language, access and equity. Cooperation increased with the ASEAN University Network (1995) and the ASEAN Qualifications Reference Framework (2015), aligning with regional integration.

Key Areas

Literacy among ASEAN's Youth



- 25% of ASEAN's population is school-age (5–19).
- Primary enrolment >90% in most AMS; secondary rates improving (Myanmar 64%, Laos 68%, Malaysia 85%).
- Secondary education compulsory in Thailand and Singapore.

Consequences



- Completion gaps persist at secondary level.
- Many youth lack key competencies, entering low-skill jobs vulnerable to automation..

Education & Skills among ASEAN's Workforce



- Education spending: 1.2–5.6% of GDP (Vietnam highest, Myanmar lowest).
- STEM graduates >35% in Malaysia, Brunei, Singapore.
- Education quality: Singapore & Malaysia comparable to advanced economies.
- HCI: Singapore highest; Laos, Myanmar, Cambodia <0.5.
- Skilled workforce: Singapore 56.2%, Brunei 40.8%; lowest in Cambodia & Laos.

Consequences



- Low R&D and innovation capacity
- Weak digital literacy, infrastructure, and regulation hinder competitiveness.
- Automation risks displacing unskilled workers and eroding competitiveness.

Moving Towards the Green Agenda

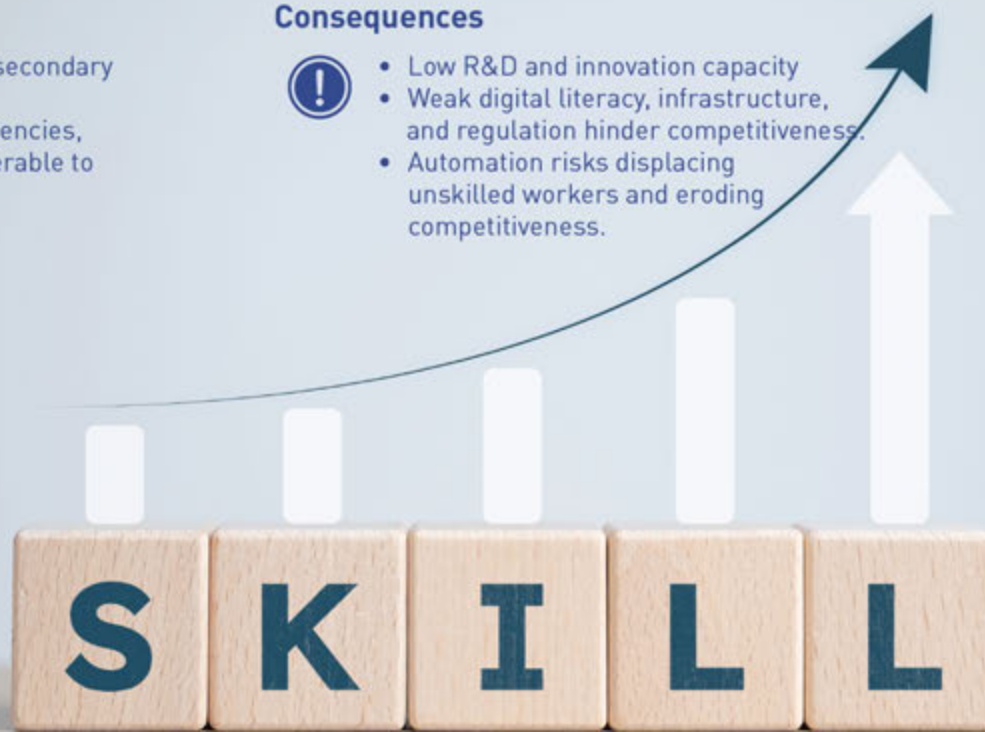


- ASEAN committed in promoting green jobs and TVET for sustainability.
- OECD defines green skills as those enabling adaptation to climate change.

Consequences



- Limited green skills training restricts workforce readiness.
- Small talent pool may increase migration and inequality



For more information and references, please scan this QR to read the full report





GOVERNANCE & POLITICAL STABILITY

ASEAN was established by Indonesia, Malaysia, the Philippines, Singapore, and Thailand to foster cooperation and prevent post-colonial conflicts. The Cold War and Vietnam War influenced early stability efforts. ASEAN expanded post-Cold War to include Brunei, Vietnam, Laos, Myanmar, and Cambodia. The ASEAN Charter (2007) formalised commitment to democratic principles and good governance. The 1976 Treaty of Amity and Cooperation in Southeast Asia (TAC) played a crucial role in promoting political stability, and committing states to peaceful dispute resolution and non-aggression.

Key Areas



Government Integrity: Corruption and Ethical Standards

- **Political interference**
ASEAN's fight against corruption is weakened by differing laws, weak enforcement, and political interference or nepotism that affect fair decisions and appointments.
- **Impact on investors**
Corruption erodes public trust and weakens government legitimacy, hurting ASEAN's reputation, discouraging investment, and limiting global cooperation.
- **Regulatory framework**
Weak regulations and poor enforcement allow corruption to thrive, discouraging investment, slowing growth, and diverting resources from public services, which deepens inequality.



Political stability and territorial security

- **Geopolitical disputes**
Territorial disputes in the South China Sea threaten regional stability, as overlapping claims and its strategic value fuel geopolitical tensions.
- **Internal political instability**
Political strife and unrest in some AMS threaten to spill over into neighbouring countries, undermining regional stability.
- **Transboundary threats:**
Rising threats like terrorism, cyberattacks, and organised crime exploit ASEAN's porous borders, highlighting the need for stronger regional cooperation.



Civil Liberties and Rights

- **Impact on human rights**
Governments' use of laws to suppress dissent, along with coups and crackdowns, fuels widespread human rights issues.
- **Impact on democracy**
Civil liberty violations and corruption weaken governance and erode trust.
- **Absence of standard framework**
Varied national approaches to civil liberties create disparities in rights protection.



SINGAPORE

● 3(84) ● 1.4
● 43.6 ● 84.7



MALAYSIA

● 57(50) ● 0.2
● 47.3 ● 68.6



VIET NAM

● 88(40) ● 0.0
● 15.2 ● 67.3



INDONESIA

● 99(37) ● -0.4
● 52.5 ● 59.4



THAILAND

● 107(34) ● -0.3
● 35.8 ● 67.9



PHILIPPINES

● 114(33) ● -0.6
● 46.6 ● 61.3



LAO PDR

● 114(33) ● 0.8
● 5.4 ● 54.8



CAMBODIA

● 158(21) ● 0.0
● 12.7 ● 54.9



MYANMAR

● 168(16) ● 2.1
● 2.5 ● 52.8



BRUNEI

● N/A ● 1.4
● 28.9 ● N/A

- Based on Corruption Perceptions Index 2024 "Ranking (Score)"
- Percentile rank of the political stability and absence of violence
- Percentile rank of the voice and accountability in AMS
- Freedom & Prosperity Index Scores for AMS (except Brunei)



For more information and references,
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JUSTICE, EQUITY & EQUALITY

ASEAN's progress towards justice, equity, and equality is marked by expanding legal frameworks and social inclusion efforts, yet disparities in rights protection, gender equality, and access to justice persist across AMS.

