Asia Pacific Perspectives

Enhancing Cooperation Toward Prosper

CTPECC
Chinese Taipei Pacific Economic Cooperation Committee

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About the CTPECC

CTPECC is a full member of Pacific Economic Cooperation Committee (PECC), which is an international organization for economic cooperation in the Asia-Pacific region and plays a key role in consultation and advice on APEC's major initiatives and plans. The participation of CTPECC is to assist the government in researching and analyzing economic cooperation plans, and to strive for greater opportunities to participate in cooperation mechanisms and dialogues.

The APEC Approach to Ocean Governance

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Ocean governance refers to the system of institutions, rules, norms, and policy frameworks that regulates human activities in the ocean at the national, regional, and global levels. Although geopolitics inevitably affects states' policies over ocean spaces and often results in tensions over access to marine resources and control of sea lanes, with common goals of the sustainable management and conservation of the world's oceans for future generations, most of the states are willing to join regional and global efforts in ocean governance. In the Asia-Pacific region, the Asia Pacific Economic Cooperation Forum (APEC), comprising 21 economies on the Pacific Rim, has developed substantial ocean-related governance agenda. This short article will highlight the features of the APEC approach to ocean governance[1] and suggest that the APEC approach could be a possible alternative to conflict prevention in the contested waters such as the South China Sea.

As addressed in the first APEC Ocean-related Ministerial Meeting, held in April 2002, on the supply side, APEC member economies constitute over 75% of the world's capture fisheries and over 90% of world aquaculture production, while on the demand side, they consume 70% of the world's global fish products. Therefore the APEC ocean governance agenda is not just for the global concerns of maintaining environmental sustainability or mitigating impacts from climate changes, more importantly, it is to enhance economic and food security of member economies. Healthy and resilient marine ecosystems would safeguard food security, economic opportunities, and the well-being of coastal communities. The need for the region's attention to ocean governance is even more pressing nowadays because of the unprecedented threats from pollutions, overfishing, habitat destruction, climate change, and man-made risks from geopolitical rivalry.

1.All the APEC documents can be found in APEC official website. https://mddb.apec.org/Pages/browseGroup.aspx

APEC launched two ocean-related working groups shortly after its establishment: the Marine Resource Conservation Working Group (MRCWG) in 1990 and the Fisheries Working Group in 1991. Both were under the pillar of economic and technical cooperation (ECOTECH). The MRCWG was indeed one of the seven working groups that APEC ministers initiated at the outset of APEC's establishment. The first expert MRCWG workshop held in Vancouver, Canada on November 20-21, 1990 represents the output of the first meeting of one of those initial working groups. The workshop concentrated upon various aspects of marine pollution problems including the transportation of hazardous substances at sea, pollution from land-based and other sources, marine debris and international conventions and arrangements related to the topic. The discussion format was featured at sharing of information, identifying key problem areas and concerns, exploring the scope for coordinated action and identifying needs for research, information exchange, human resource development and technology transfer.

The above mentioned two working groups merged into the APEC's Oceans and Fisheries Working Group (OFWG) in 2011. The OFWG aims to support APEC's mission to foster sustainable economic growth and development by promoting the sustainable use of fisheries, aquaculture, and marine ecosystem resources and related goods and services, the so-called Blue Economy approach. The first APEC OFWG Meeting was held in Kazan, Russia 2012. In addition to APEC institutional features, i.e. the forum model of consensus rule-making and members' non-binding voluntary adoptions, the first OFWG Meeting reflected two essential principles of multilateral ocean governance.

First, an ocean governance system works only when its mandates resonate with the interests of its members - small or large, developed or developing - including those that have special or differential preferences. In the first OFWG Meeting, China, Peru, the United States and Russia volunteered to serve as rapporteurs to ensure the development of meeting report. China provided reports of self-funded projects: 2011 APEC Marine Protected Area Management Capacity Building Training and the APEC Blue Economy Forum; Russia provided a project summary of Application of Satellite Data for Sustainable Fishery Support in APEC; the United States summarized the project of Marine Ecosystem Assessment and Management in the Asia-Pacific Region Phase III; and Peru provided a summary of A Potential Contribution of Small Pelagic Fish to Food Security within the Asia-Pacific Region. To some extent, joint efforts from three great powers in this meeting can be considered a good start for regional ocean governance.

