



ASEAN Plan of Action on Science, Technology and Innovation (APASTI)

2026-2035



ASSOCIATION
OF SOUTHEAST
ASIAN NATIONS

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ASEAN Plan of Action on Science, Technology and Innovation (APASTI) **2026-2035**

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Preface

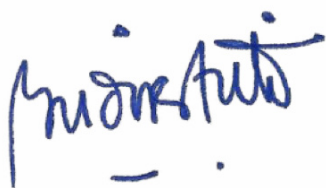
I am honored to present the ASEAN Plan of Action on Science, Technology and Innovation (APASTI) 2026–2035, a strategic document that reflects ASEAN's renewed commitment to harnessing science, technology, and innovation (STI) as a cornerstone of regional development, resilience, and integration. This new Plan builds directly upon the foundations laid by APASTI 2016–2025. Over the past decade, ASEAN has made important strides in strengthening ASEAN STI ecosystem, fostering regional cooperation, and advancing innovation-led initiatives across the region.

The next ten years will be shaped by accelerating digital transformation, climate change, health and food insecurity, and the demands of an innovation economy. APASTI 2026–2035 responds to these challenges with a sharper focus on impact, inclusivity, and future readiness.

The development of this Plan was informed by multiple evidence-based inputs, including the End-Term Review of APASTI 2016–2025 (conducted by Ernst & Young Australia), the Foresight for the APASTI 2026-2035 (developed by Commonwealth Scientific and Industrial Research Organization), and the ASEAN STI Ecosystem Foresight 2035 (developed by ASEAN Foresight Alliance). It was further shaped through an inclusive and consultative process involving stakeholders from across all ASEAN Member States and Timor-Leste.

This Plan outlines priority sectors that are critical for ASEAN's sustainable and resilient future — including, among others, advanced agriculture, food and forestry industries, energy transition, blue and circular economy, space, and emerging technologies. It promotes a mission-driven approach to STI collaboration, underpinned by capacity building, policy foresight, and deeper cooperation among governments, academia, industries, and communities.

On behalf of COSTI, I extend my deepest appreciation to the Government of Australia for its support through the ASEAN Futures Initiative in the development of this Plan. I also wish to thank all those who contributed to this effort, and invite all stakeholders to join us in bringing this vision to life.



Dr. Boediasoeti Ontowirjo

Chair of The ASEAN Committee on Science, Technology, and Innovation (COSTI)
Deputy Chairman for Research and Innovation Policy
National Research and Innovation Agency of The Republic of Indonesia

A.

Evolution of the APASTI



How Science, Technology and Innovation is spurring ASEAN economic growth

Science, Technology, and Innovation (STI) are crucial for ASEAN economies – driving growth, enhancing wellbeing, and promoting regional integration. STI advancements boost productivity, living standards, job creation, and collaboration – leading to greater resilience and interconnectivity across the region.

The ability of nations to harness the power of STI has become a decisive factor in ongoing sustainable development and economic resilience. The Association of Southeast Asian Nations (ASEAN) is a region marked by dynamic growth and diverse economies. Attuned to change and dynamic priorities, ASEAN prioritises competitiveness by staying at the forefront of emerging technologies and digital transformation. As a sectoral plan, the ASEAN Plan of Action on Science, Technology and Innovation 2026-2035 (APASTI) serves as a vital instrument for ASEAN to lead as an enterprising region as well as a hub and centre of excellence, that leverages on

advances in sciences, technology and innovation, and harnesses new sources of competitiveness to elevate its economic integration agenda and create a thriving ecosystem.

As a catalyst for technological advancements, the APASTI positions ASEAN at the forefront of global innovation to drive competitiveness, enhance economic growth and improve the quality of life for its citizens. With a focus on innovation, global collaboration, and sustainable development, the APASTI provides a roadmap to a future state where ASEAN thrives as a dynamic and integrated community, leading the way in STI on the world stage.



ASEAN is one of the fastest-growing regions globally

The APASTI 2026-2035 Vision

An integrated ASEAN powered by science, technology, and innovation, fostering seamless collaboration, global competitiveness through enhanced innovative performance, sustainability and economic growth for a prosperous future.

The purpose of the APASTI is to:



Invest and promote capacity building, R&D, technology diffusion and STI commercialisation



Strengthen STI infrastructure, governance and regulation systems



Increase visibility of the benefits of developing and utilising STI products



Strengthen cooperation and collaboration with the private sector, dialogue partners and other STI stakeholders



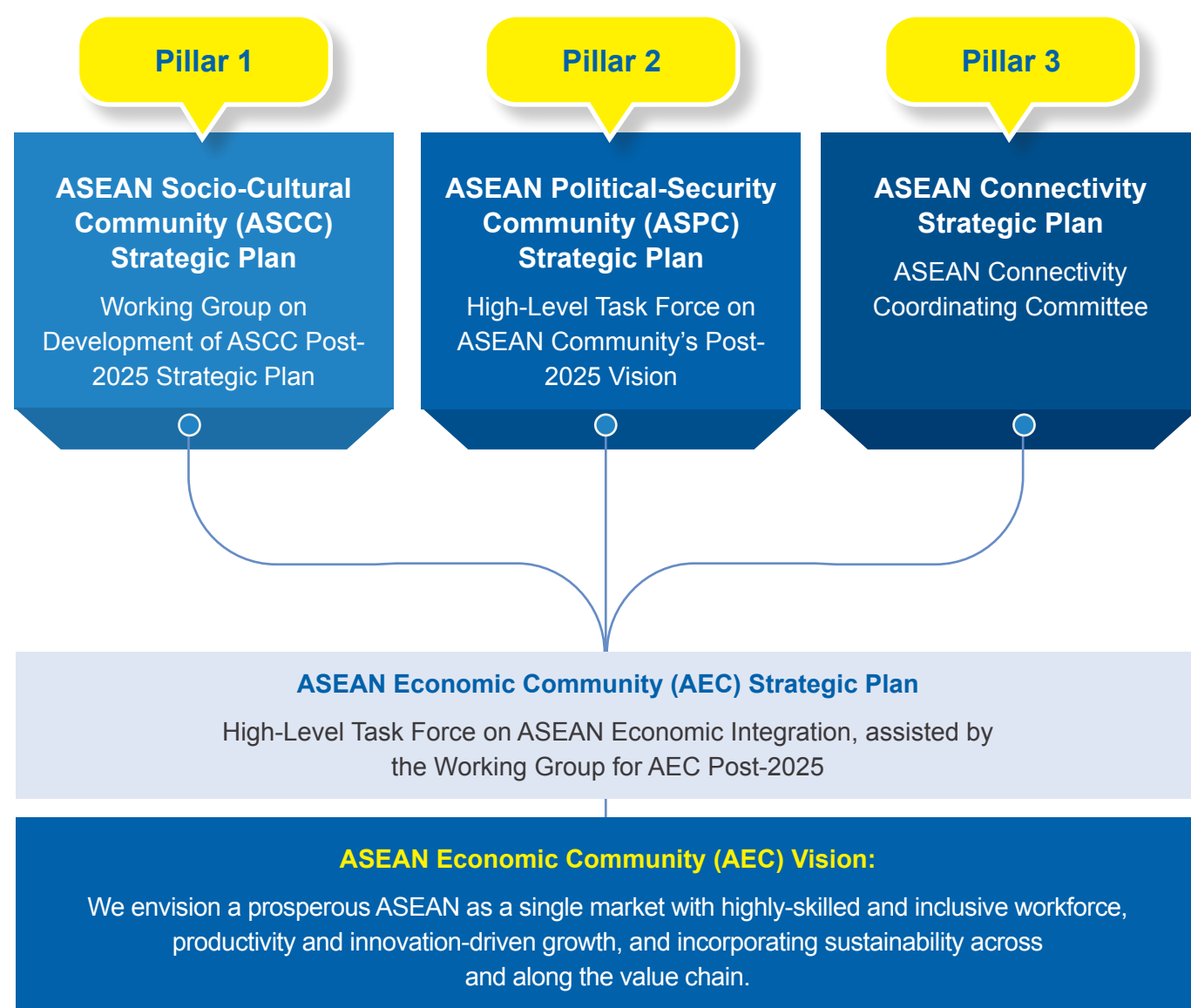
Improve resilience and responsiveness of the ASEAN STI ecosystem to mega trends and emerging regional and global opportunities and challenges

How collaborative efforts across the region are harnessed to achieve common goals

The *ASEAN Economic Community (AEC) Strategic Plan 2026-2030* is the primary regional strategic plan with which the ASEAN sectoral plans (including the APASTI) are aligned with. Developed with references to broader ambitions of the region, including ASEAN Member States' (AMS) commitment towards the 2030 United Nations' Sustainable Development Goals and broader regional mechanisms in addressing global opportunities and challenges, the AEC

Strategic Plan captures critical contributions from various stakeholder groups and external parties such as businesses, think tanks, academia and civil society organisations.

Accordingly, the sectoral vision and strategies of the APASTI 2026-2035 are guided by the AEC vision 2045 and key priorities under each of the three key economic development pillars.



The APASTI 2026-2035 is aligned to these overarching ASEAN strategic priorities, referencing relevant components and, where applicable, expressly linking APASTI initiatives with ASEAN's objectives under these broader strategies. This supports APASTI initiatives to be integrated with and aligned to ASEAN's strategic priorities and vision for the next 10 years and beyond (see Section C).

How the past is shaping the future of Science, Technology and Innovation in ASEAN

Since its inception, ASEAN has consistently recognised the importance of STI. The ASEAN Committee on Science and Technology and Innovation (COSTI), formally known as the Ad Hoc Committee on Science and Technology (COST), was established to promote and intensify cooperation in science and technology.

One of the first major milestones achieved by COST was the adoption of the first regional Action Plan on Science and Technology (APAST) in 1985, with the aim to enhance regional cooperation in the advancement of science and technology.

In 2004, the Vientiane Action Program (VAP) – the second in a series of action plans or programmes leading to the end-goal of ASEAN Vision 2020 – placed STI under the ASEAN Economic Community (AEC) pillar of the VAP in recognition of the contribution of STI to economic growth and development.

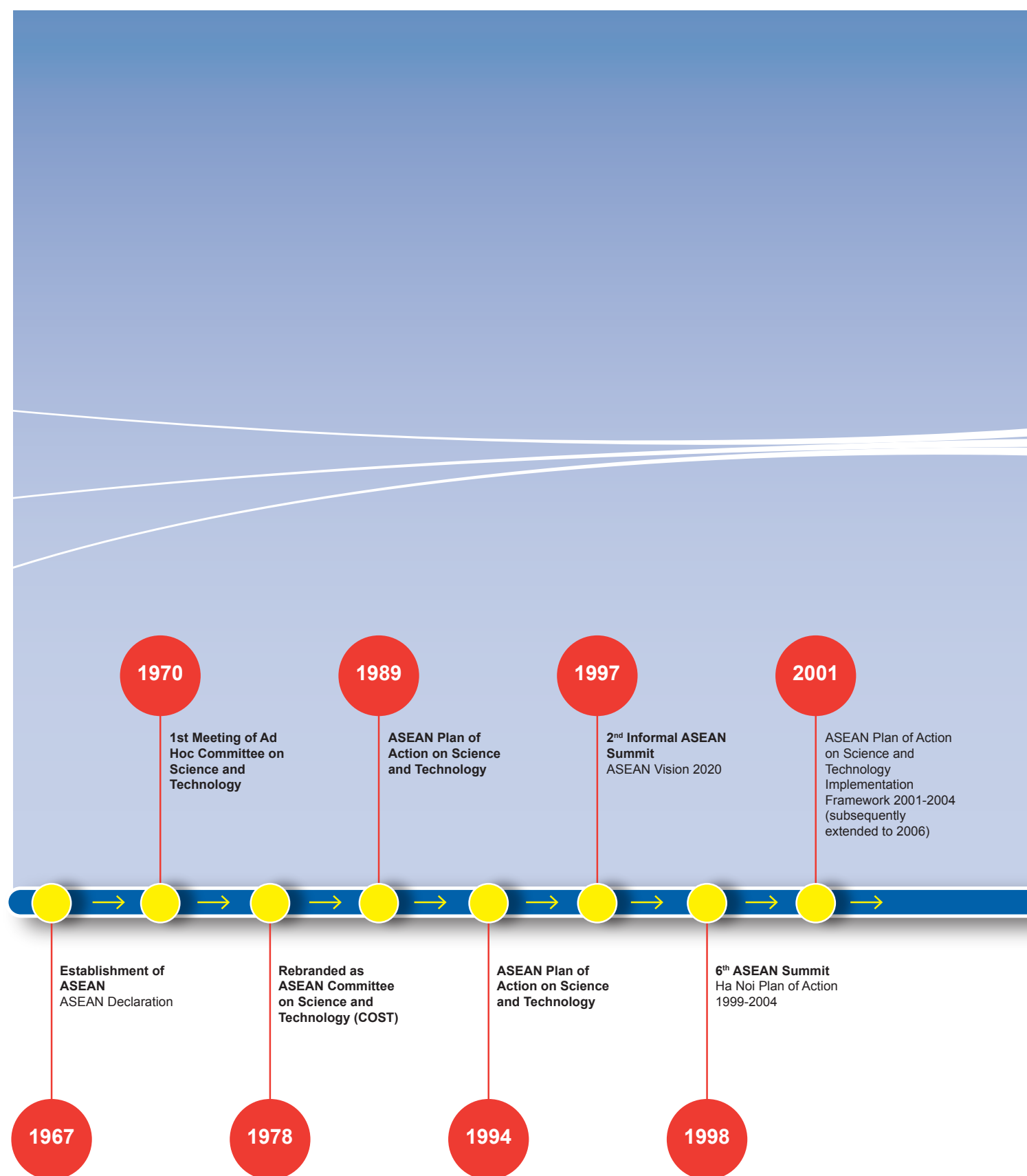
Subsequent action plans were released in 1994, 2001, 2006, and 2016 – with the more recent plans being guided by the ASEAN Vision 2020 as the foundation for science and technology cooperation in ASEAN.

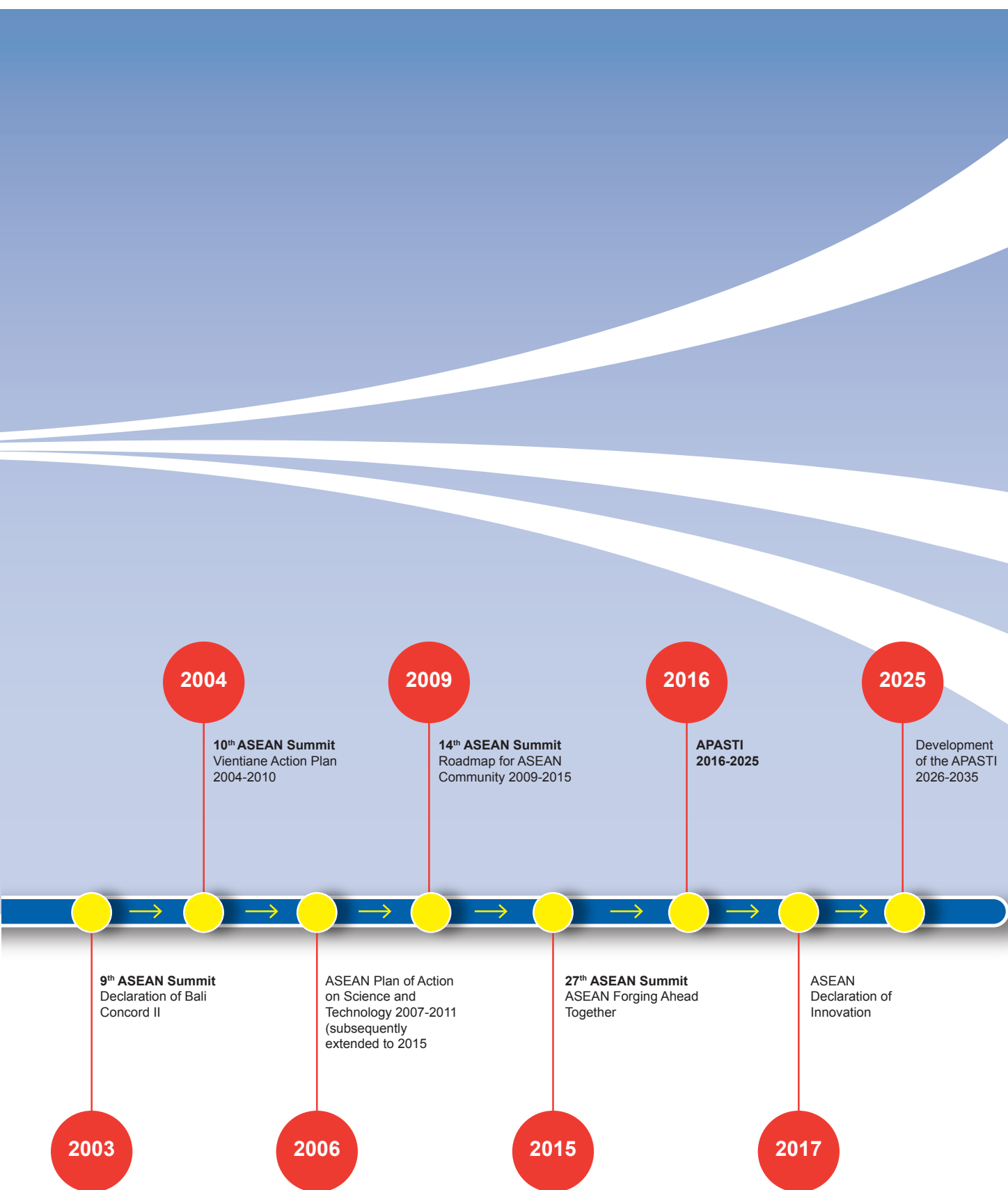
Building on key progress achieved to date

The most recent APASTI 2016–2025 supported the region to make significant progress in a range of important areas and laid a strong foundation for continued progress across ASEAN. These include:

- strengthened regional collaboration between AMS and external partners, including greater dialogue with key Dialogue Partners;
- alignment with global trends, including clean energy, technology and data, food science and talent mobility;
- greater use of Public Private Partnerships to deliver STI initiatives;
- successful implementation of flagship programs across key focus areas; and
- increased capacity building and knowledge transfer.

The APASTI 2026–2035 builds on these achievements and aims to position ASEAN as a global leader in STI, fostering prosperity, competitiveness and inclusivity.





B.

Resiliency and responsiveness of the ASEAN STI ecosystem



How mega forces will shape the strategy for STI advancement in ASEAN

As ASEAN navigates the complexities of geopolitical shifts, evolving trade relations, environmental concerns, and demographic changes, the region stands at a crossroad of opportunities and pressing challenges that will shape the future of the STI landscape and overall regional progress.

Understanding the factors that can impact or provide opportunities for advancements in STI is critical for the success of the APASTI in the coming decade and the continued focus on effective strategies that promote sustainable growth, enhance regional cooperation and ensure inclusive development across ASEAN Member States (AMS).

An array of **mega forces** are driving shifts within and beyond ASEAN. These consist of several **mega trends** that will likely occur over the next decade, as well as ongoing **regional and structural challenges** that will need to be addressed.

Building resilience in the ASEAN STI ecosystem while safeguarding agility and flexibility positions the region to be highly responsive to these challenges, harness opportunities fulsomely, and emerge even stronger on economic growth and prosperity.

Mega trends

Technology advancements have the potential to significantly enhance knowledge and processes across STI and productivity

Political instability and governance in some ASEAN Member States can disrupt STI initiatives, deter investment and undermine long-term planning, especially with corruption or bureaucratic inefficiencies

Accelerated climate shifts necessitate action on climate change adaption and resilience as ASEAN is particularly vulnerable to extreme weather events or natural disasters

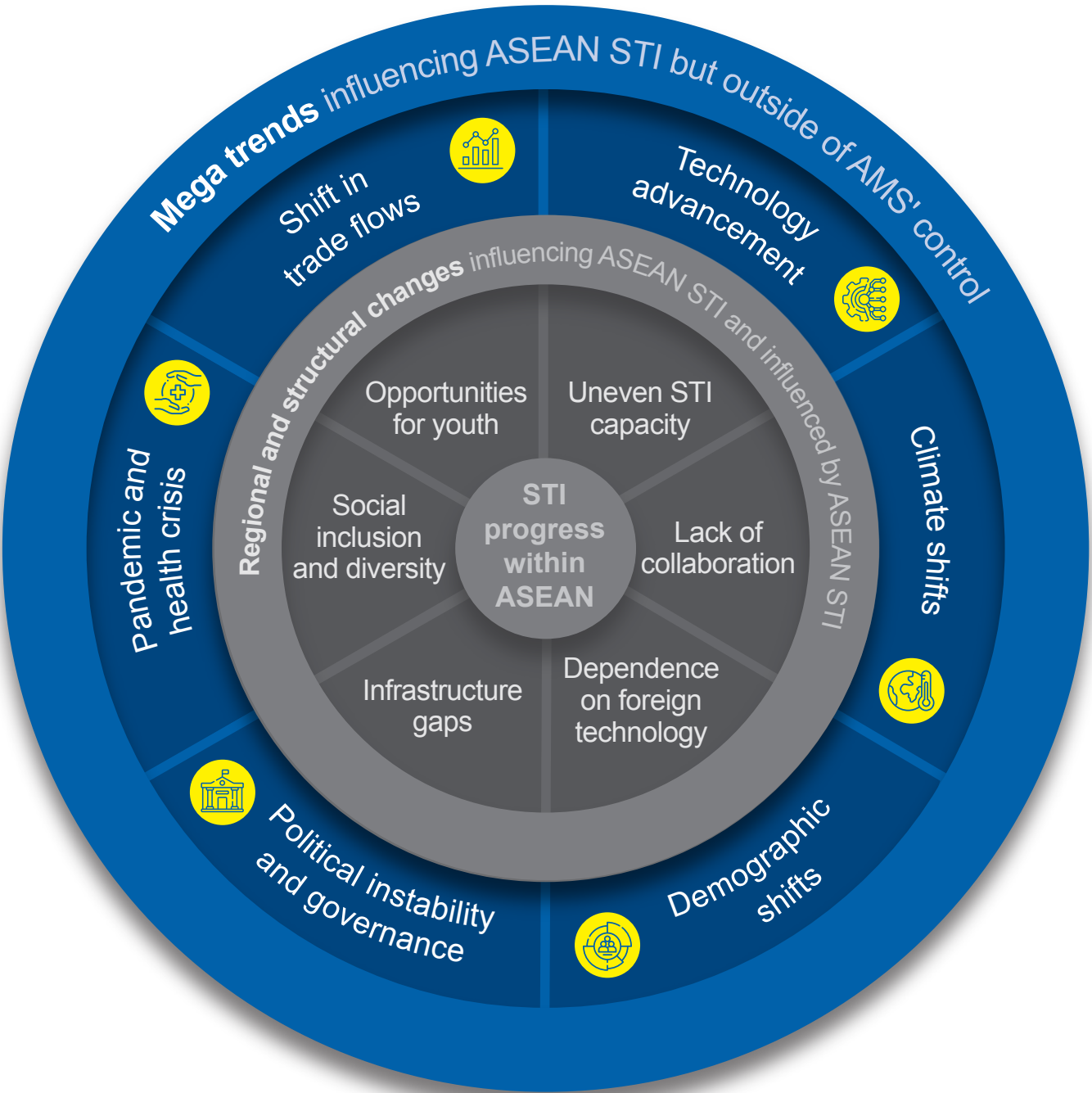
Pandemic and health crises can disrupt STI activities by shifting focus and resources matters at hand, delaying research in other areas

Demographic shifts for ASEAN to an upper-middle-income economy by 2045 create new business opportunities as well as challenges that need to be addressed to maintain competitiveness and inclusive development

Shifts in trade flows due to geopolitical tensions are prompting ASEAN to diversify supply chains to avoid heavy reliance on particular trade routes, while enhancing the region's value addition

Further to mega trends, progress across the region has been and will continue to be impacted by several regional and structural challenges. These factors were identified through reviews of the APASTI 2016-2025 and through research undertaken through the ASEAN Foresight Alliance. This APASTI considers how the plan can mitigate or provide solutions to these challenges over its tenure.

The diagram below illustrates how the mega trends fit collectively.



Sources for diagram:

AUS4ASEAN Futures, Final Report: ASEAN Economic Community (AEC) Post-2025 Study: Towards ASEAN Economic Community (AEC) 2045: Options and Potentials for the ASEAN Economic Community (AEC) 2045, November 8, 2024.

CSIRO and ASEAN, Foresight for the ASEAN Plan of Action on Science, Technology and Innovation (2026-2035), December 2024. ASEAN Foresight Alliance, ASEAN Science, Technology and Innovation Ecosystem Foresight 2035, July 2024.

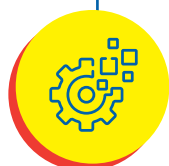
Key regional and structural challenges



Uneven STI capacity caused by significant disparity in scientific infrastructure and R&D capacity among ASEAN Member states can present significant challenges to the realisation of APASTI goals and objectives leading to a lack of coordinated and standardised approaches. Inequitable development and uneven skills development limit inclusive regional integration and impede transitions to emerging sustainability markets.



Lack of collaboration can lead to inconsistent national policy implementation due to lack of harmonised policies and regulatory frameworks across ASEAN, varying awareness of the APASTI, insufficient industry-academia linkages, and a lack of collaborative R&D.



Dependence on foreign technology, due to limitations in capacity and may limit the development of local capabilities and render ASEAN susceptible to external disruptions.



Infrastructure gaps arises because the need for infrastructure and improved services outweigh the funding available for development. Any deficit across digital and physical infrastructure can slow STI developments and subsequently economic and social progress in ASEAN.



Barriers to social inclusion and diversity and their ongoing structural challenges continue to hinder the full participation of diverse groups in STI and signal losses in talent development and innovation opportunities.

Women remain under-represented in STI

Women face ongoing challenges to equal participation and remuneration in the STI workforce and continue to be inadequately represented in STI-related tertiary education. The underrepresentation of women is acute in policy-making and leadership positions which can hinder progress in participation and representation. Below are some supporting key insights across ASEAN during the decade to 2025.



Greater opportunities for youth are essential to the continued progress in STI, including improved accessibility to education and key resources. To develop this population and the knowledge of STI in upcoming generations, young people need to have access to key opportunities within STI, including promotion of women in STEM education and improved quality in STEM education. Key barriers to creating opportunities for the next generation include lack of experience, limited access to financial services, job insecurity, and insufficient skills or opportunities for skill development.

In anticipation of these Mega forces, strengthening resilience in the ASEAN STI ecosystem across a range of key strategies is core to the APASTI 2026-2035. The strategies advance STI development that foster sustainable and inclusive growth, cooperation and development among ASEAN Member States (see Section D).

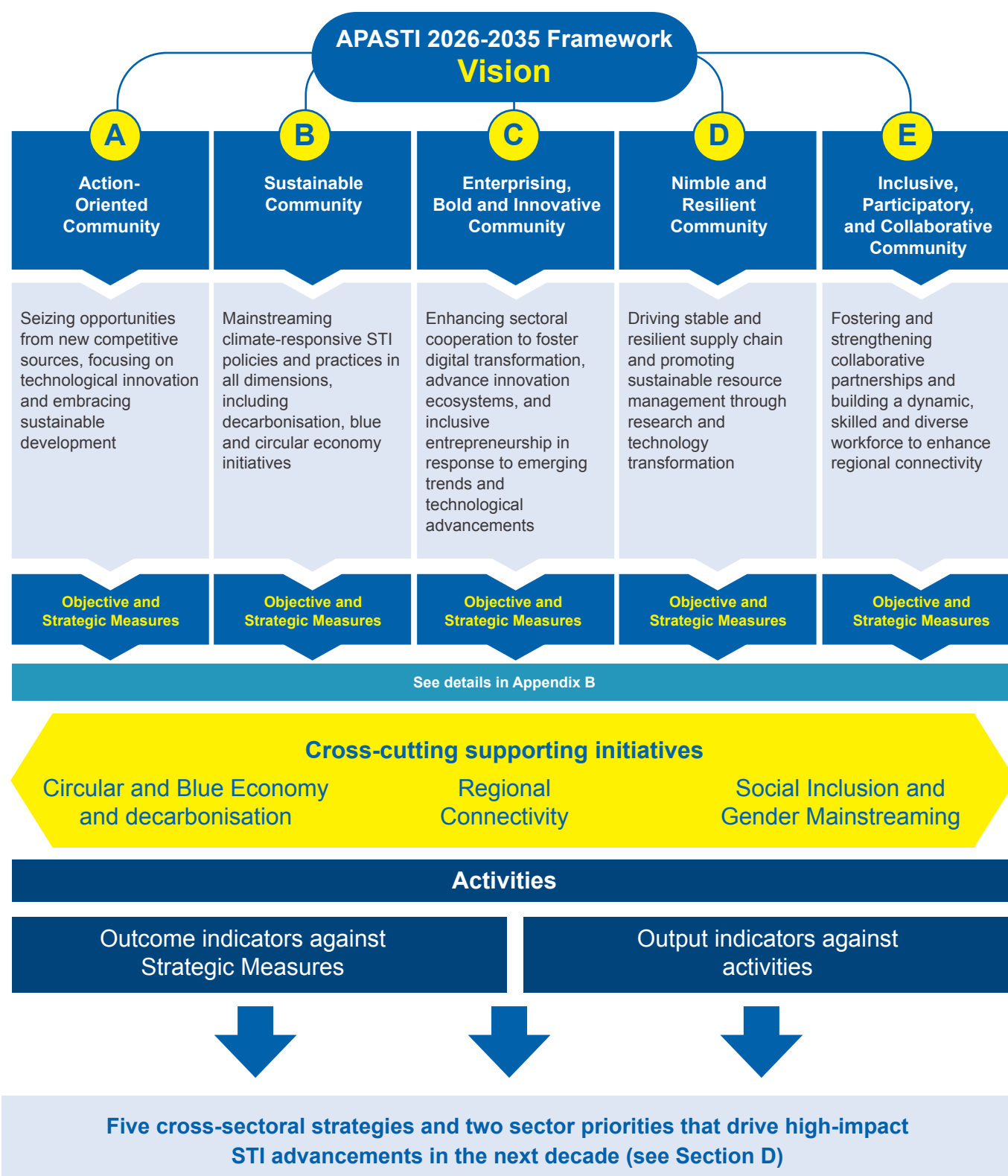
C.

Regional economic growth priorities for STI advancement



How the AEC five-year strategy informs the APASTI sectoral framework

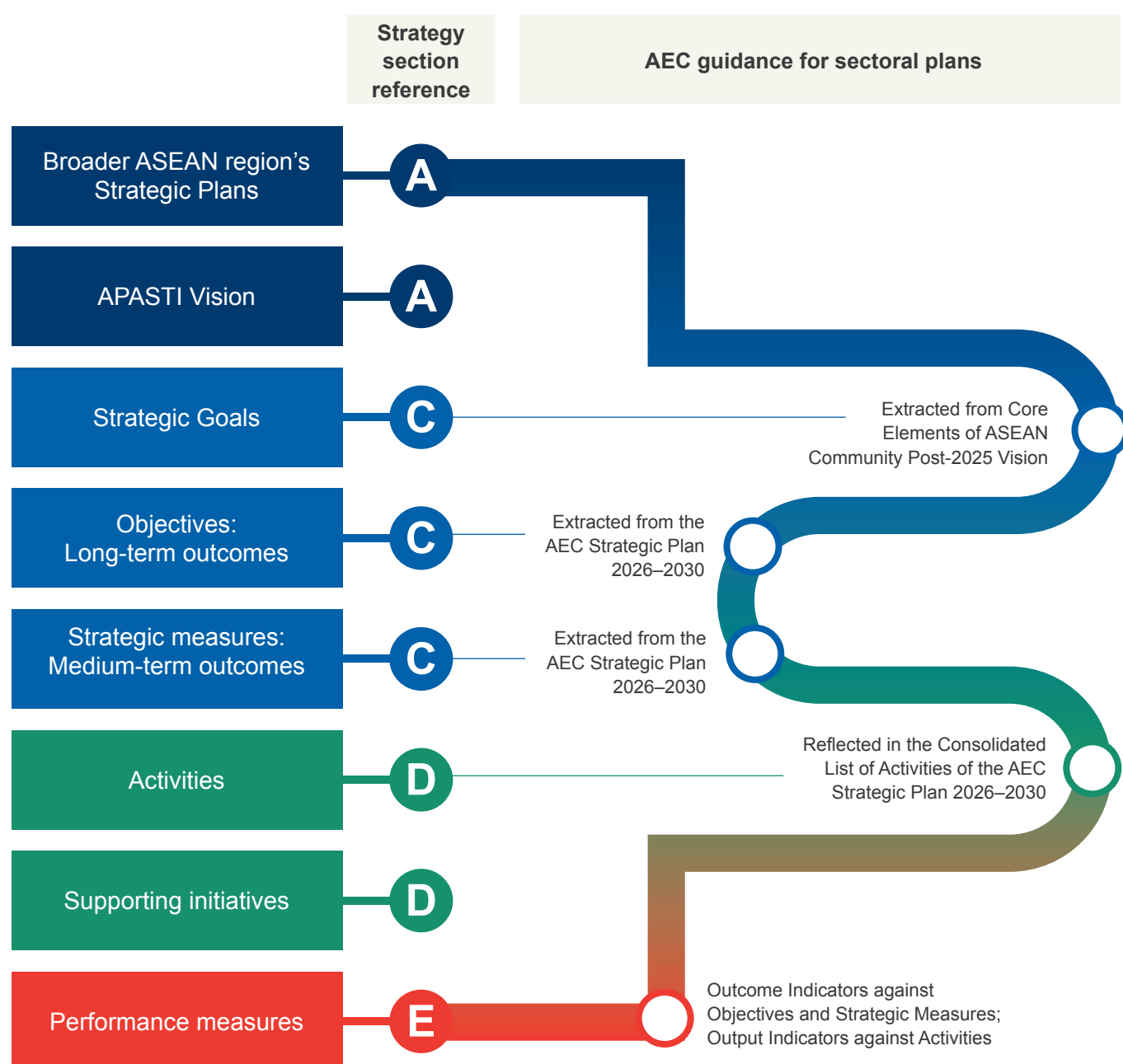
The APASTI 2026-2035 framework – comprising the sectoral vision, strategic goals, objectives strategic measures – are harmonised with the AEC Strategic Plan 2026-2030 to ensure that STI advancements are targeted, responsive to the broader regional priorities and directly supports the region's economic growth and prosperity.



How components of the APASTI framework have been set

This roadmap highlights each of the strategic components that have been formed the APASTI framework and what they have been guided by.

The 'Strategy section references' below correspond to the sections of this document. For more details such as the strategic measures, refer to the AEC Strategic Plan 2026-2030.



D.

Key strategies that drive
high-impact STI advancements
in the next decade



How the APASTI will unify STI efforts across the region to deliver impact

To realise our APASTI 2026-2035 vision of building *an integrated ASEAN powered by science, technology, and innovation, fostering seamless collaboration, global competitiveness through enhanced innovative performance, sustainability and economic growth for a prosperous future*, our key strategies build on the progress achieved in past action plans and create greater value from STI investments.

Key strategies for delivering high-impact in the next decade

Cross-sectoral strategies

- 1 Strengthening regional capability and responsiveness on **emerging and enabling technologies**
- 2 Enhancing research capability and capacity in **space technology**
- 3 **Future-proofing the STI ecosystem** and fostering partnerships to drive innovation and entrepreneurship
- 4 Supporting the **accelerated deployment of STI** in key industries
- 5 Investing in **talent development and mobility**

Accelerate regional STI advancement and technology-driven innovations across a range of core domains, including healthcare, environmental and disaster resilience, sustainability.

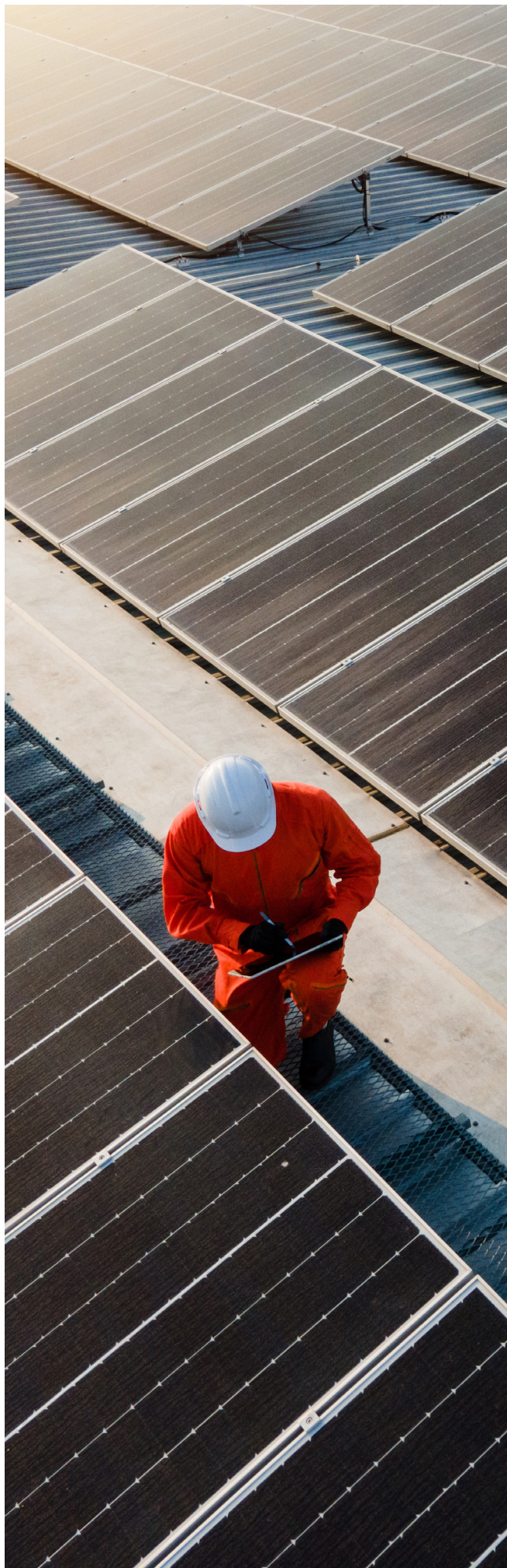
Sector priorities

Differentiated investment to advance high-impact areas across priority sector value chains, specifically:

- 1 Cross-sectoral collaboration to accelerate innovation and commercialisation of new energy technologies and STI deployment in blue and circular economy.
- 2 Adoption of innovative technologies to promote sustainable water use and advance agriculture, food and forestry industries.