Key Areas

Wealth Distribution: Poverty and Income Inequality in ASEAN



- Most AMS experienced a reduction in the poverty rates, except Cambodia where poverty rate increased [13.5% → 21.5%].
- Most AMS saw poverty and inequality decline, except Laos, where inequality widened.



Consequences

- Rising income inequality risks social and political instability.
- Driven by gaps in education, employment, and healthcare.
- Urban migration fuels informal settlements and climate vulnerability.

Access to basic needs in ASEAN



Internet



Electricity



Healthcare



Education



Infrastructure

- Expanded in most AMS, except Cambodia and Indonesia.
- Urban AMS reached 100% access; rural areas rely on solar and biogas.
- Life expectancy rose 52.1 → 72.9 years
- Universal Health Coverage (UHC) improved 47% → 61% [2010–2019].
- Inequities persist in tertiary education, STEM, and rural access.
- Investment below needs; private capital vital.



Consequences

- Rural gaps in digital access, healthcare, and education persist.
- Digital divide deepened during COVID-19.
- Weak infrastructure limits inclusive growth.

Gender equality & Social Inclusion



Education



Labour



Research



Workforce

- Malaysia, Vietnam, Thailand GPI >1 (more female enrolment).
- Lao PDR & Singapore rank high in female workforce participation.
- Women: 48% of researchers, but only 32.8% in managerial roles.
- Female participation 55% (2024); bias limits women in STEM & leadership.



Consequences

- Gender bias, wage gaps, and job segregation persist.
- Underrepresentation in STEM and leadership hinders equality.
- Marginalised groups remain vulnerable

For more information and references, please scan this QR to read the full report



ENVISIONING ASEAN IN 2035 AND BEYOND: FOUR PLAUSIBLE SCENARIOS

The foresight process, guided by comprehensive data analysis and careful consideration of its objectives, identified four distinct scenarios that envision ASEAN in 2035 and beyond.

The report emphasises the Collective Prosperity scenario as the aspirational goal for ASEAN with the region envisioned as a global powerhouse with harmonised ecosystems and sustainable markets, and how the other three scenarios play out. The essence of each scenario is explored and explained in detail in the following discussion from the vantage point of the future, looking back on what ‘happened’ over the years.

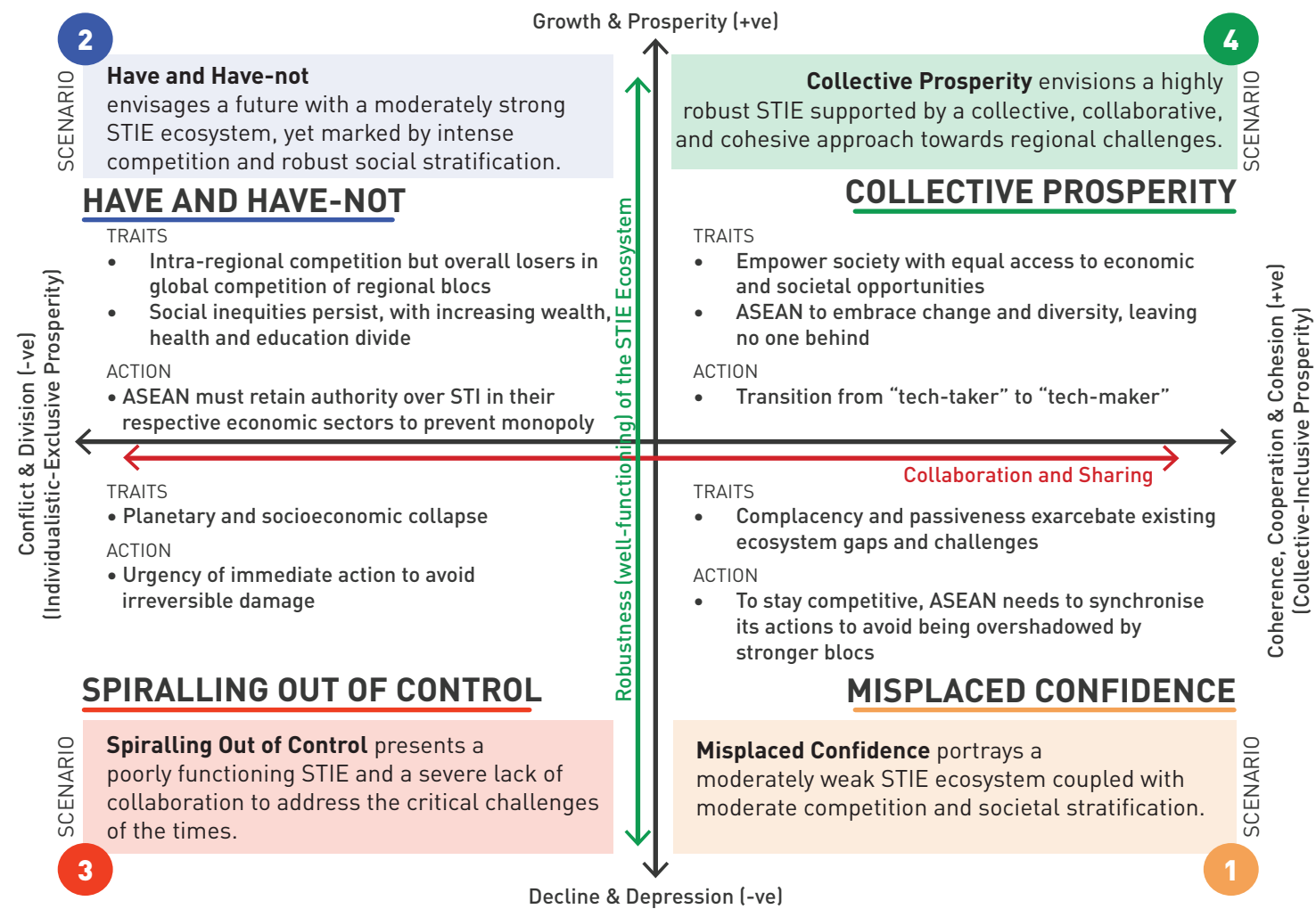


Figure 4 Four Plausible Scenarios

MISPLACED CONFIDENCE

To spur economic growth, ASEAN member states have invested heavily in critical infrastructure projects such as transportation and energy. These initiatives aim to boost regional competitiveness and drive development. However, despite notable progress across various sectors, economic precarity remains a persistent challenge.