Second, global governance often involve multi-stakeholders. Multilateral ocean governance system thus requires multi-stakeholders' participation in the norm-building and decision-making processes. State governments are critical to policy frameworks, but in the process of policymaking, consensus building among multi-stakeholders is the essential. In contrast to the intergovernmental negotiation on the code of conduct, the format of working group discussion allows participation of non-state actors, including experts, business, and non-governmental organizations, and is more likely to invite innovative ideas for collective solutions. Through constant engagements, the OFWG provides member economies with a venue of trust building to extend cooperation among member economies, academia, private industries, and regional and international organizations.

Up to 2025, OFWG has concluded 25 meetings. In addition to engagements of multistakeholder in OFWG, at the strategic level, ocean-related ministers of APEC member economies also convene to manifest common policy goals and initiate policy collaborations. By adopting the Seoul Oceans Declaration in the first APEC Ocean-Related Ministerial Meeting (AOMM 1) in 2002, member economies agreed to take several domestic and regional actions in ocean governance, highlighting responsible trade in fishery products, an ecosystem-based approach to coastal and marine management, and collaboration in promoting marine science and technologies. The second AOMM was held in Bali, Indonesia on September 16-17, 2005. Ministers adopted the Bali Plan of Action under the theme "Towards Healthy Oceans and Coasts for the Sustainable Growth and Prosperity of the Asia Pacific Community", consolidating collective resolve to ensure ocean resources as a permanent and sustainable foundation to the economic and social well-being of member economies.

Five years later, the third AOMM was held in Paracas, Peru on October 10-11, 2010. Ministers adopted the Paracas Declaration under the theme "Healthy Oceans and Fisheries Management towards Food Security", highlighting the role of ocean in food security and the impact of climate change on oceans. The fourth AOMM was held in Xiamen, China on August 28, 2014. Ministers called for the establishment of more integrated, sustainable, inclusive and mutually beneficial partnership through ocean cooperation. The Xiamen Declaration under the theme "Towards New Partnership through Ocean Cooperation in the Asia Pacific Region" was adopted to prioritize

four areas of cooperation: (1) coastal and marine ecosystem conservation and disaster resilience; (2) the role of the ocean on food security and food-related trade; (3) marine science, technology and innovation; and (4) Blue Economy.

The 5th AOMM, with the theme "Navigating our Blue Future - Connection, Innovation and Prosperity", was convened in Busan from April 30 to May 1, 2025. Ministers reaffirmed their collective commitment to advancing sustainable ocean governance and fostering resilient as well as inclusive blue economies across the Asia-Pacific. With growing pressures on marine ecosystems, ministers underscored the value of cross border cooperation, innovation and knowledge-sharing to ensure a sustainable and prosperous ocean future for the region. In addition to the agenda set in the previous four AOMMs, cooperation areas added in the 5th AOMM included science-based policymaking and data sharing in ocean and coastal governance; preparedness for disaster risk reduction and nature-based solution for coastal resilience; and enhancement of the safety of maritime transport and port infrastructure for trade security.

In brief, the APEC ocean governance agenda evolves from calling for responsible fishery trade to promoting blue economy; from developing an ecosystem-based approach to coastal management to encouraging science-based policymaking; and from envisioning the role of ocean in food security to building resilience of maritime transport infrastructures. The methodology has been in line with what the United Nation Environment Programme (UNEP) has suggested, i.e. empowering science, policy, partnerships, and inclusive

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2.https://www.unep.org/topics/ocean-seas-and-coasts/regional-seas-programme/ocean-governance

governance, particularly involving women and youth.[2] Nevertheless, the scope of ocean-related cooperation among APEC member economies indeed goes beyond environmental protection but is embedded in the APEC three pillars: trade and investment liberalization, business facilitation, and economic and technical cooperation (ECOTECH).

As the three major elements in global governance - the consensus, rules, and membership of multiple national governments - require a binding mode of interaction, multilateralism facilitates such interaction and helps to sustain the rules-based order.[3] APEC, as a multilateral governance body, has been a platform of such interaction. With APEC's informal institutional design, featuring in non-binding consensus building, voluntariness of implementation, and evolutionary agenda development, member economies have low risk in participating ocean governance and thus show higher political will to join the conversation. Despite the criticism on the ineffectiveness of realizing the declarations or plans of action adopted in various APEC ocean-related meetings, keeping the dialogue ongoing among disputing member economies has already served the purpose of confidence building.