These key strategies:

- direct the region's STI advancements to address and support top economic growth priorities of the region and member states as set out in the *AEC Strategic Plan 2026-2030*; and
- contribute to critical regional socio-economic development initiatives including environmental and disaster resilience, digital divide eradication and women and youth empowerment.



Key actions for the initial phase (2026-2030) of the APASTI 2026-2035 have been set to progress against each of the strategies as guided by:

- Differentiated focus on regional value creation that aligns with the national STI priorities of AMS.
- Increased focus on collaboration, equity and harmonisation across the region.
- Lead and support responsibilities of COSTI as designated by the AEC *Strategic Plan 2026-2030* for relevant focus areas and associated strategic measures.



Cross-sectoral strategy #1

Strengthening regional capability and responsiveness on emerging and enabling technologies

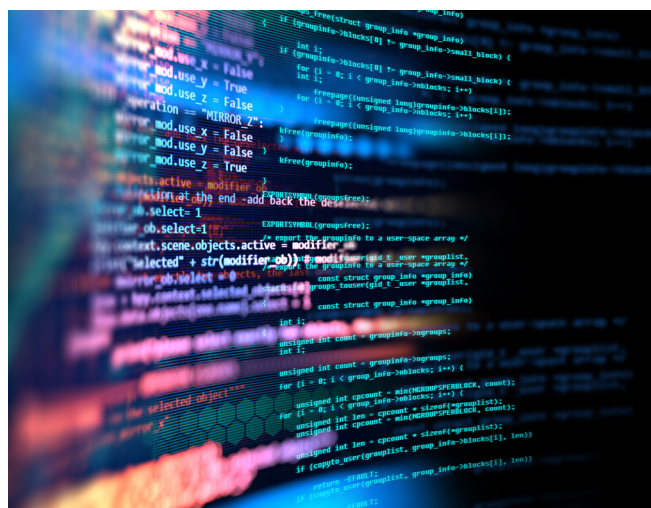
ASEAN is poised to become a significant player in the realm of emerging and enabling big data (including high-performance computing (HPC), artificial intelligence (AI), quantum computing, biotechnology), moving towards a future where these technologies drive innovation and enhance decision-making in STI. As the demand for data-driven solutions grows, AMS are prioritising R&D investments, marking a pivotal shift in the region's technological landscape.

The APASTI fosters partnerships, enhances capabilities, and promotes participation in joint initiatives, while also facilitating knowledge sharing and ethical practices in the application of emerging and enabling big data. This focus enables technology transfer across diverse domains, including healthcare, finance, education, and environmental management, ensuring that the benefits of these technologies are harnessed for sustainable economic growth and societal advancement.

To foster an environment where diverse technological solutions can thrive, the APASTI supports flexible and adaptive technology adoption. This empowers AMS to seize opportunities for innovation and collaboration, empowering them to select the most suitable technologies that align with their unique challenges and aspirations.

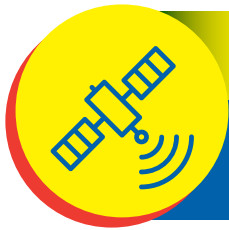
Relevant strategic measures:

- Adopt and advance evidence-based approach and a coordinated approach to governing AI to facilitate adoption of big data and AI.
- Boost Information and Communication Technologies (ICT) innovations and entrepreneurship and technological developments, including smart city and big data and analytics
- Stimulate adoption and diffusion of innovation and technologies such as internet of things (IoT), big data and cloud-based technology, artificial intelligence, quantum technology, high-performance computing, virtual and augmented reality, additive manufacturing, and biotechnology
- Adopt and promote the principle of technology neutrality



Key Actions

- **Scholarships and Training Programs:** Promoting scholarships and ongoing professional development pathways focused on emerging big data technologies, such as high-performance computing, AI, HPC, and quantum computing.
- **Cross-Border Knowledge Sharing:** Facilitating cross-border knowledge sharing on emerging big data technologies.
- **Research on Ethical Practices and Data Governance:** Investing in coordinated research to establish best practices and regional guidelines for the ethical use of emerging big data technologies.
- **Flexible Technology Framework:** Supporting adaptive and flexible technology framework development through engagement of stakeholders from various sectors.



Cross-sectoral strategy #2

Enhancing research capability and capacity in space technology

ASEAN is emerging as a significant player in the space landscape, moving beyond the dominance of other international major powers. As global commercial space activities expand, AMS are prioritising the enhancement of their space capabilities through research and capacity development in geoinformatics, satellites and other applications, marking a notable shift in the region's involvement in space exploration.

The APASTI encourages partnership, enhances capabilities, and drives joint initiatives, as well as enabling technology transfer across diverse domains such as communication, remote sensing, development, disaster risk mitigation, environmental and resource management, and education and research.



Relevant strategic measures:

- Accelerate advancement in space technology through research and capacity development in geoinformatics, satellites, and other applications.

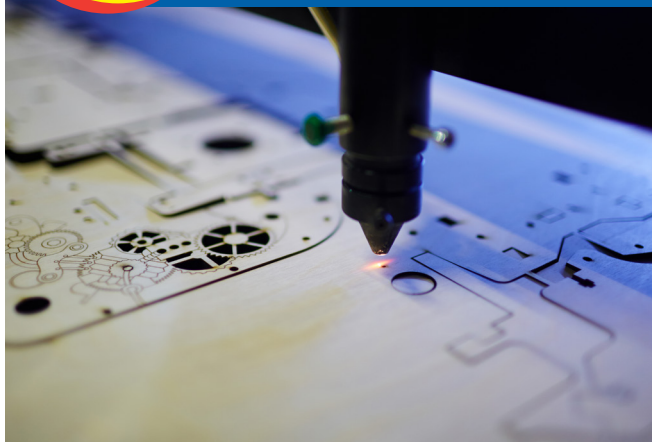
Key Actions

- **Collaborative partnerships:** Establishing formal and informal collaborative partnerships between government agencies, research institutions, and private companies to leverage resources and expertise in space technology and R&D capacities.
- **Collaboration on space missions:** Facilitating regional collaboration on space missions and research projects, pooling resources and expertise, to solve common regional issues including climate change impacts, carbon monitoring reporting and verification, food security, disaster risk mitigation, and agriculture, particularly through geoinformatics, satellites and other applications.
- **Knowledge and expertise sharing:** Developing structured, practical and sustainable mechanisms for transferring knowledge and expertise between research institutions, industry partners, and developing nations.
- **Facilitating regional exchanges on space policy:** Sharing of national space policies and strategic priorities to ensure secure, safe and accessible use of outer space. Facilitate discussions on emerging issues such as space debris, space situational awareness, and space traffic coordination.
- **Enhancement of data-sharing frameworks:** Strengthening existing data-sharing frameworks to enable researchers and developers to access and utilise valuable space-related data, fostering collaboration and innovation.
- **Guidelines to incentivise investment** Developing regional guidelines, that can be adapted by each AMS, aimed at incentivising investment in space technology innovation and commercialisation.



Cross-sectoral strategy #3

Future-proofing the STI ecosystem and fostering partnerships to drive innovation and entrepreneurship



The APASTI strengthens the STI ecosystem by fostering partnerships, policy alignment, and sectoral collaboration essential for driving innovation and entrepreneurship in the ASEAN region. By enhancing connections between the private sector and knowledge communities, the APASTI places a focus on the creation of a dynamic STI ecosystem that nurtures start-ups and innovative solutions.

Additionally, enhancing collaboration among academia, research institutions, and networks is critical for strengthening the STI ecosystem that supports capability development, technology transfer, and strategic commercialisation for ASEAN.

Relevant strategic measures:

- Catalyse start-up innovations through deepened regional cooperation
- Strengthen collaboration among academia, research institutions, networks of centres of excellence, and the private sector to establish an effective ecosystem for capability development, technology transfer, and strategic commercialisation
- Establish innovative support systems to promote and manage regional science, technology, and innovation enterprises arising from spin-offs and joint ventures
- Strengthen the collaboration and partnership between private sector and knowledge communities to catalyse innovation and nurture entrepreneurship, such as creation of start-ups
- Enhance the involvement of well-established research institutes within the region in the context of promoting research activities on AEC

Key Actions

- **Innovation ecosystems and infrastructure:** Developing a robust regional innovation ecosystem by enhancing existing infrastructure to support technology transfer, funding visibility, and a centralised digital marketplace for start-ups and research institutions.
- **Industry-Academia collaboration:** Creating Industry-Academia collaboration programs focused on knowledge sharing and skills transfer, prioritising the inclusion of women and youth in technical placements.
- **Initiatives to promote partnerships:** Fostering partnerships between the private sector and knowledge communities through joint research and innovation challenges, while promoting participation from women and youth, to enhance STEM engagement.
- **Regional guidelines:** Harmonising guidelines and frameworks across AMS to foster cross-regional ecosystem development and growth.
- **Workshops and awards:** Promoting and showcasing locally and regionally grown STI entrepreneurship and start-ups.



Cross-sectoral strategy #4

Supporting the accelerated deployment of STI in key industries

The ASEAN region stands at the forefront of transformative change through innovative solutions in key industries such as healthcare and the digital value chain. By emphasising innovation, AMS can harness creativity and technological advancements to tackle pressing challenges and unlock new avenues for growth and collaboration.

This commitment to fostering innovative solutions enables AMS to enhance efficiency and sustainability across various sectors, ultimately driving progress and bolstering regional competitiveness as ASEAN continues to evolve.

Relevant strategic measures:

- Deploy science, technology, and innovation solutions to accelerate growth in key industries with transformative potentials such as in healthcare, circularity, and digital value chains.

Key Actions

- **Strengthening Regional Partnerships:** Supporting regional partnerships between governments, universities and private sector industry experts to provide university students access to hands-on experience in emerging technologies relevant to key industries such as healthcare and digital value chains (e.g. internship and work-based placement programs). Supporting inclusion of women, youth and underrepresented groups (including people with disability and Indigenous communities).





Cross-sectoral strategy #5

Investing in talent development and mobility



Talent development and mobility are set to play a crucial role in shaping the future of the ASEAN region, creating an environment where a skilled workforce can thrive. By prioritising the movement of talent and the enhancement of skills, AMS can unlock new opportunities for collaboration and innovation, ensuring that member states are equipped to meet the demands of a rapidly evolving global landscape.

As ASEAN continues to evolve, the commitment to mobility and skills development empowers AMS to cultivate a workforce that is adaptable, inclusive and proficient across various sectors, driving progress and enhancing regional competitiveness.

Relevant strategic measures:

- Develop and implement schemes and initiatives that facilitate mobility of natural persons in the region
- Enhance talent development on frontier technologies and innovation through upskilling and reskilling, including digital value chain and digital literacy
- Enhance mobility of scientists and researchers from science and technology (S&T) institutions in the public and private sector

Key Actions

- **Centralised Talent Exchange Program:** Creating a centralised talent exchange and expert mobility program across ASEAN, with an extended focus on accessibility for women, youth, and underrepresented groups.
- **ASEAN Regional Mentorship Program:** Establishing an ASEAN regional mentorship program that connects industry experts and researchers with emerging talent.
- **Skills development:** Supporting the establishment of formal partnerships between educational institutions and industry to develop and deliver skills-based learning modules that align with emerging technologies, while promoting social inclusion.



Sector priority #1

Cross-sectoral collaboration to accelerate innovation and commercialisation of new energy technologies and STI deployment in blue and circular economy

ASEAN is committed to advancing cooperation in the blue and circular economy as a new engine of inclusive and sustainable growth. The APASTI harnesses ocean and freshwater resources sustainably and integrate traditional marine sectors with emerging industries, fostering inclusive development. It also promotes a circular economy to maximise the use of materials and energy.

To facilitate the transition towards sustainability, ASEAN focuses on decarbonisation technologies, mainstreaming them in digital and technology transformations, supporting a just and inclusive renewable energy transition, and ensuring energy security and affordability. Despite facing challenges in sustainable energy generation, ASEAN remains dedicated to maintaining its technology-driven solutions for strengthening regional resilience as well as economic momentum.

Relevant strategic measures:

- Promote collaboration on science, technology, and innovation on blue economy
- Promote the adoption of sustainability and circular elements in the regional supply chains towards accelerating the transition to a circular economy.
- Promote good regulatory practices to support circular and green supply chains in the region.
- Enhance cooperation for the conservation, protection, restoration, scientific research, technology transfer and sustainable use of coastal and marine environment respond and deal with the environmental risk of pollution and threats to marine ecosystem and coastal environment, such as Marine Debris and Marine Plastic Pollution in particular in respect of ecologically sensitive areas.



Key Actions

- **Evidence-based policies and market-informed strategies:** Fostering collaboration among stakeholders to create evidence-based policies and market-informed strategies through a collaborative STI research centre, while enhancing access and opportunities for women and youth in policy development.
- **Harmonised Guidelines:** Supporting the harmonisation of regional guidelines that eliminate barriers and encourage adoption of STI solutions that contribute to decarbonisation, circular economy, focusing on waste reduction and resource efficiency.
- **Talent upskill focused on the Blue Economy:** Implementing comprehensive training programs to upskill the STI talent pipeline for the blue economy, integrating perspectives from various sectors and industry leaders, whilst also ensuring improved access for women and girls in STEM fields.



Sector priority #2

Bolstering the adoption of innovative technologies to promote sustainable water use and advance agriculture, food and forestry industries

The agri-food, water resource sustainability and forestry sectors are increasingly vital for sustainable development in ASEAN. As global demand for food and sustainable water resource management grows, AMS are prioritising the use of STI to maximise efficiency, ensure water security and continued supply of food amidst dwindling availability of lands for agriculture and forestry use.

The APASTI fosters a community that is essential to the global supply chain, focused on optimising production processes both upstream and downstream, bolstering distribution and logistics networks, and securing access to raw materials.

Relevant strategic measures:

- Optimise new and appropriate technologies, best practices, and management systems to ensure food safety and address health/disease and environmental issues, particularly in the fast-growing food, agriculture, forestry sector
- Promote investment in agricultural research and development (R&D) and infrastructure to address agri-food productivity issues
- Accelerate digital transformation, including adoption of innovative technologies and practices to increase productivity and resilience in agri-food production.





Key Actions

- **Collaborative R&D Initiatives:** Supporting initiatives that connect research institutions, universities and agricultural organisations to collaborate on R&D projects focused on enhancing agri-food productivity and water resource management in ASEAN.
- **Regional Knowledge Exchange Forums:** Supporting best practice regional knowledge exchange forums, new technologies and management systems with respect to food safety, water security, health, environment issues in the food, agriculture and forestry sectors.
- **Training Programs for Sustainable Practices:** Supporting partnerships with industry experts and research institutes to provide hands-on training for farmers on sustainable practices.

E.

The Theory of Change



How the impact of APASTI over 10 years will be showcased



The APASTI 2026-2035 Theory of Change (ToC) captures the interconnected and transformative forces shaping ASEAN's STI trajectory. It demonstrates how global and regional forces of change exert profound influence on the socio-economic and cultural fabric of ASEAN member states, which in turn shape the opportunities and objectives of the APASTI initiatives. It is a critical tool in the monitoring and, most importantly, the evaluation of the APASTI.

As illustrated overleaf, the ToC serves as a key standalone communication tool to guide all implementation activities by showing how certain activities achieve the APASTI's overarching vision, goals and objectives. The ToC Framework is informed by four key components, being Key Enablers, Outputs, Outcomes and Impacts, and Principles.

Forces of Change

- Population Dynamics
- Health Demographics
- Environment & Planet
- Food & Water
- Energy
- Economic Dynamics
- Consumer Market Dynamics
- Education & Talent
- Politics & Governance
- Justice, Equality and Equity



ASEAN/ AEC
sectoral plans

Key Enablers



R&D Info-and infra-structure:

Promoting investment in R&D



Policy & Regulation:

Streamlining regulatory frameworks and accelerating policy integration to support STI solutions



Digitisation:

Digital ecosystem advancement and strengthening digital economy foundations



Skills & Talent:

Capacity building and knowledge transfer and expanding engagement in STEM through inclusive, future-focussed STI learning



Finance Investment:

Diversifying innovation funding streams and incentivising more private sector investment

Principles

- ✓ APASTI is grounded in the principle of inclusion at a broad societal level
- ✓ Region wide initiatives create additional value compared to those implemented on a national level
- ✓ Greater private sector involvement and investment will strengthen ASEAN STI capabilities
- ✓ Partner and AMS funding sources maintain and deepen commitment to expanding APASTI access and implementation
- ✓ APASTI will support the advancement of less developed AMS to address unequal benefit sharing and participation across AMS
- ✓ Political commitment to STI growth is maintained at national and regional levels
- ✓ Underrepresented groups, particularly women and youth, are given equal opportunity and access

Impacts*

- Widespread adoption of emerging and enabling technologies driving digital transformation, economic competitiveness, and sustainable innovation across sectors
- Systems in place to support ongoing spin-offs, joint ventures and cross-sector collaboration
- Improved environmental and disaster resilience and responsiveness
- Strengthened regional collaboration and enhanced sectoral cooperation across core regional domains
- Widespread adoption of advanced technologies driving digital transformation, economic competitiveness, and sustainable innovation
- Future-proof workforce that leads continued STI advancement and fosters partnerships to drive innovation and entrepreneurship
- Sustainable and innovation-driven growth of blue and circular economy, enhancing ecosystem resilience
- Mature STI ecosystem that continuously generates and fosters innovation
- Enhanced inclusion and empowerment of women and youth



Vision

APASTI 2026-2035 Vision

An integrated ASEAN powered by science, technology, and innovation, fostering seamless collaboration, global competitiveness through enhanced innovative performance, sustainability and economic growth for a prosperous future.



Outputs

2026-2030

- Harmonised policies and guidelines that catalyse innovation through deepened regional cooperation and cross-border STI programs and initiatives
- Operationalised platforms to promote STI innovation enterprises, start-ups, spin-off and joint ventures
- Expanded research and capacity in space technologies, like geoinformatics and satellite systems
- Established cross-border STI placements, exchanges, scholarship programs in public and private sector
- Enhanced engagement with well-established research institutes and promotion of STI research activities
- School-based programs focused on emerging STI skills, particularly for girls



2031-2035

- Consolidation of STI solutions in high-impact industries such as healthcare, circular economy and digital value chains
- Regional digital innovation platforms addressing common priorities and to nurture entrepreneurship and start ups
- Increase uptake and integration of advanced digital and emerging technologies across sectors
- Multi-stakeholder initiatives and collaborations supporting blue economy innovation
- Increased number startups, and solutions developed and deployed in smart city infrastructure and emerging technologies

Outcomes**

2031-2035

- Enhanced STI capabilities and technology adoption in key industries (including healthcare, agri-food, water resource management and forestry) driving greater innovation in products and services
- Increased national and regional capacity in space technology, sciences and satellite development
- Enhanced blue-economy initiatives
- Region-wide improved digital capability
- Strengthened R&D and innovation capacity
- Commercialisation of new energy technologies and decarbonisation efforts

2026-2030

- Greater private sector engagement in STI ventures and enhanced research institute capacity to generate market-ready innovation
- Increased gender equality employment
- Enhanced blue-economy initiatives
- Increased adoption of policies promoting sustainable agricultural practices
- Increased sustainable circular economy practices in production and consumption
- Commercialisation of new energy technologies and decarbonisation efforts



ASEAN Economic Community (AEC) 2026-2030 Vision

A prosperous ASEAN as a single market with highly-skilled and inclusive workforce, productivity and innovation-driven growth, and incorporating sustainability across and along the value chain.

*Impacts are informed by AEC Strategic Goals and Objectives and are long-term outcomes (10 yr)

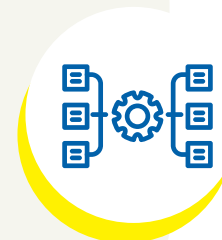
**Outcomes are informed by AEC Strategic Objectives and Measures and are short to medium-term outcomes (1-5 yrs)

How the Theory of Change works

The ToC Framework is informed by four sets of components which are detailed below.

Key Enablers

There are 6 **key enablers** which represent key structural areas that will drive the success of APASTI activities, investment and initiatives, and create an environment for long-lasting and enduring change.



Outputs

The **outputs** illustrate the implementation path leading to the strategic medium and long-term objectives and serve as tangible bridges between activities and outcomes.



Outcomes and Impacts

The **outcomes** included in the ToC identify regional, medium-term benefits that will be achieved in the APASTI's first five years through activities relating to the strategic measures.

The **impacts** represent benefits that will impact citizens within each AMS and across ASEAN. These align to the APASTI's strategic goals and objectives and also represent commitments made under other regional and global frameworks.



Principles

Principles refer to key assumptions that represent the critical conditions and contextual factors that must hold true for the ToC to function as expected. These principles communicate the reasoning behind why one change is expected to lead to another and connects theoretical change assumptions to the realities of implementing contexts. These principles contend that embedded principles of inclusion, coordinated STI policies, shared infrastructure, challenge-based innovation and regional value-chain integration are core pillars guiding the success of the APASTI.



F. Strategic Enablers



How core implementation mechanisms will bridge strategy and execution of the APASTI

The APASTI 2026-2035 harnesses the power of governance, funding, and resourcing, alongside a robust monitoring and evaluation framework to ensure transparency, accountability, and alignment with its visionary goals. A proactive and adaptive strategic management approach empowers the APASTI to anticipate and seize opportunities to remain at the forefront of innovation, as well as mitigate emerging challenges and safeguard strategic ambitions.

These strategic enablers are vital for effective execution and collaboration and cultivate a culture of continuous improvement. By remaining agile, nimble and responsive to evolving circumstances and stakeholder needs, the APASTI facilitates a cutting edge STI environment that nurtures innovation and long-term sustainability.







Strategic Enablers

Governance

Effective governance is critical to delivering the APASTI outcomes and progress. To bridge the gap between visionary planning and execution, the strategies lead to success because they are anchored in robust implementation mechanisms. Our proactive and adaptive risk management approach empowers ASEAN to anticipate and mitigate emerging challenges and safeguard the integrity of our strategic vision.

The governance framework for the APASTI 2026-2035 provides a summary overview of the roles of each of the key governing bodies. A description of each governing body can be found in the table overleaf.

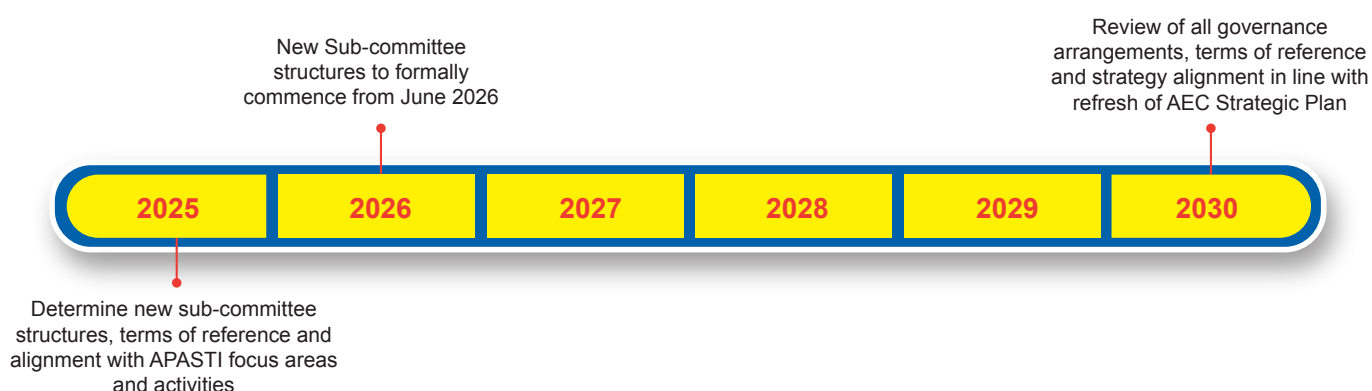
Policy Domain	ASEAN Ministerial Meeting on STI (AMMSTI) 	
Executing / Implementing Bodies	Committee on STI (COSTI) 	
	Board of Advisers to COSTI (BAC) 	ASEAN Secretariat 
	COSTI Sub-Committees 	
	Task Forces 	
Regional and Global Scientific Communities	Centres, Networks and Subsidiary Bodies <i>International Organisations, Private Sector and Non-Government Organisations</i>	
Partnership	Dialogue Partners, donors, private sector and other external partners	

Key:  Strategic  Operational  Advisory

Governance Body		Description
Policy Domain	AMMSTI	- Sets the direction for ASEAN STI development. - Provide guidance and advice on the implementation of APASTI 2026-2035.
Executing / Implementing Bodies	COSTI	Initiates, directs and oversees the development, monitoring and implementation of the APASTI 2026-2035.
	BAC	Supports COSTI make strategic decisions by providing timely advice.
	Sub-Committees	- Operational responsibilities in relation to implementation of APASTI 2026-2035, including overseeing COSTI endorsed STI initiatives and undertaking assessments. Key enhancement for the APASTI 2026-2035: The number of sub-committees streamlined commencing from June 2026 and aligned with the strategic objectives and scope of the APASTI 2026-2035.
	ASEAN Secretariat	- Key facilitation and coordination role to support COSTI and its subsidiary bodies in implementing the APASTI 2026-2035 Key enhancement for APASTI 2026-2035: Increased focus on coordination with broader ASEAN sectoral division and AEC Strategy Plan Monitoring and Evaluation Team, as well as increased support provided to Sub-Committees.
Regional and Global Scientific Communities	Centres, Networks and Other subsidiary bodies	Subsidiary bodies largely ad-hoc in nature and the establishment of these groups by Sub-committees require endorsement by COSTI. They support relevant Sub-Committees in their workplan implementation.
Partnership	Dialogue Partners, donors, private sector and other external partners	Other key bodies that support and contribute to the implementation of the APASTI

Additional enhancements for APASTI 2026-2035:

- Governance review mechanism:** The Governance Framework (i.e. all governance arrangements) is to be reviewed at the end of the first 5-year phase of APASTI 2026-2035 to ensure it remains fit-for-purpose.
- Structured engagement with dialogue and other external partners:** The implementation of various projects and initiatives has been and will continue to be supported by dialogue partners and other external partners. Under the APASTI 2026-2035, more structured and formalised engagement will be required with the coordination support of the ASEAN Secretariat to ensure key engagement objectives are met (including clarity of key partner relationship owners, structured and coordinated engagement processes, clarity in the value-add of external partners, and coordination).





Strategic Enablers

Funding and Resourcing

Ongoing and sustainable funding is pivotal for the successful realisation of the APASTI initiatives. The APASTI 2026-2035 ensures that the scale of available funds aligns with the ambitious needs of the initiatives and activities, unlocking the STI potential across the region. The APASTI adopts four funding strategies and two key enablers to drive innovative and transformative implementation of the APASTI 2026-2035.



Funding strategies

Various approaches that could increase the availability, volume, and sustainability of funds as well as improving the efficiency and effectiveness of funding and resource allocation.



Increasing the ASTIF and other capital fund size



Diversifying funding sources, including AMS contributions, STI partnerships, Dialogue Partners and private sector funding



Enhancing transparency, clarity and visibility



Improving prioritisation and allocation

Funding enablers

Targeted resources, processes, and structures required to successfully implement the funding mechanisms identified



Dedicated human resources and personnel capacity uplift



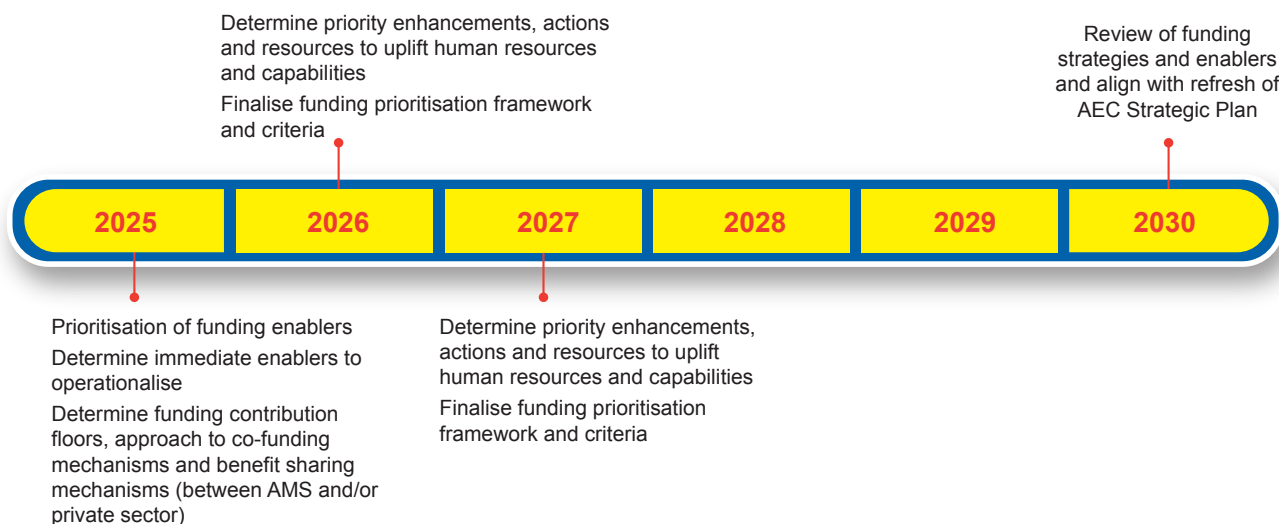
Cooperation, coordination and unified communication

Funding Strategies

The APASTI...	Funding strategy
Increases the ASTIF and other capital fund size	Increasing the amount of usable funding available and recurrent income for ASTIF through increasing ASTIF principal capital through additional one-off or periodic contributions from AMS and Dialogue Partners
Diversifies funding sources, particularly private sector funding	Undertake proactive exploration and pursue opportunities that: • Unlock private sector investment and contributions to enhance general funding and funding availability • Attract and leverage a mix of funding sources. For example, more complex initiatives could secure joint funding and contribution of AMS, Dialogue Partners and multilateral donors in
Enhances funding transparency, clarity and visibility	Ensure that funding sources and instruments are: • Well-communicated and visible to AMS • Funding processes and criteria are streamlined, transparent and accessible • Regularly communicated to stakeholders, including new opportunities • Structured to align funding needs with key priority areas and that administrative support is available
Improves prioritisation and allocation	Establishment and implementation of a comprehensive prioritisation framework to direct finite funding and resources to high impact initiatives. Key criteria to include alignment, impact, sustainability, equity and monitoring.

Funding Enablers

The APASTI...	Funding enabler
Dedicates human resources and personnel capacity uplift	To support the scaling of funding contributions and allocations, the APASTI: • Invests in the capability of key personnel in capital investment and fund deployment • Provides dedicated and well-resources personnel to expand fundraising efforts, manage ASTIF investment initiatives and to operationalise streamlined ASTIF funding application and allocation processes
Mainstreams cooperation, coordination and unified communication across all ways of working	To support effective fund management and coordination across the APASTI governing bodies, the APASTI: • Delivers a unified approach and representation of ASEAN cooperation to funding partners • Enhances funder's awareness and confidence in the APASTI investments





Strategic Enablers

Stakeholder Engagement and Communication

The APASTI stakeholder environment is complex, with various groups often assuming multiple roles in supporting and contributing to various strategic initiatives. Effective stakeholder engagement is crucial for achieving and sustaining the strategic goals of the APASTI 2026-2035 to ensure alignment across a broad spectrum of objectives and strategic measures.

The APASTI 2026-2035 supports and empowers implementers to develop tailored engagement strategies to ensure the APASTI's success over the next decade. The APASTI harnesses the collective contributions and impact of stakeholders across the STI ecosystem to achieve key outcomes for STI advancement and foster impactful collaboration across the region.

Stakeholder engagement in the APASTI brings together key actors in the R&D community, alongside private sector, general public, enterprisers, innovators and government agencies to support a diverse cross-pollination of ideas, expertise and technologies to catalyse STI value creation.

Investing in deep engagement and relationship building empowers ASEAN to move into high-growth technology areas, address industry capability gaps and customise innovation strategies to meet the requirements of its citizens.



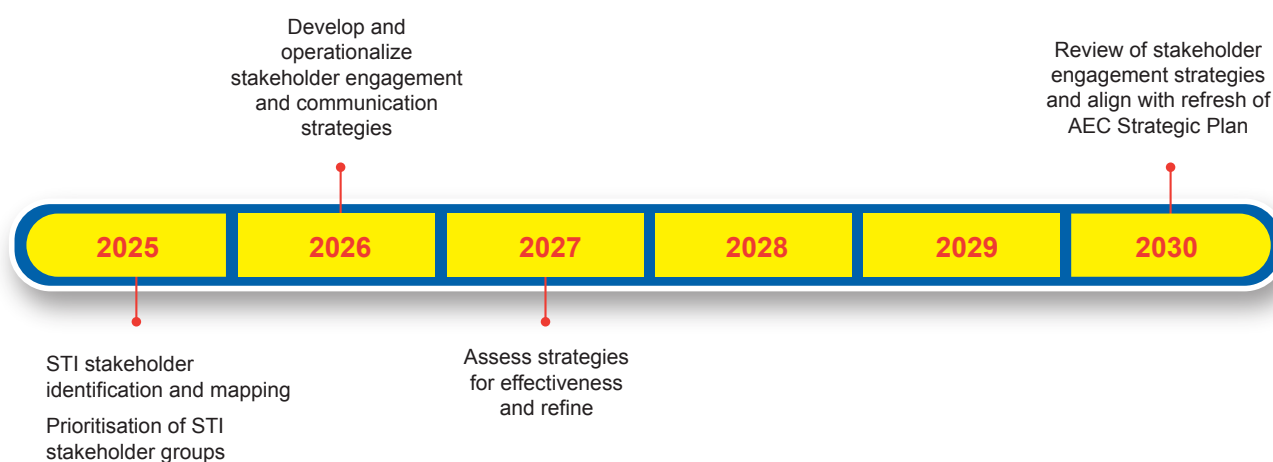
The APASTI's stakeholder engagement strategies grows regional talent pools to power ASEAN's STI advancements, foster job creation and drive inclusive growth. Deep engagement with stakeholders will also build trust and participation in the APASTI initiatives, while driving more effective and sustainable outcomes as stakeholders work together towards common goals.

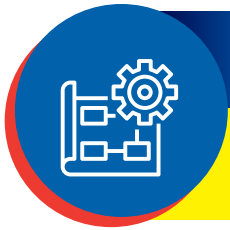
This sense of shared ownership and diverse inputs also help to connect STI achievements to practical improvements in citizen's lives, increasing momentum in public support for STI advancement.

The table below identifies key stakeholder groups that are critical to the successful implementation of APASTI 2026-2035, particularly non-government actors, and their associated roles which may evolve over the ten-year period.

Decision-making	Implementation	Funding	Policy formulation	Beneficiaries
✓ AMS Governments	✓ AMS Governments	✓ Private Sector	✓ AMS Governments	✓ Private Sector
✓ AMMSTI	✓ Private Sector	✓ Universities/ Research Institutions	✓ AMMSTI	✓ General public
✓ COSTI	✓ Universities/ Research Institutions	✓ Dialogue Partners	✓ COSTI	✓ Universities/ Research Institutions
	✓ Dialogue Partners	✓ AMS Governments		✓ Media
	✓ COSTI	✓ Donors		✓ Dialogue Partners
	✓ Subcommittees			✓ AMS Governments

See Appendix D for detailed stakeholder engagement and communication strategies.





Strategic Enablers

Monitoring and Evaluation

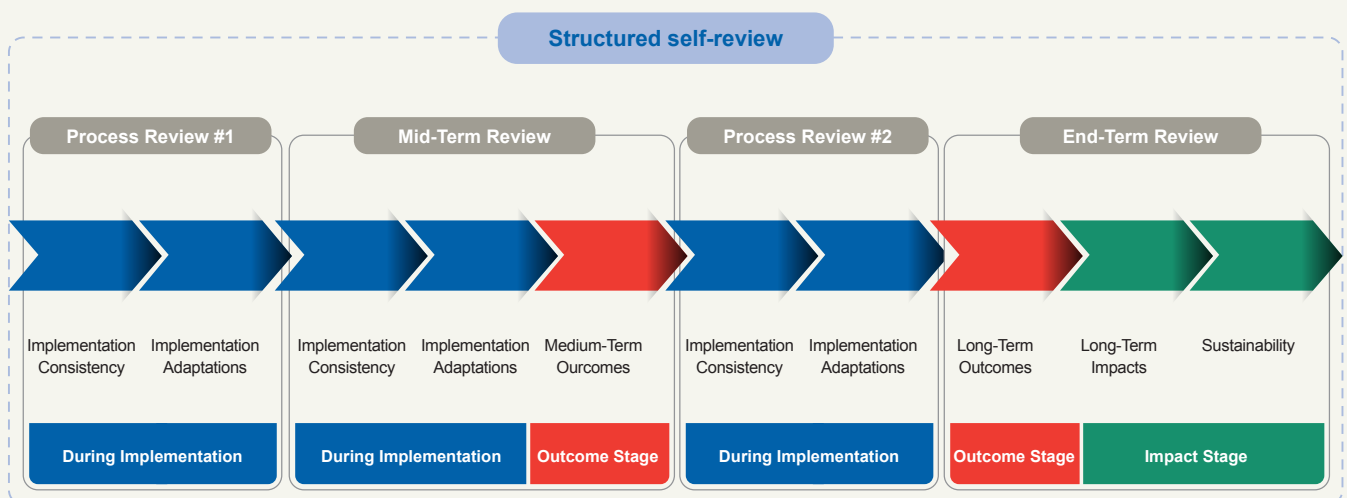
Monitoring and evaluation of the APASTI 2026-2035 ensures the implementation of the plan is accountable, transparent and responsive to emerging trends and challenges. Monitoring and evaluation will occur across two 5-year phases, the first being 2026-2030, followed by phase two which will evaluate implementation from 2030-2035. This two-phased approach will inform the focus areas for the 5-year review cycle(s) of the AEC Strategic Plan(s), supporting AEC strategies to remain agile, adaptable and nimble as technological developments and trends emerge across ASEAN.