Economic instability manifests through a variety of economic challenges. Key issues underlying the instability of the regional economies are:

- High Debt Levels
- Stagnating GDP Growth
- Scarcity and Hyperinflation
- Rising Interest Rates
- Crisis of Confidence



Leading to these impacts:

- Widespread Unemployment
- Vulnerable Populations
- Human Capital Flight (Brain Drain)
- Sociopolitical Unrests

Workplace Divisions (Automation-led workforce divisions)	Formal vs Informal Economy Divisions - Rise of the Informal sector-the GIG economy	Digital Divisions	Technology-led Divisions - Cultural and physical contact loss	Implications for environmental conservation, public health, and the overall well-being of the planet
• Decline of Consumer Spending • Dependence on Basic Income • Erosion of Work Ethic • Poverty and Social Unrest	• Economic Precarity • Underemployment and Low wages • Lack of Labour Protections • Health and Safety Concerns	• Economic Inequality • Job Market Disparities • Education Gaps • Healthcare Disparities • Digital Serfdom	• Loss of Real-life Connections and Virtual Addiction • Mental Health Crisis • Lack of Real-World Skills • Economic Decline • Social Unrest	• Environmental Degradation • Resource Depletion

Lesson learned from the Misplaced Confidence Scenario

Complacency is dangerous. Remaining content with the current course of action risks squandering resources and widening existing gaps, eventually leading to environmental degradation, declining health and quality of life, and loss of competitiveness. A fragmented, ad hoc approach limits ASEAN’s ability to shape its own destiny, while global networks such as the EU move collectively and strategically. For ASEAN to avoid being outpaced or dominated, member states must move beyond loosely coordinated efforts and instead act decisively and in unison to secure a sustainable and resilient future.

HAVE AND HAVE NOT

The world is fragmented into competing economic and military blocs, where powerful nations, corporations, and elites vie for dominance. A new Cold War has emerged, marked by military posturing and expansionist ambitions. ASEAN nations face intense economic rivalries, with competition for key industries driving protectionism and aggressive pursuit of profit, power, and control over vital ecosystems.

Emergence of Ecosystem Playmakers (EPs)	The Resource Dominance Game: The EP Takeover	The Subtle Art of the Invisible War: Controlling the Narrative	Social Stratification and Strife
Wealth inequality has continued to grow at an alarming rate. The top 1% controls an even larger share of the world’s wealth while the majority of the population struggles to make ends meet. EPs: Political leaders and Elite, Business Tycoons, Military Leaders, Royalty and Nobility, Media Owners and Influencers, International Business Leaders, CEOs and Executives, and of course even nation states. Take over on: • Power, influence and control • Emergence of technocratic oligarchy • Institutional capture • Regulatory capture • Rampant corruption • EP-backed governance	The unchecked exploitation of resources driven by advanced technologies has led to: • Geopolitical Conflicts • Disputes for Resource-rich Regions • Technological Arms Race • Economic Collapse • Loss of Ethical Considerations Triggers for competitions and conflicts: • Energy Resources: Strong competition for oil and natural gas reserves • Rare Earth Elements: RRE demand for high-tech industries • Fisheries: Overfishing in shared waters • Water Resources: Transboundary river systems and water bodies • Border Disputes: Ongoing border disputes escalating to larger regional disputes • Environmental Concern: Pollution and deforestation leading to diplomatic disputes	To exert power and influence EPs employ a strategic and persuasive communication approach. • Economic Development Key Message: EPs emphasise the potential for substantial economic development and growth in AMS • Technology Transfer and Expertise Key Message: EPs highlight the technological advancements they bring • Infrastructure Investment for Progress: EP stresses its commitment to building essential facilities and networks • Employment Opportunities: EP highlights the creation of jobs • Global Market Access: EPs position themselves as a gateway to global markets	The unchecked expansion of social media platforms and algorithmic manipulation has led to a world where misinformation and polarisation dominate society. • Totalitarian Surveillance: A surveillance state of unprecedented scope and intrusiveness is created • Global Propaganda Networks: EP oligarchy shape public opinion through multiple platforms • Media and Information Control: EPs control all forms of media and communications • Censorship and Information Management: EP and state-controlled algorithms and AI-powered systems filter and manipulate information • Elimination of Dissent: Opposition voices, activists and journalists are systematically silenced

Lesson learned from the Have and Have-Not Scenario

The core lesson of this scenario is clear: control over the STI ecosystem determines survival and success. Without it, ASEAN risks exploitation by external actors who may drain talent, deplete resources, and monopolise financial benefits. To prevent hollowing out, ASEAN must remain vigilant, particularly regarding foreign direct investment, which has historically been exploitative rather than nurturing.

SPIRALLING OUT OF CONTROL

Rampant environmental degradation has triggered devastating crises — frequent natural disasters, extreme climate events, and social collapse. Coastal cities are submerged, regions uninhabitable, and agriculture failing to sustain populations. Clean air and water have become luxuries, while overwhelmed governments face mass displacement and dwindling international cooperation. Widespread frustration fuels protests and unrest, met with heavy-handed repression from governments, limiting civil liberties and human rights.

Trigger 1: Bio-engineered Pandemic 2.0	Trigger 2: Techno-based Financial System Collapse	Trigger 3: Techno Wars
The attempt to use biotechnology has led to the unintentional creation of a bioengineered pandemic with major global implications. The unintended consequences are: • Uncontrollable Pathogens • Global Health Crisis • Ecological Loss • Resource Scarcity • Economic Collapse • Political Turmoil • Technological Censorship	The widespread adoption of quantum computing enabled AI has resulted in a world where digital security and privacy have been fundamentally compromised. • Quantum Hacking • Mass Surveillance • IP Theft • Technology Paralysis • Financial Collapse	The race for technological advancement has accelerated competitions. Non-traditional security and traditional security are at greatest risk of being compromised. • Political Manipulation • Economic Espionage • Global and Regional Conflict • Arms Race and Militarisation

Collapsing Ecosystems: A Polycrisis in the Making

With the conditions leading to a paralysis of people, industry and government in the region, multiple crises take hold and ripple through the region. The multiple triggers lead to the collapse of several key ecosystems in the region.

Marine Systems in Spin – The coral reef ecosystem collapse	Terrestrial Systems - Tropical Rainforest Devastation	Changes in the Atmospheric Ecosystem	Upending of the Human Life-Health Ecosystems	Destablising Economic Ecosystems	Social Ecosystems
• Temperature Threshold • Acidification Threshold • Pollution Threshold • Overfishing Threshold • Invasive Species Threshold	• Deforestation Threshold • Temperature Threshold • Drought Frequency Threshold • Invasive Species Threshold • Pollution Threshold	• Greenhouse Gas Concentration Threshold • Stratospheric Ozone Depletion Threshold • Aerosol Loading Threshold • Tropospheric Pollution Threshold • Ocean Acidification Threshold	• Agricultural Productivity Threshold • Freshwater Scarcity Threshold • Urbanisation Threshold • Biodiversity Loss Threshold • Inadequate Healthcare Threshold	• Financial Stability Threshold • Trade Disruption Threshold • Industrial Transformation Threshold • Labour Market Disruption Threshold • Resource Scarcity Threshold	• Climate-Induced Migration • Food Insecurity • Economic Inequalities • Health Challenges • Urbanisation Issues • Political Unrest

Lesson Learned from the Spiralling Out of Control Scenario

Immediate action is crucial. Delays risk surpassing critical thresholds (such as planetary health boundary conditions) that, once crossed, trigger cascading and irreversible damage. The window for reversing harm is still open but closing fast, and by 2035 the chance to shift towards a positive trajectory will be difficult to achieve.