Despite escalating tensions in the South China Sea, negotiations of functional cooperation among disputing parties never stop. Several studies suggest that 'ocean governance' could be a mean to conflict resolution. Findings seem to be in line with traditional wisdom of functionalism, suggesting the spillover effects of cooperation would lead to regional peace and security. Nevertheless, both functionalism and conflict management measures mainly focus on state-centric interests, while the concept of "governance" indeed takes voices and actions of non-state stakeholders into account. When issues of ocean governance are directly negotiated only among disputing states, geopolitics inevitably prevails. If the negotiations or cooperation can be initiated and conducted under the umbrella of a broader institutional 'club' which all the disputing parties are members and share common organizational goals, there might be less geopolitical impediments to reach agreements. All of six sovereign claimants of the South China Sea (China, Taiwan, Vietnam, Malaysia, Brunei, the Philippines) are members of APEC. In contrast to the stalemate of head-to-head provisional negotiations, the APEC approach to ocean governance probably is a feasible long-term answer to conflict prevention in this contested water.

3.Anita Prakash, 2019. Strengthening Global Governance & Multilateralism. https://www.eria.org/news-and-views/strengthening-global-governance-multilateralism

Fostering Regional Prosperity by Leveraging Innovation, Sustainability, and Cooperation: The Strategic Role of Taiwan

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The Asia-Pacific region stands at a strategic crossroads as it confronts the twin imperatives of sustainable development and innovation-driven economic growth. With rising environmental concerns, rapid technological advancements, and complex geopolitical shifts, regional cooperation has never been more vital. APEC's 2025 theme, "Building a Sustainable Tomorrow", reinforces the need for inclusive, forward-looking cooperation that empowers economies to thrive amid uncertainty.[1] In this context, Taiwan's dynamic and resilient economy anchored in cutting-edge innovation, green transformation, and trade integration can serve as a pivotal contributor to the region's shared objectives. Greater policy alignment, cross-border innovation collaboration, and sustainable investment can foster a prosperous and cohesive Asia-Pacific region. Feasible pathways shall be derived to strengthen economic interdependence, highlighting Taiwan's role as a reliable and capable partner in shaping a resilient, sustainable, and innovative regional order.[2]

The Changing Asia-Pacific Landscape

The Asia-Pacific region, accounting for over 60% of global GDP and nearly half of the world's population, has long served as a cornerstone of global economic dynamism. This economic heft is underpinned by its diverse range of economies, from advanced markets like Japan, Korea and Taiwan to rapidly developing economies such as Indonesia, Thailand

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1. Asia-Pacific Economic Cooperation (APEC). (2024). APEC 2025 Priorities: Building a Sustainable Tomorrow. Retrieved from https://www.apec.org.
2. National Development Council, Taiwan. (2024). Taiwan's Path to Net Zero Emissions and Innovation-Led Growth. Retrieved from https://www.ndc.gov.tw.

and Vietnam. However, in recent years, the region has been increasingly confronted by a convergence of structural challenges that threaten to erode its growth trajectory and economic cohesion. These include the intensification of economic decoupling between major powers, the fragmentation of cross-border supply chains, environmental degradation, and the lingering socioeconomic scars of the COVID-19 pandemic. Together, these challenges have disrupted traditional development paradigms and raised profound concerns over the sustainability, inclusiveness, and resilience of the region's economic model.[3]

Compounding these internal strains are global megatrends that are reshaping the economic and social landscapes at an unprecedented pace. The acceleration of digital transformation has redefined labor markets, industrial competitiveness, and governance structures. Simultaneously, the climate transition has imposed mounting adaptation, and mitigation demands on both governments and businesses. These transformations are occurring alongside demographic shifts, such as aging populations in developed economies and youth bulges in emerging markets, which are altering consumption patterns, labor force dynamics, and social contracts. In parallel, the frequency and severity of climate-related disasters continue to rise, endangering critical infrastructure, displacing vulnerable communities, and heightening fiscal pressures on disaster-prone economies.[4]

Moreover, the global trading system faces heightened uncertainty amid a resurgence of protectionist policies. The growing trend toward less cooperative trade practices risks weakening the multilateral trade framework and contributing to rising geopolitical tensions. Such developments could not only disrupt long-standing trade patterns but also weaken confidence in global institutions and the legal norms that govern international commerce.[5]

Amid growing volatility and fragmentation, regional cooperation has become not just desirable but imperative. Platforms such as APEC offer practical avenues for policy dialogue, knowledge sharing, and capacity-building among member economies. With its focus on open regionalism, digital integration, and sustainability-driven growth, APEC is uniquely positioned to steer coordinated efforts in addressing common challenges.

Within this collaborative framework, APEC member economies like Taiwan can contribute meaningfully by leveraging their strengths in digital innovation, green technology, public health infrastructure, and democratic governance. Taiwan's proven track record in semiconductor manufacturing, renewable energy investment, and agile pandemic response serves as an asset in shaping a more sustainable, equitable, and digitally connected Asia-Pacific future.