The APASTI 2026-2035 uses data-driven insights, critical reflection and ongoing learning to drive inclusive and sustainable growth

across the next decade. By taking a proactive, rigorous approach to tracking mid and long-term outcomes, ASEAN will be well positioned to identify emerging challenges and make real-time adjustments to investment and initiatives, creating an environment for long-lasting and enduring change.

The APASTI M&E Framework works closely with the Monitoring and Evaluation Framework for the *AEC Strategic Plan 2026–2030* and success against these goals will be achieved through a comprehensive set of outcome and output indicators, periodic evaluations, and strategic reflection points.

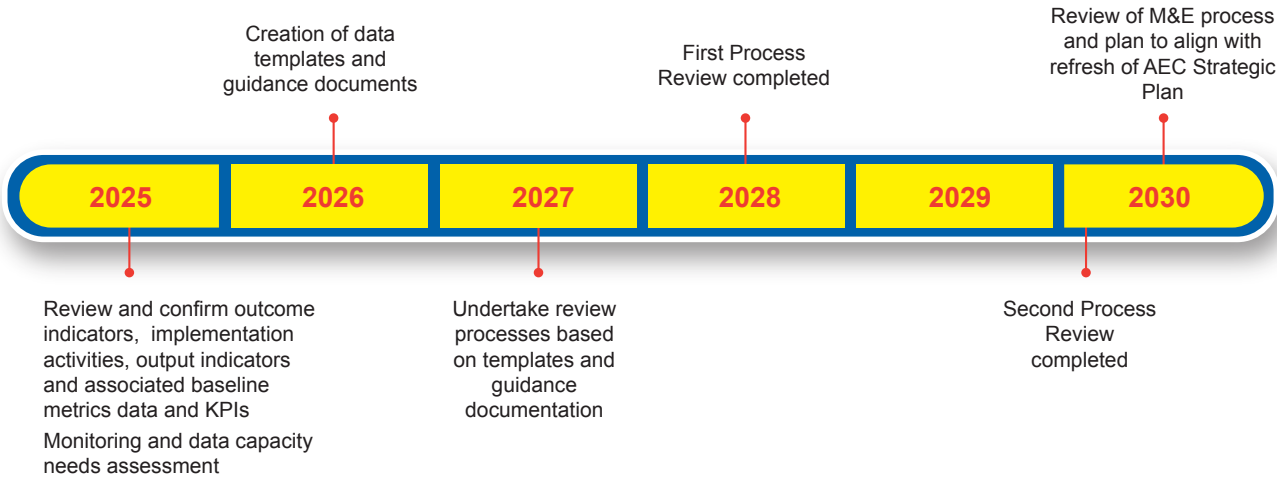
The Evaluation Plan facilitates planned and periodic assessments of the APASTI 2026-2035, focusing on key areas such as appropriateness, effectiveness, efficiency, impact, and sustainability. This approach ensures that the APASTI strategies remain relevant and impactful and drive continuous improvement across key STI impact areas.



By linking impacts and achievements to governance and implementation approaches, the Evaluation Plan empowers ASEAN with a roadmap for how STI change happens, informed by a practical and context-relevant understanding of the key drivers behind APASTI successes and challenges. Utilising this framework, the APASTI delivers:



The APASTI...	Strategy
Enhances decision-making	Collect comprehensive and real-time data to deliver effective and timely STI interventions
Increases accountability and transparency	Utilise a robust framework that ensures stakeholder accountability and that implementation activities foster stakeholder trust and credibility
Improves the APASTI's effectiveness	Improves the APASTI's effectiveness By embedding continuous feedback and adaptive learning in our M&E processes, we will refine initiatives to be more responsive to changing demographic needs and to keep pace with STI trends
Ensures inclusive development	By involving diverse stakeholders, and collecting disaggregated data, ASEAN will ensure that the needs and perspectives of all groups are considered in the promotion of equitable and durable STI outcomes





Strategic Enablers

Strategic Management

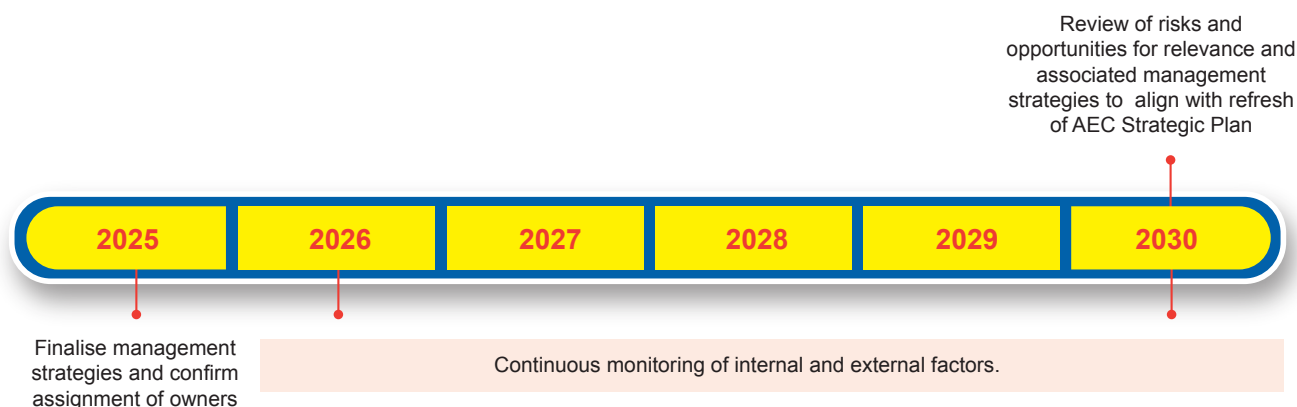
Proactive strategic management enables APASTI to align its key strategies with potential opportunities and mitigate risks, ensuring it can adapt to changing circumstances and seize new possibilities that may arise over 10 years of implementation. It ensures that past learnings are incorporated, and known shortcomings avoided. It safeguards the achievement of long-term goals and objectives and enables adaptive responses to emerging trends and changes in the environment. The APASTI 2026-2035 continuously monitors internal and external environments to identify emerging risks and opportunities that could impede STI success in ASEAN.

Disclaimer: Information provided in this section is accurate as of 2025. Please note that circumstances and data may evolve over the course of the 10-year implementation period. Stakeholders are encouraged to regularly review and update risk management strategies to reflect any changes and ensure continued alignment with the strategic goals of the APASTI 2026-2035.

On top of keeping abreast of global trends, technological developments, regulatory changes, and socio and geopolitical factors impacting the achievement of goals and objectives, the APASTI monitors and mitigates the following risks. These risks have been informed by key shortcomings from previous action plans to ensure focus continuous reflection and improvement.

Opportunity and risk category	Management strategies
Funding <i>Ability to secure adequate funding and resourcing (particularly due to reliance on DPs, or turbulent geopolitical landscapes).</i>	Develop and maintain a comprehensive funding strategy which includes consideration of diverse funding sources and periodic review to assess its effectiveness. This strategy will be periodically reviewed (<i>COSTI & SCs</i>) A structured and coordinated approach to funding to facilitate ongoing dialogue and collaboration between AMS and key stakeholders. (<i>ASEAN Secretariat</i>)
Equal participation and benefit sharing <i>Ensuring equal representation of women in high-level STI policy decision-making roles, as well as appropriate allocation of funding to projects that contribute to providing opportunities for these groups.</i>	Inclusive engagement of AMS in key processes and KPI monitoring to ensure all perspectives are considered and for enhanced collaboration and joint delivery approaches. (<i>COSTI with support from ASEAN Secretariat</i>) Implement participatory planning processes for local projects to empower communities in shaping resource allocation decisions and to promote ownership and transparency. (<i>COSTI with support from ASEAN Secretariat</i>)
Gender equality and social inclusion <i>Ensuring equal representation of women groups in high-level STI policy decision-making roles, as well as appropriate allocation of funding to projects that contribute to providing opportunities for these groups</i>	Greater integration of social inclusion and gender mainstreaming principles across the key implementation activities , governance, funding and resourcing, APASTI implementation activities, and monitoring and evaluation. (<i>COSTI with support from ASEAN Secretariat</i>)
Ongoing relevance of the APASTI <i>The rapid pace of technological advancement and/or any future crises (such as a pandemic) may impact the ongoing relevance and effectiveness of certain elements within the APASTI, ultimately hindering progress and diminishing its effectiveness.</i>	Continuous stakeholder engagement from various sectors to gather insights and feedback on the APASTI's relevance. (<i>ASEAN Secretariat</i>) Implement regular review processes to incorporate new developments and opportunities in STI. (<i>COSTI coordinated by the ASEAN Secretariat</i>) Enhance BAC support for informed strategic direction to COSTI (<i>COSTI and BAC</i>) Strengthen STI structures for long-term resilience (<i>All governance bodies</i>)

Opportunity and risk category	Management strategies
Resourcing <i>Availability of skilled personnel and experts in required fields (e.g. talent retention, execution of initiatives and an ability to keep pace with technological advancements).</i>	Enhance knowledge sharing and onboarding process for new personnel to boost understanding of the APASTI's goals and objectives. <i>(BAC and Sub-Committees)</i> Foster partnerships to leverage expertise and resources, allowing for knowledge sharing and collaboration <i>(All governance bodies)</i> Establish a volunteer recognition system to enhance motivation and commitment to the effective implementation of the APASTI. <i>(ASEAN Secretariat)</i>
Consistent adoption of the APASTI Sufficient adoption and effective utilisation of APASTI across AMS will lead to consistent implementation and increased impact to achieve regional objectives.	Implement knowledge sharing and peer learning for best practices in APASTI adoption <i>(ASEAN Secretariat)</i>
Coordinated approach to delivery Effective coordination and an integrated approach to project delivery (including with other sectoral bodies), leading to strong alignment between activities and APASTI goals, enhanced efficiency and synergy.	Create standardised proposal templates, digital workflows and reporting requirements to ensure alignment of expectations <i>(ASEAN Secretariat)</i> Foster a culture of collaboration through cross-functional teams. <i>(All governance bodies)</i> Foster continuous improvement through feedback mechanisms embedded in review processes <i>(ASEAN Secretariat)</i>
Project successes Projects that meet their objectives, timelines or budgets enhances impact and stakeholder trust and confidence around ability to achieve broader goals and objectives.	Develop and implementation a robust the APASTI M&E Framework for continuous monitoring and assessment of project process, relevance and impact. <i>(COSTI, APASTI Taskforce and Sub-Committees)</i> Post-implementation reviews to inform future implementation. <i>(Sub-Committees with support from ASEAN Secretariat)</i>
Communication and cultural understanding Diverse languages and cultures across AMS can lead to misunderstandings, misinterpretations, and a lack of engagement, ultimately impacting collaboration and the successful implementation of initiatives. This can result in reduced effectiveness of initiatives, diminished stakeholder trust, and missed opportunities for regional integration.	Implement feedback mechanisms for stakeholder concerns regarding communication approach. <i>(ASEAN Secretariat)</i> Foster a community-driven approach to help incorporate local cultural and contextual knowledge. <i>(Sub-committees)</i>



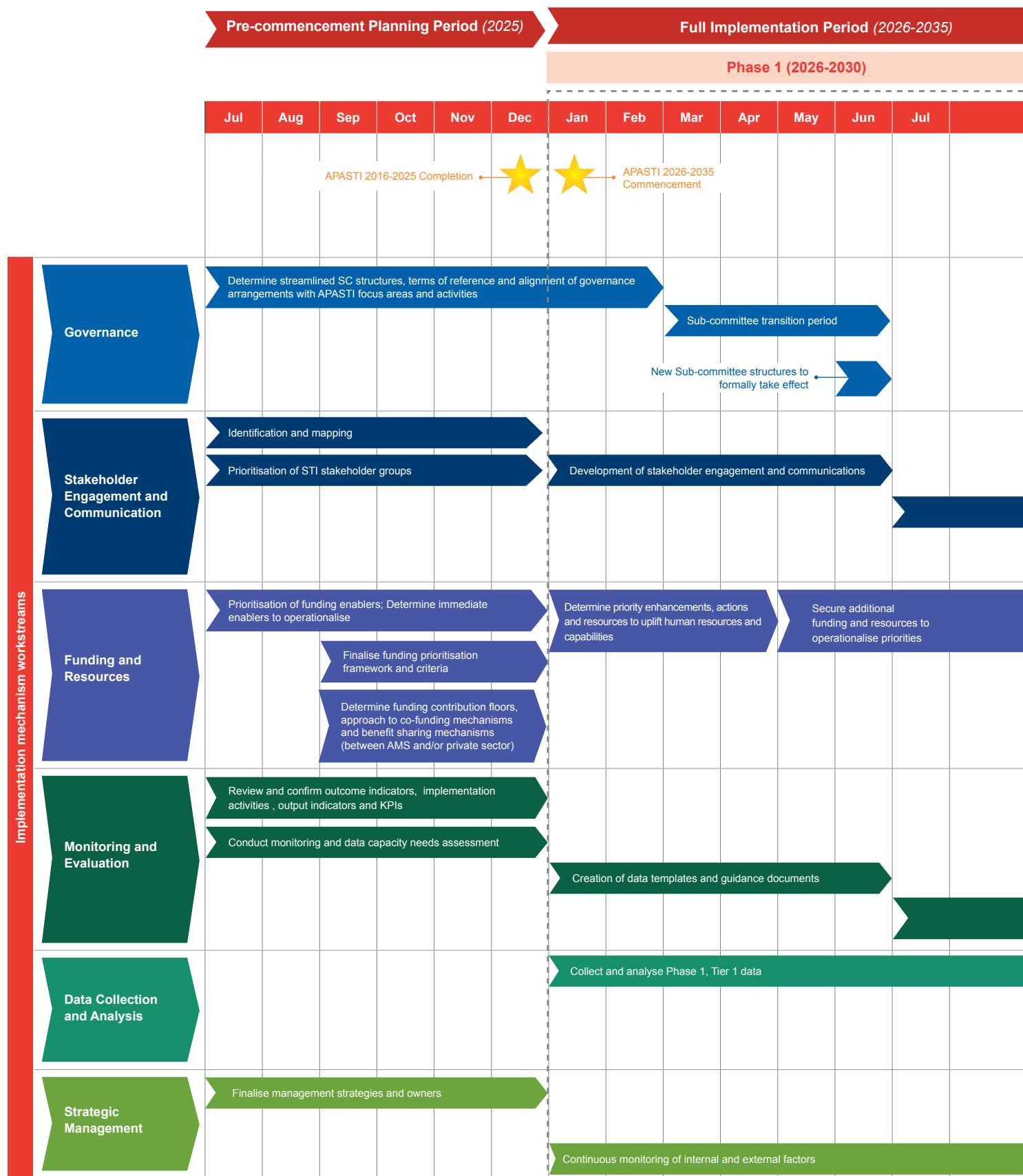
Detailed risk mitigation strategies for each risk category are set out in the Appendix.

Disclaimer: Information provided in this section is accurate as of 2025. Please note that circumstances and data may evolve over the course of the 10-year implementation period. Stakeholders are encouraged to regularly review and update management strategies to reflect any changes and ensure continued alignment with the strategic goals of the APASTI 2026-2035.



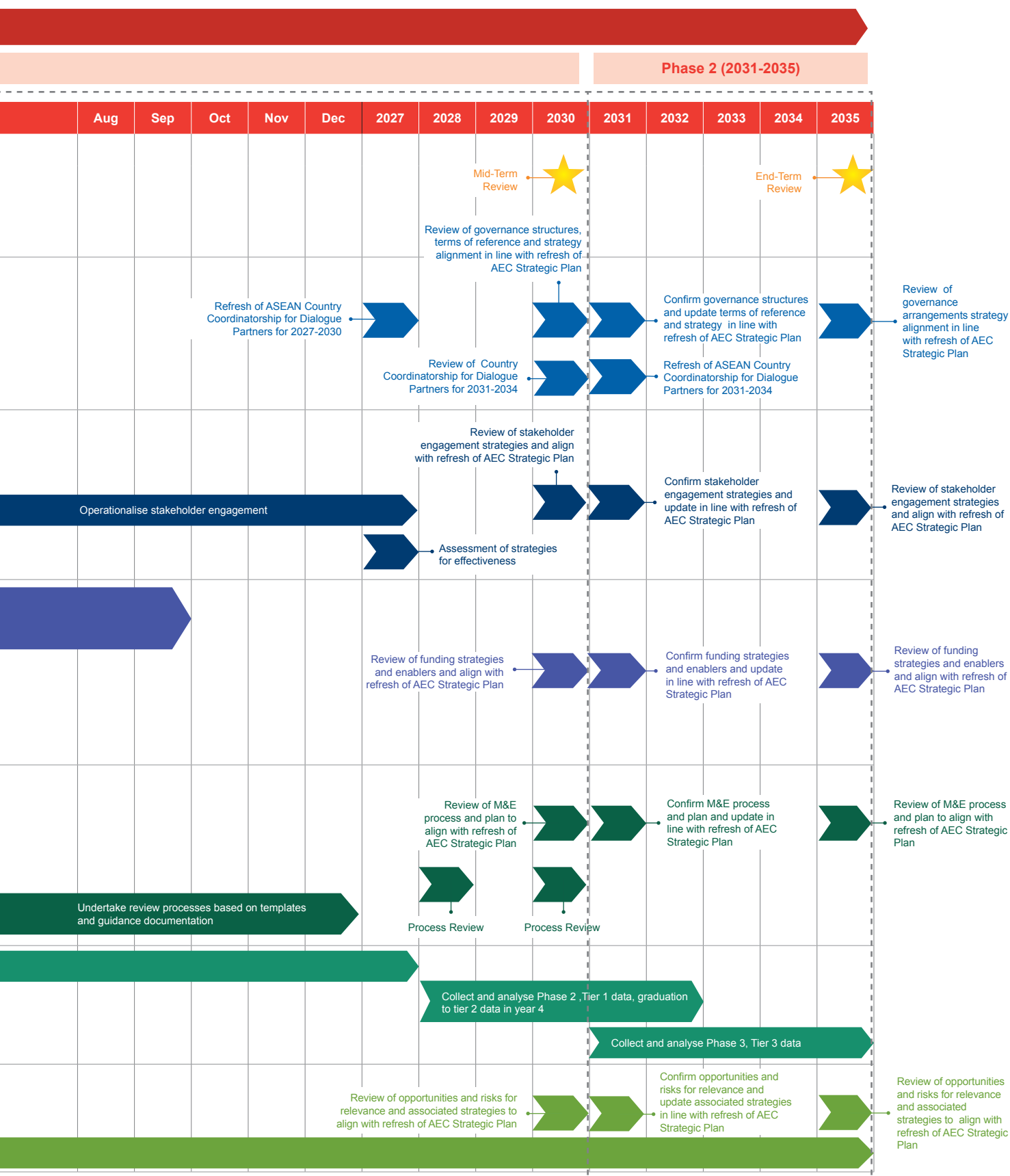
Strategic Enablers

Action Plan



Evolution of the implementation mechanisms to successfully execute the APASTI involve a series of staged transitions and activities from the outset of the 10-year horizon.

These staged transitions and immediate key actions across each of the core implementation mechanisms – governance, stakeholder engagement and communications, funding and resourcing and monitoring and evaluation – are captured in an implementation action plan. The implementation action plan presents three key stages of transition – pre-commencement planning, transition, and full implementation.



Appendix A

ASEAN situational analysis



The Global Innovation Index (GII) ranks innovation performance of approximately 130 economies based on around 80 indicators including measures on policy environment, education, infrastructure and knowledge creation. This index is published annually by the World Intellectual Property Organisation (WIPO) and will support ASEAN to monitor general performance and progress over time in relation to innovation.

In the period between 2016-2024, almost all AMS improved their rankings in the GI with an average increase of eight places, indicating general progress in STI across ASEAN. There were multiple AMS with substantial improvements to their rankings, with only two AMS experiencing a decrease over the period. These rankings and those of selected Dialogue Partners used for comparison purposes are provided below.

Table 1: Global Innovation Index ranking of AMS and selected Dialogue Partners¹

AMS / Dialogue Partners	2016	2018	2020	2022	2024	Change 2016-2024
Brunei Darussalam	71	67	71	92	88	-17
Cambodia	95	98	110	98	103	-8
Indonesia	88	85	85	75	54	34
Lao PDR	N/A	N/A	113	112	111	N/A
Malaysia	35	35	33	36	33	2
Myanmar	N/A	N/A	129	116	125	N/A
Philippines	74	73	50	59	53	21
Singapore	6	5	8	7	4	2
Thailand	52	44	44	43	41	11
Viet Nam	59	45	42	48	44	15
AMS average change						8
Australia	19	20	23	25	23	-4
Canada	15	18	17	15	14	1
China	25	17	14	11	11	14
India	66	57	48	40	39	27
Japan	16	13	16	13	13	3
New Zealand	17	22	26	24	25	-8
Republic of Korea	11	12	10	6	6	5
Russian Federation	43	46	47	47	59	-16
United States	4	6	3	2	3	1
Selected Dialogue Partner average change						3

Legend:

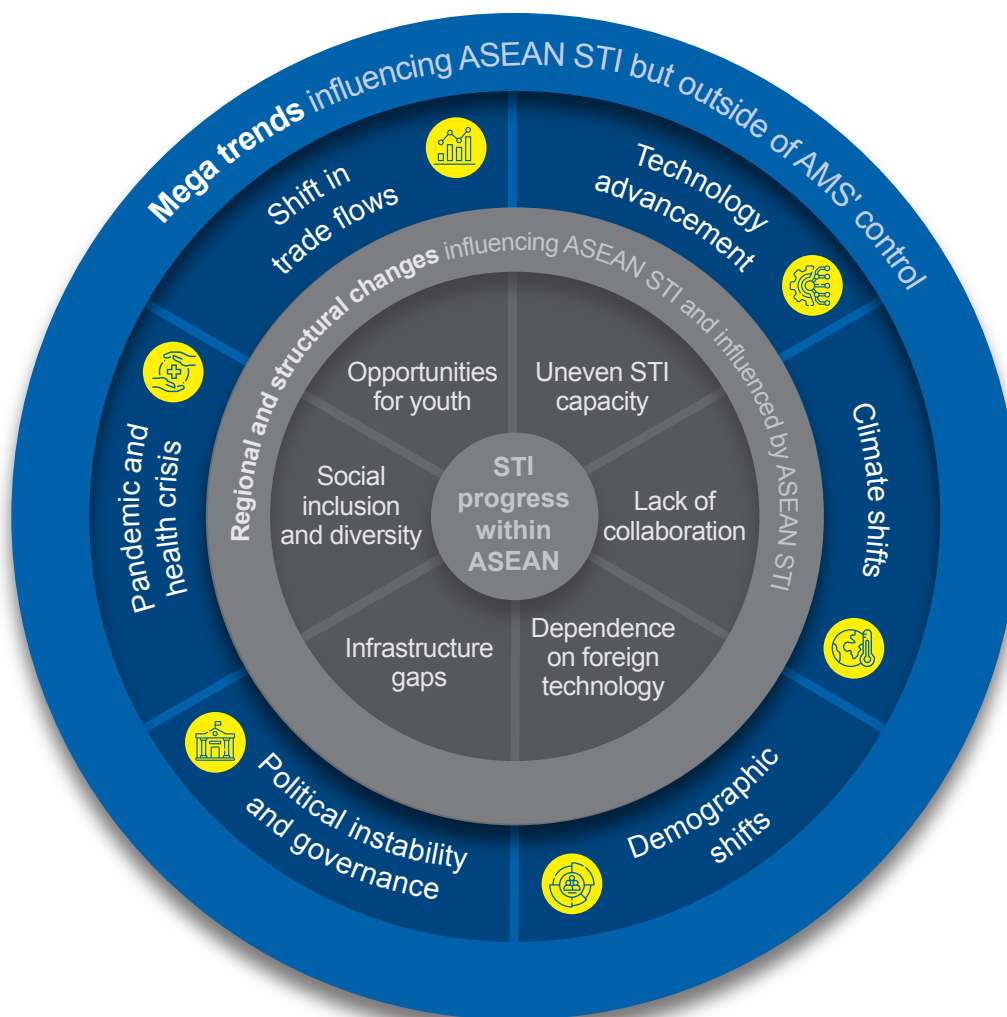
Top	10%	Top	11 - 50%
Bottom	10-49%	Bottom	10%

¹ World Intellectual Property Organisation, WIP Global Innovation Index, 2016-2024, retrieved from: <https://www.wipo.int/en/web/global-innovation-index>

As ASEAN navigates geopolitical shifts, transformations in trade relations, environmental concerns and demographic changes, it faces both significant opportunities and pressing challenges that can impact STI and overarching progress. Understanding the factors that can impact or provide opportunities for advancements in STI is critical for the success of the APASTI and the continued development of effective strategies that promote sustainable growth, enhance regional cooperation and ensure inclusive development across AMS.

Importantly, ‘mega trends’ are driving shifts within and beyond ASEAN. The *ASEAN Economic Community (AEC) Post-2025 Study*² and the *Foresight for the APASTI 2026-2035*³ highlight the key mega trends that will likely occur over the course of this APASTI. As a sectoral plan, the APASTI will need to focus on advancing STI capability in a way that responds to these mega trends. The ability of AMS to take advantage of STI developments and address key challenges will determine their future security and prosperity. A summary of the identified mega trends is provided below and illustrated in Figure 1.

Figure 1: Mega trends impacting ASEAN



² AUS4ASEAN Futures, *Final Report: ASEAN Economic Community (AEC) Post-2025 Study: Towards ASEAN Economic Community (AEC) 2045: Options and Potentials for the ASEAN Economic Community (AEC) 2045*, November 8, 2024.

³ CSIRO and ASEAN, *Foresight for the ASEAN Plan of Action on Science, Technology and Innovation (2026-2035)*, December 2024

1.2.1. Technology advancement

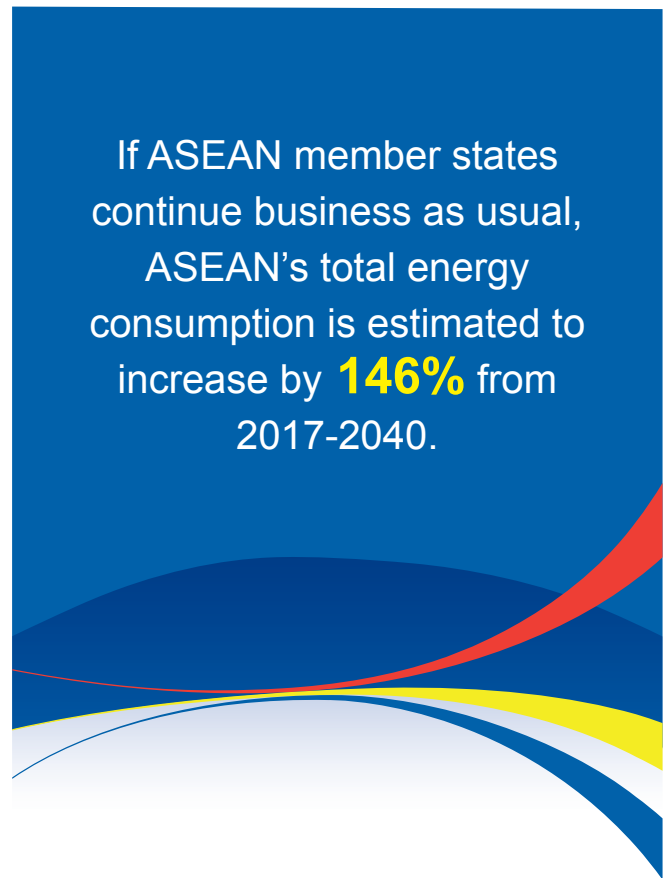
Emerging technologies such as generative AI have the potential to significantly enhance knowledge and processes across STI, innovation, and productivity. For example, quantum sensing provides greater understanding of molecular processes and greater accuracy in elemental detection. While these technologies offer ASEAN significant value potential and operational efficiencies, there are some associated challenges such as:

- **Cybersecurity threats** – with greater integration of digital technology, countries become increasingly vulnerable to cyberattacks. Breaches in cybersecurity can jeopardise sensitive information and diminish public and business trust in technology. Recent years have seen a surge in attacks targeting ASEAN institutions, while the presence of robust cybersecurity systems are still lacking. For example, in 2024, southeast Asia experience twice as many cyberattacks than in the previous year.⁴
- **Impacts on inequality** – remote areas and underserved communities across ASEAN are often those that have limited access to technology. This creates a digital divide that likely hinders education and innovation and exacerbates inequality across the region.
- **Consumer market dynamics** – surges in the collection of data and AI-targeted marketing has created trust issues with consumers, concentrating power amongst social network providers. Authentication of claims of sustainability, quality assurance and certification schemes are all approached with precaution.

1.2.2. Accelerated climate shift

The consequences of accelerated global warming necessitate action on climate adaption and resilience. ASEAN is particularly vulnerable and often experiences extreme weather events or natural disasters such as typhoons, floods and droughts. These events damage critical infrastructure, displace animals and people, have the potential to cause long-term injuries and trauma, increase pollution, increase safety risk to those in the area and redirect resources towards more urgent recovery efforts rather than STI.

According to ASEAN Centre for Energy, if ASEAN member states continue business as usual, ASEAN's total energy consumption is estimated to increase by 146% from 2017-2040.⁵ However, there is an opportunity for growth through nature-based / green solutions and ASEAN can look to support global efforts in renewable energy, sustainable agriculture, emergency response systems and conservation technologies to reduce energy usage and the rate of global warming.



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2017-2040.

⁴ Positive Technologies, *Cyberattacks on Southeast Asia doubled in 2024*, 20 March 2025

⁵ ASEAN Centre for Energy, *The 6th ASEAN Energy Outlook 2017-2040*, November 2020

1.2.3. Demographic shifts

As ASEAN transitions to an upper-middle-income economy by 2045, rising consumption will create new business opportunities, but the region must address challenges such as wage increases, an aging population, and income inequality to maintain competitiveness and ensure inclusive development. Key demographic changes that will need to be considered are described below:

- **Aging population** – population aging is a global trend that is expected to occur at a much faster rate in some ASEAN member states (e.g., Thailand, Singapore, Viet Nam, Brunei and Malaysia) compared to other countries across the world. The impacts of an aging population can be rising costs of health care per citizen, low digital literacy and labour shortages.
- **Youthful populations** – while an aging population is a growing global trend, some ASEAN countries such as Myanmar, Cambodia, The Philippines and Lao PDR are experiencing a larger younger population. The impacts of this structure can increase youth unemployment, create technology knowledge gaps, digital infrastructure gaps and the need for youth service provisions. However, a youthful and dynamic population also can provide a strong foundation for STI growth.
- **Population mobility** – an increase in movement of the population provides opportunities for shared knowledge across ASEAN and globally. Meanwhile, the region will need to be aware of solutions for employment for unskilled migrants, recognition of skills/qualifications from elsewhere, cultural differences and remote voting.
- **Health demographics** – across ASEAN there have been increases in the prevalence of mosquito-borne diseases, malnutrition and undernutrition (falling but persistent in some areas), cardiovascular disease/cancer/diabetes/chronic respiratory conditions, an increase in cancer rates and changing lifestyles/diets (including the increased prevalence of fast or processed foods). Progress in STI that can support the treatment or prevention of these specific health challenges will be expected to be prioritised.

1.2.4. Political instability and governance

Political instability in some ASEAN countries can disrupt STI initiatives, deter investment and undermine long-term planning. Corruption and bureaucratic inefficiencies further complicate progress. Moreover, increasing polarisation between the West and East presents opportunities for ASEAN but also presents conflict and protectionism risks that could restrict capital flows and resources.

1.2.5. Pandemic and health crises

Health crises like COVID-19 can disrupt STI activities by shifting focus and resources to immediate healthcare needs, delaying research in other areas. For example, during the COVID-19 pandemic, many research projects unrelated to the crisis were deprioritised. Furthermore, these health crises not only disrupt STI activities and research but also slow down broader economic and investment activities. The economic downturn can lead to reduced funding for STI initiatives, hindering innovation and growth as well as disruptions to education systems can have lasting impacts on the development of national STI skills and capacity.

1.2.6. Shifts in trade flows

In recent years geopolitical tensions are shaping trade impacting trading routes, shared resources and supply chains. For example, when tariffs were placed on China by the United States in 2018, it caused an offshoring of production to other countries (often ASEAN Member States).

ASEAN can benefit from the diversification of supply chains from China but must enhance its value addition and reduce reliance on Chinese imports to avoid losing opportunities to other regions.

Progress across the region has been and will continue to be impacted by several regional and structural challenges. These factors were identified through reviews of the APASTI 2016-2025 and through research undertaken through the ASEAN Foresight Alliance. This APASTI will consider how the plan can mitigate or provide solutions to these challenges over its tenure.

1.3.1. Uneven STI capacity

There is significant disparity in scientific infrastructure and R&D capacity among ASEAN countries, with Singapore far ahead of emerging nations like Myanmar, Lao PDR and Cambodia. Deficiencies in coordinated and standardised approaches to skills building presents a significant challenge to the realisation of APASTI goals and objectives.

Inequitable development and uneven skills development limits inclusive regional integration and impedes transitions to emerging sustainability markets. Additionally, uneven STI capacity hinders the implementation of region-wide initiatives that require comparable technology readiness.



Brain drain

Talented scientists and researchers often migrate to higher-income nations for better opportunities, leading to a loss of knowledge transfer, expertise and talent in the region. This has significant impacts on disparities in the development of human capital, productivity and economic growth. However, improved lifestyles and economic stability in many ASEAN nations are drawing back trained experts.

Limited funding

While some nations are increasing investments, overall funding for science and technology in ASEAN is relatively low compared to global leaders like the U.S., European Union, and China. Additionally, disparate understanding of how to access funds creates a cycle in which less-developed AMS fall further behind in technological capabilities.

Unequal access to technology

Rural and underserved communities in ASEAN often lack access to energy, technology and internet connectivity, exacerbating the digital divide and limiting the inclusive impact of STI. For example, remote areas in Indonesia and Cambodia have limited access to the internet, hindering equal access to education and innovation to address challenges such as climate disasters and emerging technologies.

Education and talent

The quality and consistency of education across ASEAN member states creates greater differences in STI capacity and skills which can be exacerbated by ongoing trends. For example, low-skilled populations are generally more vulnerable to automation technologies.



1.3.2. Lack of collaboration

Inconsistent policy frameworks

The lack of harmonised policies and regulatory frameworks across ASEAN countries hinders regional collaboration and the movement of researchers and resources. It also inhibits the scaling up of new ventures and enterprises in some AMS. Diverse policy frameworks may also complicate the development of consistent performance metrics and evaluation approaches.

Varying regional and global awareness of the APASTI

Disparate APASTI awareness across the region amongst both STI and non-STI sectors due to lack of understanding or accessibility has impacted APASTI adoption and implementation and its key initiatives within AMS. This limits opportunities to integrate APASTI goals into other policy domains such as education, trade and industry.

Misalignment of the APASTI with national priorities

The misalignment of APASTI with national priorities across AMS can result in insufficient integration of APASTI goals into critical areas such as collaboration, economic development, public health, and environmental sustainability. Without clear alignment, AMS may struggle to prioritise APASTI initiatives, leading to missed opportunities for collaboration and resource allocation that could enhance overall national development and innovation efforts.

Insufficient industry-academia linkages

Collaboration between academic institutions and industries remains underdeveloped, limiting the practical application of research. Weak linkages between industry and academia may slow adoption of new technologies developed in research settings and limit the market responsiveness of research. There is also a reported mismatch between STI skills and industrial needs.

Lack of high-quality research outputs and inconsistent data collection

Despite rapid growth in the number of publications, the global impact and citation rates of research from AMS are still relatively low. In addition, inconsistent access to data collection tools and methods make it difficult for AMS to routinely collaborate and share information.

1.3.3. Dependency on foreign technology

Currently many ASEAN member states have a heavy reliance on imported technologies and expertise within STI. For example, many ASEAN countries depend on imported semiconductors and software for their tech industries. This dependency on foreign technology, capacity and capability limits the development of local capabilities and renders ASEAN susceptible to external disruptions.

1.3.4. Infrastructure gap

Across ASEAN the need for infrastructure and improved services outweighs the funding available for development. Any deficit across digital and physical infrastructure can slow economic and social progress given ASEAN would not have the means to undertake key STI activities such as R&D.

1.3.5. Barriers to Social Inclusion and Diversity

There are ongoing structural, cultural and systemic challenges related to improving social inclusion and gender equality, particularly in STI sectors. This has hindered the full participation of diverse groups in STI and signals losses in talent development and innovation opportunities.

Women remain under-represented in STI

The APASTI 2016-2025 made some progress in improving gender equality, disability and social inclusion (GEDSI), including women, young people and other under-represented groups in STI. However, there remains persistent structural, cultural and systemic barriers to closing GEDSI gaps across AMS. Improving the participation of diverse and underrepresented groups in STI requires comprehensive and integrated

programming, with clear targets that address root causes of exclusion.