COLLECTIVE PROSPERITY

Markets play a pivotal role in driving the transition toward planetary-friendly and sustainable businesses, reflecting a broader shift toward ethical and environmentally responsible practices. In this scenario, consumers are the main force behind change, actively choosing products and services that prioritise environmental and social responsibility. Their collective choices reshape market dynamics, compelling businesses to adopt sustainable practices and align with the values of a conscious, sustainability-driven society.

The B-G Market: Demand for Sustainable Products and Services

Consumer preferences and demand for sustainable and eco-friendly products and services has incentivised businesses to adopt more environmentally friendly practices. As more consumers prioritise sustainability, businesses adapt to meet these demands.

Key Elements of the Consumer-Driven Transition to Sustainability

- Conscious Consumer Behavior
- Demand for Sustainable Products
- Consumer Education and Awareness
- Social Media and Online Communities
- Sustainable Labels and Certifications
- Transparent Supply Chains
- Boycotts and Consumer Activism

The B-G consumer-driven shift is supported by other supportive forces, which strengthen the move towards the Collective Prosperity transition.

Supporting factors of B-G consumer-driven shifts

- Investor Influence
- Market Incentives
- Competitive Advantage
- Reputational Boost through Brand equity
- Sustainable Certification and Trade
- Market Cues
- Competitive Pressure
- Market Innovation
- Global Cooperation
- Long-term Value creation
- Market Transparency

How does collective prosperity come about?

Achieving collective prosperity requires robust ASEAN collaboration on transboundary challenges where all members have shared stakes and equitable rewards, with alliances emerging across six key domains :

Key issues-based Alliances:

- Crisis-driven Alliances
- Environmental and Climate Alliances
- Infrastructure and Development Alliances
- Educational and Cultural Alliances
- Health-based Alliances
- Security-based Alliances

Lesson Learned from the Collective Prosperity Scenario:

ASEAN must adopt a regional systems approach, where even small collective steps can build collaborative advantage and scale into larger initiatives. Success depends not only on technical solutions but also on behavioural and attitudinal change. To secure long-term resilience, ASEAN must transition from being a “Tech-taker” to a “Tech-maker” by fostering indigenous innovation and reducing dependence on imports. Such sovereignty is vital for strengthening ASEAN’s global technological and economic leverage while safeguarding its regional territories and resources.

SCENARIO DYNAMICS

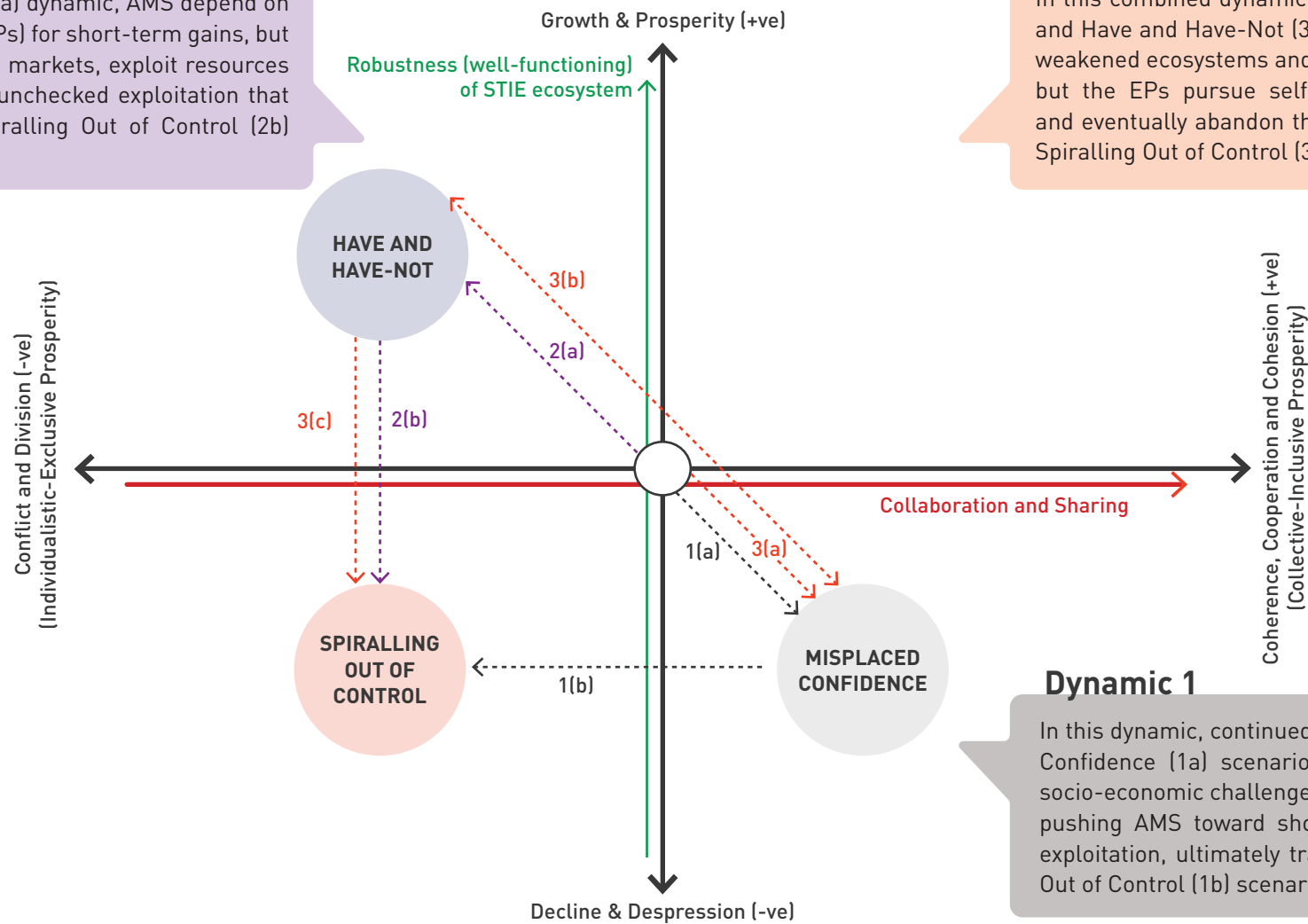
TOWARDS SPIRALLING OUT OF CONTROL SCENARIO

Dynamic 2

In the Have and Have-Not (2a) dynamic, AMS depend on powerful external agents (EPs) for short-term gains, but over time the EPs dominate markets, exploit resources for self-interest, and drive unchecked exploitation that ultimately leads to the Spiralling Out of Control (2b) scenario.