Regional Cooperation: Foundations and Future Pathways

Asia-Pacific regionalism has historically taken a pragmatic, open-ended approach to integration. APEC, ASEAN, CPTPP, RCEP, and other regional integration processes have all contributed to knitting together a diverse array of economies at varying levels of development. While these frameworks have

3. Asian Development Bank. (2024). Asia's Economic Outlook: Navigating Complex Headwinds. Retrieved from https://www.adb.org.

4. United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP). (2023). Asia-Pacific Disaster Report 2023: Risks, Resilience and Recovery. Retrieved from https://www.unescap.org.

5. Baldwin, R. & Evenett, S. J. (2024). Reviving Protectionism: The Global Trade Policy Landscape under a Second Trump Presidency. Centre for Economic Policy Research (CEPR). Retrieved from https://cepr.org.

improved market access and institutional coherence, cooperation gaps remain, particularly in areas such as environmental regulation, digital governance, and crisis preparedness.

The increasing frequency of exogenous shocks ranging from pandemics to climate extremes highlights the need for economies to build not only efficient but also resilient and sustainable regional structures. Coordinating macroeconomic policy, strengthening cross-border infrastructure, and harmonizing regulatory frameworks are essential to reducing vulnerabilities and expanding shared prosperity.[6]

A particularly urgent challenge lies in aligning national development goals with regional public goods. Whether in decarbonizing infrastructure, managing transboundary natural resources, or ensuring digital interoperability, the need for regional coordination is growing rapidly. Enhanced cooperation should not be limited to trade and investment but must extend to knowledge-sharing, institutional learning, and long-term capacity building.

To that end, deeper and more inclusive dialogue among policymakers, the private sector, and civil society across the region will be key. Mechanisms for regulatory convergence, mutual recognition, and innovation partnerships can help reduce asymmetries while building the foundation for a sustainable and integrated Asia-Pacific.[7]

Sustainability as a Collective Imperative

Asia-Pacific economies face a disproportionate share of the world's environmental risks. Low-lying island states, drought-prone agricultural regions, and heavily industrialized urban centers are all grappling with the twin pressures of economic growth and ecological preservation. If left unchecked, climate-related disruptions could undermine decades of development gains.

The region's path to sustainable development must therefore be collective. Green finance, low-carbon infrastructure, circular economy models, and renewable energy integration should be prioritized through multilateral collaboration. For example, initiatives like the ASEAN Power Grid and the Lao PDR-Thailand-Malaysia-Singapore Power Integration Project illustrate the benefits of transnational cooperation in energy transition.[8]

Moreover, aligning carbon pricing mechanisms and enhancing regional green taxonomies would help mobilize private capital toward environmental objectives. Establishing a cross-border carbon credit trading platform, anchored by mutual recognition and transparency could further accelerate regional decarbonization while preventing regulatory arbitrage.

Capacity building also plays a vital role. Developing economies in the region may face challenges in financing and implementing sustainability transitions. Here, regional cooperation can facilitate technology transfer, green technical training, and blended financing instruments to support vulnerable economies. Through strategic partnerships, economies can leapfrog carbon-intensive development models and adopt sustainable practices from the outset.

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6. Asian Development Bank (2023). Asia-Pacific Regional Cooperation and Integration Index: Enhancing Resilience through Integration. Manila: ADB. https://www.adb.org/publications.
7. United Nations ESCAP (2023). Shaping Our Digital Future: Asia-Pacific Digital Transformation Report 2023. Bangkok: UNESCAP. https://www.unescap.org/publications.
8. ASEAN Centre for Energy. ASEAN Interconnection Masterplan Study III (AIMS III). Jakarta: ASEAN Centre for Energy, 2021.

Innovation and Digital Transformation as Growth Multipliers

The next wave of regional prosperity will be digitally powered. Emerging technologies, such as artificial intelligence (AI), blockchain, the Internet of Things (IoT), and quantum computing-have the potential to boost productivity, improve service delivery, and create new markets across the Asia-Pacific. However, unequal access to digital infrastructure and talent could exacerbate development gaps if not addressed through coordinated efforts.

Digital transformation requires an enabling policy environment that ensures interoperability, trust, and cybersecurity. A regional framework for digital governance-covering data protection, cross-border data flows, and digital trade facilitation-would significantly enhance the efficiency and inclusiveness of innovation-led growth.[9]

Collaborative investment in digital infrastructure, especially in under connected rural or island regions, would improve equitable access to e-commerce, e-health, and digital finance. Meanwhile, cross-border innovation hubs, start-up exchanges, and talent mobility schemes could strengthen regional ecosystems and accelerate the diffusion of cutting-edge solutions.