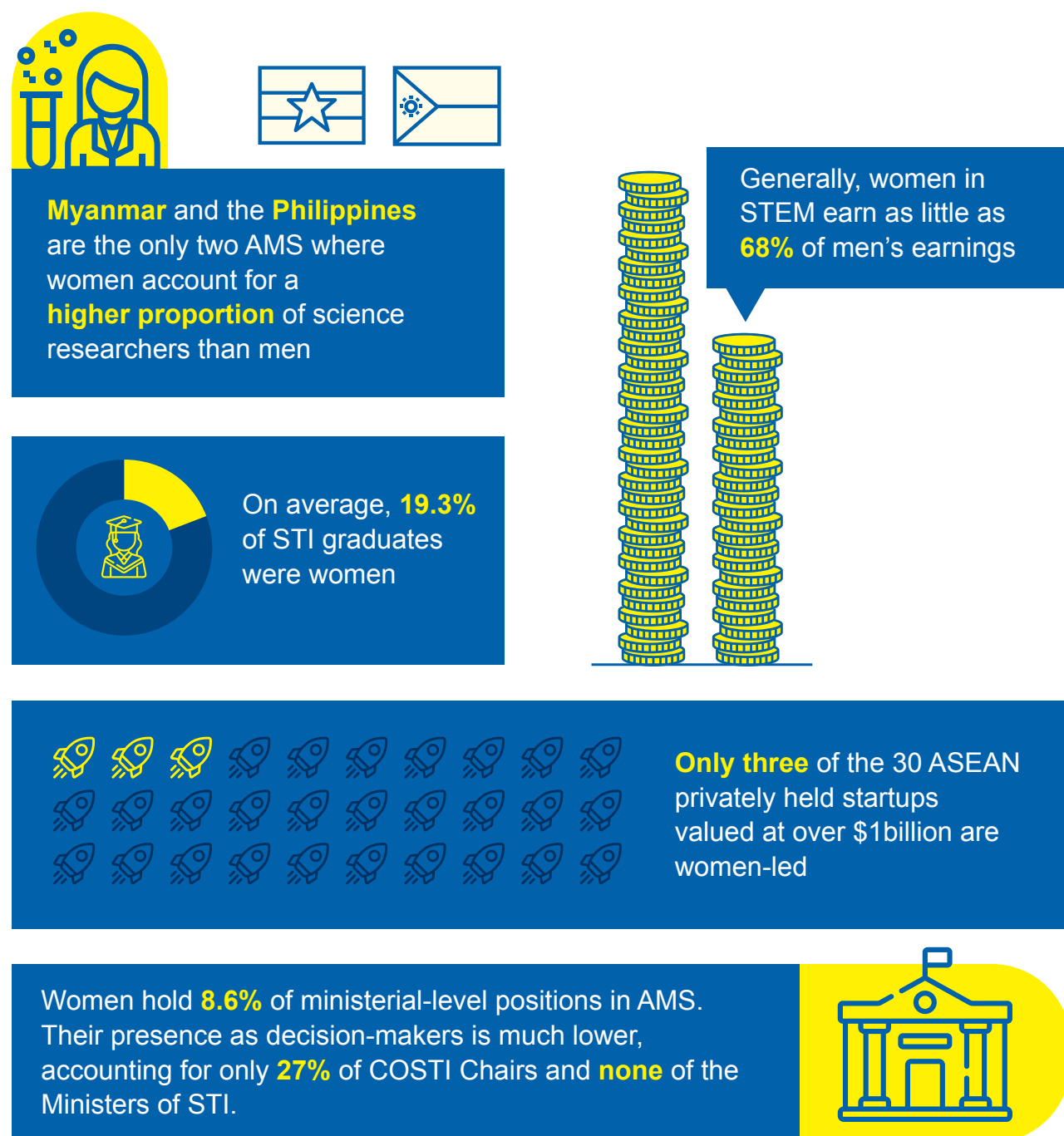
Despite advancements made by APASTI, women face ongoing challenges to equal participation and remuneration in the STI workforce and continue to be inadequately represented in STI-related tertiary education. The underrepresentation of women is acute in policy-making and leadership positions which can hinder progress in participation and representation. For example, most women working in STI hold early or mid-career positions reliant on short term funding. This results in high rates of attrition in the STI workforce and reduces incentives for supervisors to invest in professional development and leadership opportunities.

Barriers to GEDSI are pervasive and creating change requires a dedicated and cross-cutting response

The APASTI 2016-2025 had a relatively narrow focus on GEDSI, contained largely within Thrust 2- Talent Mobility, People-to-People Connectivity and Inclusiveness. However, GEDSI issues are pervasive across all aspects of STI, for example, across representation in policy decision-making; access to education; participation in industry and academia; and enjoyment of economic and other benefits arising from STI developments.



Figure 2: Varying gender equality and representation of women in STI across ASEAN



1.3.6. Greater opportunities for youth are required to continue progress in STI

Having a sizeable and skilled young population across ASEAN supports an ongoing productive workforce and highly digitally literate consumer group. To develop this population and the knowledge of STI in upcoming generations, young people need to have access to key opportunities within STI. Key barriers to creating opportunities for the next generation include:

- Lack of experience
- Limited access to financial services
- Job insecurity
- Insufficient skills or opportunities for skill development

Other key challenges may include lack of career guidance or limited professional networks that can hinder job or mentorship opportunities. To develop the skills and opportunities for youth across ASEAN, it is essential to improve accessibility to education and key resources for youth across differing AMS.

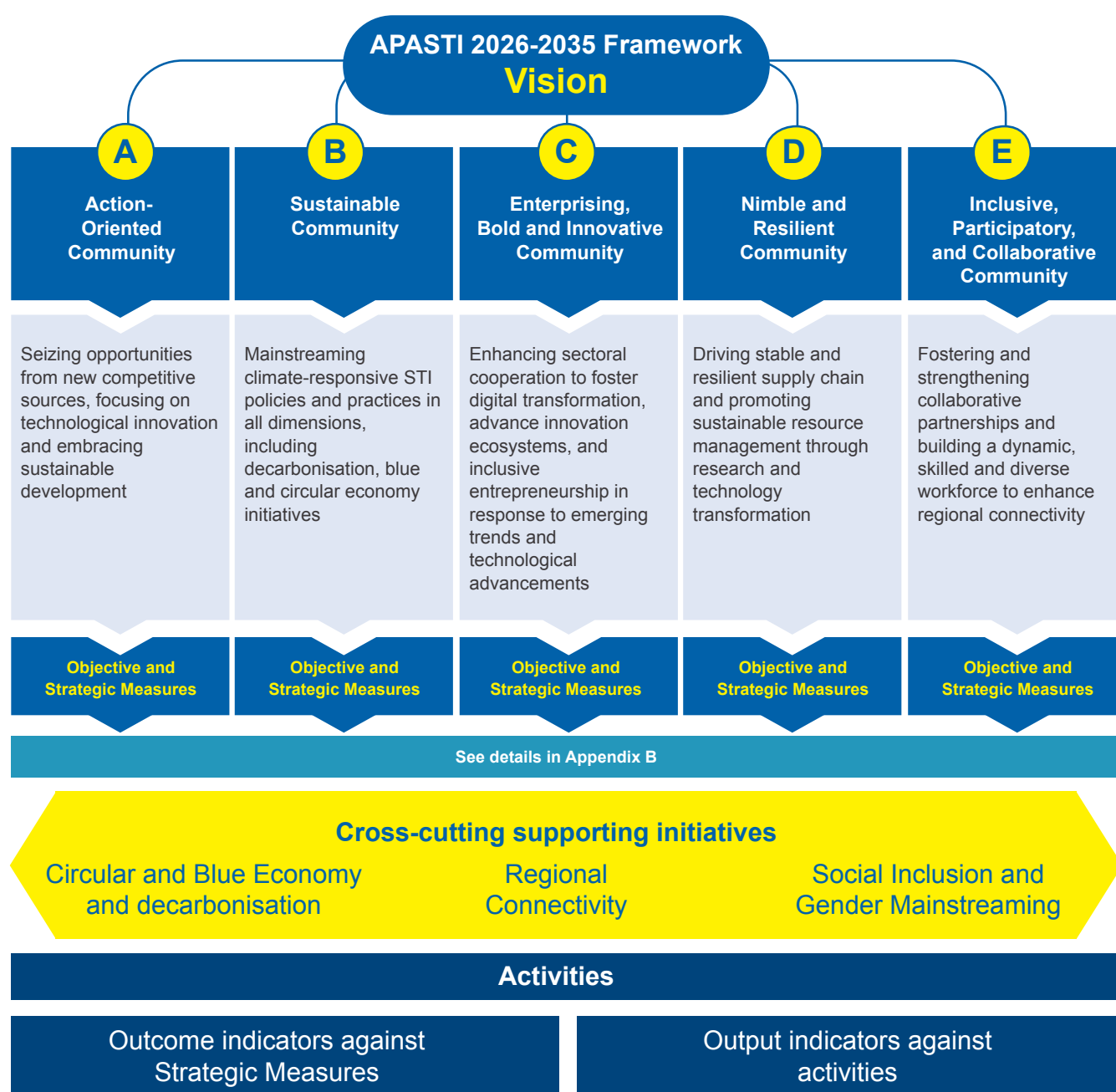
Appendix B

APASTI 2026-2035 Framework in detail



The APASTI 2026-2035 framework advances STI to support regional economic growth and prosperity across ASEAN via a range of strategic goals, objectives and strategic measures that are adapted from the ASEAN Economic Community (AEC) Strategic Plan 2026-2030. These directions underpin the APASTI Framework foundational structure and key strategies for the APASTI 2026-2035, which are implemented under the leadership of the ASEAN COSTI. The AEC strategic plan sets out the following tiers which are adapted for the APASTI 2026-2035 framework as illustrated in Figure 3.

Figure 3: The APASTI Framework Structure



Tier 1: Strategic Goals

The strategic goals serve as fundamental areas for advancing STI over the next decade, guiding efforts to address key challenges, foster collaboration, and drive sustainable development across the region. They have been curated from the Core Elements of ASEAN Community Post-2025 Vision, which includes an Action-oriented Community, A Sustainable Community, Enterprising, Bold and Innovative Community, Adaptable Community (not under the remit of APASTI), A Nimble and Resilient Community, and an Inclusive, Participatory and Collaborative Community.

Tier 2: Objectives

The strategic objectives translate the overarching strategic goals into guiding efforts to achieve meaningful progress in STI, serving as long-term outcomes. For the APASTI 2026-2035, a selection of relevant strategic objectives are curated from the AEC strategic plan 2026-2030.

Tier 3: Strategic Measures

The strategic measures serve as medium-term outcomes that address the evolving needs and challenges in STI across the region. For the APASTI 2026-2035, a selection of relevant strategic measures is curated from the AEC Strategic Plan 2026-2030.

Tier 4: Activities

The activities encompass guiding actions and initiatives designed to enable each strategic measure in the context of STI, ensuring that the objectives are met, and the goals are realised through targeted implementation efforts.

Tier 5: Supporting Initiatives

Supplementing the core set of strategic goals are key thematic cross-cutting supporting initiatives. These initiatives are not only innovative but also equitable and sustainable, addressing the diverse needs of ASEAN's populations while promoting collaboration and environmental stewardship.

Decarbonisation, Circular and Blue Economy

The pillar supporting decarbonisation efforts, Carbon Capture, Utilisation and Storage, and the circular and blue economy theme advocates for sustainable resource management by integrating circular economy principles and blue-green practices. This approach focuses on

promoting sustainability across all components of implementing the APASTI. By adopting this model, ASEAN aims to create resilient ecosystems that support economic growth while safeguarding the environment, driving innovation and collaboration for a sustainable future.

Regional Connectivity

The Regional Connectivity theme promotes unity and collaboration among member states, emphasising a cohesive approach to regional development. By fostering partnerships across sectors and borders, ASEAN can leverage collective strengths and share best practices to address common challenges. This spirit of collaboration enhances regional connectivity and solidarity, positioning ASEAN as a resilient and innovative player in the global arena.

Social Inclusion and Gender Mainstreaming

Social inclusion and gender mainstreaming address the focus of promoting gender equality, diversity and social inclusion (GEDSI). In the APASTI 2026-2035, GEDSI will sit as a cross-cutting supporting initiative which addresses the barriers faced by women, youth and other underrepresented groups in STI (including people with disability and Indigenous communities).

By embedding GEDSI principles across all components of the APASTI, ASEAN can become a more equitable community that promotes diverse participation and empowers these groups to contribute to innovation and sustainable development. This commitment will ensure that the benefits of STI are accessible to all, fostering a more inclusive and resilient regional landscape.

Tier 6: Performance Measures

Outcome Indicators *against* Objectives and Strategic Measures

Output Indicators *against* Activities included in the Sectoral Plans

Further to the above summary, Table 2 presents the APASTI Framework in detail and presents the list of the strategic measures (or medium-term outcomes) for each objective. To support the implementation efforts and resources, this framework lays the foundation on which the key strategies, activities and indicators of the APASTI are built, as detailed in the Monitoring Plan.

Table 2: AEC Strategic Plan defined APASTI 2026-2035 Framework

Strategic Goals		
Strategic Goal 1	Strategic Goal 2	Strategic Goal 3
Seizing opportunities from new competitive sources, focusing on technological innovation and embracing sustainable development	Mainstreaming climate-responsive STI policies and practices in all dimensions, including decarbonisation, blue and circular economy initiatives	Enhancing sectoral cooperation to foster digital transformation, advance innovation ecosystems, and inclusive entrepreneurship in response to emerging trends and technological advancements
Objectives and Strategic Measures		
Facilitate mobility of businesses and people Fostering a seamless environment where individuals and enterprises can thrive across borders, driving innovation and economic growth. By harnessing the human potential of individuals in the region and in the field of STI, the strategic objective is to accelerate and enhance human mobility.	Promote sustainable agriculture practices and forest management Integrating innovative techniques and responsible resource management, this objective target ensuring that agricultural and forestry systems are resilient to climate change and contribute to sustainable development.	Accelerate digital and technology transformation Accelerating digital and technological transformation encompasses the embrace of cutting-edge technologies and digital solutions to enhance productivity, streamline operations and empower business in ASEAN. It is essential for equipping ASEAN with the tools necessary to thrive in a rapidly evolving global landscape. This objective seeks to create a digitally empowered workforce and promote the adoption of advanced technologies, ensuring that all member states can compete effectively in the digital economy.
Develop and implement schemes and initiatives that facilitate mobility of natural persons in the region	Optimise new and appropriate technologies, best practices, and management systems to ensure food safety and address health/disease and environmental issues, particularly in the fast-growing food, agriculture, and forestry sector	Catalyse start-up innovations through deepened regional cooperation
	Advance cooperation on blue economy relevant to the AEC as a new engine of inclusive and sustainable economic growth. Advancing cooperation on the blue economy through STI represents a transformative opportunity for ASEAN to harness its rich marine and coastal resources while promoting sustainable development. This objective aims to leverage STI to optimise resource use, encourage innovation and ensure that the effort and benefits of the blue economy are collaborative across AMS.	Adopt and promote the principle of technology neutrality
	Promote collaboration on science, technology, and innovation on blue economy	Enhance talent development on frontier technologies and innovation through upskilling and reskilling, including digital value chain and digital literacy
		Adopt and advance evidence-based approach and a coordinated approach to governing artificial intelligence to facilitate adoption of big data and artificial intelligence
		Advance inclusive, innovative, competitive business environment to strengthen MSMEs integration in the regional and global value chains. An inclusive, innovative and competitive business environment strengthens the integration of MSMEs into regional and global value chains. This strategic objective aims to ensure that all businesses have access to resources, markets and opportunities, ultimately enhancing the overall competitiveness of the ASEAN region.
		Strengthen the collaboration and partnership between private sector and knowledge communities to catalyse innovation and nurture entrepreneurship, such as creation of start-ups

	Strategic Goal 5	Strategic Goal 6
	Driving stable and resilient supply chain and promoting sustainable resource management through research and technology transformation	Fostering and strengthening collaborative partnerships and building a dynamic, skilled and diverse workforce to enhance regional connectivity
Advance innovation ecosystem	Ensure food security and enhance water resources management.	Intensify partnerships among public sector, private industries, academia, and civil societies
This objective creates a robust environment that fosters collaboration among stakeholders to stimulate creativity and drive the development of new ideas and solutions in STI. An advanced innovation ecosystem will enhance ASEAN's capacity for research and development, ensuring that STI efforts are effectively translate into impactful innovations that address societal challenges.	This strategic objective focuses on the implementation of innovative practices and policies that safeguard food production and promote sustainable water use in response to challenges posed by climate change and resource scarcity. Achieving this objective will ensure that all ASEAN communities have reliable access to nutritious food and clean water, fostering resilience for all.	This strategic objective focused on ensuring the benefits of economic integration are experienced by the intended stakeholders, including the private sector and other relevant partners.
Boost ICT innovations and entrepreneurship and technological developments, including among others, on smart city and big data and analytics	Promote investment in agricultural research and development (R&D) and infrastructure to address agri-food productivity issues	Enhance the involvement of well-established research institutes within the region in the context of promoting research activities on AEC
Stimulate adoption and diffusion of innovation and technologies such as internet of things (IoT), big data and cloud-based technology, artificial intelligence, quantum technology, high-performance computing, virtual and augmented reality, additive manufacturing, and biotechnology	Accelerate digital transformation, including adoption of innovative technologies and practices to increase productivity and resilience in agri-food production.	
Deploy science, technology, and innovation solutions to accelerate growth in key industries with transformative potentials such as in healthcare, circularity, and digital value chains		
Strengthen collaboration among academia, research institutions, networks of centres of excellence, and private sector to establish an effective ecosystem for capability development, technology transfer, and strategic commercialisation		
Enhance mobility of scientists and researchers from science and technology (S&T) institutions in the public and private sector		
Establish innovative support systems to promote and manage regional science, technology, and innovation enterprises arising from spin-offs and joint ventures		
Accelerate advancement in space technology through research and capacity development in geoinformatics, satellites, and other applications		

AEC Strategic Plan has set
8 objectives & 18 strategic
 measures for STI

Cross-Cutting Strategic Measures			
Decarbonisation and Circular and Blue Economy			
Promote the adoption of sustainability and circular elements in the regional supply chains towards accelerating the transition not a circular economy. (ASCC)	Promote good regulatory practices to support circular and green supply chains in the region. (ASCC)		Enhance cooperation for the conservation, protection, restoration, scientific research, technology transfer and sustainable use of coastal and marine environment respond and deal with the environmental risk of pollution and threats to marine ecosystem and coastal environment, such as Marine Debris and Marine Plastic Pollution in respect of ecologically sensitive areas. (ASCC)
Regional Connectivity			
Enhance collaborative research and development of digital technology, including nurturing innovation, and addressing digital divides. (ASEAN Connectivity)	Intensify efforts in utilising and harnessing the full potential of science, technology, and innovation in strengthening climate, disaster resilient infrastructure, and nature-based solution for sustainable development to realise ASEAN as a centre of excellence for disaster management. (ASCC)	Strengthen the roles of education, family and community to increase awareness and mitigate the risk of emerging global challenges from the misuse and exploitation of information and communication technology (ICTS) and artificial intelligence (AI). (ASCC)	Strengthen ASEAN's collective capability through a whole-of-ASEAN approach in building sustainable resilience by among others, enhancing anticipatory action, disaster management capabilities and support the implementation of effective policies to achieve disaster resilience and sustainable development. (ASCC)
Social Inclusion and Gender Mainstreaming			
Strengthen cross-sectoral and inter-pillar cooperation across the ASEAN Community to promote gender equality and women's economic empowerment (WEE) such as integrating gender sensitivity in WEE initiatives increasing access to opportunities for girls and women in education including technical vocational education training (TVET), Science, Technology, Engineering, Arts, and Mathematics (STEAM), and mainstreaming gender into labour employment and entrepreneurship policies and programmes, and law enforcement and security. (ASCC)	Promote responsible and sustainable investments in rural development and poverty eradication and including to increase digital usage in agriculture, develop inclusive digital infrastructure, skills, and literacy to strengthen response to transformation in agriculture-food system. (ASCC)	Address systemic and institutional barriers faced by women, especially women with disabilities and those in vulnerable situations, to entrepreneurship and broader economic empowerment, and gender-responsive and accessible entrepreneurship support services by strengthening care services especially for girls and elder women. (ASCC)	Empower women and youth to enhance their capacity to contribute effectively in ASEAN Community-building efforts. (APSC)

The role of COSTI in relation to these cross-cutting strategic measures include the following:

Lead Sectoral Body in Innovation, Lead Sectoral Body in Education in Science and Technology, Member of Focal Group on Circular Economy, Member of Focal Group on Global Value Chain, ASEAN Disaster Resilience Platform Meeting, and Digital Transformation.

Table 3: Strategic measures and their strategic goals and objectives grouped to whether their COSTI involvement

	Objective	Strategic Measure
COSTI Leading / Co-leading	Advance cooperation on blue economy relevant to the AEC as a new engine of inclusive and sustainable economic growth	Promote collaboration on science, technology, and innovation on blue economy
	Accelerate digital and technology transformation	Catalyse start-up innovations through deepened regional cooperation
	Advance innovation ecosystem	Boost ICT innovations and entrepreneurship and technological developments, including among others, on smart city and big data and analytics
		Stimulate adoption and diffusion of innovation and technologies such as internet of things (IoT), big data and cloud-based technology, artificial intelligence, quantum technology, high-performance computing, virtual and augmented reality, additive manufacturing, and biotechnology
		Deploy science, technology, and innovation solutions to accelerate growth in key industries with transformative potentials such as in healthcare, circularity, and digital value chains
		Strengthen collaboration among academia, research institutions, networks of centres of excellence, and private sector to establish an effective ecosystem for capability development, technology transfer, and strategic commercialisation
		Enhance mobility of scientists and researchers from science and technology (S&T) institutions in the public and private sector
		Establish innovative support systems to promote and manage regional science, technology, and innovation enterprises arising from spin-offs and joint ventures
		Accelerate advancement in space technology through research and capacity development in geoinformatics, satellites, and other applications
	Advance inclusive, innovative, competitive business environment to strengthen MSMEs integration in the regional and global value chains	Strengthen the collaboration and partnership between private sector and knowledge communities to catalyse innovation and nurture entrepreneurship, such as creation of start-ups
	Intensify partnerships among public sector, private industries, academia, and civil societies	Enhance the involvement of well-established research institutes within the region in the context of promoting research activities on AEC
	Decarbonisation and Circular and Blue Economy	Promote the adoption of sustainability and circular elements in the regional supply chains towards accelerating the transition not a circular economy. (ASCC)
		Promote good regulatory practices to support circular and green supply chains in the region. (ASCC)
	Regional Connectivity	Enhance collaborative research and development of digital technology, including nurturing innovation, and addressing digital divides. (ASEAN Connectivity)
	Social Inclusion and Gender Mainstreaming	Empower women and youth to enhance their capacity to contribute effectively in ASEAN Community-building efforts. (APSC)

Objective	Strategic Measure
Facilitate mobility of businesses and people	Develop and implement schemes and initiatives that facilitate mobility of natural persons in the region
Promote sustainable agriculture practices and forest management	Optimise new and appropriate technologies, best practices, and management systems to ensure food safety and address health/disease and environmental issues, particularly in the fast-growing food, agriculture, and forestry sector
Accelerate digital and technology transformation	Adopt and promote the principle of technology neutrality Enhance talent development on frontier technologies and innovation through upskilling and reskilling, including digital value chain and digital literacy Adopt and advance evidence-based approach and a coordinated approach to governing artificial intelligence to facilitate adoption of big data and artificial intelligence
Ensure food security and enhance water resources management	Promote investment in agricultural research and development (R&D) and infrastructure to address agri-food productivity issues Accelerate digital transformation, including adoption of innovative technologies and practices to increase productivity and resilience in agri-food production.
Decarbonisation and Circular and Blue Economy	Enhance cooperation for the conservation, protection, restoration, scientific research, technology transfer and sustainable use of coastal and marine environment respond and deal with the environmental risk of pollution and threats to marine ecosystem and coastal environment, such as Marine Debris and Marine Plastic Pollution in particular in respect of ecologically sensitive areas. (ASCC)
Regional Connectivity	Intensify efforts in utilising and harnessing the full potential of science, technology, and innovation in strengthening climate, disaster resilient infrastructure, and nature-based solution for sustainable development to realise ASEAN as a centre of excellence for disaster management. (ASCC) Strengthen the roles of education, family and community to increase awareness and mitigate the risk of emerging global challenges from the misuse and exploitation of information and communication technology (ICTS) and artificial intelligence (AI). (ASCC) Strengthen ASEAN's collective capability through a whole-of-ASEAN approach in building sustainable resilience by among others, enhancing anticipatory action, disaster management capabilities and support the implementation of effective policies to achieve disaster resilience and sustainable development. (ASCC)
Social Inclusion and Gender Mainstreaming	Strengthen cross-sectoral and inter-pillar cooperation across the ASEAN Community to promote gender equality and women's economic empowerment (WEE) such as integrating gender sensitivity in WEE initiatives increasing access to opportunities for girls and women in education including technical vocational education training (TVET), Science, Technology, Engineering, Arts, and Mathematics (STEAM), and mainstreaming gender into labour employment and entrepreneurship policies and programmes, and law enforcement and security. (ASCC) Promote responsible and sustainable investments in rural development and poverty eradication and including to increase digital usage in agriculture, develop inclusive digital infrastructure, skills, and literacy to strengthen response to transformation in agriculture-food system. (ASCC) Address systemic and institutional barriers faced by women, especially women with disabilities and those in vulnerable situations, to entrepreneurship and broader economic empowerment, and gender-responsive and accessible entrepreneurship support services by strengthening care services especially for girls and elder women. (ASCC)

Appendix C

Governance



The governance framework for APASTI 2026-2035 is set out in Table 4 with overviews of each key governing body outlined below.

Table 4: Governance Framework

Governance Body	Description
ASEAN Ministerial Meeting on Science, Technology and Innovation (AMMSTI)	Convening on an annual basis, AMMSTI's role in relation to the APASTI is to: - Set the direction for ASEAN STI development to fulfil the objectives, missions, and strategies in support of economic integration and cooperation towards the AEC to address key issues, challenges and common interest identified in APASTI 2026-2035 and ASEAN Community Vision 2045; and - Provide overall guidance and advice on the implementation of APASTI 2026-2035. Key consideration for APASTI 2026-2035 – Review the alignment of AMMSTI chairmanship with the ASEAN Chairmanship with due consideration given to the practical merits and challenges associated with the change.
Committee on Science, Technology and Innovation (COSTI)	COSTI initiates, directs and oversees the development, monitoring and implementation of the APASTI 2026-2035, including the programmes and activities of its subsidiary bodies. COSTI is also responsible for: - Creating public awareness of regional STI activities and their contribution to economic development; and - Reviewing overall progress of collaboration, including the progress of its relations with ASEAN's Dialogue Partners, as well as other external collaborators. Under COSTI, there is an ASEAN COSTI Chair and a National COSTI Chair: - The ASEAN COSTI Chair provides leadership and guidance towards fulfilling the objective, mission and strategies of COSTI. The ASEAN COSTI reports to the AMMSTI and to the AEC Council. It meets twice a year to review the progress of regional programmes, provide support for new programmes and projects, and give direction to the implementation of programmes and projects by its subsidiary groups. The Chairmanship of ASEAN COSTI is held on a rotational basis among the ASEAN countries in alphabetical order and synchronized with the Chairmanship of the Ministerial Meetings. - The National COSTI Chair assists the STI Minister in providing leadership and guidance to the National efforts towards fulfilling the charter (objective, mission, strategies) of COSTI. Key consideration for APASTI 2026-2035 – Review the representation of women in National COSTI Chairs and consider reporting against representation targets and establishing standardised criteria for appointment of representatives to high-level ASEAN bodies to mitigate risk of unconscious bias.
Board of Advisers to COSTI (BAC)	The role of BAC is to support COSTI to make strategic decisions with respect to the implementation of the APASTI 2026-2035 by providing relevant and timely advice on a range of key matters, including: - The management and utilization of ASTIF; - The utilization of other funding contributions from dialogue partners, sectoral partners, developmental partners, industry/private sectors and international organisations; - Emerging technologies and regional/global trends and the implications for ASEAN's economic transformation and implementation of the APASTI 2026-2035; - The development and implementation of APASTI 2026-2035; and - Any other matters assigned by COSTI. Under the APASTI 2016-2025, BAC also had specific functions relating to establishing appropriate performance review mechanisms for the work of the Sub-Committees. Under the APASTI 2026-2035, the operation of this function will be undertaken by the ASEAN Secretariat to streamline the role of BAC. The ASEAN Secretariat will submit the result of the review to BAC to provide advice and make necessary improvement in the implementation of the APASTI 2026-2035.

Governance Body	Description
ASEAN Secretariat	The ASEAN Secretariat plays a key facilitation and coordination role to support COSTI and its subsidiary bodies in implementing the APASTI 2026-2035. Its role includes: • <i>General support:</i> Coordinating and supporting COSTI activities and administration, including serving as resource persons in relevant meetings and assist host countries plan and coordinate activities. • <i>Project conceptualisation, implementation and monitoring:</i> Assisting in the conceptualisation, development and appraisal of project and programme proposals, monitoring implementation progress, coordinating implementation of COSTI projects, and implementing projects for which ASEAN Secretariat is the proponent. • <i>Information dissemination:</i> Informing COSTI and its subsidiary bodies of the directives of relevant meetings; maintain regular communications and links with COSTI and its subsidiary bodies, proponents of projects, project consultants/experts, designated focal points in Dialogue Partner countries and international bodies; and present reports and updates on ASEAN STI cooperation. • <i>Management of ASTIF:</i> Managing the ASTIF, as instructed by the AMMSTI and COSTI; and administering the disbursement of funds from ASTIF to support COSTI approved activities and projects. • <i>Engagement with external partners:</i> Monitoring and coordinating activities in line with partnership agreements in place with external partners, including dialogue partners. • <i>Other matters:</i> Performing other such duties as directed by the ASEAN Secretary General, AMMSTI and COSTI. Key enhancement for APASTI 2026-2035: In line with the priorities of the APASTI 2026-2035, the ASEAN Secretariat will also have increased focus in the following areas: • Close coordination with the broader ASEAN GEDSI sectoral division to drive consistent and enhanced integration of GEDSI principles and practices across all implementation streams of the APASTI; • Close coordination with the broader AEC Strategic Plan Monitoring and Evaluation Team to ensure the monitoring and evaluation activities under the APASTI 2026-2035 are aligned with the relevant requirements and activities. Clear communication and regular engagement with Sub-committees to disseminate monitoring and evaluation activity requirements; and • Increased support provided to Sub-committees to enhance collaboration and reduce siloed and duplicative efforts.
COSTI Sub-Committees	COSTI Sub-Committees have a range of operational responsibilities in relation to the implementation of the APASTI 2026-2035, including: • Overseeing the management, coordination, evaluation and implementation of APASTI projects and initiatives in accordance with their respective workplans; and • Undertaking assessments of the impact of workplan projects and initiatives in strengthening regional STI capabilities. • Formulating their own workplans in support of the APASTI 2026-2035 Key enhancement for APASTI 2026-2035: The number of sub-committees will be streamlined and this sub-committee structure will be effective from June 2026 and reflect the strategic objectives and scope of the APASTI 2026-2035. See <i>Table 5</i> for the list of current Sub-Committees.
Other subsidiary bodies (expert groups, taskforces, and networks)	There are a range of other expert groups, taskforces and networks that have been established to support relevant Sub-Committees in their workplan implementation (see <i>Table 6</i>). These subsidiary bodies are largely ad-hoc in nature and the establishment of these groups by Sub-committees require endorsement by COSTI. These subsidiary bodies are: • Convened only as and when the need arises to address specific policy issues and/or perform tasks/programmes in support of the work programme of the relevant Sub-Committee as agreed by all AMS; • Provided with clear terms of reference and specific programme of work approved by the relevant Sub-Committee and endorsement from ASEAN COSTI; • Dissolved at the discretion of the relevant Sub-Committee with endorsement from ASEAN COSTI if agreed by all AMS, when their mandates are completed. Key enhancement for APASTI 2026-2035: To promote the discipline of reviewing each subsidiary body's remit and disbanding them in a timely manner, the subsidiary bodies will be established on the condition that these subsidiary body have a sunset clause or pre-set review date (e.g. 6 or 12 months, or any other timeframe, depending on the nature of the mandate). At the end of the sunset period or review date the subsidiary body will be disbanded, unless ASEAN COSTI agrees to retain it for an additional set period.

The APASTI 2026-2035 Sub-Committees are set out in Table 5 below.

Table 5: APASTI Sub-Committees

Sub-Committees	
SCB	Sub-Committee on Biotechnology
SCFST	Sub-Committee on Food Science and Technology
SCIRD	Sub-Committee on S&T Infrastructure and Resources Development
SCMG	Sub-Committee on Meteorology and Geophysics
SCMIT	Sub-Committee on Microelectronics and Information Technology
SCMSAT	Sub-Committee on Marine Science and Technology
SCMST	Sub-Committee on Materials Science and Technology
SCSER	Sub-Committee on Sustainable Energy Research
SCOSA	Sub-Committee on Space Technology and Applications

Some of the active subsidiary bodies are set out in Table 6 below. The full portfolio of subsidiary bodies will be reviewed and updated in time for the commencement of the APASTI in January 2026.

Table 6: Examples of other subsidiary bodies

Examples of other subsidiary bodies	
ASMC	ASEAN Specialised Meteorological Center
AEIC	ASEAN Earthquake Information Center
AWMC	ASEAN Weather Modification Center
ASEAN NDI	ASEAN Network for Drugs, Diagnostics, Vaccines and Traditional Medicines Innovation
ABSN	ASEAN Battery Safety Network
AHC	ASEAN Hydroinformatics Data Centre
LNSN	ASEAN Large Nuclear and Synchrotron Facilities Network
EGM	Experts Group on Metrology
AFA	ASEAN Foresight Alliance
ARTSA	ASEAN Research and Training Centre for Space Technology and Applications

The Governance Framework for APASTI 2026-2035 will be reviewed at the end of the first 5-year phase of APASTI 2026-2035 to ensure it remains fit-for-purpose throughout the ten-year period. The review process will be led by COSTI and supported by the ASEAN Secretariat and involve a detailed review of the governance structure, including roles and responsibilities of each subsidiary body, to ensure the successful achievement of the APASTI 2026-2035 vision, goals and objectives.

The implementation of various projects and initiatives has been and will continue to be supported by dialogue partners and other external partners. Broad engagement has been established between COSTI and these key partners through a range of platforms including joint committees, working groups, dialogues and consultation.

Under the APASTI 2026-2035, more structured and formalised engagement will need to be put in place with the coordination support of the ASEAN Secretariat to ensure the following engagement objectives are met:

- Clarity of key partner relationship owners and contact points across the APASTI governance structure;
- Structured and coordinated engagement processes with key partners to ensure alignment of priorities, contributions and support, and timelines;
- Clarity in the value-add of dialogue and other external partners at the regional versus bilateral partnership levels; and
- Coordination to ensure different dialogue partner contributions are complementary rather than duplicative.

Sub-Committees have been and will continue to be responsible for engagement and cooperation with Dialogue Partners and external parties. The chairperson of each Sub-Committee is responsible for maintaining regular communication and enhancing links with counterparts in Dialogue Countries and other relevant partners. To ensure engagements are effective and streamlined, the ASEAN Secretariat will play a central coordination role in the implementation of the APASTI 2026-2035.

Cooperation with ASEAN Dialogue Partners has also been formalized through the establishment of joint committees, working groups and related platforms. Refer to Table 7 on the next page.



Table 7: Existing cooperation Dialogue Partners

Cooperation with Dialogue Partners	
ASEAN-China JSTIC	JSTC - Joint Science, Technology and Innovation Committee
ASEAN-EU DSTI	DST - Dialogue on Science, Technology and Innovation
ASEAN-India WGSTI	WGST - Working Group on Science, Technology and Innovation
ASEAN-Japan CCSTI	CCST - Cooperation Committee on Science, Technology and Innovation
ASEAN-ROKJSTIC	JSTC - Joint Science, Technology and Innovation Committee
ASEAN-Russia WGSTI	WGST - Working Group on Science, Technology and Innovation
ASEAN-US CST	CST - Consultation on Science, Technology and Innovation
ASEAN COSTI+3	ASEAN COSTI Plus China, Japan and ROK
ASEAN-UK	ASEAN-United Kingdom Dialogue Partnership

ASEAN country coordinators for Dialogue Partners are set out below.

ASEAN Country Coordinator		
Dialogue Partners	2024-2027	2027-2030
Australia	Indonesia	Cambodia
Canada	Lao PDR	Indonesia
China	Malaysia	Lao PDR
European Union	Brunei Darussalam	Malaysia
India	Philippines	Myanmar
Japan	Singapore	Philippines
Republic of Korea	Thailand	Singapore
New Zealand	Viet Nam	Thailand
Russia	Myanmar	Viet Nam
United Kingdom	Viet Nam	Thailand
United States	Cambodia	Brunei Darussalam

Key Actions

Effective governance arrangements facilitate the implementation of best practices and ultimately driving sustainable development and achieving the desired outcomes for STI.

Existing governance structures are, however, impacting strategic decision-making through unclear alignment with the APASTI vision and lack of clarity in roles and responsibilities of different governance bodies.

Immediate actions to improve clarity of governance roles and responsibilities, drive synergies, enhances coordination, collaboration and efficiency:

- Determination of new Sub-committee structures, terms of reference and alignment with APASTI 2026-2035 focus areas and activities (informed by AMS consultation and agreement)
- Transitional activities from current to new Sub-committee structures (including knowledge transfer and mobilisation of sub-committee members)
- New Sub-committee structures to formally take effect in June 2026
- Review and confirmation by COSTI the strategic direction for:
 - o Task forces and subsidiary bodies under COSTI
 - o ASTNET
 - o ASEAN Science, Technology and Innovation Fund (ASTIF)
 - o AMMSTI chairmanship and hosting

Appendix D

Stakeholder Engagement and Communication



Stakeholder engagement strategies are essential for achieving APASTI 2026-2035 goals. Effective engagement fosters relationships, builds trust, and involves stakeholders in decision-making, aligning their perspectives with APASTI's objectives.

Stakeholder engagement is about who to listen to and what stakeholder inputs are needed to achieve outcomes. It involves having a conversation or two-way discussions with stakeholders and seeking input and participation.

Stakeholder communication is the act of transferring information from a sender to a recipient. The narrative or information provided to stakeholders is generally controlled and one-way. Communication focuses on what to say, how to say it, and who to say it to.

Successful APASTI implementation depends on diverse stakeholders who play key roles:

- **Decision-making:** Shaping STI policies and initiatives.
- **Implementation:** Executing actions and initiatives.
- **Funding:** Providing resources and support.
- **Policy formulation:** Influencing STI development policies.
- **Beneficiaries:** Gaining benefits from APASTI initiatives.