Dynamic 3

In this combined dynamic of Misplaced Confidence (3a) and Have and Have-Not (3b), AMS initially struggle with weakened ecosystems and then turn to EPs for support, but the EPs pursue self-interest, deplete resources, and eventually abandon the host, pushing AMS into the Spiralling Out of Control (3c) scenario.



Dynamic 1

In this dynamic, continued actions lead to the Misplaced Confidence (1a) scenario, where limited funding and socio-economic challenges weaken the STIE ecosystem, pushing AMS toward short-term needs and resource exploitation, ultimately transitioning into the Spiralling Out of Control (1b) scenario.

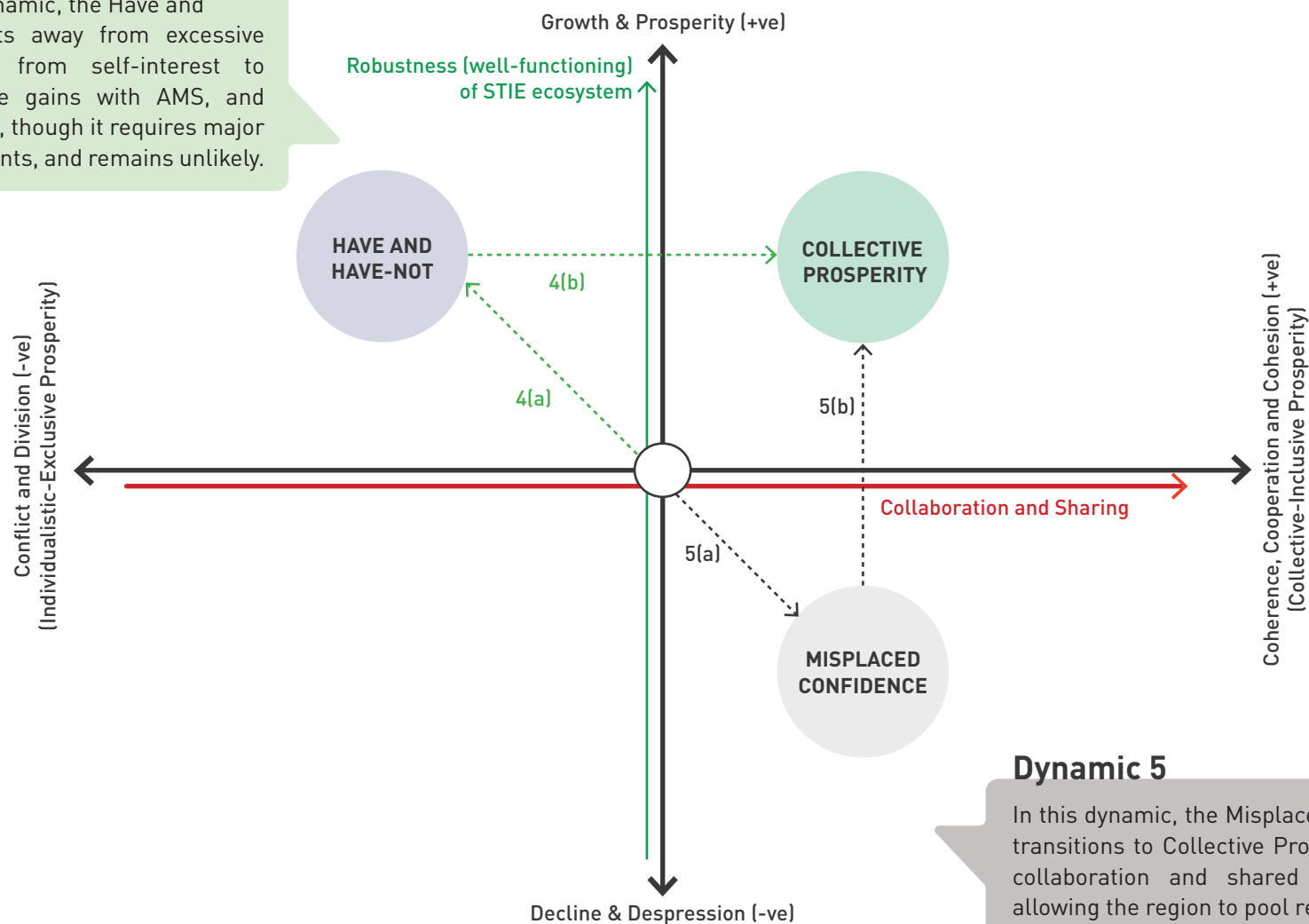
Figure 5 Spiralling Out of Control Scenario

SCENARIO DYNAMICS

TOWARDS COLLECTIVE PROSPERITY SCENARIO

Dynamic 4

In the Collective Prosperity dynamic, the Have and Have-Not (4a) scenario shifts away from excessive exploitation as EPs move from self-interest to collaboration, equitably share gains with AMS, and strengthen local supply chains, though it requires major mindset shifts, heavy investments, and remains unlikely.



Dynamic 5

In this dynamic, the Misplaced Confidence (5a) scenario transitions to Collective Prosperity (5b) through strong collaboration and shared investment across AMS, allowing the region to pool resources, strengthen the STIE ecosystem, and build long-term competitiveness in addressing societal challenges.

Figure 6 Collective Prosperity Scenario

EMBRACING PROGRESS: FOUR KEY PARADIGM SHIFTS WITH FUNDAMENTALS TO ACHIEVE COLLECTIVE PROSPERITY

FOUR KEY PARADIGM SHIFTS

PROSPERITY

Profit-Driven (ROI)

Competitive Advantage
Exploitative Investment
Industry 4.0 (National)
Static (Imitative) SMEs



Values-Driven (ROV)

Collaborative Advantage
(Re) Configurational Investment
Regionally Integrated Industry 5.0
Innovative and Entrepreneurially Dynamic SMEs

PLANETARY HEALTH

Proactive Exploitation

Energy (Fossil Fuels)
Food System (Global Supply Chain, Synthetic)
Freshwater (Wastage and Pollution)



Proactive Protection

Energy (Renewables)
Food System (Local Supply Chain, Organic)
Freshwater (Protection and Purification)

PEOPLE

Controlling

Health (Curative)
Education (Functional Focus)
Governance (Opaque)
Passive Citizenship



Empowering

Health (Preventive)
Education (Solution Focus)
Governance (Transparent)
Active Citizenship