Public-private partnerships will also be critical. Governments alone cannot fund the digital transition. Encouraging venture capital, impact investment, and industry-academia collaboration will be crucial to sustaining momentum. A future-ready region is one that sees innovation not merely as a sector but as a system enabled by cooperation and designed for inclusivity.[10]

Taiwan's Role and Value Proposition in the Region

Taiwan offers a compelling model of innovation-driven, open, and sustainable economic development. Despite geopolitical constraints, Taiwan has built one of the world's most resilient and dynamic economies, anchored by world-class manufacturing, a thriving SME sector, and robust digital capabilities.

Taiwan is home to the global semiconductor industry's most advanced nodes, contributing indispensably to the digital economy. Taiwan's leadership in semiconductor design and manufacturing particularly through firms like TSMC-makes it a strategic partner for any regional digitalization agenda. This technological edge also extends to green tech, biotech, precision machinery, and ICT hardware.

In addition to its industrial capacity, Taiwan boasts a vibrant innovation ecosystem supported by effective government policies, research institutions, and an agile regulatory environment. Taiwan's National Development Council has promoted smart cities, digital inclusion, and AI governance, all aligned with sustainability objectives.

On the environmental front, Taiwan has significantly expanded its renewable energy portfolio, developed green finance instruments, and promoted circular economy practices. Taiwan's Green Finance Action Plan and Carbon Fee System illustrate its commitment to aligning with global climate goals, even without formal international treaty access.

9.Asian Development Bank (2022). Asia-Pacific Digital Transformation Report 2022: Leveraging Emerging Technologies for Sustainable Development. Manila: ADB. https://www.adb.org/publications,

10.OECD (2023). Bridging the Digital Divide in the Asia-Pacific: Policies for a Resilient and Inclusive Digital Economy. Paris: OECD Publishing. https://www.oecd.org/publications.

Moreover, Taiwan's experience with pandemic management, digital democracy, and e-government services provides valuable lessons for regional peers. As a constructive stakeholder, Taiwan has shown it can contribute knowledge, technology, and resources to multilateral efforts despite diplomatic isolation.

By fostering partnerships with APEC economies in digital trade, climate resilience, and technological innovation, Taiwan can serve as a bridge linking advanced technologies with regional sustainability goals. Taiwan's ongoing efforts to harmonize with global norms make it a reliable and effective partner in regional cooperation.

Policy Recommendations: Toward an Integrated and Resilient Asia-Pacific

To realize the full potential of regional cooperation and sustainable innovation, the following policy actions are recommended:

1. Institutionalize Inclusive Participation: Ensure meaningful participation of all capable economies, including Taiwan, in regional sustainability and innovation platforms. Technical partnerships, observer status in working groups, or regional dialogues on innovation can serve as inclusive entry points.

2. Launch a Regional Innovation and Sustainability Fund: Establish a jointly managed fund to support SMEs, startups, and clean tech innovators focused on regional challenges. The fund could provide grants, concessional loans, and technical support for cross-border projects in green and digital domains.

3. Promote Regulatory Harmonization in ESG and Digital Trade: Develop shared frameworks for ESG disclosure, data privacy, cybersecurity standards, and carbon pricing. This reduces compliance burdens and enables seamless regional operations.

4. Facilitate Talent and Knowledge Mobility: Expand regional scholarship programs, vocational training networks, and digital skill certification systems. Encourage mobility of engineers, researchers, and digital entrepreneurs across borders.

5. Build Transnational Infrastructure Corridors: Support co-investment in transboundary infrastructure for power, logistics, and digital connectivity. These corridors would integrate economies physically and digitally, supporting resilience and efficiency.

Conclusion

The path to sustained prosperity in Asia-Pacific is neither automatic nor linear. It demands foresight, cooperation, and the willingness to rise above short-term interests in favor of long-term resilience and shared well-being. As the region grapples with complex 21st century challenges, from climate change and digital disruption to geopolitical tensions, collective action is essential. Regional economies must work together to prioritize sustainability, embrace innovation, and deepen economic interdependence

Taiwan, as a dynamic innovation hub and responsible regional stakeholder, is well positioned to contribute meaningfully to this endeavor. Its global leadership in advanced manufacturing, digital governance, and green transition provides critical strengths that can support regional goals. By fostering collaborative partnerships built on mutual trust and respect, Taiwan and its neighbors can help shape a future defined not by fragmentation, but by shared progress and opportunity.