The APASTI stakeholder environment is complex, with various groups often assuming multiple roles in supporting strategic measures.

4.1

Stakeholder engagement framework

Stakeholder engagement within the APASTI landscape is complex and requires a systematic approach. A bespoke tool has been developed to support strategic goals and aid implementers in crafting tailored engagement and communication strategies.

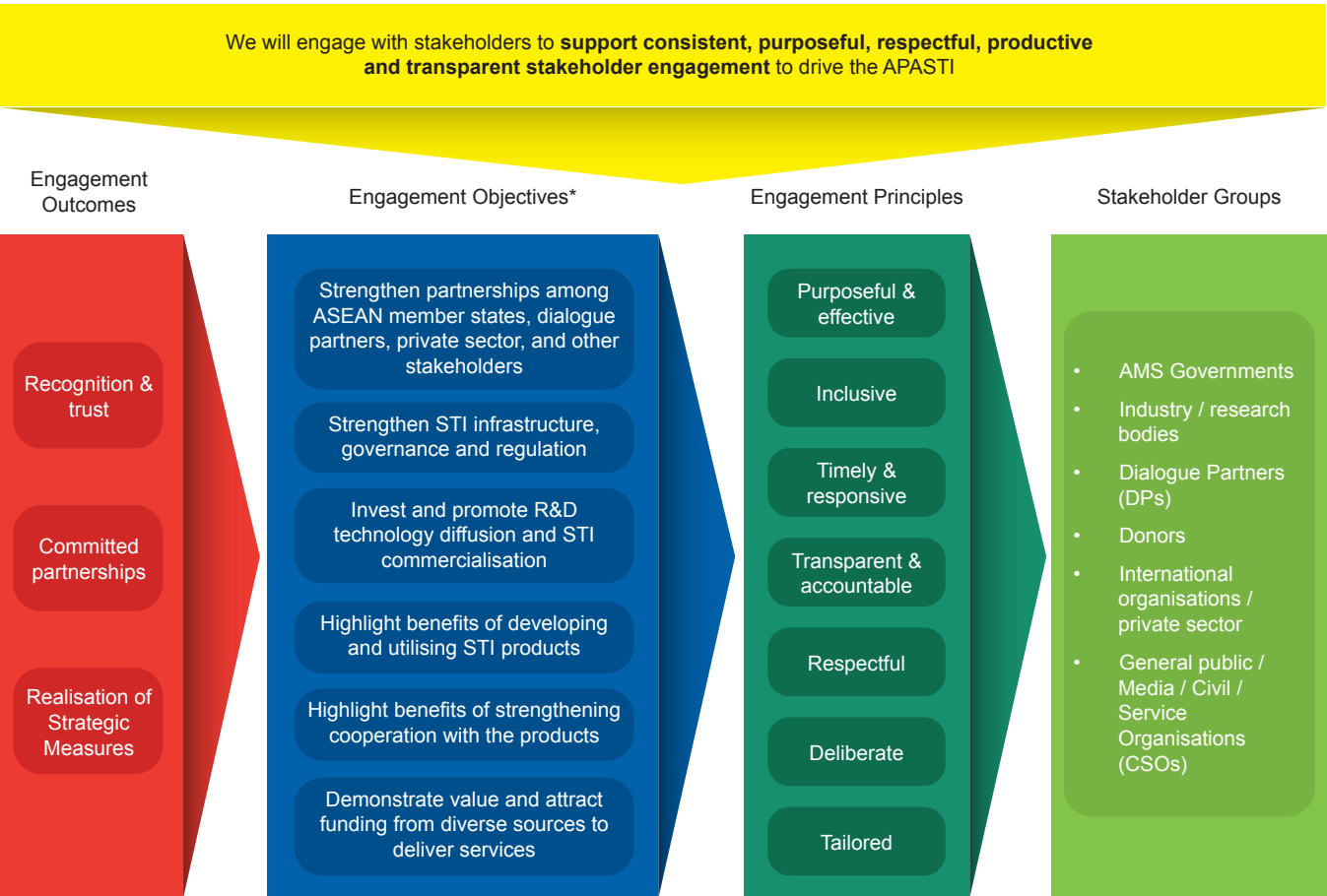
The APASTI 2026-2035 stakeholder engagement framework intends to:

- Leverage diverse mapping methodologies and frameworks from best practices,
- Utilise multiple criteria to align stakeholders across APASTI strategic goals and objectives, and

- Enable nuanced understanding of these stakeholders to be appropriately reflected to drive more targeted engagement strategies.

Figure 4 presents an overview of the Stakeholder Engagement Strategy, including overarching engagement outcomes, objectives, principles and stakeholder groups. This framework complements existing stakeholder mapping approaches and provides structure for complex engagements.

Figure 4: Overview of APASTI 2026-2035 Stakeholder Engagement Strategy



* Engagement objectives have been informed by APASTI objectives

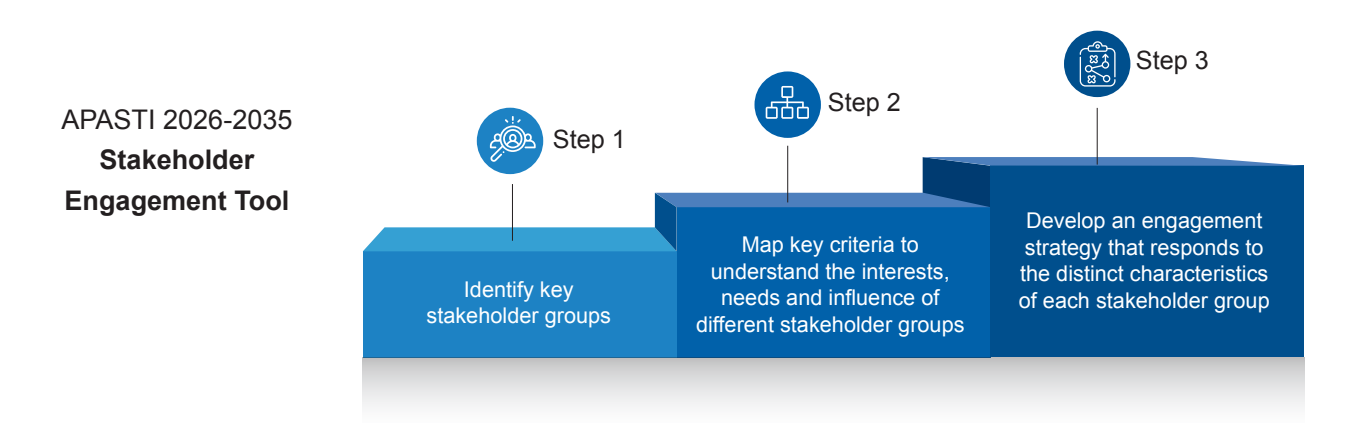
Grounded in international best practices, the framework ensures meaningful interactions that enhance decision-making processes. It supplements proven APASTI methods, enhancing the capacity to manage intricate stakeholder dynamics systematically.

This framework complements current stakeholder mapping approaches, providing additional

structure for complex and multi-dimensional engagements. It enhances APASTI’s methods, improving the management of intricate stakeholder dynamics.

Figure 5 outlines the three stages of the APASTI 2026-2035 stakeholder engagement framework.

Figure 5: Three stages of the APASTI 2026-2035 stakeholder engagement framework



The following section will detail the requirements of each stage of the process.

Stage 1: Identification of APASTI stakeholder categories

Table 8 identifies key stakeholder groups that are critical to the successful implementation of APASTI 2026-2035 and their associated roles which may evolve over the ten-year period.

Table 8: Key stakeholder groups and associated roles for the APASTI 2026-2035

	Decision-making	Implementation	Funding	Policy formulation	Beneficiaries
AMS Governments	✓	✓		✓	
Private sector		✓	✓		✓
Universities		✓	✓		✓
Dialogue Partners		✓	✓		✓
AMMSTI	✓			✓	
COSTI	✓	✓		✓	
Subcommittees		✓	✓		
Donors			✓		
General public (incl. women and children, people with disabilities)					✓
Media					✓

Notably, the role of non-government actors, including the private sector and the general public, varies in the context of APASTI. For instance, the private sector contributes to the implementation of APASTI by providing innovative solutions and technologies that enhance scientific and technological development within the region. Companies may collaborate with government agencies to develop cutting-edge research initiatives or technological platforms that facilitate knowledge sharing and innovation across AMS.

On the other hand, the general public serves as the primary beneficiary of APASTI. By advancing science and technology initiatives, citizens experience improved access to essential services and opportunities for education and employment. For example, a community may benefit from new educational programs that promote STI skills, enabling individuals to participate in the growing tech economy and contribute to regional development.

Stage 2: Mapping stakeholders to inform engagement approach

There are two steps to the stakeholder mapping process as outlined in Table 9.

Step 1: Categorise stakeholders based on ‘influence’ and ‘interest’. This helps determine the engagement strategy.

High influence / High interest stakeholders These are the key players who must be managed closely, as strong buy-in is needed. These are the stakeholders that must be fully engaged with the greatest effort to satisfy their need for information and involvement. High influence / Low interest stakeholders It is important to keep these stakeholders satisfied through active collaboration. There is a need for sufficient engagement with these stakeholders to satisfy and ensure their voices are heard on key issues, however low contact must be avoided so they do not lose interest.	Low influence / High interest stakeholders This group needs to be regularly informed through two-way communication to maintain their interest and to monitor any issues or concerns that may arise. These stakeholders can often be helpful with detail. Low influence / Low interest stakeholders Monitor this group, keep them informed, but do not overload them with excessive communication of superfluous information.
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Step 2: Further assess stakeholders based on ‘impact’, ‘criticality’, and ‘existing strength of relationships’. This step validates and adjusts the engagement strategy from Step 1.

Table 9: Summary of APASTI 2026- 2035 Stakeholder Mapping Criteria

Criteria	Description
Step 1: Categorise the stakeholder group based on the two criteria below and determine if the stakeholder has a low/high degree of influence or interest	
Influence⁶	To what extent can the stakeholder influence APASTI's strategic outcomes?
Interests⁷	To what degree does the stakeholders have a vested interest in the project? This includes the stakeholder's level of interest with APASTI's strategic goal.
Step 2: Categorise the stakeholder group based on the three criteria below and determine if the stakeholder has a low/high degree of impact, criticality and existing strength of relationship. stakeholder has a low/high degree of influence or interest	
Impact⁸	To what extent will the stakeholder be affected by the APASTI's decisions or outcomes?
Criticality⁹	How crucial is the stakeholder to achieving the APASTI's objectives and overall success?
Existing strength of relationship¹⁰	How much effort will be required to effectively engage and communicate with the stakeholder?

⁶ Polonsky, M. J. (1996) *Stakeholder Management and the Stakeholder Matrix*, *Journal of Market-Focused Management*

⁷ Polonsky, M. J. (1996) *Stakeholder Management and the Stakeholder Matrix*, *Journal of Market-Focused Management*

⁸ Gilmour, J. & Beilin, R. (2006) *Stakeholder Mapping for Effective Risk Assessment and Communication*.

⁹ Gilmour, J. & Beilin, R. (2006) *Stakeholder Mapping for Effective Risk Assessment and Communication*.

¹⁰ Mints, A. (2019) *Methods of Stakeholder Prioritisation in the Context of Stakeholder Management*.

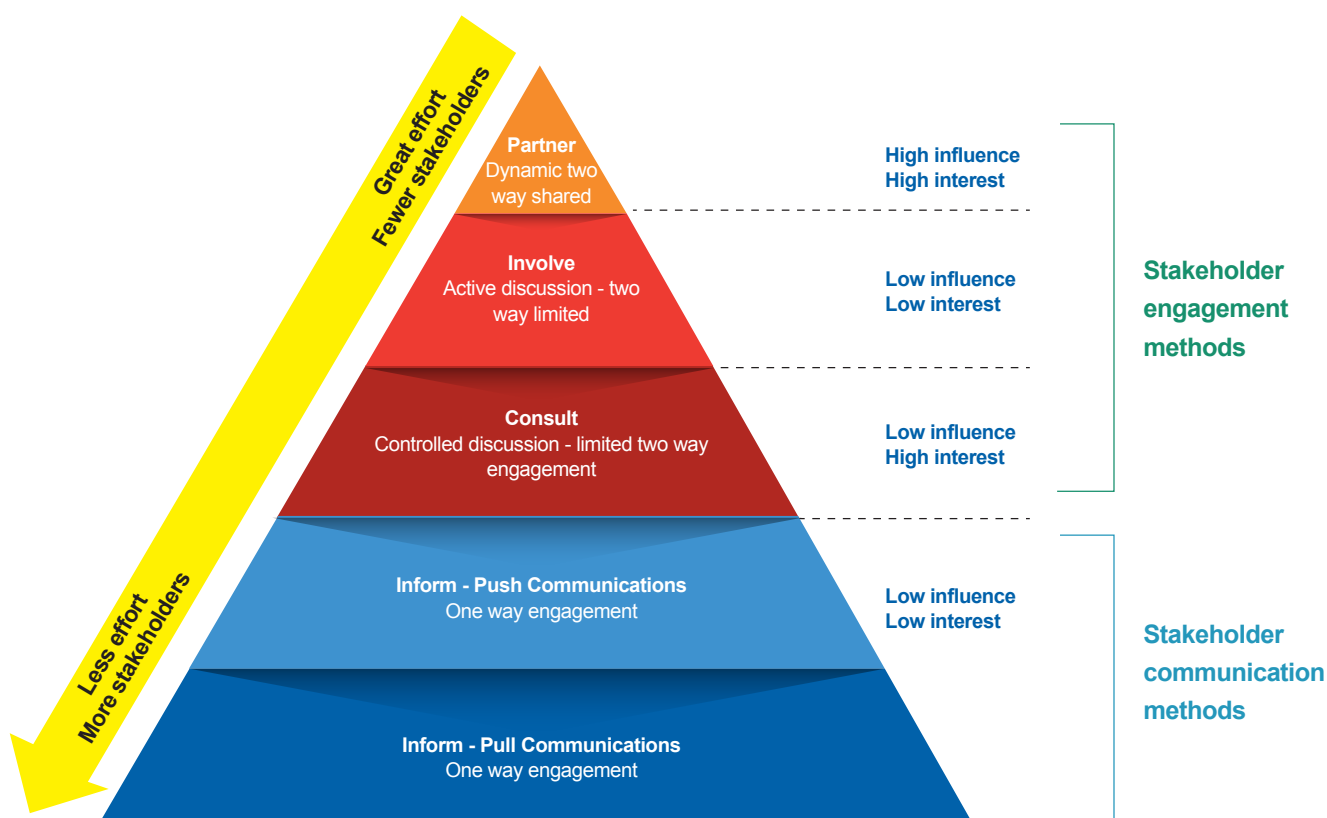
Stage 3: Determine engagement approach

After mapping stakeholders, appropriate engagement and communication strategies can be devised using the stakeholder engagement framework. International best practices categorise these engagement methods. For APASTI 2026-2035, the recommended approaches are:

- **Partner** - Engage and consult regularly. Involve stakeholders in meetings and updates.
- **Involve** - Consult on key interest areas and major changes.
- **Consult** - Keep stakeholders informed through two-way engagement.
- **Inform (push and pull communications)** - Use one-way engagement to keep stakeholders informed and avoid issues from lack of information sharing

Figure 6 illustrates levels of stakeholder engagement on a sliding scale, ranging from two-way consulting and partnering at the top to one-way information sharing at the bottom. This scale provides guidance on the nature of interaction and level of effort required. This enables implementers to direct finite resources in a more targeted manner to achieve the greatest impact.

Figure 6: APASTI 2026-2035 Stakeholder Engagement Pyramid



Stakeholder Mapping and Engagement Activities

To demonstrate how the Stakeholder Engagement Framework can be applied in the context of supporting the realisation of APASTI Strategic Measures, Table 10 is an illustrative example for *Strategic Measure: E.1.1 Enhance the involvement of well-established research institutes within the region in the context of promoting research activities on AEC*.

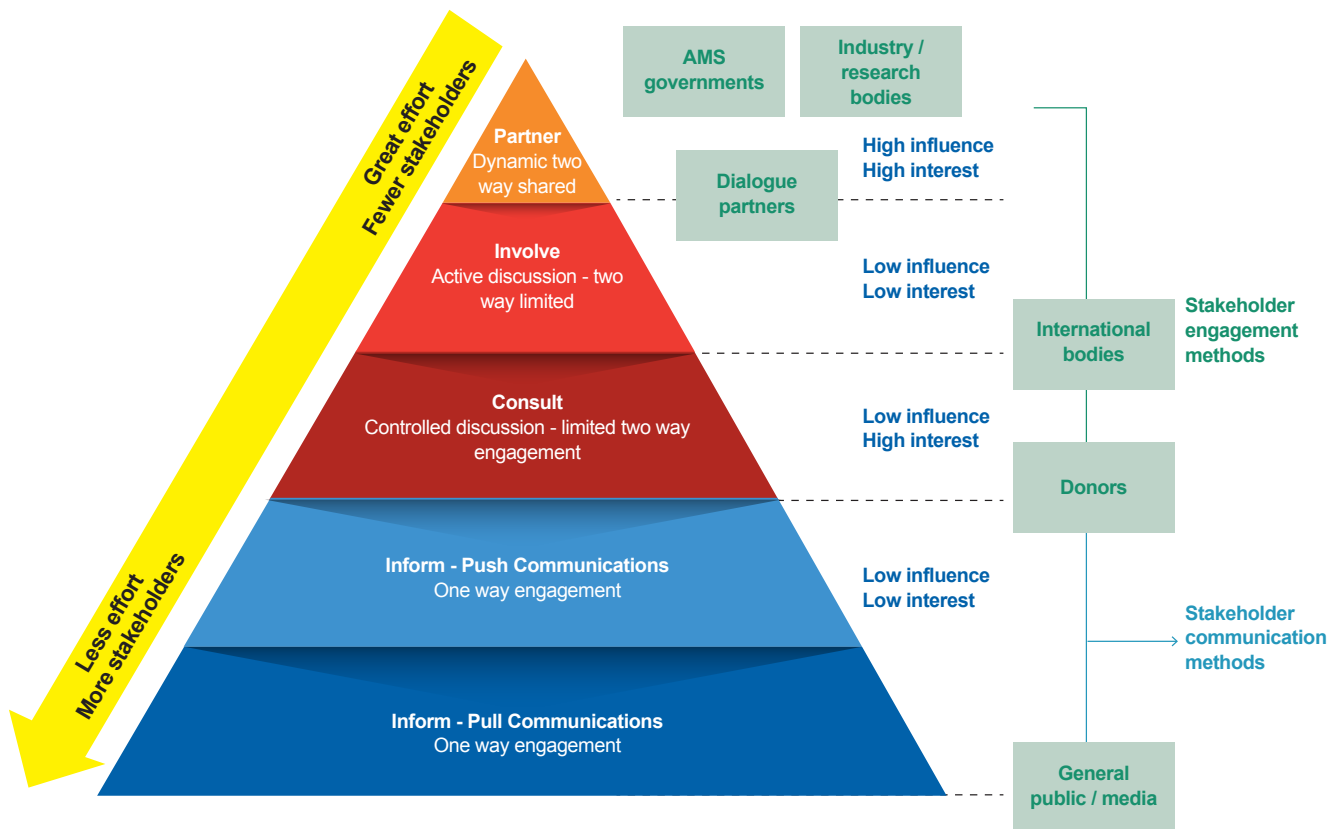
Figure 7 provides illustrative examples of how the tool can be applied in a range of different Strategic Measure scenarios. These scenarios further demonstrate the complex and dynamic stakeholder environment within which the APASTI will be implemented and reinforces the utility of this tool to help prioritise time and effort given finite resources.

Figure 7: Stakeholder Mapping Strategic Measures

Strategic measure E.1.1 Enhance the involvement of well-established research institutes within the region in the context of promoting research activities on AEC		
Step 1	Categorise the stakeholder group based on the two criteria - influence and interest. Determine if the stakeholder has a low/high degree of influence or interest	
	Influence: To what extent can the stakeholder influence APASTI's strategic outcomes?	Interest: To what degree does the stakeholder have a vested interest in the project? This includes the stakeholder's level of interest with APASTI's strategic goals
AMS Governments	High - Are the funders, policy makers, delivery partners, mandating authorities and endorsing bodies.	High - Significant interest in the realization of this strategic measure.
Industry / research bodies	High - Directly involved in the set up and running of research institutes.	Mixed - It depends on the alignment to DP's goals.
Dialogue partners (DPs)	High - Provide high degree of funding and capacity building. They bring resources and talent. The level of engagement varies across different DPs.	Mixed - It depends on the DP's priorities whether they have high level of interest in R&D
Donors	Low - There has been low engagement to date with MDBs/philanthropies. In the last 3 years no other donors have funded projects. Going forward, APASTI could better leverage this stakeholder group.	Low - Alternative funding sources may allow research to proceed without them.
International organisations / private sector	High - Private sector are the driving force. They are important to attract talent and skills if activities focus on business motivations. They are on the forefront of new STI trends and advancements and what R&D can be commercialized.	Low (with the hope to transition to high over time)
General public / Media / Civil / Service Organisations (CSOs)	Low - Engagement at the moment is low but moving forward the intent is to increase their involvement/ engagement.	Low - Their direct involvement is not essential for research activities to occur.

Step 2

Based on the outcomes of Step 1 plot the stakeholders on the Stakeholder Pyramid



Strategic measure E.1.1 Enhance the involvement of well-established research institutes within the region in the context of promoting research activities on AEC

Step 3

Categorise the stakeholder group based on the three criteria - impact, criticality, and strength of existing relationships. This process validates the preliminary engagement approach identified under Step 1.

	Impact: To what extent will the stakeholder be affected by the APASTI's decisions or outcomes? (low or high)	Criticality: How crucial is the stakeholder to achieving APASTI's objectives and overall success? (low or high?)	Existing strength of relationship: How much effort will be required to effectively engage and communicate with the stakeholder? (low or high)
AMS Governments	High - Central to conducting and benefiting from enhanced research activities.	High - Government backing is essential for sustainable research initiatives.	Low - Strong foundations are already in place, requiring less effort to maintain connections.
Industry / research bodies	High - Directly conduct research and drive innovation.	High - Their expertise and infrastructure are vital for research activities.	High - Need to establish collaborations, in order to deepen partnerships.
Dialogue partners (DPs)	Low - Role is primarily advisory rather than directly involved in research execution.	Low - As the core research activities can proceed without their input, though collaboration is beneficial.	Low - As there are existing regular communication channels.
Donors	High - Funding is often crucial for initiating and sustaining research projects.	Low - Research can sometimes proceed with alternative funding sources, albeit potentially at a reduces scale.	High - Building trust and securing funding commitments require cultivation.
International organisations / private sector	High - Provide access to global expertise, resources, and markets.	High - As their involvement can significantly enhance the scale and scope of research initiatives.	High - Need to establish partnerships, facilitating continued collaboration.
General public / Media / Civil / Service Organisations (CSOs)	Low - As they are not directly involved in the research process.	Low - As research activities can occur independently of public engagement.	High - As engaging the public requires dedicated outreach and communication strategies.



Strategic measure E.1.1 Enhance the involvement of well-established research institutes within the region in the context of promoting research activities on AEC

Step 4

Based on the outcomes of Step 2 determine if stakeholders on the Stakeholder Pyramid should be adjusted

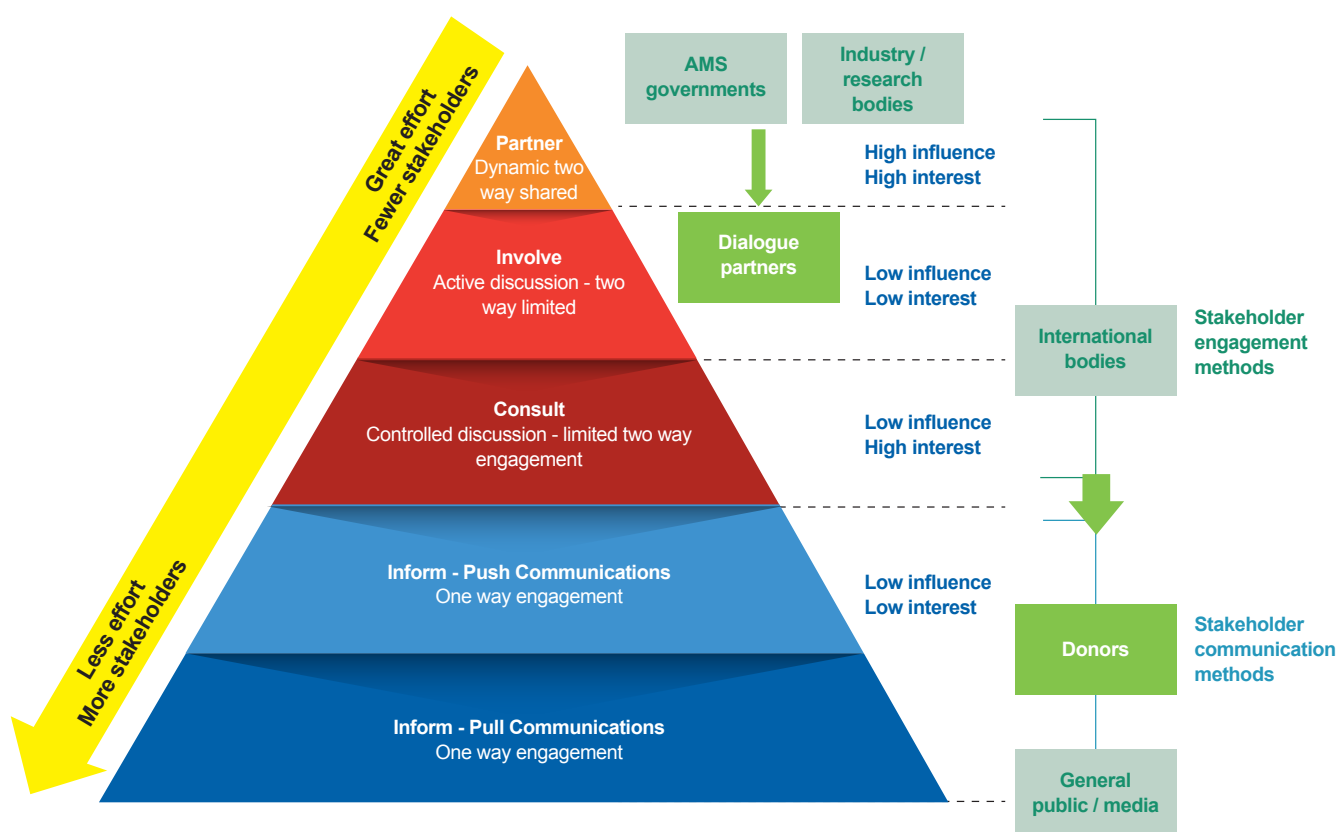


Table 10: APASTI 2026-2035 Example Engagement Strategy for Strategic Measure E.1.1.

Strategic Measure: E.1.1 Enhance the involvement of well-established research institutes within the region in the context of promoting research activities on AEC			
Stakeholder	Overarching engagement approach	Key Engagement Objectives	Approach
AMS Governments	Partner – Dynamic two way shared	AMS Governments are strategic partners, and their trust and partnership are crucial for the success and sustainability of E.1.1. Establishing common goals and knowledge sharing mechanisms across AMSs is essential.	• Coordinate a joint approach to the realisation of E.1.1. • Seek funding and support for E.1.1.
Industry / research bodies	Partner – Dynamic two way shared	Industry and research bodies play a critical role in realizing E.1.1. Sustainable relationships must be formed with the sector to build lasting connections and secure their buy-in, thereby supporting the realization of E.1.1	• Improve sector relationships • Report success factors and value for money to establish buy-in
International bodies	Involve – Active discussion – two way limited	International bodies should be engaged and consulted to share sector insights, initiatives, and opportunities.	• Facilitate awareness activities • Build trust and organisation conversations

Stakeholder communications under the APASTI 2026-2035 will focus on approaches for one-way engagement, specifically ‘inform’ (push and pull communications) - which can be delivered through prepared approaches and rollout strategies that are flexible to strategic objectives.

The Communications Strategy intends to:

- Increase knowledge of APASTI (and convert more knowledgeable stakeholders into Ambassadors);
- Provide pathways to information to improve digital literacy, academic and employment opportunities in STI industries;
- Communicate an understanding of GEDSI, cultural and other accessibility barriers and share information about how APASTI outcomes can benefit stakeholders.

Push and Pull Communication Methods

Push and pull communication methods are effective ways to keep larger groups of stakeholders informed about activities and outcomes.

The following communication approach engages with one-way outreach methods between a sender and a receiver.

- In **push communication** methods, the sender pushes information to the recipient. The sender determines the recipients, the method, and the timing of the communication. Examples include emails, e-newsletters, media releases, and branded signage.
- In **pull communication** methods, the sender creates content that receivers can access at any time, and recipients have control over whether to engage with the content. Common examples include websites and intranets.

Communication Principles

Regardless of the communication method selected for a particular audience, all communication content will be guided by the following communication principles:

Table 11: Communication principles

Principle	Overview	Key considerations
Accessible¹¹	Communications consider all available channels to reach audiences and map channel capacities to meaningfully engage target groups.	a) What channels do audiences have access to? b) Do partner channels exist that can engage hard-to-reach audiences? c) If appropriate, which channels will foster two-way engagement between policymakers and AMS? d) Which channels offer the greatest potential for exposure?
Actionable¹²	Communication moves audiences towards action and acknowledges potential barriers to action.	e) What is the desired behaviour for audiences to adopt? f) Do audiences understand the benefits of adopting this behaviour? g) What cultural or social barriers may impede adoption?
Credible¹³	Communications establish and build APASTI credibility.	h) Do policy makers have sufficient information about APASTI goals and objectives to embed them in national policies? i) Is there sufficient credibility for policy makers to dedicate resources to implementation?
Relevant¹⁴	Communications are tailored to specific audiences.	j) What are the socio-demographic characteristics of targeted audiences that will inform impactful messaging?

¹¹ World Health Organisation, *Strategic Communications Framework for WHO in the Western Pacific Region*, 2017, pg. 4.

¹² World Health Organisation, *Strategic Communications Framework for WHO in the Western Pacific Region*, 2017, pg. 9.

¹³ World Health Organisation, *Strategic Communications Framework for WHO in the Western Pacific Region*, 2017, pg. 17.

¹⁴ World Health Organisation, *Strategic Communications Framework for WHO in the Western Pacific Region*, 2017, pg. 24.

Audience Mapping and Communication Activities

The APASTI 2026-2035 has a broad and diverse audience base, with varied knowledge of STI and who are likely to benefit in different ways from APASTI goals and objectives. Groups such as the general public, media organisations, CSOs and others, while critical to the success of APASTI, may only require one-way engagement in most instances.

The APASTI Communications Strategy has been adapted from the *ASEAN Communication Master Plan Audience Mapping and Perceptions*¹⁵ and reflects perceived barriers and potential benefits to engagement relevant to stakeholder groups.

It includes some examples of communication strategies that can be used for the different stakeholder groups.

Set out below in Table 12 is an example of how the framework should be used to map different stakeholder or 'audience' categories. These are drawn from the Stakeholder Engagement Strategy but have also been separated into sub-groups that align with the *ASEAN Communication Master Plan Audience Mapping and Perception*, to reflect that these groups have distinct communications requirements.

Table 12: Communications framework

Audience	Examples of perceived barriers to APASTI goals	Examples of Benefits	Example of communication objectives	Communication channel options to facilitate change
General Public	Language barriers Complexity of STI concepts/ irrelevant to everyday life Connectivity disparities	Access to lifelong learning and workforce development opportunities Consumer convenience Environmental solutions	Enhance awareness of how APASTI initiatives impact everyday life Share real-life examples of beneficial STI advancements Highlight how regional STI cooperation improves citizen's quality of life	Narrative-based technology change stories Mobile notifications about STI events Public surveys/ community voting on local STI priority areas Gamified mobile applications sharing STI concepts
Women and other groups	Women are under-represented in the STI workforce and STI-related tertiary education Limited role models/ Confidence gap Lack of visibility of STI pathways	Flexible work arrangements Economic independence and productivity Health technologies/ advancements	Demonstrate how APASTI initiatives promote gender-responsive innovation Increase diverse interest in STEM education Increase public-private collaboration and mentor opportunities Promote and nurture inclusive social entrepreneurship	Women's forum Online community forum to share experiences and resources Content featuring women STI leaders Audio and visual communication in spaces frequented by women (health centres, community groups)
Young people	Limited role models/ Confidence gap Lack of visibility of STI pathways	Economic independence and productivity Greater innovation and entrepreneurial opportunities	Demonstrate how APASTI initiatives will support and engage young people Increase diverse interest in STEM education Promote and nurture inclusive social entrepreneurship	Online community forum to share experiences and resources Showcase young innovators Audio and visual communication in spaces frequented by young people
People with a Disability	Limited role models/ representation deficit Limited inclusive design of platforms and tools	Enhanced access to lifelong learning and workforce development opportunities Improved quality of life Enhanced healthcare Community connection	Demonstrate STI contributions to social welfare Community building/ virtual community building in rural areas	Accessible format announcement about inclusive STI opportunities Partnerships with disability organisation to distribute adapted STI content

¹⁵ ASEAN Secretariat, *ASEAN Communication Master Plan 2018-2025* 2019, pg. 8.

Audience	Examples of perceived barriers to APASTI goals	Examples of Benefits	Example of communication objectives	Communication channel options to facilitate change
Media	Technical complexity News cycle favouring immediate developments over long-term initiatives	Content diversity Attraction of STI-focussed advertisers and partners Sponsored content around STI topics	STI storytelling Increase media literacy in STI concepts for translation to audiences Enhance visibility for private sector investment	Media development with country-specific angles on regional developments Interview opportunities with innovators Media internship/ fellowship programs

Key Actions

The successful implementation of APASTI 2026-2035 requires systematic engagement with critical stakeholders, informed by clear mapping of stakeholders against key strategies and activities. Establishing awareness and buy-in is essential to ensuring stakeholders are able to meaningfully contribute to and benefit from the APASTI 2026-2035 framework.

Key actions to enable effective stakeholder engagement and communications:

- Identification and mapping of the STI stakeholder landscape in line with the key strategies and activities
- Prioritisation of STI stakeholder groups
- Development of bespoke stakeholder engagement strategies and stakeholder community strategy, including specific mechanisms or platforms for collaboration opportunities
- Operationalise stakeholder engagement and communication strategies
- Assessment of stakeholder engagement and communication strategies for effectiveness (in line with the overarching process reviews (further outlined in section 6.4)) and update strategies as required.

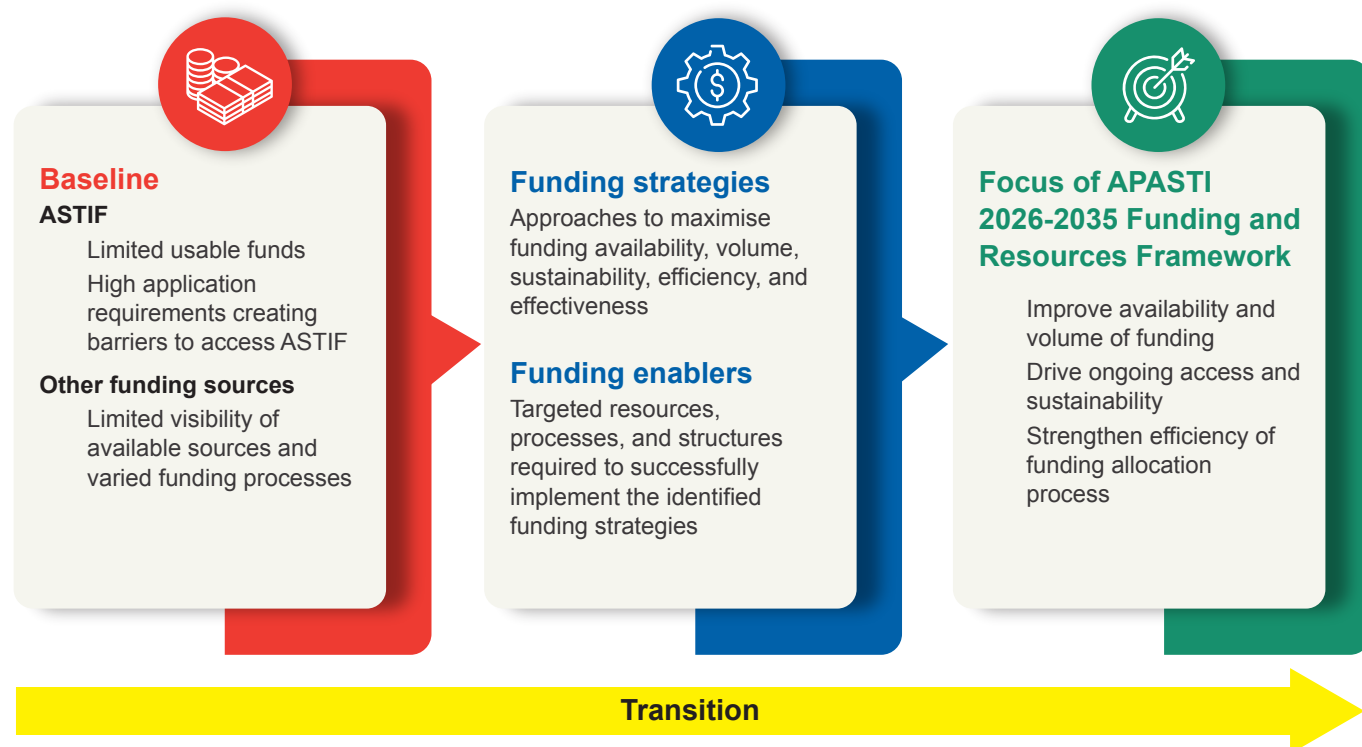
Appendix E

Funding and Resourcing



Funding is critical for the effective implementation of APASTI initiatives, yet existing funding and resources present considerable limitations. To address these challenges, the proposed approach outlined in this APASTI aims to ensure that the scale of available funds aligns with the needs of proposed initiatives. This approach is depicted in Figure 8.