PARTNERSHIP

National

Optimise Functions
National Thinking
Tasks (Output) Focus



Regional

Optimise Systems
Regional Thinking
Outcomes (Impact) Focus

Figure 7 The Four Key Paradigm Shifts to Achieve Collective Prosperity

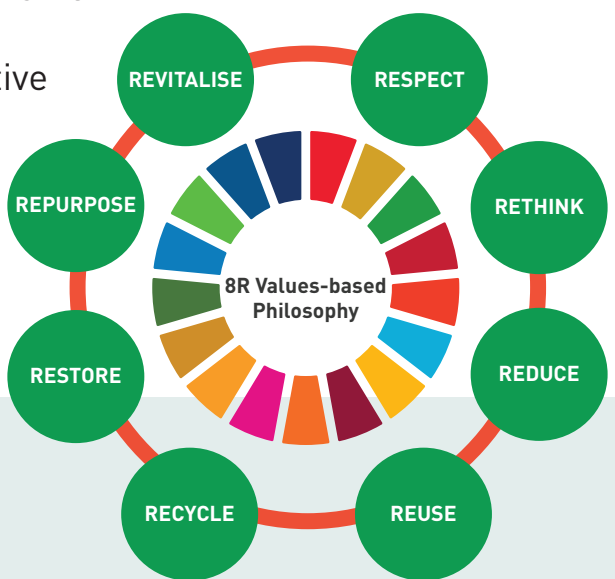
THREE FUNDAMENTAL FOUNDATIONS

By understanding the four scenarios, three fundamental foundations emerge with its key elements listed below, and each one is critical for ASEAN's Collective Prosperity Scenario.

1 STIE-enabled Regional Resilience-through Nurturing a Robust, Well-functioning STIE Ecosystem

To achieve the Collective Prosperity scenario, a values-based approach (8R Nature-centric philosophy) must guide the STIE ecosystem. This approach aims to:

- Empower marginal communities with essential resources and life skills to break the cycle of poverty.
- Bridging the knowledge and wealth gaps to address inequality between different segments of society.
- Invest in infrastructure, education, industrial development, and innovation to bolster the competitiveness of environmentally friendly local industries and generate sustainable employment opportunities.
- Adhere to global standards regarding environmental protection, planetary health, and climate change.
- Establish robust institutional leadership and governance.
- Foster partnerships and networks to cultivate progressive societies.



8R Values-Based Development Philosophy

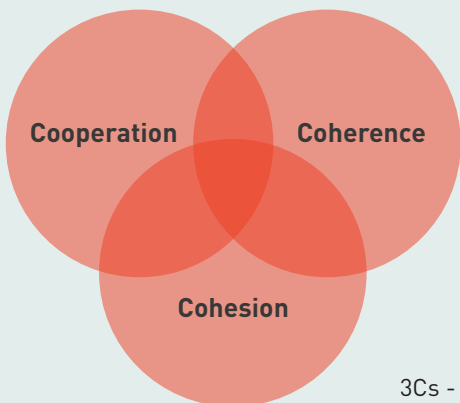
Seven essential steps toward achieving regional ecosystem resilience:

1. Identify the key stakeholders involved at various stages of ecosystem development.
2. Determine which stakeholder(s) exert influence or control over the ecosystem.
3. Establish who ideally should have influence or control over the ecosystem.
4. Develop strategies for engaging diverse stakeholders effectively.
5. Enhance the ecosystem's efficiency through enhanced connectivity, process management, and alignment.
6. Evaluate the ecosystem's impact by devising and implementing leading and lagging indicators, monitoring them consistently over time.
7. Continuously refine and enhance the regional ecosystem through ongoing evaluation and improvement efforts.

2 Behavioural Shifts for Collective, Inclusive Regional Prosperity

ASEAN behavioural shifts can be facilitated by focusing on three key components as below:

- **Cooperation:** Collaboration among multiple stakeholders is crucial for addressing common issues in the region issues through a mission-oriented approach.
- **Coherence:** Clarity of purpose is needed for AMS to take action together.
- **Cohesion:** Cohesion entails different parties joining forces to achieve a common goal and has a stake in the outcome.



3Cs - Key Components

3 Systematic Foresight to Drive the Transformational Shift towards Collective Prosperity

3 approaches to generate 3Cs within ASEAN

1. Addressing Transboundary Problems/Issues:

Engaging AMS necessitates addressing transboundary problems or initiatives that impact all or most AMS within the region and benefit all parties involved.

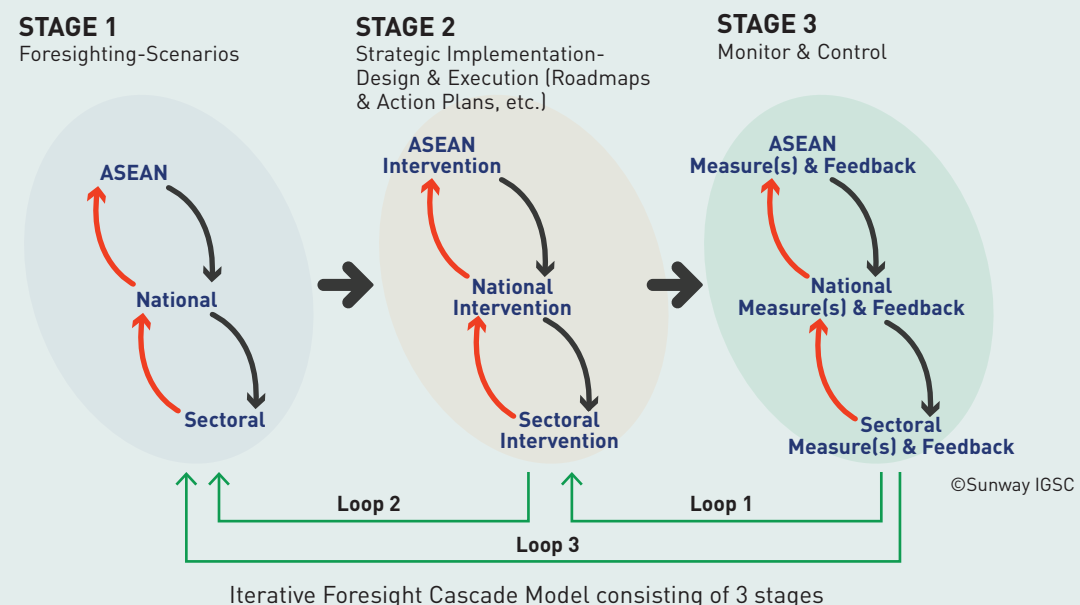
2. Adopting a Holistic Systems Approach:

Defining transboundary problems from a holistic perspective leads to more effective resolutions and identifies various benefits for AMS's and stakeholders. Taking a nexus approach enables capturing benefits more inclusively and facilitates collaboration.

3. Behavioural Approach to the Ecosystem

Behavioural economics through designing nudges that incentivise desired actions within the STIE ecosystem is a promising approach. Well-designed incentives could trigger behavioural change towards collective prosperity scenario.