Through alignment of national aspirations with regional cooperation, the Asia-Pacific can truly build a sustainable tomorrow; one that is inclusive, forward-looking, and resilient for many generations to come, whereas the moment to act is right now.

Leveraging Artificial Intelligence (AI) Solutions and Policy Measures to Address Challenges Facing Healthcare Systems in an Aging Society

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I.Overview

As life expectancy increases and fertility rates decline, societies across the globe are confronting a rapid demographic transition. The World Health Organization estimates that by the late 2070s, the global population aged 65 and above will reach 2.2 billion, surpassing the number of children under 18. This transformation poses significant challenges to healthcare systems, particularly as the demand for medical services and long-term care surges, while the available caregiver workforce continues to shrink.

This phenomenon is especially significant in the APEC region. According to the latest data from StatsAPEC, the average life expectancy at birth in APEC member economies reached 77 years in 2022, exceeding the global average of 71.9 years in the same year (Figure 1). Looking further at the demographic distribution in APEC member economies, 18 of the 21 member economies had entered the aging-society category by 2023.

Economies such as Japan and Hong Kong, China, have already become super-aged societies with over 20 percent of their populations aged 65 or older. Meanwhile, Korea, Canada, and Chinese Taipei are approaching this threshold, with less than a 2% gap to meeting the standard. (Figure 2).

As the proportion of elderly citizens increases, the healthcare sector is struggling to meet the growing need for support services such as long-term care. Compounding this issue is the decreasing supply of healthcare workers, as fewer working-age individuals are available to participate in caregiving roles. Estimates from the World Economic Forum suggest a global shortage of 10 million healthcare workers by 2030, while the Global Coalition on Aging has projected that elder caregivers in OECD economies must increase by 60 percent by 2040 to sustain current care levels.

To address these complex challenges, artificial intelligence (AI) is emerging as a transformative

Figure 1. Life Expectancy at Birth in APEC Economies and Worldwide (2013-2022)
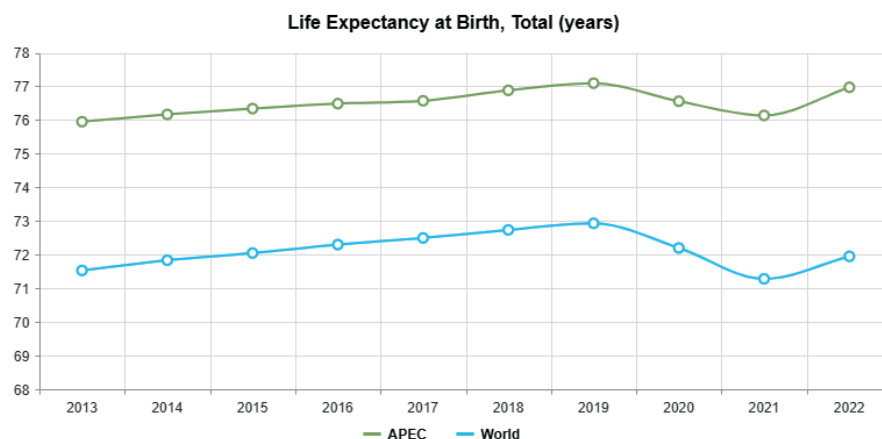
Source: StatsAPEC

Figure 2. The Percentage of Total Population Ages 65 and above in APEC Economies and Worldwide (2020-2023)
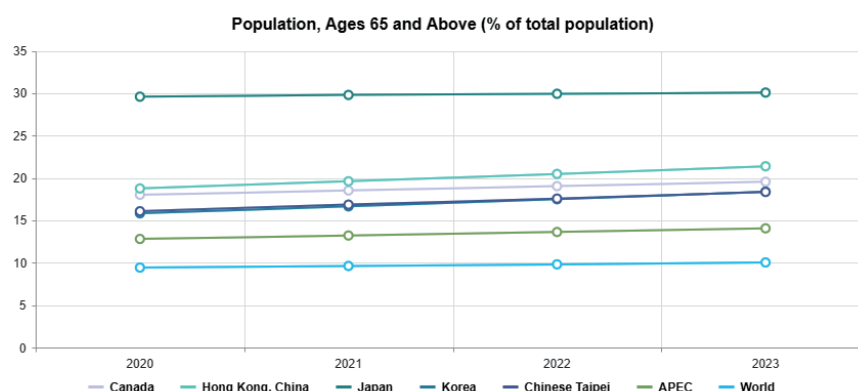

Source: StatsAPEC

force. AI technologies including machine learning, natural language processing, and deep learning are redefining how healthcare is delivered, managed, and experienced. Recognizing the critical role of AI, APEC economies have begun to embrace AI-powered healthcare solutions. Korea, the host economy of APEC 2025, has made digital healthcare a priority, launching a policy framework to address aging-related challenges through technological innovation. Similarly, Chinese Taipei has developed a comprehensive model for digital healthcare integration, providing a roadmap for other economies to follow.