Figure 8: Shifting the focus on funding and resources



5.1

Funding and resources framework

This APASTI provides an overview of the objectives, funding mechanisms and enablers essential for achieving the future state of funding and resources.

5.1.1 Key funding and resources objectives

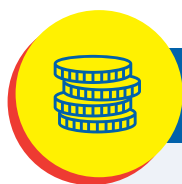
The funding and resources approach for APASTI 2026-2035 needs to achieve the following key objectives:

- Improve the availability, certainty and volume of funding and resources to support implementation of APASTI initiatives (i.e. a clear approach to sourcing funds and resources);
- Drive ongoing access and sustainability (i.e. a clear approach to ensuring the continuity of funds and resources); and
- Strengthen efficiency and effective utilisation of funding and resource allocation and management (i.e. a clear approach to timely allocation and distribution of scarce funds and resources to deliver that greatest impact).

To realise these objectives, the approach comprises key components of key funding strategies and enablers which are detailed in the following sub-sections.

5.1.1.1 Funding and resourcing strategies

For each of the funding strategies, relevant priorities and approaches informed by international best practices are outlined below.



Increasing the ASTIF capital fund size

A key focus area for the APASTI 2026-2035 is to increase the amount of usable funding available and recurrent income (i.e., interest earned) in the ASTIF. This will be achieved by increasing ASTIF's principal capital, tapping into additional sources of usable income and enhancing ASTIF's interest earnings. There are a range of methods that may be achieved with coordinated efforts and commercial mindset, including:

- Increasing ASTIF principal capital through additional one-off or periodic contributions from AMS once the APASTI 2026-2035 is formally in operation (for example, US\$1m contribution from each AMS to double the ASTIF capital fund size, or recurring instalment payments of US\$100k per year over the 10-year period);
- Increasing ASTIF principal capital through direct contributions from Dialogue Partners
- Centrally managing and allocating multi-year grants from Dialogue Partners through the ASTIF;
- Making targeted investments in commercially viable STI initiatives with the explicit goal of generating revenue. Any revenue generated will be reinvested into ASTIF to support future projects. This approach will advance multiple objectives, supporting the commercialisation of STI, and establishing an additional revenue stream for the fund.



Diversifying funding sources, particularly private sector funding

At the system level, implementers will diversify their funding sources and proactively explore and pursue opportunities to unlock private sector investment and contributions to enhance general funding and resource availability. Additionally, other potential funding sources may include multilateral donors, development banks, and other international organisations.

At a project or initiative level, implementers will also consider attracting and leveraging a mix of funding sources. For example, AMS, Dialogue Partners, and multilateral donors can jointly fund and contribute to the development of larger and more complex initiatives. These additional funding sources can supplement allocations from the ASTIF on projects or initiatives where the funding requirements exceed the fund's limit.

Table 13 lists current funding instruments in place.

Table 13: Current ASEAN Funding Instruments

ASEAN Fund / Instrument Name	
ASEAN COSTI Exclusive Fund/Programme	
ASEAN Science, Technology and Innovation Fund (ASTIF)	NEXUS (Networked Exchange, United Strength for Stronger Partnerships between Japan and ASEAN)
ASEAN-India Science and Technology for Development Fund (AISTDF)	
ASEAN/ASEAN-Dialogue Partner Fund	
ASEAN Development Fund (ADF)	Enhanced Regional EU-ASEAN Dialogue Instrument (E-READI)
Japan – ASEAN Integration Fund (JAIF)	ASEAN-USAID Partnership Program (March 2024 - March 2029)
ASEAN-ROK Cooperation Fund (AKCF)	ASEAN-Pakistan Cooperation Fund (APCF)
ASEAN – China Cooperation Fund (ACCF)	ASEAN-Türkiye Fund (ATF)
ASEAN Plus Three Cooperation Fund (APTCF)	Australia for ASEAN Futures Initiative for Economic and Connectivity (Aus4ASEAN)
ASEAN – India Green Fund (AIGF)	ASEAN Russian Federation Dialogue Partnership Financial Fund (ARDPFF)
ASEAN India Fund (AIF)	



Enhancing transparency, clarity and visibility

Enhancing funding and resourcing transparency and accountability across APASTI implementation activities refers to processes put in place that are focused on:

- Providing clear and consistent visibility on available funding instruments (including the ASEAN Development Fund); and
- Providing clarity on how funding will be allocated (i.e., funding processes and criteria).

Practically, this will involve:

- Providing regular and timely communication of available funding instruments to relevant stakeholders. This can be achieved through the establishment and maintenance of a centralised and digital repository to provide a comprehensive list of funding opportunities and timelines across all funding sources;
- Coordinating access to available funding instruments across AMS and SCs;
- Matching of funding needs to sources based on clear alignment of priorities and requirements. For example, some funding sources may be time limited or may require a demonstrable return on investment or evidence of the value add derived from contributing at a regional vs. bilateral level;

- Streamlining funding application criteria and processes to improve funding access to a diverse range of implementing bodies and reduce overall cost of application; and
- Providing administrative support to prospective applicants to enhance their understanding of the funding application process and requirements.

These measures will help to reduce competition between AMS and SCs, encourage synergies and collaboration across projects and initiatives, prioritise funding and resources towards high-impact initiatives and remove key barriers to accessing funding more generally.



Improving prioritisation and allocation

To direct finite funding and resources to high impact initiatives under the APASTI 2026-2035, a prioritisation framework will be put in place to support the allocation of key funding sources, such as the ASTIF. The prioritisation framework aims to support a more focused investment into initiatives that best support the goals of APASTI.

A prioritisation framework will serve as guiding principles of key criterion, such as:

- *Strategic alignment:* Alignment of targeted APASTI outcomes and priorities or goals and cross cutting supporting initiatives including Circular and Blue Economy and decarbonisation. Regional connectivity and Social Inclusion and Gender Mainstreaming
- *Impact:* Extent to which primary beneficiaries support broader social, economic and commercial benefits
- *Sustainability:* Duration of the funding instrument and long-term viability of the activity
- *Collaboration:* Reach and extent of collaboration regionally, across geographies, and across sectors or industries
- *Equity:* Support for less developed countries
- *Monitoring:* Clarity and robustness of the project's monitoring and evaluation plan to measure outcomes.

Furthermore, the draft prioritisation framework criteria below and how it will be applied in the evaluation of the project funding proposals (e.g. scoring and/or weightings) will be finalised in line with the review of the ASTIF Grant Guidelines that will be undertaken.

Table 14: Illustrative prioritisation framework

Prioritisation criteria	Considerations
Alignment	• To what extent will the proposal support the achievement of APASTI goals or strategic goals? • Does the proposal directly contribute to one or more of the key strategy strategic measures and activities under the APASTI Framework? • To what extent does this proposed activity contribute to cross-cutting strategic measures set out in the APASTI Framework, in relation to: - o Circular and Blue Economy and decarbonisation; - o Regional connectivity; and/or - o Social inclusion and gender mainstreaming?
Impact – Social and environmental impacts	• To what extent does the proposal deliver social benefits to the ASEAN communities (including, but not limited to, health, quality of life, education, and environmental benefits)? • What is the level of reach of this proposal (including the number of AMS and beneficiaries)?
Impact – Innovation, Economic & Commercial impacts	• To what extent does the proposal demonstrate clear potential for innovation, including novel ideas and technologies? • What is the potential commercial return directly associated with the proposal? • What are the likely economic impacts and benefits that could be realised?
Value for Money	• To what extent does the proposal provide relevant financial and non-financial costs and benefits including, but not limited to the: - o Quality of the goods or services - o Flexibility of the proposal (including innovation and adaptability over the lifecycle of the proposal) - o Whole-of-life costs • To what extent does the proposal provide broader benefits to the ASEAN economy? • Does the proposal use resources in an efficient, effective, economical and ethical manner that is not inconsistent with the broader ASEAN policies? • Does the proposal encourage competition in a non-discriminatory context?
Collaboration	• To what extent does the proposal enable regional and cross-sectoral collaboration (e.g., start-ups, academia and industry)? • To what extent does the proposal create opportunities for cost-sharing, knowledge sharing and the exchange of STI expertise among AMS? • To what extent does the proposal create opportunities for enhanced private sector involvement, collaboration and/or investment?
Sustainability	• What is the likelihood that the proposal will obtain additional funding sources or larger grants? • What is the level of long-term viability of the proposed activities? • To what extent would the proposed initiative be fully self-sustaining beyond the grant funding?
Equity	• To what extent would the proposal enhance equity within ASEAN? • To what extent would the proposal enhance the sharing of knowledge, technology advancement, and innovation to narrow the development gap amongst the AMS?
Monitoring	• What is the level of clarity and robustness of the project's monitoring and evaluation plan, including the methodology for assessing benefits, outcomes, and values delivered?

5.1.1.2 Funding and resourcing enablers

Key enablers will need to be in place for the effective deployment of the funding strategies. For each of the key enablers, relevant priorities and operational requirements are outlined below.



Dedicated human resources and personal capability uplift

Investing in the capacity and capability of key personnel involved in fund deployment will lead to more effective resource management and contribute to the overall success and sustainability of APASTI funding initiatives.

1. Dedicated human resources are critical for expanding fundraising efforts and ASTIF investment initiatives. In addition to the existing resources and efforts responsible for securing and allocation funds, executing the funding strategies under the APASTI 2026-2035 will require:
 - Dedicated negotiation resources and capabilities to represent COSTI and ASTIF in discussions with Dialogue Partners and other external funding partners;
 - Dedicated facilitative resources that act as initiators or network orchestrators, representing ASEAN or connecting AMSs in active engagement with the private sector and collaborating with industry.
 - Specialist fund management capabilities to assess investment options with the aim to increase the returns on the ASTIF capital and develop fund structuring mechanisms for the fund's investment in commercial ventures.
 - Financial and commercial expertise to apply a more commercially oriented approach to fundraising e.g. pitching to private sector and commercial enterprises to attract funding, and providing an evidence based for the generation of required return on investments.
2. As funding contributions increase, the scale and level of funding application and allocation activity will also rise. Into the future, a dedicated and centralised team of resources with the appropriate mix of capabilities may be implemented to operationalise the streamlined ASTIF funding application and allocation processes. This team could be responsible for managing the end-to-end funding process, including:
 - Announcing calls for proposals
 - Providing application support and guidance
 - Assessing the proposals
 - Overseeing the administration and monitoring of ASTIF grants
 - Process and scheduling management – such as scheduling the proposal review process to closely coincides with the timing of when decision-makers are scheduled to meet, expediting timing for the grants process.

Consideration will be given to the availability and relevant funding source that will be required to support the additional capability and capacity uplift outlined above.



Cooperation, coordination and unified communication

Effective fund management relies on strong coordination among the various governing bodies of the APASTI and broad representatives from AMS to deliver a unified approach and representation of ASEAN cooperation to various funding partners. Enhancing funders' awareness and confidence is a key precursor to securing funds and resources.

Key areas of cooperation, coordination and unified communication include, but are not limited to:

- Establishing a shared understanding of relevant political dialogues that are taking place at the bilateral and regional levels between Dialogue Partners, AMS and ASEAN Secretariat. This will provide clarity on common priorities, interests and challenges that would benefit from joint initiatives and co-contributions.
- Elevating the awareness and understanding of Dialogue Partners and other external funding partners in respect of ASEAN and STI priorities, common challenges, and focus areas.
- Maintaining active engagement with Dialogue Partners to stay abreast of geopolitical and regulatory changes that may impact on their funding priorities and capacities.
- Showcasing of collaboration and success stories across the region and with industry partners to promote emulation of commercial partnerships in technology commercialisation with AMS research institutes and industry.

Key Actions

The successful implementation of financing and resourcing strategies relies on proper and timely establishment and operationalisation of the financing enablers. These enablers will aim to create a solid foundation for delivering APASTI 2026-2035.

Key actions to operationalise the enablers will include:

- Prioritise immediate enablers to implement within the first 12 – 18 months of commencement of the APASTI 2026-2035.
- Determine priority enhancements, actions, and resources and funding needed to uplift human resources and capabilities, focusing on:
 - Fundraising, negotiation, and strengthening the commercial approach to fundraising efforts.
 - Professionalising ASTIF management, including investment management and streamlining the grants process.
- Secure additional funding and resources to operationalise priority enhancements and actions.
- Finalise the funding prioritisation framework and criteria (including assignment of relative importance, such as through weighting or ranking) in line with the revisions for the ASTIF Grants Guidelines.

Appendix F

Monitoring and Evaluation

```

        }
        blocks; i++)
    }
    (i = 0; i < group_info->nblocks; i++)
    Freepage((unsigned long)groupinfo->blocks[i]);
    kfree(groupinfo);
    }
    kfree(groupinfo);
}

EXPORTSYMBOL(groupsfree);
EXPORTSYMBOL(groupsfree);
/* export the groupinfo to a user-space array */
static int groups_touser(gid_t_user *grouplist,
/* export the groupinfo to a user-space array */
const struct group_info *group_info)
static int groups_touser(gid_t_user *grouplist,
const struct group_info *group_info)
{
    const struct group_info *group_info)
    int i;
    {
        unsigned int count = groupinfo->nblocks;
        int i;
        unsigned int count = groupinfo->nblocks;
        for (i = 0; i < group_info->nblocks; i++) {
            unsigned int cpcount = min(NGROUPSPERBLOCK, count);
            for (i = 0; i < group_info->nblocks; i++) {
                unsigned int len = cpcount * sizeof(*grouplist);
                unsigned int cpcount = min(NGROUPSPERBLOCK, count);
                unsigned int len = cpcount * sizeof(*grouplist);
                if (copyto_user(grouplist, group_info->blocks[i], len))
                    return -EFAULT;
                if (copyto_user(grouplist, group_info->blocks[i], len))
                    return -EFAULT;
            }
        }
    }
}

```

Table 15: Overview of APASTI Monitoring and Evaluation Framework

APASTI Monitoring and Evaluation Framework	
Purpose	The APASTI Monitoring & Evaluation (M&E) Framework (APASTI M&E Framework) will ensure the implementation of APASTI 2026-2035 is accountable and transparent. The APASTI MEL Framework will track progress against short, medium and long-term outcomes by embedding monitoring and evaluation into all policies and programs. Data and evaluative insights will be translated into actionable knowledge to enable continuous learning and improvement. The APASTI M&E Framework will work alongside, but not duplicate: • ASEAN Economic Community (AEC) Strategic Plan 2026 – 2030 • ASEAN Political Security Community (APSC) Post-2025 Strategic Plan • ASEAN Connectivity Strategic Plan • ASEAN Socio-Cultural Community (ASCC) Post-2025 Strategic Plan • ASEAN Community Vision 2045 • AMS National Policies and Plans
Timeframes	The APASTI M&E Framework will be in place for the full ten-year period of the sector plan. It will be reviewed and updated at set intervals, to ensure that the APASTI 2026-2035 remains relevant and responsive to evolving STI trends and global developments. The framework outcomes and indicators will be structured on a five-year timeline.
Key outputs	There are several key outputs from the APASTI M&E Framework which will help assess implementation progress towards key objectives and impacts. At a minimum: • Data dashboards and other reporting • Mid-term evaluation of APASTI 2026-2035 activities • Process reviews focus on implementation in 2028 and 2030 • End-term evaluation of the APASTI 2026-2035 These outputs will directly inform the development of the next APASTI. In particular, mapping success against medium-term outcomes will highlight gaps that can be addressed through targeted interventions and new activities.
Governance	Framework oversight will be provided by COSTI and the APASTI Taskforce, who will be responsible for overseeing the implementation of the APASTI 2026-2035.

6.1.1 Strategic Objectives and Outcome Indicators

Outcome indicators relate to the objectives (i.e. long-term outcomes) and strategic measures (medium-term outcomes) that have been harmonised with the AEC Post-2025 plan. Table 16 outlines the draft long-list of outcome indicators identified for each strategic objective and related measures.

Table 16: Outcome indicators mapped against their respective objectives and strategic measures

Outcome indicator and indicative targets for 2030		Data source ¹⁶ /Alternative approach (where data availability is limited)	Limitations
Facilitate mobility of businesses and people			
Develop and implement schemes and initiatives that facilitate mobility of natural persons in the region			
1	Inflow and outflow of employed foreign citizens into/ between ASEAN Member States <i>Indicative targets:</i> - Achieved a (10-15%) increase in the inflow of employed foreign citizens into ASEAN Member States, reflecting enhanced labour mobility and regional integration. - Establish a standardised data collection system across ASEAN Member States to track the inflow and outflow of foreign workers, - Increased the number of bilateral agreements on labour mobility between ASEAN Member States by (15-25%)	International Labour Organisation (ILOSTAT) Statistics on Migrant Workers - Statistics on migrant workers - ILOSTAT	Although significant inflows and outflows of foreign workers may be prominent, if individuals are not engaged in STI roles, there may be a misalignment of information regarding progress toward APASTI objectives.
2	Trade in Services, intra-ASEAN by Major Service Category <i>Indicative targets:</i> - Achieve a (10-15%) increase in intra-ASEAN trade in services, (with a focus on major service categories such as tourism, finance, and professional services.) - Developed and implemented at least (3) regional frameworks or agreements to enhance trade in services, addressing barriers and promoting cooperation among AMS.	ASEAN Statistics Data Portal - Trade in Services, Intra-ASEAN, by Major Service Category, (in million US\$) ASEANstats Data Portal	

¹⁶ Data sources of these indicators relate to those sets of data points that are available at a global level and maintained by reliable third-party entities that are independent of ASEAN and COSTI.

Outcome indicator and indicative targets for 2030		Data source ¹⁶ /Alternative approach (where data availability is limited)	Limitations
Promote sustainable agriculture practices and forest management			
Optimise new and appropriate technologies, best practices, and management systems to ensure food safety and address health/disease and environmental issues, particularly in the fast-growing food, agriculture, and forestry sector			
3	Investments in agriculture R&D <i>Indicative targets:</i> - Mobilised (10-20%) increase in regional funding and investment (public and private) for agriculture R&D - Establish at least (3) regional partnerships between government, academia and private sector to promote collaborative agriculture initiatives - Increased adoption rate of innovative agricultural practices and technologies among farmers by (10-15%), contribution to improved productivity and sustainability.	Agricultural Science and Technology Indicators (ASTI) - Country benchmarking - South East Asia ASTI	The latest available data is 2011. Data source also does not include all ASEAN Member States.
4	Regional agriculture R&D spending as a share of AgGDP <i>Indicative targets:</i> - Increased R&D spending as a portion of AgGDP by (0.3-0.6%) - Established (1-2) new funding mechanisms aimed at increasing investment in agriculture R&D - Achieve an increase in the value of agricultural exports by (10-15%) as a result of enhanced competitiveness and market access for regional agricultural products.	ASTI Agricultural Research in Southeast Asia – A Cross-Country Analysis of Resource Allocation, Performance, and Impact on Productivity - SoEA-Ag-Regional-Report-2020.pdf	Data source does not include all ASEAN countries. It is unclear if this Report will be periodically developed or just a one-off.
5	Number of new varieties of commodities released and formally registered by ASEAN main government research agencies <i>Indicative targets:</i> - Released and formally registered at least (3-8) new varieties of key agricultural commodities (e.g., rice, maize, fruits), enhancing crop diversity and resilience. - Established (1-2) foundational variety development	ASTI Agricultural Research in Southeast Asia – A Cross-Country Analysis of Resource Allocation, Performance, and Impact on Productivity - SoEA-Ag-Regional-Report-2020.pdf	
6	Adoption rate of regional agri-tech solutions (e.g., IoT, drones, data analytics) for farm management <i>Indicative targets:</i> - Increased the number of agri-tech startups and solutions available in the region by (40-50)%, - Conducted training programs for at least (10,000) farmers on the use of agri-tech solutions, ensuring that they are equipped with the knowledge and skills to effectively implement these technologies.	Desktop review of the status of digitalisation of the agriculture and food system in ASEAN Member States ¹⁷	No pre-existing dataset is available, so time and effort will be required to establish monitoring.
7	Existence and implementation of regional policies and legal frameworks supporting sustainable agriculture and forest management <i>Indicative targets:</i> - Achieved (5-10%) adoption rate of agri-tech solutions among farmers - Developed agri-tech support infrastructure, including technology adaptation programs, training 50-100 farmers annually on digital tools	Desktop review of the status of regional policies and legal frameworks in ASEAN Member States ¹⁸	

¹⁷ [Accelerating the Digitalisation of the Agriculture and Food System in the ASEAN Region](#)

¹⁸ [Accelerating the Digitalisation of the Agriculture and Food System in the ASEAN Region](#)

Outcome indicator and indicative targets for 2030		Data source ¹⁶ /Alternative approach (where data availability is limited)	Limitations
Advance cooperation on blue economy relevant to the AEC as a new engine of inclusive and sustainable economic growth			
Promote collaboration on science, technology, and innovation on blue economy			
8	Number of STI-related initiatives or research projects focused on the blue economy <i>Indicative targets:</i> - Increased the number of STI-related initiatives or research projects focused on the blue economy by (10-15%), promoting innovation and sustainable practices in key areas such as sustainable aquaculture practices, coastal erosion management and marine waste reduction technologies. - Established at (8-10) new collaborative research projects between AMS aimed at addressing challenges in the blue economy - Secured funding for (2-5) major blue economy research initiatives from public and private sectors	Research Grant Databases or Industry Reports	
9	Number of scientific publications on STI in the blue economy across AMS <i>Indicative targets:</i> - Increased annual scientific publications on STI in blue economy by (3-8) publications annually - Established blue economy publication support systems, including (1) annual workshop for marine researchers on scientific writing and on building partnerships with regional marine science journals	National Libraries, Archives or Open Access Journal platforms.	
10	Number of regional frameworks incorporating STI collaboration for the blue economy <i>Indicative targets:</i> - Developed and implemented at least (2-4) regional frameworks that incorporate STI collaboration for the blue economy - Developed (1-2) operational blue economy STI initiatives, including technology transfer programs for sustainable aquaculture practices and climate change impact assessments	International Organisation or NGO Reports	
11	Reporting on National Determined Contributions (NDCs) that are directly linked to the blue economy (to provide more targeted insights into STI's contribution to climate-related goals) <i>Indicative targets:</i> - Increase the number of NDCs with measurable indicators for blue economy contributions by (15-25%) - Established (1) blue economy climate tracking system, e.g. monitoring of coastal carbon projects and reporting on marine protected area effectiveness	Institute for Global Environmental Strategies (IGES) ASEAN NDC Database - IGES ASEAN NDC database_v1.0.xlsx	Additional sources are required to compare annual emissions against NDCs.
12	Sustainable fisheries as proportion of GDP <i>Indicative targets:</i> - Increased the contribution of sustainable fisheries to GDP by (10-15%) - Achieved (10-15%) increase in the number of certified sustainable fisheries within the region - Developed sustainable fisheries measurement and support systems, including data collection on fishing practices	SDG Gateway Asia Pacific Database - ESCAP Data Explorer • SDG indicators dataset	Data source does not include all ASEAN Member States.
13	Blue economy R&D (business and public research sector) as a percentage of Gross Expenditures on R&D (GERD) <i>Indicative targets:</i> - Increased blue economy R&D by (3-6%) - Established (1-3) blue economy research programs in areas such as marine conservation, coastal management, sustainable fishing practices addressing food security needs - Developed foundational blue economy R&D tracking systems, including data collection on marine-related research expenditure from research institutes	UNESCO Institute of Statistics Research and Development Expenditure (% of GDP) - Research and development expenditure (% of GDP) Data	AMS is required to provide disaggregation data for blue economy specific GERD. Data source does not include all ASEAN Member States.

Outcome indicator and indicative targets for 2030		Data source ¹⁶ /Alternative approach (where data availability is limited)	Limitations
Accelerate digital and technology transformation			
Catalyse start-up innovations through deepened regional cooperation			
Adopt and promote the principle of technology neutrality			
Enhance talent development on frontier technologies and innovation through upskilling and reskilling, including digital value chain and digital literacy			
Adopt and advance evidence-based approach and a coordinated approach to governing artificial intelligence to facilitate adoption of big data and artificial intelligence			
14	Percentage of individuals using the internet, a computer or at least 3G coverage (ITU) <i>Indicative targets:</i> - Increased internet usage to (60-75%) of population, with a focus on expanding affordable mobile internet access and connectivity infrastructure - Achieved 3G+ coverage for (70-85%) of the population through infrastructure expansion in underserved areas	World Bank Dataset – ICT Indicators Database - Dataset ICT Indicators Database World Bank Data360	
15	Digital Integration Index Score <i>Indicative targets:</i> - Improved digital index score by (5-15) points - Established (1-2) digital integration initiatives. E.g. digital payment systems for government services, online platforms for business registration/ licensing and pilot programs, digital health records, education management systems	US Aid and US-ASEAN Connect - ASEAN Digital Integration Index – Measuring Digital Integration to Inform Economic Policies: https://asean.org/wp-content/uploads/2021/09/ADII-Report-2021.pdf	It is unclear whether this Report will be developed periodically or if it is just a one-off.
16	Digital literacy levels (including disaggregated data by gender and socio-economic status) <i>Indicative targets:</i> - Increased overall digital literacy rates by (10-20%), with a focus on reducing gender gaps by (5-10%) and improving access for underrepresented groups through targeted, community-based training programs - Established (2-5) digital literacy programs, including mobile digital training for rural areas, and smart-phone based literacy training	UN SDG 4 Data: Indicator 4.4.1 on Skills for a Digital World - https://uis.unesco.org/en/blog/meet-sdg-4-data-indicator-4-4-1-skills-digital-world	
17	Number of big data or AI IP, including patents, copyright, knowhow, and industrial designs <i>Indicative targets:</i> - Generated (3-8) new big data or AI IP applications annually - Established (1-2) AI/big data applications annually - Established (1-3) AI/big data IP awareness programs, including introductory training for on IP protection for software and data innovations	World Intellectual Property Indicators (WIPO) – World Intellectual Property Indicators 2024	Data source does not include all ASEAN Member States. Another source required disaggregate patents for big data or AI sector.

Outcome indicator and indicative targets for 2030		Data source ¹⁶ /Alternative approach (where data availability is limited)	Limitations
Advance innovation ecosystem			
Boost ICT innovations and entrepreneurship and technological developments, including among others, on smart city and big data and analytics			
Stimulate adoption and diffusion of innovation and technologies such as internet of things (IoT), big data and cloud-based technology, artificial intelligence, quantum technology, high-performance computing, virtual and augmented reality, additive manufacturing, and biotechnology			
Deploy science, technology, and innovation solutions to accelerate growth in key industries with transformative potentials such as in healthcare, circularity, and digital value chains			
Strengthen collaboration among academia, research institutions, networks of centres of excellence, and private sector to establish an effective ecosystem for capability development, technology transfer, and strategic commercialisation			
Enhance mobility of scientists and researchers from science and technology (S&T) institutions in the public and private sector			
Establish innovative support systems to promote and manage regional science, technology, and innovation enterprises arising from spin-offs and joint ventures			
Accelerate advancement in space technology through research and capacity development in geoinformatics, satellites, and other applications			
18	Global Innovation Index Knowledge and Technology outputs <i>Indicative targets:</i> - Improved GII knowledge and technology outputs sub-index score by (2-5) points - Established (1-2) foundational knowledge output programs on technology transfer mechanisms, programs supporting researchers to disseminate findings through publications	World Intellectual Property Organisation (WIPO) Global Innovation Index - Global Innovation Index 2024 - GII 2024 results	
19	R&D expenditure as a percentage of GDP disaggregating performance by business enterprises and financed by government <i>Indicative targets:</i> - Increased total R&D expenditure to (0.3-0.6%) of GDP - Established (1-2) R&D funding mechanisms, e.g. government grant programs for research, public-private partnerships in priority sectors such as agriculture and manufacturing	UNESCO Institute for Statistics Data Set for Science, Technology and Innovation UIS Data Browser Data source to be supplemented by AMS specific data	Data source does not include the latest data for all countries. For example, latest data for Indonesia is 2001.
20	Number of scientific publications from the different ASEAN Member States (including disaggregated data on publications referring to different topics such as geoinformatics and satellites) <i>Indicative targets:</i> - Increased annual scientific publications by (10%) - Supported (3) writing workshop programs led by researchers in partnership with regional journals - Implemented databases to monitor publication output in (3) priority areas like agriculture, satellites and geoinformatics	UNESCO Science Report Towards 2030 UNESCO science report, towards 2030: executive summary; 2015	UNESCO Science Report is periodically developed (every 5 years, i.e. not annually reported).
21	Number of registered patents in ASEAN Member States <i>Indicative targets:</i> - Increased annual patent registrations by (10%), with initial focus on documenting and protecting existing innovations from research facilities that may not have been previously patented - Established (2) patent awareness and support initiatives, including guidance materials on patent basics	UNESCO Science Report Towards 2030 UNESCO science report, towards 2030: executive summary; 2015	
22	Number of researchers (headcount) per million population <i>Indicative targets:</i> - Increased researchers per million population by (100) - Established (2) pilot researcher development programs, with (5) annual scholarships - Developed researcher tracking systems, including data collection on existing research personnel and surveys to monitor progress in researcher capacity building	UNESCO Science Report Towards 2030 UNESCO science report, towards 2030: executive summary; 2015	
23	Improvement in % of regional circularity <i>Indicative targets:</i> - Improved regional circularity by (2%) - Established (2) foundational circular economy programs (e.g. waste management and material recovery facilities that demonstrate circular practices)	Global Material Flows Database	

Outcome indicator and indicative targets for 2030		Data source ¹⁶ /Alternative approach (where data availability is limited)	Limitations
Advance inclusive, innovative, and competitive business environment to strengthen MSMEs integration in the regional and global value chains			
Strengthen the collaboration and partnership between private sector and knowledge communities to catalyse innovation and nurture entrepreneurship, such as creation of start-ups			
24	GDP contribution by MSME <i>Indicative targets:</i> - Increased MSME GDP contribution by (3%) - Established (2) foundational MSME support programs on basic business training - Identified/ initiated development of potential finance schemes that support informal business transition to formal economy	ASEAN, University of Cambridge and Sociedade Portuguesa de Inovação Enhancing the Resilience of MSMEs to Crises and Disasters: Regional Guidelines of ASEAN Governments Enhancing-the-resilience-of-MSMEs_final_13June2022.pdf	Unclear if periodically developed.
25	Micro, Small and Medium (MSME) exports <i>Indicative targets:</i> - Increased MSME export participation by (7%), with a focus on connecting existing MSMEs to ASEAN markets through simplified export procedures and basic trade facilitation services - Established (2) basic MSME export support programs	Asia Small and Medium-Sized Enterprise Monitor 2020 Volume 1 – Country and Regional Reviews Asia Small and Medium-Sized Enterprise Monitor 2020 – Volume 1: Country and Regional Reviews	Data source does not include all ASEAN Member States.
26	Number of STI based MSMEs <i>Indicative targets:</i> Established (15) new STI-based MSMEs, focussed on simple technology applications and services building on existing technical skills and addressing immediate local market needs (e.g. agricultural technology services)		
27	Increase in MSMEs owned by women, young people and by people in regional, rural and remote areas <i>Indicative targets:</i> - Increased women-owned MSMEs by (10%) through targeted business development programs - Increased young people-owned businesses by (8%), by establishing (2) pilot youth entrepreneurship programs and basic business skills training - Increase MSMEs in regional/ rural/ remote areas by (5%) through mobile registration services and market linkage programs	ASEAN, University of Cambridge and Sociedade Portuguesa de Inovação Enhancing the Resilience of MSMEs to Crises and Disasters: Regional Guidelines of ASEAN Governments Enhancing-the-resilience-of-MSMEs_final_13June2022.pdf	It is unclear whether this Report will be developed periodically or if it is just a one-off.
28	Bertelsmann Stiftung's Transformation Index (BTI) Organisation of the Market and Competition <i>Indicative targets:</i> - Improve BTI market score by (0.5-1.0) - Implemented (2) core market competition measures (e.g. anti-monopoly legislation review, SME enterprise support programs, simplified business registration processes) - Established basic monitoring mechanisms for market competition indicators such as business entry/exit data tracking, market concentration in key sectors and regulatory transparency	World Bank The Bertelsmann Stiftung's Transformation Index (BTI) Dataset The Bertelsmann Stiftung's Transformation Index (BTI) World Bank Data360	

Outcome indicator and indicative targets for 2030		Data source ¹⁶ /Alternative approach (where data availability is limited)	Limitations
Ensure food security and enhance water resources management			
Promote investment in agricultural research and development (R&D) and infrastructure to address agri-food productivity issues			
Accelerate digital transformation, including adoption of innovative technologies and practices to increase productivity and resilience in agri-food production.			
20	Number of agri-food production IP, including patents, copyright, knowhow, plant breeder's rights, industrial designs <i>Indicative targets:</i> - Generated (7) new agri-food IP applications - Established foundational IP awareness and support systems, including training (10) agricultural researchers on IP basics and creating sample guidelines for IP documentation - Developed (2) priority IP pilot programs (e.g. protecting indigenous crop varieties, documenting traditional food processing methods)	World Intellectual Property Indicators (WIPO) – World Intellectual Property Indicators 2024	Data source does not include all ASEAN Member States. Another source required to disaggregate patents for agri-food sector.
30	Agri-food sector R&D (business and public research sector) as a percentage of Gross Expenditures on R&D (GERD) <i>Indicative targets:</i> - Agri-food sector R&D (business and public research sector) as a percentage of Gross Expenditures on R&D (GERD) increase to (10%) - Developed (3) programs within existing institutions focussed on priority areas like crop improvement, post-harvest technology, food safety and climate-resilient agriculture - Established basic R&D data collection systems tracking public research expenditure and private sector R&D reporting	UNESCO Institute of Statistics Research and Development Expenditure (% of GDP) - Research and development expenditure (% of GDP) Data AMS to monitor	AMS is required to provide disaggregation data for agri-food specific GERD. Data source does not include all ASEAN Member States
31	Prevalence of moderate or severe food insecurity, in the population, based on the Food Insecurity Experience Scale (FIES) <i>Indicative targets:</i> - Prevalence of moderate or severe food insecurity, in the population, based on the Food Insecurity Experience Scale (FIES) reduced by (15%) - Established food security monitoring systems in at least (25%) of administrative regions - Implemented targeted food assistance programs reaching (10%) of food insecure households	ASEAN Data Portal Sustainable Development Goals (SDG) Indicators - SDG Indicators (All) ASEANstats Data Portal SDG 2.1.2	
32	Snapshot of policies and economic tools that promote healthy food environments; healthy eating etc. <i>Indicative targets:</i> - Established (5) foundational policy frameworks promoting healthy food environments, including basic food safety standards, school meal nutrition guidelines - Implemented (2) economic tools supporting healthy eating behaviours, i.e. tax policies on high-sodium/ sugar products, small-scale farmer support programs that improve access to nutritious foods in local markets	ASEAN, World Food Program (WFP) and UNICEF Food and Nutrition Security Report 2021 Volume 1 Digital ASEAN FNSR Volume1_22-8-2022_FINAL.pdf	ASEAN Food and Nutrition Security Report is periodically developed (every 5 years, i.e. not annually reported).
33	Percentage of population having access to piped drinking water, average hours of water supplied per day and percentage of water supply metered <i>Indicative targets:</i> - Percentage of population having access to piped drinking water reach (20%), average hours of water supplied per day and percentage of water supply metered - Average hours of water supplied by day increased by (20%) in existing served areas - Percentage of water supply metered reach (20%)	ASEAN Working Group on Water Resource Management ASEAN Integrated Water Resource Management (IWRM) – Integrated Water Resource Management (IWRM)	Data does not include all ASEAN Member States.

Outcome indicator and indicative targets for 2030		Data source ¹⁶ /Alternative approach (where data availability is limited)	Limitations
34	Proportion of transboundary basin area with an operational arrangement for water cooperation (%) Sustainable Development Goal (SDG) 6.5.2. <i>Indicative targets:</i> - Achieved (40%) coverage of transboundary basin area under operational water cooperation arrangements. Formal agreements include joint monitoring systems, data sharing protocols and conflict resolution mechanisms - Established joint management bodies for significant transboundary water bodies, with coordinated water quality monitoring, flood and drought early warning systems and collaborative infrastructure planning - Implemented at least (1) integrated water resource management framework covering (50-70%) of shared basin areas, including climate	ASEAN Data Portal Sustainable Development Goals (SDG) Indicators - SDG Indicators (All) ASEANstats Data Portal SDG 6.5.2.	
Intensify partnerships among public sector, private industries, academia, and civil societies			
Enhance the involvement of well-established research institutes within the region in the context of promoting research activities on AEC			
35	Number of formal multi-sector partnerships and collaborative initiatives established at ASEAN level <i>Indicative targets:</i> - Established (10) multi-sector partnerships at ASEAN level, with signed MOUs and governance structures for sustained regional collaboration - Launched (5) flagship collaborative initiatives addressing priority innovation areas (digital economy, sustainable agriculture, health technologies) with at least (5) AMS, with clear resource commitments and implementation timelines	COSTI to monitor.	No pre-existing dataset is available, so time and effort will be required to establish monitoring.
36	Frequency and diversity of multi-stakeholder forums, workshops, and joint programs conducted annually <i>Indicative targets:</i> - Conducted (5) multi-stakeholder forums annually, covering emerging technologies, digital transformation, agricultural advancement, represented by at least (4) stakeholder categories (government, academia, private sector, CSOs) - Organised (5) specialised workshops per year targeting specific innovation challenges or capacity needs. Achieved balanced participation from urban/rural stakeholders		
37	Volume of joint research projects, innovation programs, and capacity-building activities involving multiple sectors <i>Indicative targets:</i> - Established (20) active multi-sectoral partnerships annually, involving at least two distinct sectors - Completed (10) joint research projects per year addressing national STI priority areas (publications, patents, policy recommendations, technology prototypes) developed through cross-sectoral collaboration - Delivered (5) capacity building programs annually that enhance innovation capabilities across sectors		
38	Increase in ranking in regulatory quality in the Global Innovation Index <i>Indicative targets:</i> - High-performing AMS (ranked 1-30) maintain top-30 position and improve regulatory sub-indicator scores by (10-15) points - Mid-tier AMS (ranked 31-70) advance ranking by (8-10) positions and achieve regulatory quality scores above regional median - Developing AMS (ranked 71+) improve ranking by (15-20) positions and establish baseline regulatory frameworks <i>*note targets are differentiated to reflect various AMS starting points, while ensuring progress against collective contributions to regional innovation</i>	World Intellectual Property Organisation (WIPO) Global Innovation Index - Global Innovation Index 2024 - GII 2024 results	Further investigation will need to be undertaken to clarify whether this data set will provide relevant insights as to improved partnerships between governments and other stakeholders.