To effectively navigate toward a positive trajectory, it is crucial to envision potential futures and consider various pathways to reach the desired state while anticipating potential obstacles. The report proposes the Iterative Foresight Cascade model, which consists of three stages as below:



Foresight at the ASEAN level feeds into national-level foresight, which then informs industry-level foresight, and vice versa. Each stage has feedback loops involving an assessment and evaluation to enable adjustments in achieving desired outcomes.

ENABLING THE SHIFT TO COLLECTIVE PROSPERITY: EIGHT KEY ENABLERS

Several enabling or facilitative elements are needed for the three fundamental actions in the Collective Prosperity transition to work well.

1

REGIONAL SUPPLY CHAINS

ASEAN must establish resilient and sustainable supply chains to reduce its reliance on global networks.

This supply chain needs to be transparent and embedded by circular economic principles, as well as continuously nurture and refresh dynamic capabilities within each stage of the values-add chain



2

FRICTIONLESS TRADING INSTRUMENTS

ASEAN to create a single sizable and cohesive market to negotiate favorable trade terms and enable smooth product and service movement. Additionally, free and frictionless movement of people is also vital to foster comparative advantages and optimising dynamic capabilities.



3

HARMONISED STANDARDS

Common acceptance and adoption of standards, procedures, and protocols are essential for the functioning of regional ecosystems.



4

OPEN-SOURCE ECOSYSTEM ARCHITECTURE

ASEAN should adopt an open-source ecosystem architecture to leverage regional competencies effectively. Open science principles allow for sharing of scientific knowledge and R&D advances across the region, fostering collaborative development and commercialisation efforts.



5

INCLUSIVE ACCESS

Accessible education and employment opportunities, coupled with comprehensive healthcare systems, are essential for nurturing a skilled and healthy workforce capable of driving regional development.



6

VALUES-BASED REGIONAL IDENTITY

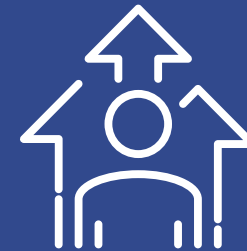
ASEAN must cultivate a cohesive regional identity grounded in shared values such as empathy, harmony, and unity.



7

COMMON MONITORING MECHANISM

ASEAN to establish an observatory to track progress and evaluate initiatives. This facilitates evidence-based decision-making among AMS promotes transparency and increased opportunities for learning from each other.



8

TRANSFORMATIVE AGILITY

Investing in intentional learning and adaptation at the individual, firm, and network (regional bloc) levels is crucial for ASEAN to remain resilient and competitive in an evolving global landscape.



ASEAN AS A GLOBAL POWERHOUSE

In the Collective Prosperity scenario, AMS are united beyond borders, transcending differences to create a vibrant, innovative region that prioritises environmental preservation and shared well-being. Geopolitical tensions are set aside as member states collaboratively commit to regional prosperity, addressing planetary health challenges through tangible actions rather than symbolic gestures. Recognising the interconnectedness of their economies, AMS leverage their comparative strengths for collective regional advantage and global benefit. Success entails not only focusing on national economic growth but actively contributing to the development of less affluent member states, narrowing wealth gaps, and promoting equitable resource distribution for shared and inclusive prosperity.

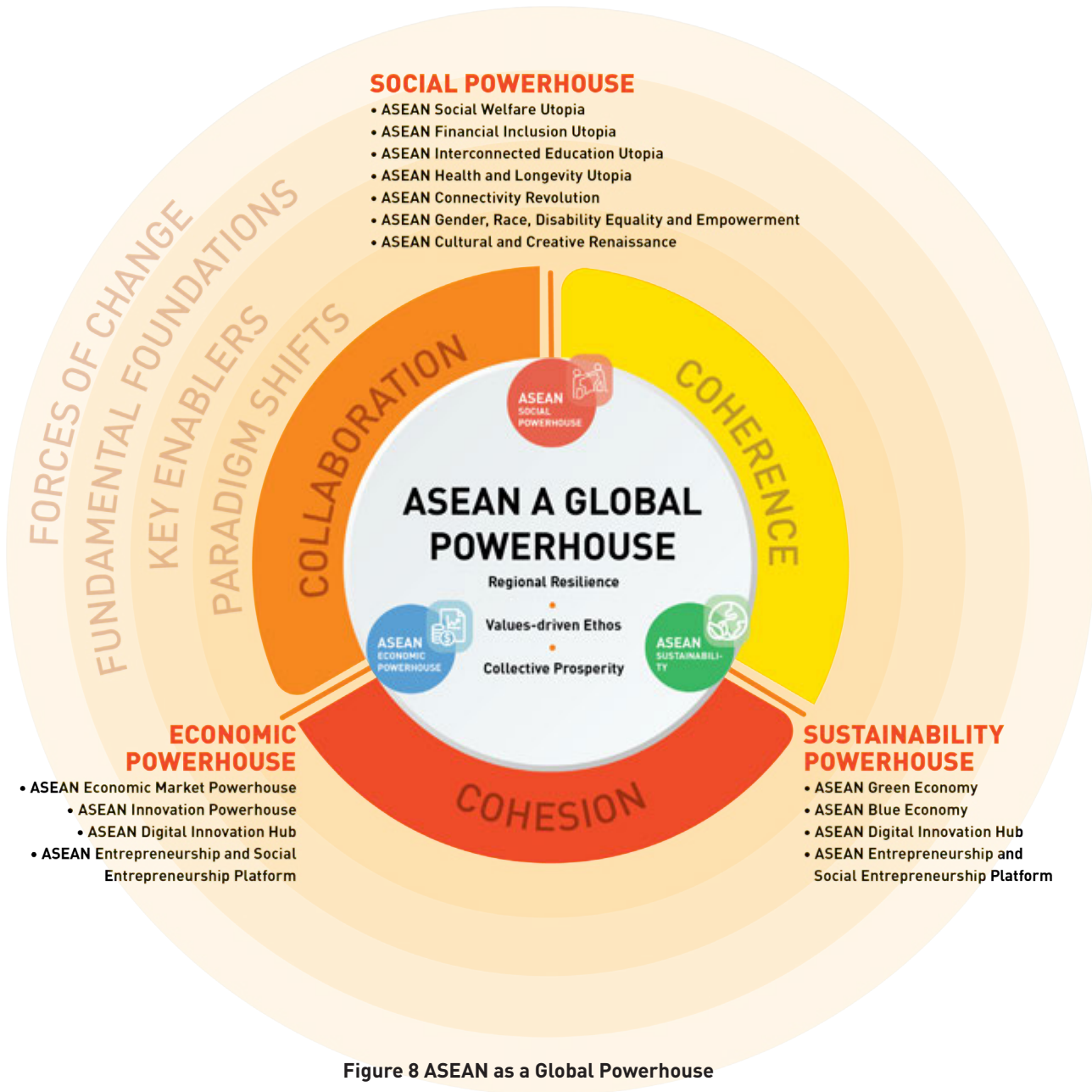


Figure 8 ASEAN as a Global Powerhouse

ECONOMIC POWERHOUSE

The ASEAN economic powerhouse embodies sustainable prosperity by prioritising long-term outlook, planetary protection rather than exploitation, inclusivity, and equitable wealth distribution.