II. The Framework for a Digital Healthcare System

Chinese Taipei's digital healthcare framework, rooted in a model proposed by Dr. Hsu in 2021[1]

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1. Hsu, C. Y. (2021, August). Medical and Health Information Management Digital Technology to Strengthen Workplace Health Management. APEC Workshop on "The Utilization of Digital Technology to Advance Occupational Safety and Health in the Digital Age"

Figure 3. Development Logic for Digital Healthcare System of Chinese Taipei's Experiences
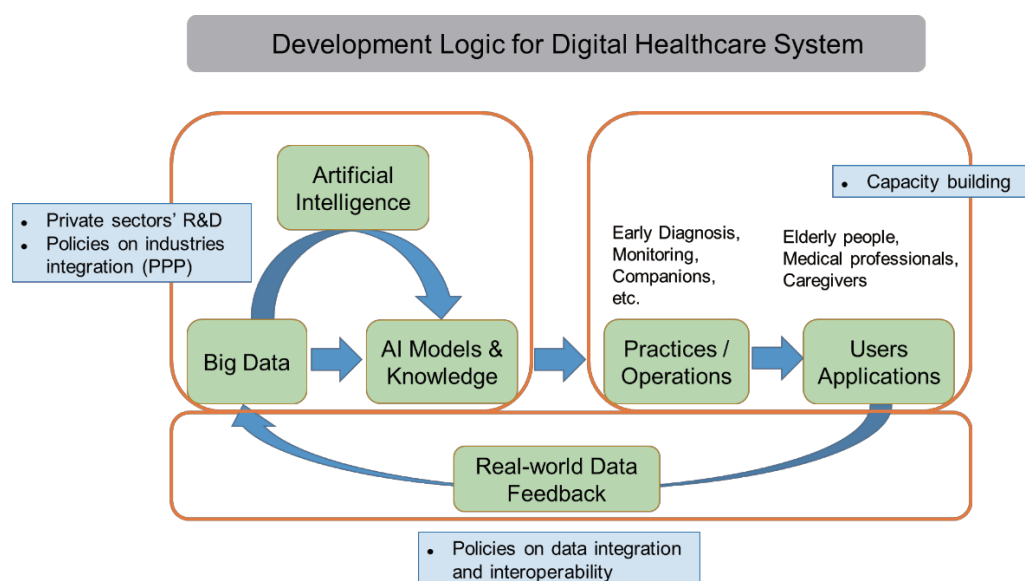
, revolves around the strategic use of medical big data, AI analytics, and cross-sector collaboration. The model envisions a circular workflow where data from sources such as electronic medical records, imaging, and wearable devices are processed by AI systems to generate insights for clinical application. These insights are then translated into actionable practices through smart healthcare platforms, while healthcare professionals are equipped with the necessary training to adopt and utilize these tools effectively. Simultaneously, the system prioritizes data interoperability, ensuring that information flows seamlessly across hospitals, institutions, and digital platforms. The integration of feedback from real-world clinical settings allows for the ongoing refinement of AI models, enhancing both efficiency and accessibility in healthcare delivery.

III.Cases of AI Application on Healthcar

Several successful AI applications in Chinese Taipei demonstrate the transformative potential of this approach. For example, Changhua Christian Hospital has developed a deep-learning system to detect microcalcifications in breast cancer, achieving an accuracy rate exceeding 92 percent and improving early detection. National Taiwan University Hospital has introduced PANCREASaver, an AI-powered CT imaging tool that identifies pancreatic tumors with a 92.1 percent sensitivity rate, even when tumors are smaller than two centimeters and often missed by human radiologists. Similarly, VeriSee DR, an AI-assisted diagnostic tool, analyzes retinal images for signs of diabetic retinopathy and delivers 93 percent accuracy in risk assessments, expediting the referral process and helping to prevent vision loss.

Further innovations include DeepBrain-Cognito 4D, which uses MRI and deep learning to predict dementia progression and identify risk subtypes, enabling early intervention and lowering long-term care costs. These tools not only improve diagnostic precision but also alleviate the burden on healthcare workers by automating and accelerating complex diagnostic tasks.