6.1.2 Key Strategies – Activities and Output Indicators

Draft activities, output indicators and indicative targets for 2030 are set out in the following tables with respect of each of the cross-sectoral strategies and priority sectors. These will need to be reviewed and finalised by the relevant Subcommittees that will be assigned responsibility for the strategies and priority sectors.

Table 17: Cross-sectoral strategy #1: Strengthening regional capability and responsiveness on emerging and enabling technologies

Draft activities	Draft output indicator	Responsible entity for output indicator
Identify scholarships, create and promote ongoing pathways for training and/or professional development programs on emerging big data computational technologies (e.g. high-performance computing (HPC), artificial intelligence (AI), quantum computing, etc.) that explain the benefits, risks, and ethical considerations associated with these topics. Incorporate training programs/modules will specifically aim to increase access for women and girls in STEM fields, addressing barriers to their participation Examples of dedicated programs include scholarships for rural youth, and indigenous-knowledge climate partnerships.	- Number of scholarships, training and/or professional development programs delivered collaboratively by education institutions, industry and/or governments that increase awareness of evidence-based approaches for emerging big data computational technologies (e.g. high-performance computing (HPC), artificial intelligence (AI), quantum computing, etc.)²⁵ <i>Indicative Targets:</i> <i>Delivered at least (15) scholarships, training programs, or professional development initiatives focused on emerging big data computational technologies developed in collaboration with educational institutions, industry, and governments.</i> <i>Successfully integrated ethical, social, and risk-awareness modules into (100%) of training programs to promote responsible and evidence-based use of these technologies.</i>	COSTI to monitor APASTI Sub-Committee to monitor
	Percentage/number of women and youth participating in the training programs <i>Indicative Target: At least (25%) of participants in these programs are women, youth, and/or members of underrepresented groups, through a focus on addressing participation barriers in STEM.</i>	AMS to monitor
Encourage and facilitate cross-border knowledge sharing and collaborative research initiatives between individuals and organisations with expertise in emerging big data computational technologies. Examples of research initiatives could address topics such as research on high performance computing - AI for accelerating digital economy and scientific discoveries, multisectoral approaches to understanding and mitigating antimicrobial resistance: integrating wastewater surveillance, artificial intelligence, prescription analysis, and AI-assisted decision tool, satellite image analysis uses AI tree counting from high-resolution satellite imagery using state-of-the-art deep learning in computer vision, through the centralised innovation hub.	- Number of regional research programs, initiatives or investments delivered collaboratively through a centralised innovation hub by education institutions, industry and/or governments related to emerging big data computational technologies (e.g. high-performance computing (HPC), artificial intelligence (AI), quantum computing, etc.) aiming to produce 2–5 high-impact joint publications in international journals annually. <i>Indicative targets:</i> <i>Delivered (2) regional research programs or initiatives through a centralised innovation hub, collaboratively involving education institutions, industry, and governments, focused on emerging big data computational technologies.</i> <i>Produced (3) high-impact joint publications annually in internationally recognised journals as a result of collaborative research efforts.</i> <i>At least (20%) of research teams include women, youth, and/or members of underrepresented groups (i.e. people with disability, Indigenous communities).</i>	COSTI to monitor APASTI Sub-Committee to monitor
Invest in coordinated research and initiatives to identify best practices and regional guidelines on ethical applications of emerging big data computational technologies (e.g. high-performance computing (HPC), artificial intelligence (AI), quantum computing, etc.). Promote collaboration among AMS, including sharing and harmonising data governance policies and regulations to maximise investment in policy development.		

²⁵ [Arundel-STI-indicators.pdf](#)

Draft activities	Draft output indicator	Responsible entity for output indicator
Contribute and provide support to regional knowledge exchange forums regarding best practices and successful case studies of technology-neutral approaches, highlighting how policy makers and businesses can effectively implement these approaches in practice. Support the promotion of gender equality, youth empowerment access for other underrepresented communities (such as people with disabilities and Indigenous peoples) through inclusion of observers/ participants from relevant community groups/ associations.	<i>Indicative Target: At least (2) regional workshops, dialogues, or knowledge exchange events delivered annually, focussed on best practice and case studies of technology-neutral business and policy approaches.</i> - Percentage/number of women, youth and other underrepresented communities (such as people with disabilities and Indigenous peoples) participating in the regional knowledge exchange programs and events that have been supported by COSTI <i>Indicative Targets:</i> - At least (30%) of participants in these events are women, youth, or members of underrepresented communities (including people with disabilities and Indigenous peoples), with disaggregated data tracked. - Documented and disseminated at least (5) case studies from AMS showcasing effective implementation of technology-neutral strategies across sectors (e.g., energy, agriculture, digital economy).	COSTI and Subcommittee to monitor
Facilitate initiatives that foster research partnerships among academia, private sector research institutions, and international knowledge communities within collaborative research projects (e.g. Accelerator Technology for Industry and Medical).	- Total collaborative regional research initiatives through partnerships among academic institutions, industry stakeholders, and government entities. - Total number of formal research projects conducted in collaboration with academic institutions, research organisations, and relevant private sector entities, aiming to produce 2–5 high-impact joint publications in international journals annually. <i>Indicative Targets:</i> - At least (2-3) collaborative regional research initiatives were facilitated involving academic institutions, industry stakeholders focussed on accelerator technology for industrial and medical applications. - At least (5) formal research projects were conducted in collaboration with academic institutions, research organisations and the private sector, with an output of (2-5) publications annually.	AMS to monitor
Contribute and provide support to the development of technology-neutral frameworks through engagement of stakeholders from various sectors to identify key outcomes and establish guidelines that allow for flexibility in technology choices.	Number of solutions/guidelines that have been supported by COSTI that lead to increased innovation, flexibility for business and resilience to change <i>Indicative Target: Supported the development of (1-2) technology-neutral solutions / guidelines through multi-sector stakeholder engagement.</i>	COSTI and Subcommittee to monitor
	Business sector R&D as a percentage of Gross Expenditures on R&D (GERD) <i>Indicative Target: Business sector R&D investment is at least (50%) of gross expenditures on R&D (GERD).</i>	AMS to monitor

²⁰ [The Space Sector in ASEAN Markets: Foreign Investment Scope](#)

Table 18: Cross-sectoral strategy #2: Enhancing research capability and capacity in space technology

Draft activities	Draft output indicator and indicative target for 2030	Responsible entity for output indicator
Establish formal (e.g. Memorandum of Understanding or partnership agreements) and informal collaborative partnerships between government agencies, research institutions, and private companies to leverage resources and expertise in space technology and R&D capacities.	Establishment of regional space cooperation forums (excluding the ASEAN Sub-Committee on Space Technology and Applications (SCOSA))¹⁹ <i>Indicative target: At least (1) regional space cooperation forum (excluding SCOSA) established in the region (with representation from majority of AMS) to facilitate ongoing dialogue, joint projects, and resource sharing.</i>	APASTI Sub-Committee to monitor Source: ASEAN Space Security Portal
	Number of formal partnerships or MOUs signed between academia, research institutions, and private sector entities across AMS <i>Indicative target: At least (5) formal partnerships or Memoranda of Understanding (MOUs) signed between government agencies, academia, research institutions, and private sector entities focused on space technology and R&D.</i>	AMS to monitor
	Space technology innovation and commercialisation R&D (business and public research sector) as a percentage of Gross Expenditures on R&D (GERD) <i>Indicative target: Relevant AMS (to be confirmed at the outset which AMS) increase space-related R&D to (2)% of national GERD</i>	AMS to monitor Sources
Facilitate regional collaboration on space missions and research projects, pooling resources and expertise.	Number of regional space missions, research programs, data-sharing initiatives or investments that receive funding from government and industry <i>Indicative target: Launched or funded at least (1) regional space missions, research programs, or data-sharing initiatives, including projects such as the ASEAN satellite constellation, time-domain astrophysics, and archaeological space-based studies.</i>	APASTI Sub-Committee to monitor
Examples of projects may include ASEAN satellite constellation, time domain astrophysics, and archaeological excavation of Bumiayu and north Serayu mountain.	Number of S&T scientists and researchers participating in the collaborative research program, with a target of 20 scientists/researchers per year. (Include gender and socio-economic disaggregated data) <i>Indicative target: Engaged a minimum of (15) scientists/researchers per year across the region in collaborative programs, with at least (5%) participation by women and/or persons from socio-economically diverse backgrounds.</i>	COSTI and BAC to monitor
These collaborations will encourage the inclusion of women-led teams and initiatives, highlighting their contributions and promoting gender diversity in space research and missions.	- Number of scholarships, fellowships, and mobility programs supporting ASEAN scientists and students in space technology - Number of ASEAN scientists and students participating in scholarships, fellowships, and mobility programs related to space technology (Include gender and socio-economic disaggregated data) <i>Indicative target: Awarded a minimum of (10) scholarships, fellowships, or mobility opportunities to ASEAN scientists and students in space technology fields, with related socio-economic and gender-disaggregated data tracking.</i>	APASTI Sub-Committee to monitor
Develop structured, practical and sustainable mechanisms for transferring knowledge and expertise between research institutions, industry partners, and developing nation.	Number of regional training programs, workshops, and knowledge exchanges delivered collaboratively by education institutions, industry and/or governments related to space technology innovation and commercialisation. <i>Indicative target: Delivered at least (2) regional training programs, workshops, or knowledge exchanges co-hosted by academia, industry, and government annually.</i>	APASTI Sub-Committee to monitor

Draft activities	Draft output indicator and indicative target for 2030	Responsible entity for output indicator
Identify and support the strengthening and socialisation of existing data-sharing frameworks to enable researchers and developers to access and utilise valuable space-related data, fostering collaboration and innovation. The frameworks will promote inclusivity by encouraging the participation of women researchers and developers and providing resources to support their engagement in space-related projects.	Number of regional data-sharing frameworks actively supported, socialised, and utilised by ASEAN space research and development communities <i>Indicative target: Supported and actively used at least (3) regional data-sharing frameworks which promote inclusivity.</i>	APASTI Sub-Committee to monitor
Develop an ASEAN wide guideline, that can be adapted by each AMS, aimed at incentivising investment in space technology innovation and commercialisation (including private sector involvement in space technology development and commercialisation, fostering innovation and creating new market opportunities).	Level of regional funding and investment mobilised for space research, infrastructure, and capacity building including through regional knowledge-sharing of partnerships with foreign entities²⁰ <i>Indicative target: Achieved (10-15%) increase in regional funding and investment (public and private) for space research, infrastructure, and capacity building.</i>	APASTI Sub-Committee to monitor
	Number of AMS that have adapted or implemented ASEAN-wide guidelines to incentivise investment in space technology innovation and commercialisation <i>Indicative target: Majority of relevant AMS (to be confirmed at the outset which AMS) adapted or implemented an ASEAN-wide guideline for incentivising space innovation investment.</i>	
	Percentage of businesses that receive government support for space technology and innovation <i>Indicative target: Percentage of businesses receiving government support for space technology and innovation increased by (15%).</i>	AMS to monitor



Table 19: Cross-sectoral strategy #3: Future-proofing the STI ecosystem and fostering partnerships to drive innovation and entrepreneurship

Draft activities	Draft output indicator	Responsible entity for output indicator
Build a strong regional innovation ecosystem and identify existing infrastructure that can be leveraged or enhanced to create a consolidated platform for the following functions: - Creating a sustainable network that enables technology and knowledge transfer, including but not limited to market access information exchange, showcasing AEC initiatives to inspire innovations, and providing mentorship for start-ups. - Increasing visibility of funding opportunities and facilitating the sharing or pooling of resources (e.g., joint venture proposals for large R&D grants). - Fostering regional collaboration through a centralised digital marketplace that serves as an advertising platform for start-ups, sharing of market demand/industry trends, research and opportunities—linking research institutions and start-ups across AMS and connecting them with industry partners	- Number/percentage of joint/regional R&D projects, technology transfers, and commercialisation cases (spin-offs, joint ventures) involving multiple AMS <i>Indicative target: At least (5) joint or regional R&D projects, technology transfers, or commercialisation cases (e.g., spin-offs, joint ventures) involving multiple AMS were established.</i> - Amount of funding opportunities accessible through the platform (including number of co-funding research schemes established between AMS) – data disaggregated by sources of funding. <i>Indicative target: Established and operationalised at least (1) centralised digital marketplace platform to support regional collaboration, technology transfer, and commercialisation in space technology.</i> - Number of centralised digital marketplaces established and operational. - Number of scientists, researchers and other stakeholders participating in the centralised digital marketplaces (including gender and socio-economic disaggregated data) <i>Indicative targets:</i> <i>Enabled access to at least (5-10) distinct funding opportunities through the platform, including 5 or more co-funding research schemes established between AMS, with data disaggregated by funding source (public, private, international).</i> <i>Engaged at least (50) scientists, researchers, and stakeholders in the digital marketplace annually, with gender and socio-economic disaggregated data tracked.</i> - Number of formal partnerships or MOUs signed between academia, research institutions, and private sector entities across AMS. <i>Indicative target: At least (5) formal partnerships or MOUs signed between academia, research institutions, and private sector entities across the region through the platform.</i>	COSTI and Subcommittee to monitor AMS to monitor
Establish Industry-Academia collaboration programs to encourage knowledge sharing and technological skills transfers (e.g., linking research communities with industry technical placements that connect emerging talents within knowledge communities in the private sector). Programs will prioritise the inclusion of women and youth to foster their development through the programs and technical placements.	- Number of industry and academia representatives who engage with the collaboration program to encourage knowledge sharing programs (data disaggregated by type of organisation) <i>Indicative target: Engaged at least (25) representatives from academia and industry in structured collaboration programs with disaggregated data by type of organisation (e.g. universities, SMEs, large enterprises, R&D institutions).</i> - Number of academia and industry, technical placements <i>Indicative target: Facilitated a minimum of (20) technical placements linking academic researchers and students with industry partners across AMS.</i> - Percentage/number of women and youth participating in industry-academia collaboration programs <i>Indicative targets:</i> <i>At least (50%) of participants in collaboration programs are women and/or, youth.</i> <i>At least (20) regional STI scholarships are awarded to rural youth across AMS, with a minimum of 50% awarded to women and girls.</i> <i>Established partnerships with at least (2) rural schools or community-based organisations to identify and support eligible candidates.</i>	AMS to monitor

Draft activities	Draft output indicator	Responsible entity for output indicator
Creating and facilitating initiatives that promote partnerships between the private sector and knowledge communities, including joint research projects and innovation challenges (e.g., hackathon events) to catalyse innovative solutions. The initiatives will encourage participation from women, youth and other underrepresented communities (such as people with disabilities and Indigenous peoples) to break down social barriers to STEM.	Number of regional research projects and innovation challenges (e.g. hackathon) delivered collaboratively by education institutions, industry and/or governments <i>Indicative target: At least (10) regional research projects and innovation challenges (hackathons, design sprints) delivered and co-organised by education institutions, industry and governments.</i>	COSTI and Subcommittee to monitor
	Number of start-ups established or scaled through ASEAN regional cooperation initiatives <i>Indicative target: Supported the establishment or scaling of at least (10) startups through regional cooperation mechanisms.</i>	
	Percentage/number of women/youth participating in the research projects and innovation challenges <i>Indicative target: Conducted a minimum of (10) community-led workshop or knowledge exchange sessions to promote mutual learning of Indigenous environmental stewardship.</i>	AMS to monitor
Develop a set of regional guidelines aimed at fostering cross border and regional initiatives, start-ups or initiatives. The guidelines will seek to harmonise and address key inconsistencies across AMS regulatory frameworks that hinder collaborations involving research institutes and academia.	- Number of regional guidelines which foster cross border and regional initiatives, startups or enterprises for research institutes and academia <i>Indicative targets:</i> - Developed and endorsed at least (3) regional guidelines aimed at harmonising regulatory frameworks to support cross-border research, start-ups, and academic-industry collaborations. - Piloted the implementation of these guidelines in at least (5) cross-border initiatives involving research institutions, academia, or start-ups.	COSTI and Subcommittee to monitor
Organise/co-sponsor Annual AEC Research Symposiums, workshops and awards to promote STI entrepreneurship and start-ups. Award categories will include recognition of women entrepreneurs, and entrepreneurs that promote access and participation from underrepresented groups (e.g. youth, people with disabilities and indigenous communities)	- Number of regional start-up support events (e.g., AEC Research Symposiums, workshops and awards) which promote STI entrepreneurship conducted annually - Number of people participation in these support events (with gender and socio-economic disaggregated data) <i>Indicative targets:</i> - Organised or co-sponsored at least (1) regional STI entrepreneurship event annually to promote start-ups and innovation. - Achieved cumulative participation of at least (200) individuals across all events by 2030, with at least (30%) participation by women and/or youth)	AMS to monitor
Establish and support the formal partnership between ASEAN Experts Group on Metrology (EGM) and ASEAN consultative Committee on Standards and Quality (ACCSQ) Working Group on Legal Metrology to develop metrology technology and related fields in ASEAN.	- Number of collaborative initiatives established as a result of the partnership <i>Indicative target: Establish at least (5) collaborative initiatives between EGM and ACCSQ focused on metrology technology development and standardization.</i> - Participation of women, youth and underrepresented groups. <i>Indicative target: Ensure that at least (30%) of participants in training programs and collaborative initiatives are women, youth, or members of underrepresented communities (e.g., people with disabilities, Indigenous peoples)</i> - Formal partnership agreement <i>Indicative target: Development of a formal partnership agreement between ASEAN EGM and ACCSQ to outline collaboration objectives and responsibilities.</i>	COSTI and Sub-Committee to monitor

Table 20: Cross-sectoral strategy #4: Supporting the accelerated deployment of STI in key industries (such as healthcare and digital value chain)

Draft activities	Draft output indicator	Responsible entity for output indicator
Support initiatives aimed at strengthening regional partnerships between governments, universities and private sector industry experts to provide university students access to hands-on experience in emerging technologies relevant to key industries such as healthcare and medical (e.g. internship and work-based placement programs, visiting researcher program, degree-by-research programs, postdoctoral fellowships, and specialised training initiatives). Support promotion of inclusion of women, youth and underrepresented groups (including people with disability and Indigenous communities) and encourage their participation in internships and placements.	Number of internship and work-based placement programs supported by COSTI relating to emerging technology delivered through multi-lateral partnerships across ASEAN <i>Indicative Target: At least (5) internship and work-based placement programs, delivered through multilateral partnerships between governments, universities, and private sector industry experts.</i>	COSTI to monitor APASTI Sub-Committee to monitor
	Number of S&T scientists and researchers participating in the collaborative research programs with a target of 20 scientists/ researchers per year. Including percentage/number of women, youth and other underrepresented groups (including people with disability and Indigenous communities) participating in the programs, internships and placements supported by COSTI <i>Indicative Target: A minimum of (20) scientists and researchers engaged per year in collaborative research programs, with at least (20%) participation from women, youth, and/or underrepresented groups (including people with disabilities and Indigenous communities).</i>	
	Number of initiatives delivered in primary and secondary educational settings that have been supported by COSTI, focused on girls and in regional and remote areas, relating to emerging technologies delivered across ASEAN. <i>Indicative Target: At least (5) initiatives delivered in primary and secondary educational settings, focused on girls, indigenous communities in regional and remote areas, to build early interest and foundational skills in emerging technologies.</i>	APASTI Sub-Committee to monitor AMS to monitor



Table 21: Cross-sectoral strategy #5: Investing in talent development and mobility

Draft activities	Draft output indicator	Responsible entity for output indicator
Support the creation of a centralised talent exchange and expert mobility (including researchers) program across ASEAN (e.g. visiting researcher programs, research-based degrees, postdoctoral fellowships, and specialised training), with extended focus on accessibility and engagement of women, youth and other underrepresented groups (e.g. people with disability and Indigenous communities). This could take the form of a centralised online digital platform which will: - consolidate all the relevant funding mechanisms in place that are available (current and future) to support the various programs (e.g. scholarships, grants, mobility packages) to provide transparency and consolidation of similar programs to deliver greater scale/impact. - provide regular and timely information sharing on all available programs - by specialist area, participating countries, purpose, leading organisation, etc. - identify funding sources and programs that have a focus on participation from women, youth and other underrepresented groups (including people with disability and Indigenous communities) underrepresented groups. - To be updated and maintained on an ongoing basis	- Number of S&T cross-border placements, exchanges, scholarships, fellowships or collaborations facilitated through the centralised program (including the proportion of women, youth and other underrepresented groups (including people with disability and Indigenous communities). - Number of S&T scientists and researchers participating in the centralised collaborative research program (including the proportion of women, youth and other underrepresented groups (including people with disability and Indigenous communities), with a target of 20 scientists/ researchers per year <i>Indicative Targets:</i> <i>Facilitated at least (10) cross-border placements, exchanges, scholarships, fellowships, or collaborations through a centralised digital platform, with at least (50%) participation from women, youth, and underrepresented groups (including people with disabilities and Indigenous communities). Engaged a minimum of (20) scientists and researchers per year in collaborative research programs coordinated through the platform.</i> - Amount of funding opportunities accessible through the platform, including proportion of funding opportunities that have a focus on participation from underrepresented groups (data disaggregated by source of funding) <i>Indicative Target: Consolidated and made accessible at least (10-15) funding opportunities (e.g., scholarships, grants, mobility packages) through the platform, with at least (20%) of these opportunities prioritising underrepresented groups.</i>	Subcommittee to monitor
Support the establishment of an ASEAN regional mentorship program that connects public and private sector industry experts (including researchers) with emerging talent (with a focus on extending this program to women, youth, and other underrepresented groups (including people with disability and Indigenous communities)) to facilitate knowledge transfer and upskilling (e.g. Yr 2 and ongoing)	- Percentage of researchers at universities / public research institutes and private sector experts that are cross-border partners in research projects (including proportion from underrepresented groups) <i>Indicative Targets:</i> <i>Established (2) regional mentorship program connecting public and private sector experts with emerging AMS talent, with a focus on women, youth, and underrepresented groups (e.g., people with disabilities and Indigenous communities).</i> - Percentage/number of women/youth and other underrepresented groups (including people with disability and Indigenous communities) participating in the mentorship programs. <i>Indicative Targets:</i> <i>Achieved at least (30%) cross-border participation among mentors and mentees in research or innovation projects, with at least (40%) of mentors and mentees representing underrepresented groups.</i> <i>Facilitated mentorship engagement for at least (20) participants, with structured outcome tracking of skills gained, research collaborations, career advancement.</i>	AMS to monitor
Support the establishment of formal regional partnerships between educational institutions and industry to collaborate on the development and delivery of web-based practical skills learning and development modules (including the promotion of women, youth, and other underrepresented groups (including people with disability and Indigenous) to access and participate in the modules)	Number of training programs delivered collaboratively by education institutions and in industry across AMS that increase the number of job-ready graduates, including proportion of training programs that have a focus on participation from women/youth and other underrepresented groups (including people with disability and Indigenous communities) <i>Indicative Targets:</i> <i>Delivered at least (3) web-based skills training programs developed in collaboration with AMS educational institutions and industry, with a focus on practical, job-ready competencies aligned with regional labour market needs. At least (60%) of training programs promote participation from women, youth, and underrepresented groups (including people with disabilities and Indigenous communities). At least (500-600) learners across AMS participated, with at least (50%) from underrepresented groups, tracked through disaggregated data.</i>	APASTI Sub-Committee to monitor

¹⁹ Association of Southeast Asian Nations (ASEAN) - Space Security Portal

Table 22: Sector priority #1: Cross-sectoral collaboration to accelerate innovation and commercialisation of new energy technologies and STI deployment in blue and circular economy

Draft activities	Draft output indicator	Responsible entity for output indicator
Foster collaboration between relevant stakeholders to develop evidence-based policies and market-informed strategies, for example, through a collaborative STI research centre that brings together governments, industry, international organisations, non-government organisations and education and research institutions. ²¹ The initiatives will also enhance access and opportunities available to women, youth and other underrepresented communities (such as people with disabilities and Indigenous peoples) as part of policy and strategy development.	- Number of research programs, initiatives or infrastructure investments that foster collaboration between industry, education/research institutions and government <i>Indicative Targets:</i> <i>Established or supported (12) collaborative STI research programs or infrastructure investments with governments, industry, academia, NGOs, and international organisations to co-develop evidence-based policies and market-informed STI strategies.</i> <i>At least (25%) of participants in these initiatives are women, youth, or members of underrepresented communities (e.g., people with disabilities, Indigenous peoples).</i>	COSTI and Subcommittee to monitor
Examples of collaborative research initiatives could include the ASEAN Power Grid, maritime days, smart infrastructure, expeditions of terrestrial geological for disaster mitigation.	- Number of regional knowledge exchange training programs and/or events with private and public sector (e.g., symposiums, dialogues) in respect of blue economy conducted annually <i>Indicative Targets:</i> <i>A minimum of (2) regional knowledge exchange events conducted annually (e.g., symposiums, dialogues, training programs) focused on strategic sectors such as the blue economy, smart aquaculture, and disaster mitigation.</i> <i>At least (30%) of participants in these initiatives are women, youth, and/or members of underrepresented communities (e.g., people with disabilities, Indigenous peoples).</i>	AMS to monitor COSTI and Subcommittee to monitor
Contribute and provide support on the harmonisation of relevant regional or cross-border guidelines to remove barriers and encourage practices that contribute to a circular economy and decarbonisation efforts (e.g. Carbon Capture, Utilisation and Storage), reducing waste and promoting resource efficiency. ²²	Number of programs, initiatives or investments supported by COSTI that improve circularity outcomes in the region <i>Indicative Targets:</i> <i>Supported at least (1) regional program, initiative, or investment annually that contribute to improved circularity and/or decarbonisation outcomes through harmonised guidelines or cross-border cooperation.i Contributed to the development of at least (3) regional or cross-border guidelines that remove regulatory barriers and encourage circular economy practices in key sectors (e.g., manufacturing, packaging, e-waste, agriculture).iFacilitated at least (1-2) regional dialogues or technical workshops to build consensus and share best practices on circular economy policy harmonisation.</i>	AMS to monitor
Implement comprehensive training programs to upskill the STI talent pipeline focused on the blue economy. The training programs will integrate perspectives from various sectors and involve collaboration with educational institutions and industry leaders to ensure that the curriculum is relevant and aligned with current and future industry needs. ²³ The training programs/modules will also aim to address barriers and improve access for women and girls in STEM fields, as well as other underrepresented groups such as youth, people with disabilities and Indigenous peoples.	- Number of blue economy training programs delivered collaboratively by education institutions, industry and/or governments that increase the number of job-ready graduates²⁴, disaggregating number of training programs which target female and youth participants <i>Indicative target:</i> <i>Delivered at least (2) blue economy training programs collaboratively designed and implemented by educational institutions, industry leaders, and government agencies, with at least 30% of programs specifically targeting women and youth.</i> - Number of participants who participate in blue economy training programs, disaggregating number of female and youth participants <i>Indicative target:</i> <i>Trained a minimum of (250) participants through these programs, with at least 20% of participants being women, youth, and/or members of underrepresented groups (e.g., people with disabilities, Indigenous peoples).</i> - Percentage/number of women and youth employed as part of the blue economy <i>Indicative target:</i> <i>Achieved employment outcomes for at least (20%) of women and youth graduates in blue economy sectors such as marine biotechnology, coastal tourism, sustainable fisheries, and ocean energy.</i>	COSTI and Subcommittee to monitor AMS to monitor

²¹ https://blueeconomycrc.com.au/wp-content/uploads/2021/07/BECRC_Strategic-Plan_2021_A4_e010721.pdf

²² <https://www.dceew.gov.au/sites/default/files/documents/australias-circular-economy-framework.pdf>

²³ https://blueeconomycrc.com.au/wp-content/uploads/2021/07/BECRC_Strategic-Plan_2021_A4_e010721.pdf

²⁴ https://blueeconomycrc.com.au/wp-content/uploads/2021/07/BECRC_Strategic-Plan_2021_A4_e010721.pdf

Table 23: Sector priority #2: Adoption of innovative technologies to promote sustainable water use and advance agriculture, food and forestry industries

Draft activities	Draft output indicator	Responsible entity for output indicator
Support initiatives that facilitate collaborative engagement among research institutions, universities and agricultural organisations to collaborate on R&D projects aimed at providing solutions to agri-food productivity in the region. Examples of research initiatives could address topics such as collection, characterisation and pre breeding of the South East Asia wild banana, terrestrial biodiversity expedition, strengthening WASH through sustainable management of tropical inland waters for water and food security in ASEAN, development of functional food with herbal extracts to support non-communicable disease prevention, innovation of nutrient-enriched rice kernels for food security enhancement, crop breeding for pest and disease resistance; integrated livestock-oil palm systems.	- Number of formal joint/regional R&D agri-food sector projects or partnerships between academia, research institutions, and private sector entities that have been supported by COSTI relating to agri-food productivity, with a target output of 2–5 joint international research publications with high impact. <i>Indicative targets:</i> <i>Supported at least (12) formal joint or regional R&D projects in the agri-food sector involving academia, research institutions, and private sector entities, with a focus on improving productivity, sustainability, and food security.</i> <i>Produced (3) high-impact joint international research publications annually as a direct output of these collaborative projects.</i> - Number of scientific data points and specimen collections related to geohazards. <i>Indicative Target: Collected and catalogued at least (10,000) scientific data points and specimen collections related to agri-food biodiversity and geohazards (e.g., wild banana genetics, terrestrial biodiversity, pest-resistant crops, and inland water ecosystems).</i>	AMS to monitor
Contribute and provide support to regional knowledge exchange forums, involving industry leads from public and private sector, that showcase best practices, new technologies and management systems in respect of food safety, health, environment issues in the food, agriculture and forestry sectors.	Number of regional knowledge exchange training programs and events (and number of attendees) with private and public sector (e.g., symposiums, dialogues) that have been supported by COSTI in respect of food safety, health, environment issues conducted annually <i>Indicative Target: At least 4 regional knowledge exchange events delivered, with one session each on food safety, health, environment issues in food, agriculture and forestry.</i>	COSTI and Subcommittee to monitor
Support the promotion of gender equality and youth empowerment through inclusion of observers/participants from relevant community groups/associations.	- Percentage/number of women and youth participating in the regional knowledge exchange programs and events that have been supported by COSTI. <i>Indicative Targets:</i> <i>At least (30%) of participants are women</i> <i>At least (25%) of participants are youth</i>	AMS to monitor
Support the formation of formal partnerships with private sector industry experts and international research institutes to develop and deliver hands-on training programs and workshops that educate farmers on sustainable practices, new technologies and effective management systems. Support the promotion of gender equality and youth empowerment through inclusion of observers/participants from relevant community groups/associations.	- Number of hands-on training programs and workshops (and number of attendees) delivered collaboratively by industry and/or international education institutions annually that have been supported by COSTI - Percentage/number of women and youth participating in the hands-on training programs and workshops that have been supported by COSTI. <i>Indicative Targets:</i> <i>Delivered at least (2) hands-on training programs annually through formal partnerships with private sector industry experts and international research institutions, reaching a minimum of (200) farmers per year</i> <i>At least (30%) of participants of hands-on training programs/workshops are women</i> <i>At least (25%) of participants of hands-on training programs/workshops are youth</i>	APASTI Sub-Committee to monitor COSTI and Subcommittee to monitor

The evaluation component of the APASTI M&E Framework will structure systematic assessments of strategic enablers and activities, measuring the relevance, effectiveness, impact and sustainability of initiatives. The plan is structured in two distinct five-year phases: Phase 1 (2026-2030) and Phase 2 (2030-2035). This phased approach is designed to align with and support the five-year strategic planning cycles of the AEC, ensuring that monitoring and evaluation activities directly inform strategic decision-making and organisational learning at key intervals.

Outcome evaluations assess the effectiveness and impact of APASTI 2026-2035 in producing its intended outcomes across the Plan's 10-year duration.²⁶ The evaluation will provide information about the observed changes or 'impacts' resulting from programs, initiatives or activities undertaken

pursuant or aligned with the APASTI 2026-2035. This approach to evaluation allows for observed changes to be positive and negative, intended and unintended, direct and indirect, regional and country level.

Process evaluations systematically assess and examine how APASTI operates and is implemented. This includes analysing internal processes such as APASTI activities and the resources used to conduct the Plan, evaluating how these are executed, and assessing fidelity to the original plan. The aim is to understand how the Plan is delivered, identify any challenges or deviations, and determine whether the Plan is implemented as intended.

As described in Table 24, the Evaluation Plan for the APASTI 2026-2035 includes:

- Two outcome evaluations – a Mid-Term and End-Term review – to evaluate whether the APASTI is achieving its intended objectives, outcomes and impacts as defined in the Theory of Change and Monitoring Plan;
- Two process evaluations – occurring in 2028 and 2030 - to evaluate the effectiveness of APASTI operations and implementation.
- Periodic structured self-review to support continuous improvement, risk management and accountability at various stages of the APASTI's duration.

²⁶ [Process Evaluation vs. Outcome Evaluation | TSNE](#)

Table 24: Evaluation Plan for the APASTI 2026-2035

	Outcomes Evaluation		Process Evaluation
	Mid-Term Review	End-Term Review	Process Reviews
Review process	Independent review process	Independent review process	Independent or internal review process
Purpose	- To evaluate the performance of the APASTI aligned to the AEC 5-year timeline; and the first phase of the APASTI. - To offer insights into APASTI's implementation and governance to identify any opportunities for refinement and improvements. - To assess short- to medium-term outcomes as defined in the Theory of Change and the output indicators outlined in the Monitoring Plan. - Determine a new set of activities and output indicators, as well as update any other implementation measures to support COSTI to deliver on the vision, goals and objectives of the APASTI.	- To provide a comprehensive assessment of the performance APASTI at its conclusion, focusing on long-term impacts as defined in the Theory of Change and outcome indicators in the Monitoring Plan. - To assess efficiency and/or effectiveness of APASTI in its totality. - To identify lessons learnt and improvements for the next iteration of the APASTI.	- To assess the APASTI's implementation to inform continuous improvement activities to ensure that: - APASTI activities remain relevant - Resources are being used effectively - To ensure APASTI is implemented as intended. - To identify lessons learnt for ongoing refinements or changes to APASTI activities, strategic enablers and future iterations of the APASTI. - Necessary changes can be made to respond to any global or regional emerging trends and challenges
Frequency	Once-off	Once-off	Twice
Timing	In line with the first phase of APASTI, the Mid-Term Review will occur halfway into APASTI 2026-2035 (5-year point)	Commence one year prior to the conclusion of the APASTI in 2035	2028 (2.5 years) and 2030 (7 years)
Carried out by	Independent advisor	Independent advisor	- COSTI and/or Sub-committee representatives Or - Independent advisor

In accordance with international best practice and the program context, the APASTI 2026-2035 will undergo two independent evaluation – Mid-Term and End-Term reviews - during the Plan's duration.

Although the Mid-Term and End-Term review will focus more on the evaluation of outcomes, there will be aspects of implementation that will also be considered. Therefore, these reviews will combine aspects of process and outcomes evaluations. In the context of APASTI 2026-2035, these evaluations can be described as follows.

6.3.1 Mid-term review

Purpose

The Mid-Term Review will be a combination of process and outcome evaluation and will:

- Evaluate the performance of the APASTI aligned to the AEC 5-year timeline.
- Offer insights into APASTI's implementation and governance to identify any opportunities for refinement and improvements.
- Assess short- to medium-term outcomes as defined in the Theory of Change and the outcome and output indicators outlined in the Monitoring Plan.
- Determine a new set of outcome indicators, activities and output indicators for the relevant strategic measures, as well as update any other implementation measures to support COSTI to deliver on the vision, goals and objectives of the APASTI.

The Mid-Term review will be used to:

- Improve the implementation, delivery and governance processes for the remaining duration of APASTI 2026-2035 by responding to barriers or key challenges identified through monitoring, review and engagement with stakeholders.

- Address data gaps and determine actions to address these gaps to ensure that sufficient data is available to evaluate progress against long-term outcomes in the End-Term Review.
- Support decision-making for the remaining duration of APASTI 2026-2035.²⁷

Timing and frequency

This Mid-Term review will be conducted halfway into the APASTI 2026-2035 i.e. five years into the program, in alignment with the AEC timeline. This timing ensures that changes can be made to ensure the APASTI remains effective in its remaining five years.

Key focus areas

Given the evaluation will be process and outcome driven, the key focus areas are:

- **Appropriateness** – Evaluating the alignment of APASTI with broader regional goals and ASEAN Member State priorities, and whether the Plan's management arrangements, decision-making processes and service delivery support the right activities for regional STI development.
- **Implementation to date** – Evaluating whether APASTI has been implemented as intended. This includes exploring adaptations or impacts arising from the dynamic and complex implementation environment, and identifying obstacles encountered during APASTI's implementation to date, in order to recommend corrective actions or adaptations for the remaining five years of the Plan.
- **Effectiveness to date** - Evaluating whether APASTI has achieved its medium-term outcomes and output indicators outlined in the Theory of Change and Monitoring Plan, respectively. Also to determine to what extent the APASTI impacts and long-term outcome indicators are on track to be achieved in 2035.

²⁷ [During implementation | evaluation.treasury.gov.au](https://www.treasury.gov.au/evaluation)

²⁸ [nsw-government-program-evaluation-guidelines.pdf](#)



- **Early indications of strategic impact -** Assessing measurable changes caused by APASTI that contribute to the Plan's objectives, providing an early understanding of the intervention's impact across key priorities and cross-cutting themes, and informing adjustments for improved outcomes.
- **Efficiency to date –** Evaluating the effectiveness of available resources (financial, human and technical) in APASTI implementation to identify strengths and areas of improvement.²⁸ with a view to providing actionable recommendations to guide decision-making for the remaining five years of the Plan.²⁹

Key Evaluation Questions

Table 25 provides an overview of the Key Evaluation Questions (KEQs) for the Mid-Term Review. These questions are grouped by key focus area and categorised as either process evaluation questions (blue) or outcome evaluation questions (green).