ASEAN Economic Market Powerhouse	ASEAN as an Innovation and Digital Powerhouse	ASEAN as an Entrepreneurship and Social Entrepreneurship Platform
• A united and integrated ASEAN economic community and a unified ASEAN market, making it the preferred destination for global investors, fostering economic growth and regional stability. • Enhanced connectivity through comprehensive infrastructure development and boosted productivity and competitiveness through technological innovation boosted productivity. • Socioeconomic equality and environmentally sustainable practices were the guide to the region's approach to prosperity and development.	• ASEAN as a global innovation hub with thriving tech and knowledge-based industries. • ASEAN comprising of a highly-skilled, creative workforce due to significant investments in education and research. • Regional innovation ecosystems fostered startups, driving cutting-edge solutions in STIE. • ASEAN as a global centre for digital innovation, nurturing a flourishing digital economy. • Supportive ecosystem for tech startups and multinational companies fostered through investments in digital infrastructures, cybersecurity and data privacy. • Inclusive digital literacy and skills programs enabled all citizens to participate in and benefit from the digital economy.	• ASEAN became a region where business and the best interests of the people are intertwined, fostering a more equitable and sustainable society in which social impact is balanced with financial success. • SMEs and startups cultivated robust dynamic capabilities. • Social and environmental issues addressed, simultaneously fostering job creation and inclusive growth. • Collaborative networks and supportive ecosystems facilitated the scalability of entrepreneurs and social entrepreneurs, reaching underserved communities.

SUSTAINABILITY POWERHOUSE

ASEAN member states advance the shift towards renewable energy, nature conservation, and vibrant circular economies through STI integration and ethical innovation.

ASEAN's Blue-Green (B-G) Economy	ASEAN's Blue-Green (B-G) Technology Revolution	ASEAN's Agricultural Sustainability Transformation	ASEAN as a Sustainable Tourism Paradise
• ASEAN prioritised environmental protection and social equity. • Region became a global leader in renewable energy production and conservation. • Sustainable agriculture and responsible resource management ensured food security and biodiversity preservation. • ASEAN harnessed its abundant coastal and marine resources, becoming a global leader in the blue economy. • Sustainable fishing, aquaculture, and coastal tourism practices thrived coastal communities and marine ecosystem conservation. • Green shipping and sustainable maritime transportation contributed to economic growth and environmental stewardship. • A harmonious relationship with the oceans fostered the utopian scenarios of economic prosperity. • Consumers actively supported the green-blue shift • Consumers kept track of companies and boycotted poor environmental track records.	• ASEAN emerged as a leader in blue-green technologies for planetary health protection. • The region adopted clean energy sources, environmentally friendly transportation, sustainable urban planning, and novel carbon capture solutions. • Blue technology innovation ensured pollution-free rivers and oceans • Green technology exports surged and ASEAN nations collaborated to address climate change and environmental challenges.	• ASEAN implemented sustainable agricultural practices and technologies, ensuring food security and environmental preservation. • Investments in agricultural research and development increased productivity and improved crop resilience in climate change. • Smallholder farmers and rural communities benefitted from access to modern farming techniques and fair-trade practices.	• Sustainable tourism practices, eco-friendly accommodation, and responsible travel became the standard practice. • Natural scenic wonders, cultural heritage sites, and pristine environments are preserved for future generations. • Communities benefitted from tourism revenues, and visitors would engage in responsible travel, promoting environmental conservation and cultural exchange.

SOCIAL POWERHOUSE

The ASEAN Collective Prosperity embodies unity, inclusivity, and social cohesion drives equitable access to education, healthcare, and opportunities, while businesses uphold ethical, socially responsible practices under transparent governance.

ASEAN as a Social Welfare Powerhouse	ASEAN's Financial Inclusion Powerhouse	ASEAN's Interconnected Education Powerhouse	
• Prioritised social welfare, universal access to healthcare, education and social services. • Robust social safety nets protect citizens from economic hardships, ensuring a high quality of life for all. • Strong regional cooperation on humanitarian aid and disaster response.	• Ensured access to affordable and reliable financial services . • Digital banking, mobile payment systems, and innovative fintech solutions expanded financial services, particularly in remote and underserved areas. • Economic empowerment and entrepreneurship flourished, reducing poverty and inequality. • Financial systems that are stable and resilient, protecting economic growth and social harmony.	• Comprehensive, interconnected education systems that facilitates knowledge and cultural understanding. • Cross-border educational and research partnerships as well as student exchanges promoted a diverse and globally competitive workforce. • Investments in education technology and digital learning platforms ensured equal access to quality education for all.	
ASEAN's Health and Longevity Powerhouse	SMART Cities and Connectivity (Connectivity Revolution)	ASEAN Gender, Race, Disability Equality and Empowerment	ASEAN Governance: Transparency and Openness
• Longer life expectancies and overall well-being through a strong focus on healthcare, preventative medicine and healthy lifestyles. • Universal healthcare system that provided affordable and high-quality medical care • R&D in medical sciences that led to breakthroughs on disease prevention and treatment.	• Unparalleled connectivity, uniting the region through extensive transportation networks, digital infrastructures and smart cities. • Cross-border trade, tourism and cultural exchange flourished, bolstering regional economic growth. • Reduced disparities in rural and urban development through technological advancements in transportation, communication and e-commerce. • Ease of travel and cross-border access to education, healthcare and job opportunities.	• Prioritised gender, race and disability equality and empowerment, ensuring equal opportunities and rights for all. • Policies and programmes promoting women, indigenous and disabled persons' participation in workforce, leadership roles and decision-making processes were devised and implemented. • Gender, race and disability-based discrimination and violence were eradicated.	• Advances in technology led to the establishment of Regulatory Technology (RegTech) environment, allowing greater transparency and participation. • Strong stake in society and have become proactive citizens. • Rapid feedback and reduce inefficiency, effectively stamped out corruption. • Reliable information and feedback, allowing decision makers to make informed decisions that improve the well-being of the society.

CONCLUSION

The journey to Collective Prosperity 2035 and beyond is fraught with significant challenges amid an approaching polycrisis. The key message underscores the importance of avoiding complacency, prioritising collective action, and asserting control over ASEAN's future. It is imperative for ASEAN to manage its STI ecosystem, implement urgent environmental measures, and transition from being mere “tech-takers” to genuine “tech-makers” for long-term sustainability.

Collective Prosperity hinges on STI-enabled regional resilience and a values-driven ethos, promoting collective prosperity through cooperation, coherence and cohesion amidst transboundary challenges. Cooperative entails collaborative efforts among member states, coherence stresses the need for consistent policies and actions, and cohesion underscores unity and solidarity. By coming together as a region, a prosperous, thriving and resilient ASEAN in 2035 and beyond is well within our reach.

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