AI also addresses the psychological and social needs of the elderly by offering companionship and

cognitive support. Companion robots like PECOLA and Kebbi engage seniors through interactive conversations, games, and therapeutic activities. PECOLA, for instance, fosters emotional well-being and cognitive stimulation while allowing family members to remotely monitor the status of their elderly family members. Kebbi integrates multilingual interaction, skeletal motion tracking, facial recognition, and health monitoring into community-based care, enabling seniors to participate in gamified rehabilitation while their health status is continuously assessed and shared with caregivers.

IV. Comprehensive Digital Healthcare Policies

The advancement of AI technologies in healthcare is further supported by Chinese Taipei's policy landscape. The "Healthy Living and Smart Healthcare Alliance," launched in 2020 by the Industrial Technology Research Institute, fosters cross-sector collaboration among the ICT, pharmaceutical, insurance, and long-term care industries. This alliance promotes age-friendly community design and builds innovative business models for sustainable healthcare. "Health Smart Taiwan", a platform established in 2019, connects healthcare institutions with real-world AI solutions, facilitating knowledge sharing and accelerating AI adoption.

In addition, the precision health initiative, incorporated into "Chinese Taipei's Six Core Strategic Industries" in 2021, has catalyzed AI innovation across healthcare sectors. The strategy emphasizes the integration of ICT and smart manufacturing to promote disease prevention, diagnostics, and long-term care. To support industry growth, key legislative updates have been enacted to accelerate academic R&D applications and incentivize innovation in medical devices and pharmaceuticals.

At the core of these initiatives is the seamless integration and interoperability of medical data. Since 2010, Chinese Taipei has operated a national EMR exchange system, and efforts are now underway to upgrade to the FHIR standard, allowing for improved data harmonization. The "NHI Medi-Cloud" system enables physicians to instantly access a patient's full medical history, enhancing diagnostic accuracy and minimizing redundant testing. Meanwhile, the "My Health Bank" service empowers patients to manage their health records and connect with AI tools for personalized care.

Despite these advances, challenges remain in unifying disparate hospital information systems. To address this issue, Chinese Taipei is developing the "Next-generation Digital Healthcare Platform", which focuses on five pillars: building AI-driven healthcare systems with specialized centers, standardizing data formats using FHIR, integrating AI into clinical trials, creating a national EMR database linked to the Taiwan Biobank, and advancing personal healthcare using unified digital standards. This platform emphasizes democratic values, privacy protection, and rule-based governance while enhancing the quality and innovation capacity of the healthcare system.

V. Recommendation

Digital transformation, along with equitable access to technological advancements, is vital for building a resilient and inclusive healthcare system. This paper suggests that APEC economies can effectively adopt and implement AI-driven healthcare solutions by strengthening capacity building through APEC project activities. Close collaboration

with the APEC Business Advisory Council (ABAC) is recommended to support these efforts, as demonstrated by initiatives led by Chinese Taipei that aim to empower healthcare professionals and promote the practical application of AI technologies in healthcare systems.

Public-private partnerships (PPPs) play a crucial role in fostering innovation and scaling AI-driven healthcare solutions. Collaboration among governments, technology firms, healthcare providers, and research institutions can facilitate knowledge sharing, encourage investments in AI applications, accelerate innovation, and bridge the gap between research and practical implementation, while ensuring that the efforts are aligned with public health goals.

Moreover, regional cooperation among APEC economies is essential for advancing AI adoption and sharing best practices in healthcare systems. Chinese Taipei's "New Southbound Medical Cooperation and Industrial Chain Development Program" serves as an example of cross-border medical collaboration to facilitate capacity building. This program aims to strengthen medical collaboration with economies such as Indonesia, Malaysia, the Philippines, Thailand, and Vietnam through training healthcare professionals, fostering industry connections, and providing health consultations. In 2025, this program further emphasizes promoting cross-border AI validation and regional medical data sharing, developing tailored AI models for Southbound economies, and addressing health workforce shortages using AI. By leveraging shared expertise and resources, Chinese Taipei seeks to promote regional prosperity and improve healthcare systems among APEC economies.

As AI continues to reshape the healthcare landscape, it is crucial for policymakers to take a proactive approach to integrating AI technologies into existing healthcare systems. Through capacity building, cross-sector collaboration, and regional cooperation, APEC economies can harness AI's transformative potential to build a more inclusive, efficient, and resilient healthcare system that addresses the challenges of an aging society.