Each key focus area has 1-2 KEQs, and there are 24 questions in total. The KEQs guide the design of evaluation methodologies and data collection approaches, which seek to gather information needed to answer each question. The priority afforded to different questions will change as the APASTI implementation progresses, to ensure that the review remained focused, manageable and useful for decision-making.

Each KEQ is expanded upon through example sub-questions. These examples provide insight into the scope, nuance and potential areas of focus. The specific sub-evaluation questions used for the Mid-Term review will need to be determined by the evaluators.

Various types of evaluations questions—descriptive, casual and evaluative – have been included to support the aim of the evaluation. These types include:

- *Descriptive questions* which ask about how things are and what has happened, including describing the initial situation and how it has changed, the activities of the APASTI, and the context in terms of the implementation environment.
- *Causal questions* which ask whether or not, and to what extent, observed changes are due to the APASTI being evaluated rather than to other factors, including other programs and/or policies.
- *Evaluative questions* which ask about the overall conclusion as to whether the APASTI can be considered a success or improvement is required.³⁰

²⁹ [During implementation | evaluation.treasury.gov.au](#)

³⁰ [Impact evaluation | Better Evaluation](#)

Table 25: KEQs and example sub-evaluation questions for Mid-Term Review

Key focus areas	Key Evaluation Questions (KEQs)	Example Sub-Evaluation Questions
Appropriateness	How appropriate is APASTI as a tool for supporting change at the regional level? How well does the governance of APASTI enable achievement of its aims?	• How well does the APASTI function as an instrument of shared STI aspiration and collective effort? • To what extent has the implementation of the APASTI remained aligned and/or complementary to the ASEAN Member State strategies or other regional STI programs? • How effective is the APASTI's governance structure and infrastructure in supporting regional STI development, and are there any gaps or areas for improvement? • How well does the components of the APASTI – 10-Year Strategic Plan and Policy Context and Implementation Plan – provide a visionary and inclusive roadmap that will shape the STI landscape across ASEAN? • What lessons are being learned about the Plan's design, management arrangements and decision-making processes and how are these lessons being applied?
Implementation to date	How well are APASTI commitments on track to be delivered?	• To what extent are the APASTI activities and initiatives being implemented as planned across ASEAN Member States? Which actions and activities have been delivered, and which have not? If actions and activities are not on track, why is this the case? • To what extent has implementation of the APASTI taken into account the specific needs of ASEAN Member States? • To what extent is APASTI reaching intended recipients across the region so far and meeting the needs of participants and other key stakeholders? • How effective are APASTI activities in fostering collaboration between ASEAN Member States, Dialogue Partners, private sector and other stakeholders? • To what extent has the APASTI integrated <i>Social Inclusion and Gender Mainstreaming, Regional Connectivity and Circular (Blue and Green Economy)</i> into the design and implementation of its interventions? • What lessons are being learned about effective implementation, and how are these lessons being applied?
Efficiency to date	Are commitments under APASTI being delivered efficiently? How can the APASTI achieve better outcomes or be improved?	• To what extent do APASTI activities represent the best possible use of available resources (financial, human and technical) to achieve STI results of the greatest possible value to ASEAN? • Are the resources, facilities and funding sufficient to support the realization of APASTI outcomes? • To what extent have procedures of attracting, allocating and managing funding and other resources facilitated or impeded progress towards the outcomes and objectives of the APASTI?

Key focus areas	Key Evaluation Questions (KEQs)	Example Sub-Evaluation Questions
Effectiveness to date	Are the intended outcomes of APSATI being achieved? How are outcomes being achieved and what are the enablers of change?	- To what extent has the APASTI achieved its intended outcomes outlined in the Theory of Change? And in what circumstances? - To what extent has each APASTI activity achieved its targeted output indicators set in the Monitoring Plan? And in what circumstances? - To what extent is the APASTI contributing directly or indirectly towards the development <i>Social Inclusion and Gender Mainstreaming, Regional Connectivity and Circular (Blue and Green Economy)</i>? - To what extent are the APASTI impacts (10 years) outlined in the Theory of Change on track to be achieved? If impacts are not on track, why is this the case? - To what extent are the APASTI outcome indicators (10 years) in the Monitoring Plan on track to be achieved? If outcome indicators are not on track, why is this the case?
Early indications of strategic impact	How is APASTI contributing to regional collaboration of innovative STI solutions for critical sectors and cross-cutting themes? How well does APASTI connect to other systemic improvement activities?	- To what extent is the APASTI achieving its overarching vision? - To what extent is the APASTI achieving the AEC's overarching vision? - To what extent has the design and implementation of the APASTI facilitate and encouraged engagement with stakeholders such as the private sector, Dialogue Partners, research institutions and other organisations? - What are the early indications of possible other global or regional impacts or outcomes? - What lessons are being learned about what works to improve regional collaboration around STI innovation (and how are they being applied)?



Methods of data collection

The evaluation will use mixed methods as outlined in Table 26.

Table 26: Summary of data collection methods – Mid-Term Review

Desktop research/ Document review	A systematic review of program documents which may include the APASTI 2026-2035 Policy Document, program reporting and manuals or the Review of APASTI 2016-2025. This may also include a review of relevant reports and existing data.
Literature review	A systematic review of similar programs run in other jurisdictions, reviews or evaluations of similar programs, relevant journal research articles or media reports (with caution).
Administrative data, official statistics, linked datasets and /or big data	Use of official statistics and/or linked data sets such as, ASEAN Secretariat official data, COSTI reports and/or Sub-Committee data sources. Additionally, data from ASEAN Member States will be utilised, ideally reported periodically to a COSTI body as well as global data sets, including World Bank and/or United Nations and International Organizations' Statistical Databases.
Case studies	A case study focuses on a particular APASTI activity and/or implementer. Case studies can be particularly useful for understanding how different elements fit together and how different elements (implementation, context and other factors) have produced the observed impacts.
Stakeholder interviews/key informant interviews	Conduct interviews with key stakeholders such as ASEAN Secretariat staff, COSTI members, Board of Advisors, implementing partners, Representatives of Sub-committees, and other key implementation stakeholders. This element will be important to understand the unique challenges faced by different groups in implementation the APASTI. Semi-structured interviews may include face-to-face or video-conferencing. With permissions, interviews can be audio recorded to enable transcription and improve the accuracy of analysis. Stakeholders to be interviewed will be identified when refining the methodology of each evaluation.
Focus group discussions	Facilitate group discussions with diverse stakeholders to explore collective perspectives, validate findings, and uncover nuanced issues related to delivery and outcomes.
Structured Surveys	Conduct surveys with a broad group of stakeholders and beneficiaries to collect quantitative and qualitative data on satisfaction, reach, and perceived effectiveness.

6.3.2 End-term review

Purpose

The End-Term review is primarily an outcome evaluation assessing the effectiveness of the APASTI 2026-2035 in producing change over its duration, while also providing recommendations for the next iteration of the APASTI (process evaluation).³¹ The End-Term review of APASTI 2026-2035 aims to:

- Provide a comprehensive assessment of the performance APASTI at its conclusion, focusing on long-term impacts as defined in the Theory of Change and outcome indicators in the Monitoring Plan.
- Assess efficiency and/or effectiveness of APASTI in its totality.³²
- Identify lessons learnt and improvements for the next iteration of the APASTI.³³

The End-Term Review will be used:

- To report on the overall success of APASTI 2026–2035, including its outcomes, design, and implementation.
- To inform decision-making related to supporting the sustainability of APASTI 2026–2035 outcomes beyond 2035.
- To support continuous improvement by complementing and enhancing the quality and robustness of future iterations of APASTI.
- To guide decision-making for future iterations of APASTI.³⁴

Timing and frequency

The End-Term review will be conducted in the final year of the APASTI 2026-2035. The End-Term review will inform changes required for future iterations of the APASTI.

Key focus areas

The key focus areas of the End-Term review include:

- **Overall implementation** – Evaluating how well APASTI was implemented, including the effectiveness of governance, reporting, and resource utilization, to inform recommendations for future iterations of APASTI.
- **Overall efficiency** – Assessing whether the commitments under APASTI were delivered efficiently with the available resources (financial, human, and technical), and whether successes, challenges, and critical lessons can shape future iterations of the APASTI.
- **Overall effectiveness** - Evaluating whether the APASTI *impacts* (10-year outcomes) stated in its Theory of Change and **outcome indicators** outlined in the Monitoring and Evaluation Plan been achieved.
- **Strategic impact** – Assessing the broader regional impacts of APASTI beyond its specific objectives. This includes examining the effects and benefits on stakeholders, communities, and systems, considering both intended and unintended consequences, and evaluating the overall value generated relative to the investment.
- **Sustainability** – Determining whether the outcomes of APASTI will be sustained and extend beyond the duration of the APASTI 2026-2035, continuing beyond 2035.

³¹ [Process Evaluation vs. Outcome Evaluation | TSNE](#)

³² [HMT_Magenta_Book.pdf](#)

³³ [nsw-government-program-evaluation-guidelines.pdf](#)

³⁴ [After a program is in operation for some time | evaluation.treasury.gov.au](#)

Data sources

Table 27: Overview of data collection methods – End Term Review

Desktop research/ Document review	A systematic review of program documents, including foundational documents like the APASTI 2026-2035 Policy Document, program reporting and manuals or the Review of APASTI 2016-2025. In addition, relevant reports and data collected over the 10-year implementation process will also be reviewed.
Literature review	A comparative review of similar programs, reviews or evaluations of similar programs, relevant journal research articles or media reports, drawing on broader data to contextualise outcomes secured in other jurisdictions.
Administrative data, official statistics, linked datasets and/or big data	Use of official statistics and/or linked data sets such as, ASEAN Secretariat official data, COSTI reports and/or Sub-Committee data sources. Additionally, data from ASEAN Member States will be utilised, ideally reported periodically to a COSTI body as well as global data sets, including World Bank and/or United Nations and International Organizations' Statistical Databases.
Case studies	A case study focuses on a particular APASTI activity and/or implementer. Case studies can be particularly useful for understanding how different elements fit together and how different elements (implementation, context and other factors) have produced the observed impacts.
Stakeholder interviews/key informant interviews	Conduct in-depth interviews with key stakeholders such as ASEAN Secretariat staff, COSTI members, Board of Advisors, implementing partners, Representatives of Sub-committees, and relevant government officials. Additionally, interviews with key private sector and stakeholder from academia may also provide important insights on implementation outcomes.
Focus group discussions	Facilitate group discussions with diverse stakeholders to explore collective perspectives, validate findings, and uncover nuanced issues related to program delivery and outcomes.
Surveys	Surveys conducted with a broad group of stakeholders and beneficiaries to collect quantitative data on satisfaction, reach, and perceived effectiveness of overall program implementation.

Key evaluation questions

Table 28 provides key evaluation questions and example sub-questions that can be used to measure the effectiveness of APASTI activities and initiatives at the culmination of the 10-year strategy period.

Table 28: KEQs and example sub-evaluation questions for End-Term Review³⁵

Key focus area	Key Evaluation Questions (KEQs)	Example Sub-Evaluation Questions
Overall implementation	How well were APASTI commitments delivered?	- What were the barriers and enablers that made the difference between successful and unsuccessful implementation of APASTI activities and actualization of results? - Have key lessons been identified from implementation, and which of these are likely to inform future iterations of the APASTI? - To what extent has the APASTI integrated <i>Social Inclusion and Gender Mainstreaming, Regional Connectivity and Circular (Blue and Green Economy)</i> into the design and implementation of its interventions? - To what extent did the strategic enablers, such as governance, funding, including ASTIF, stakeholder engagement and communications contribute to the achievement of outcomes and objectives of the APASTI?
Overall efficiency	Were commitments under APASTI delivered efficiently? How can future iterations of the APASTI achieve better outcomes or be improved?	- To what extent do APASTI activities represent the best possible use of available resources (financial, human and technical) to achieve STI results of the greatest possible value to ASEAN? - Are the current resources, facilities and funding sufficient to support the realization of future APASTI outcomes? - To what extent have procedures of attracting, allocating and managing funding and other resources facilitated or impeded progress towards the outcomes and objectives of the APASTI?
Overall effectiveness	Were the intended outcomes of APASTI achieved? How were outcomes achieved and what were the enablers of change?	- To what extent has the APASTI achieved its intended impacts outlined in the Theory of Change? And in what circumstances? - To what extent has each APASTI activity achieved its targeted outcome indicators set in the Monitoring Plan? And in what circumstances? - To what extent has the APASTI contributed directly or indirectly towards the development <i>Social Inclusion and Gender Mainstreaming, Regional Connectivity and Circular (Blue and Green Economy)</i>? - What unintended results— positive and negative – did the APASTI produce? How did these occur? - Was achievement of outcomes consistent across all ASEAN Member States? Or was there variation? If so, why? - What cohorts benefited the most from the APASTI? What cohorts benefited the least?
Strategic Impact	How was APASTI contributing to regional collaboration of innovative STI solutions for critical sectors and cross-cutting themes? How well does APASTI connect to other systemic improvement activities?	- To what extent has the APASTI contributed towards reinforcing the process of regional integration around STI outcomes? - To what extent can transformation in STI capability be observed across ASEAN Member States as a result of the APASTI? - Did the APASTI contribute to the achievement of outcomes in conjunction with other initiatives, programs or services in the ASEAN region? - How well did the APASTI complement or connect with national ASEAN Member States' policies, strategies and frameworks to improve STI innovation for critical sectors and cross-cutting themes?
Sustainability	To what extent will APASTI impacts extend beyond 2035?	- To what extent has the APASTI helped to generate the intended impacts in such a way that it will continue after the end of APASTI 2026-2035? - To what extent have long-term initiatives, best practices and STI reforms been established as a result of the APASTI 2026-2035? - What measures can be taken to ensure the sustainability of APASTI 2026-2035 activities beyond 2035?

³⁵ [Examples | Capacity4dev](#)

Purpose

The Process Reviews assess the effectiveness of APASTI 2026-2035 operations and implementation, including its structure, supporting programs and resource allocations, to understand the underlying reasons for its outcomes – (i.e. why expected outcomes are not achieved and/or what is contributing to APASTI's success or lack of success).

The Process Reviews aim to assess the APASTI's implementation in order to:

- Inform continuous improvement activities for the APASTI 2026-2035
- Ensure APASTI is implemented as intended
- Assists lessons learnt for ongoing refinements or changes to APASTI activities, strategic enablers and future iterations of the APASTI.

The Process Reviews can be conducted internally, or through engagement of an independent evaluator.

Timing and frequency

The Process Reviews will be conducted twice during the duration of APASTI 2026-2035 - in 2028 and 2030 (i.e., before and after the Mid-Term Review, scheduled for completion in 2033). As a result, the first Process Review will focus on documenting implementation experiences to distil key learnings and identify focus areas for the Mid-Term Review. The second Process Review will evaluate the adoption of recommendations from the Mid-Term Evaluation.

Key focus areas

The key focus areas of the Process Review include:

- **Appropriateness** - Evaluating the alignment of APASTI with broader regional goals and ASEAN Member State priorities, and whether the Plan's management arrangements, decision-making processes and service delivery support the right activities for regional STI development.
- **Implementation to date** – Evaluating whether APASTI has been implemented as intended. This includes exploring adaptations

or impacts arising from the dynamic and complex implementation environment, and identifying obstacles encountered during APASTI's implementation to date, in order to recommend corrective actions or adaptations for the remaining years of the Plan.

- **Efficiency to date** - Evaluating the effectiveness of available resources (financial, human and technical) in APASTI implementation to identify strengths and areas of improvement.³⁶ with a view to providing actionable recommendations to guide decision-making for the remaining five years of the Plan.³⁷
- **Effectiveness to date** – Evaluating how APASTI implementation has progressed against operational and short-term objectives. Assesses the quality and timeliness of early activity execution and functionality of strategic enablers. This focus area will provide actionable insights for operational improvements and identify successful approaches that may warrant scaling or replication across other AMS.
- **Early indicators of strategic impact** – Tracking preliminary signals of APASTI influence on strategic goals before long-term outcomes are fully realised. E.g. emerging changes in stakeholder behaviour, institutional practices and STI-related policies that suggest movement toward strategic outcomes. This focus area will help to validate the theory of change and identify implementation approaches that show promise in delivering significant impact.

Data sources

The data sources utilised in the Mid-Term and End-Term review (as outlined in Table 26 and Table 27) will also be utilised for the Process Reviews.

Key evaluation questions

Table 29 provides key evaluation questions (KEQs) that will shape the review of the Process Reviews for APASTI 2026-2035.

³⁶ [nsw-government-program-evaluation-guidelines.pdf](#)

³⁷ [During implementation | evaluation.treasury.gov.au](#)

Table 29: KEQs and example sub-evaluation questions for End-Term Review

Key focus area	Key Evaluation Questions (KEQs)	Example Sub-Evaluation Questions ³⁸
Appropriateness	How appropriate is APASTI as a tool for supporting change at the regional level? How well does the governance of APASTI enable achievement of its aims?	- To what extent has implementation of the APASTI taken into account the specific needs of ASEAN Member States? - How adaptable are governance structures in response to emerging challenges and opportunities? - Do implementing bodies have autonomy to make operational decisions? - Is monitoring data being utilised effectively to inform implementation decision-making? - How effectively do feedback loops function between regional bodies and implementing agencies?
Implementation	How well are APASTI commitments on track to be delivered?	- To what extent are the APASTI activities and initiatives being implemented as planned across ASEAN Member States? Which actions and activities have been delivered, and which have not? If actions and activities are not on track, why is this the case? - What barriers and facilitators are influencing delivery of the APASTI? - To what extent are APASTI evaluation tools used in accordance with established procedures? - To what extent is APASTI reaching intended recipients across the region so far and meeting the needs of participants and other key stakeholders? - Which stakeholder groups are most actively engaged in activities, which are underrepresented? To what extent are activities directly engaging with underrepresented groups? - What lessons are being learned about effective implementation, and how are these lessons being applied? - Are cross-sector relationships being leveraged to support implementation? - Do enablers exist to support implementing agencies from different AMS to share implementation experiences? - How effective are APASTI activities in fostering collaboration between ASEAN Member States, Dialogue Partners, private sector and other stakeholders? - To what extent has the APASTI integrated <i>Social Inclusion and Gender Mainstreaming, Regional Connectivity and Circular (Blue and Green Economy)</i> into the design and implementation of its interventions?
Efficiency to date	Are commitments under APASTI being delivered efficiently? How can the APASTI achieve better outcomes or be improved?	- To what extent do APASTI activities represent the best possible use of available resources (financial, human and technical) to achieve STI results of the greatest possible value to ASEAN? - Are the resources, facilities and funding sufficient to support the realization of APASTI outcomes? - To what extent have procedures of attracting, allocating and managing funding and other resources facilitated or impeded progress towards the outcomes and objectives of the APASTI? - How effectively are resource allocation decisions informed by implementation realities? - To what extent are implementation efforts harmonised to reduce duplication?

³⁸ USAID Advancing Nutrition, "Social and Behaviour Change Evaluation Tools," December 2022, <https://www.advancingnutrition.org/sites/default/files/2022-12/usaan-sbc-evaluation-tools-2022.pdf>.

The collection of robust data is critical to ongoing monitoring and evaluation of the APASTI to determine whether focus areas, activities and initiatives are delivering on intended outcomes and objectives. A strong data collection and analysis strategy will help to build a robust evidence-base that will support informed decision-making on the sustainable management of resources to ensure all activities are delivering high-impact and lasting change.

The approach to data collection mandates the collection of disaggregated data to monitor and evaluate APASTI cross-cutting themes such as gender mainstreaming, social inclusion and outcomes related to green and blue economy. Collecting disaggregated data is essential to ensuring that APASTI initiatives remain targeted, effective and equitable across AMS, target cohorts and in different implementing contexts.

6.5.1 Purpose

The purpose of establishing the data collection process is to ensure relevant and accurate information is gathered to inform the evaluation of the implementation and ensure the outcomes of the APASTI are being achieved. The data will be important to inform:

- Assessment of the effectiveness of the APASTI in achieving its strategic objectives
- Identification of strengths and weaknesses of the APASTI in order to inform continuous improvement approaches
- Providing stakeholders with evidence-based insights about the impact on target cohorts
- Supports future activity, program and policy development

6.5.2 Guiding Principles for data collection

The principles and considerations guiding APASTI data collection aim to ensure both methodological rigour and feasibility across the diverse APASTI implementing contexts. These are:

- Strategic coherence: ensuring that data collected is related to APASTI strategic priorities
- Holistic impact assessment: Listening to underrepresented voices and creating space for a wide range of stakeholders to provide real-time feedback throughout the APASTI lifecycle
- Methodological appropriateness: Data approaches that balance standardisation with the need for AMS contextual adaptation
- Ethical practices: Informed consent, transparency and inclusive data collection
- Sustainability: Building data practices that facilitate progressive capacity building, knowledge sharing, system and knowledge integration

6.5.3 Key Considerations

- Maintaining quality data standards while recognising divergent data capabilities of AMS
- Establishing consistent and achievable disaggregation requirements
- Integrating quantitative metrics with qualitative insights to capture implementation realities
- Minimising reporting burden through streamlined processes and utilising existing AMS systems where possible
- Ensuring ethical data management with appropriate security protocols
- Building sustainable data collection capacity within AMS personnel and systems

6.5.4 Data sources and analysis approach

Effective monitoring and evaluation of the APASTI 2026-2035 requires a strategic combination of data sources that capture measurable regional progress, in addition to changes specific to the varied implementation contexts and innovation systems of AMS.

Quantitative data sources, such as administrative data, big data sets and structured surveys provide progress metrics on key indicators like research outputs and technology adoption. These sources support systematic comparison across AMS and time periods, which will help to reveal patterns and trends in implementation approaches and in the broader STI landscape.

Quantitative Sources: Structured surveys, official data sets, linked data sets, big data

Qualitative data sources, such as research, document reviews and stakeholder interviews provide important insights for indicators related to stakeholder engagement, implementation processes, institutional dynamics and contextual factors shaping initiative outcomes in different national settings. Qualitative data sources help to explain the causal enablers and contextual factors that underpin the statistical trends identified by quantitative methods.

Qualitative sources: Desktop research/ document review, literature review, focus group discussions, stakeholder interviews/ key informant interviews, open surveys.

The evaluation of the APASTI will rely on a mixed method approach including both quantitative and qualitative data collection techniques. The mixed use of quantitative and qualitative data sources will enable evaluators to measure both the extent of changes, and understand the processes through which changes occur. This approach will support the development of a more robust evidence base against which to assess the success of APASTI.

6.5.5 Data constraints and limitations

This section provides details of the data collection constraints and limitations that impact the monitoring and evaluation of the APASTI. Understanding the data collection challenges will need to be considered in the approaches taken to ongoing monitoring and evaluation.



Table 30: Data constraints and limitations for the APASTI 2026-2035

Key limitations and constraints	Description	Impact
Insufficient resources and M&E capacity results in limited sample size	- Lack of resources and M&E capacity to invest in robust and consistent data monitoring processes and collection - Data collection process is not tailored or specific	Information about specific cohorts of individuals impacted may not be accurately captured, and they may not be consulted to identify the true impact of APASTI's implementation.
Language barriers and accessibility to contribute	Difficulties in understanding and communicating due to differences in language proficiency, lack of translated or culturally adapted materials, and limited access to interpreters or multilingual support.	- Limitations and quality concerns of the data and insights gathered - Need to ensure information is provided in accessible format and sufficient support provided to understand and interpret questions
Capacity to collect and access quantitative datasets	- Volume of existing evaluation data is limited. - Limited time series information is available, and data are collected infrequently, making it difficult to analyse APASTI's performance over multiple periods. - Limited capacity to collect, analyse and interpret qualitative data. - Disaggregated data sets are not available, specifically in relation to gender, age and geographical location.	Level of analysis that can be conducted to understand how effective the APASTI has been implemented is constrained, in particular its impact on priority cohorts.
Challenges to consensus-building posed by diversity and volume of APASTI stakeholders	- Broad stakeholder base means that there are diverse levels of expertise and variations in policy, strategic and operational perspectives, which may present challenges in stakeholder engagement - Due to the high number of ASEAN member states engaging there may be some concern around data privacy and sharing	- One-size-fits-all approach will not capture the full implementation experience of stakeholders - Necessitates multiple, tailored engagement approaches
Variation in data collection methods	- Lack of AUSNET being used resulting in data collection between undertaken by each AMS or done inconsistently. - Regional priorities evolve, indicators and activities are modified or removed.	- Partial data coverage across AMS will provide an incomplete picture of impact and implementation variations. Ensure that triangulated approach to data occurs across multiple sources in line with minimum data quality thresholds. - Development of proxy indicators where collection consistently challenging may be required.
Attribution and apportionment	Challenge of fairly and accurately dividing credit for observed outcomes among multiple contributing programs, initiatives, or factors.	Need to identify and establish a clear data governance process, e.g. who will be responsible for collecting what sources of data, as well as who will be managing and analysing the data, where it will be stored and who will actually have access to the data.

6.5.6 Approach to addressing data gaps

In order to address data gaps for the monitoring and evaluation of the APASTI 2026-2035, it is critical to establish a clear data strategy to support effective and inclusive monitoring and evaluation. The previous implementation cycle encountered issues with inconsistent reporting and varying methodological approaches, particularly in relation to disaggregated data which hindered a comprehensive assessment of APASTI progress and impacts. To address this risk, we have designed a three-pronged data collection approach to bridge existing data gaps, provide targeted capacity building and enhance the quality of information collected, this approach is outlined below:



Understanding data needs is the foundational step in this approach, it involves thorough mapping of available data across APASTI indicators to identify critical data gaps. These gaps are then prioritised based on their strategic importance, to establish minimum data standards and disaggregation requirements. This step helps to provide a more detailed data picture of different AMS implementing contexts, particularly metrics related to social inclusion, disparities in urban and rural STI access, digital literacy and gender dynamics.

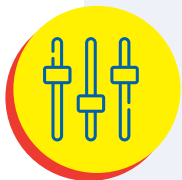
Specific Activities:

- Comprehensive mapping of current available data across APASTI indicators to identify critical gaps
- Prioritisation of data gaps based on their strategic importance to outcomes and impact measurement
- Establish minimum data standards and disaggregation requirements (urban/rural, gender, sector, institution type)

Noting that AMS have varied data collection capabilities and diverse implementing contexts, the below information outlines a tiered approach to robust data collection for the APASTI 2026-2035. This approach is categorised into 3 distinct tiers to reflect the progressive enhancement of data collection capabilities required to support more effective monitoring and evaluation over the APASTI lifecycle. The phased implementation of these data tiers is further represented below in Table 31.

Table 31: Tiers supporting phased implementation of data collection strategy

Tier	Description	Example	Purpose
1	Immediate Data: Data that is readily available and can be collected with minimal effort.	Basic demographic information, existing administrative data, and easily accessible survey results.	Establish a foundational dataset to begin monitoring and evaluation activities.
2	Moderate Effort Data: Data that requires some effort to collect, including additional surveys, interviews, and data integration from various sources.	Detailed project outcomes, intermediate performance metrics, and data requiring moderate processing or analysis.	Expand the dataset to include more comprehensive indicators that provide deeper insights into program impacts.
3	Advanced Data: Data that requires significant development efforts, including new data collection initiatives, advanced analytics, and integration of complex datasets.	Longitudinal studies, advanced disaggregation (e.g., gender, geographic, sectoral), and high-resolution data from new technologies.	Achieve a comprehensive and detailed dataset that supports thorough analysis and evaluation of all APASTI initiatives.



Harmonising data standards is the second layer of this approach and is key to fostering consistency and comparability across AMS. This involves developing standardised definitions and data collection protocols to establish baseline assessments for indicators and the integration of secondary data sources.

Specific Activities:

- Develop standardised definitions and data collection protocols across AMS
- Establish baseline assessment procedures for new indicators where historical data is not available
- Identify and integrate relevant secondary data sources (global indices, research databases, industry reports) and develop proxy indicators where direct measurements is challenging
- Create a centralised three-tiered indicator approach: Tier 1 (immediately available data), Tier 2 (data available with moderate effort), Tier 3 (data access requires significant development)



Building Data Capacity is the final step in this approach, it addresses the human and institutional resources necessary for effective data collection and reporting. This component of the approach provides targeted training and assistance to AMS facing significant data challenges, to empower designated personnel with the skills required to implement standardised data practices.

Specific Activities:

- Provide assistance to AMS with significant data collection challenges and conduct training for focal points on standardised data collection and reporting.

Key Actions

Given the critical role of data capture in adequately monitoring implementation progress and effectiveness, a phased approach will be implemented to:

- establish the essential monitoring and evaluation infrastructure
- support AMS to build technical capacity and ensure relevant stakeholders have the necessary tools to deliver and accurately measure impacts; and
- progressively address data gaps over time.

Key actions under this phased approach include:

- Review and confirm the implementation activity list and output indicators, including baseline data availability and sources, targets and data collection protocols.
- Conduct monitoring and data capacity needs assessment for implementing bodies that have been assigned a role in the monitoring and evaluation process.
- Creation of data collection templates and guidance documents for the monitoring of progress against indicators
- Undertake review processes based on templates and guidance documentation

Appendix G

Strategic Management



Proactive strategic management enables APASTI to align its key strategies with potential opportunities and risks, ensuring it can adapt to changing circumstances and seize new possibilities that may arise over 10 years of implementation. This forward-thinking approach not only safeguards the achievement of long-term goals and objectives but also allows for adaptive responses to emerging trends and changes in the environment. Key elements of risk management include:

- **Risk and opportunity identification** refers to the process of systematically recognising and documenting potential risks and opportunities that could affect the success of the APASTI.
- **Management strategy** refers to the process of implementing measures to reduce the likelihood or impact of identified risks. Risk mitigation owners are designated with responsibility for managing each risk.

While Table 32 presents the set of key opportunities and risks, mitigation strategies, and owners for the APASTI, there is a need to continuously monitor internal and external environments to identify emerging risks and opportunities that could impede the success of the APASTI 2026-2035. This includes keeping abreast of global trends, technological developments, regulatory changes, and socio-political factors impacting the achievement of goals and objectives.

Table 32: Key opportunities and risks management strategies

Opportunity and risk category	Management strategies
Funding Ability to secure adequate funding and resourcing (particularly due to reliance on DPs, or turbulent geopolitical landscapes).	Develop and maintain a comprehensive funding strategy, including consideration of diverse funding sources to enhance the resilience and sustainability of the APASTI. The funding strategy will require clear ownership which will sit with ASEAN COSTI. Periodically review the funding strategy to assess its effectiveness and ensure necessary adjustments are made based on new opportunities or shifting priorities. Owner: COSTI and Sub-Committees
	Establish a structured and coordinated approach to facilitate ongoing dialogue and collaboration between AMS and with key stakeholders to ensure alignment of project priorities and funding decisions, and to foster broad involvement and support. Owner: ASEAN Secretariat
Equal participation and benefit sharing Ensuring equal sharing of benefits and participation among ASEAN member states, impacting effectiveness of collaborative initiatives and regional cohesion more broadly.	Ensure that key processes and activities implemented by COSTI and Sub-committees involve representatives from relevant AMS (and in some instances, all AMS), particularly those that are less developed, to ensure their needs and perspectives are considered. Establishment and ongoing monitoring of specific KPIs that incentivise AMS collaboration and more joint delivery approaches. Owner: COSTI with support from ASEAN Secretariat
	Implement participatory planning processes for local projects to empower communities in shaping resource allocation decisions, while also promoting ownership and transparency within the community. Owner: COSTI with support from ASEAN Secretariat

Opportunity and risk category	Management strategies
Gender equality and social inclusion Ensuring equal representation of women and other groups in high-level STI policy decision-making roles, as well as appropriate allocation of funding to projects that contribute to providing opportunities for these groups	Greater integration of social inclusion and gender mainstreaming across key aspects of the APASTI 2026-2035, including: • <i>Governance</i>: Setting targets to improve the representation of women and other under-represented groups in the APASTI governance structure, including in high-level STI policy decision-making roles • <i>Funding and resourcing strategic enablers</i>: Enforcing gender mainstreaming and social inclusion as one of the key prioritisation criteria of proposals seeking funding • <i>APASTI implementation activities</i>: Integrating social inclusion and gender mainstreaming requirements in the development and implementation of APASTI activities (e.g. enhancing women's participation in research, leadership, and entrepreneurship, backed by capacity-building programs; promoting initiatives (such as apprenticeships and mentoring) in collaboration with the private and academic sectors to address skills shortages in STEM fields amongst the young population and other underrepresented groups) • <i>Monitoring and Evaluation</i>: Embedding the collection of data which is disaggregated by gender, age and other key social demographic indicators across projects conducted by ASEAN STI-related bodies Owner: COSTI with support from ASEAN Secretariat
Ongoing relevance of the APASTI The rapid pace of technological advancement and/or any future crises (such as a pandemic) may impact the ongoing relevance and effectiveness of certain elements within the APASTI, ultimately hindering progress and diminishing its effectiveness.	Foster continuous engagement with stakeholders from various sectors, including the private sector, academia, civil society and youth, to gather insights and feedback on the APASTI's relevance. Owner: ASEAN Secretariat
	Ensure there is a regular review process in place to incorporate new developments in science, technology and innovation including consideration of foresight studies and trend analyses. The review process will also consider any amendments required to the implementation plan for the APASTI including governance, funding, monitoring and evaluation, and stakeholder engagement. Owner: COSTI coordinated by the ASEAN Secretariat
	Ensure BAC is appropriately resourced and supported to provide relevant and timely insights to COSTI to inform the strategic direction of the APASTI and any necessary adaptations. Owner: COSTI and BAC
	Ensure that the APASTI's actions and initiatives are focused on establishing and strengthening existing STI structures and enablers, rather than focusing on specific technologies that may become obsolete. This will help to build resilience and agility to respond to changes. Owner: All governance bodies

Risk Identification	Management strategies
Resourcing Availability of skilled personnel and experts in required fields (e.g. talent retention, execution of initiatives and an ability to keep pace with technological advancements).	Foster partnerships with universities, research institutions, and private sector organisations to leverage expertise and resources, allowing for knowledge sharing and collaboration. Owner: BAC and Sub-Committees Encourage knowledge sharing to reduce dependency on any single individual/group and identify alternative resources or temporary solutions that can be implemented during transitions. Furthermore, ensure there an effective onboarding process for new personnel from various AMS involved in the implementation of the APASTI, to enhance their understanding of APASTI's goals and objectives. Owner: All governance bodies Establish a recognition system that acknowledges and rewards the contributions of volunteers, thus enhancing motivation and commitment to the effective implementation of the APASTI. Furthermore, ensure that clear accountabilities and priorities are established to ensure volunteers can dedicate their time in a targeted manner. Owner: ASEAN Secretariat
Consistent adoption of APASTI Sufficient adoption and effective utilisation of APASTI across AMS will lead to consistent implementation and increased impact to achieve regional objectives.	Establish recognition programs to highlight successful initiatives and best practice, encouraging others to follow suit, and encourage peer learning opportunities where AMS can share challenges and solutions related to the action plan. Owner: ASEAN Secretariat
Coordinated approach to delivery Effective coordination and an integrated approach to project delivery (including with other sectoral bodies), leading to strong alignment between activities and APASTI goals, enhanced efficiency and synergy.	Create standardised proposal templates, digital workflow systems, and reporting requirements to ensure real-time alignment and a clear understanding of expectations from the outset. Owner: ASEAN Secretariat Foster a culture of collaboration by encouraging cross-functional teams to work together on projects. Regular meetings and workshops can help break down silos and promote shared understanding of goals. Owner: All governance bodies Ensure the review process focuses on continuous improvement by ensuring feedback mechanisms gather input on proposal templates and reporting processes and include shared KPIs across departments. Owner: ASEAN Secretariat

Risk Identification	Management strategies
Communication and cultural understanding Diverse languages and cultures across AMS can lead to misunderstandings, misinterpretations, and a lack of engagement, ultimately impacting collaboration and the successful implementation of initiatives. This can result in reduced effectiveness of initiatives, diminished stakeholder trust, and missed opportunities for regional integration.	Ensure ongoing use of feedback mechanisms that allow stakeholders to express concerns or seek clarification regarding the communication approach to help identify where communication may be lacking and allow for timely adjustments. Owner: ASEAN Secretariat Implement community-driven approaches such as engaging with ASEAN university networks to help translate and gather local cultural and contextual knowledge, as well as use NGOs and other networks to support this implementation. Furthermore, deploy cultural liaison officers in the community to facilitate cross-cultural understanding and mediate nuanced communication challenges. Owner: Sub-committees
Project successes Projects that meet their objectives, timelines or budgets enhances impact and stakeholder trust and confidence around ability to achieve broader goals and objectives.	Implement a robust APASTI M&E Framework for continuous monitoring of project progress, including structure systematic assessments of implementation activities, measuring the relevance, effectiveness, impact and sustainability of initiatives and alignment with project goals and timelines. This includes setting clear milestones and KPIs at the outset of projects to provide measurable targets for success and develop an early warning system that flags issues when milestones are not being met. This allows for easy progress tracking and identification of issues. Owner: COSTI, APASTI Taskforce and Sub-Committees After project completion, conduct thorough post-implementation reviews to evaluate what worked well and what did not. Documenting this information in project completion reports and disseminating lessons learnt more broadly will help to inform future projects and improve overall project management practices. Owner: Sub-Committees with support from ASEAN Secretariat

Key Actions

Strategic management is crucial for the successful implementation of the APASTI 2026-2035, as it helps navigate uncertainties and challenges that may arise. By systematically identifying potential risks and opportunities and developing management strategies, all stakeholders can safeguard their long-term goals while remaining adaptable to emerging trends and changes in the environment.

Key actions to enable effective strategic management:

- Upon confirmation of the governance arrangements, management strategies and/or owner groups will need to be reviewed and updated as required.
- Continuous proactive monitoring of internal and external factors and reassessment of risks and opportunities and associated management strategies.



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