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Headline: Science Diplomacy and its Opportunities in Southeast Asia

Science Diplomacy and its Opportunities in Southeast Asia

The Fourth Industrial Revolution (IR4.0) is here. Artificial intelligence, 5G cellular networks, and Internet-of-Things-based devices, while still nascent, continue to fundamentally alter our personal and professional lives. While this change has long been predicted, the sudden onset of the pandemic only further revealed how states increasingly rely on technology to remain competitive. Southeast Asian nations, in particular, have noticed this opportunity and laid in motion various initiatives to turn the region into an innovative powerhouse, taking advantage of the opportunities these emerging technologies provide.

From Singapore, which is believed to be on the verge of becoming a new epicenter of technological development, to Vietnam, which aspires to become a leader in AI research and development, Southeast Asia appears poised as a pioneer in its embrace of twenty-first-century innovation. Nevertheless, the IR4.0 is both a blessing and a curse. The inevitable global shift could increase the economic disparities both regionally and globally unless nations take the necessary measures to keep pace with rapid, and often chaotic, change emerging technologies inevitably bring.

This rapid pace of technology development and innovation makes scientific collaboration between nations indispensable. Indeed, science diplomacy between the Association of Southeast Asian Nations (ASEAN) member states in the wake of IR4.0 makes such cooperation ever more essential. Such information-sharing initiatives present the region with unique opportunities for shared growth, transformation, and success. Science diplomacy further provides opportunities for Southeast Asian nations to create mutual solutions to various complex and challenging problems, ones that prevent the individual states from realizing the true potential the advanced technology development capabilities provide them.

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The technologically driven diplomacy does more than ensure the region remains competitive on the global stage. These programs have strengthened relations between Southeast Asian nations, bolstered ASEAN centrality, and allowed partnerships and cooperation with global juggernauts like Microsoft, Google, IBM, Intel, and Amazon. These companies—with their massive tech infrastructures—are increasingly interested, involved, and invested in the region. But these American companies do not have a monopoly. China has pledged increased technology cooperation with Brunei and Indonesia. China's own tech juggernaut, Huawei, has signed memoranda of understanding with Cambodia and Singapore. Even Eurasian nations — including Italy and Russia — have diplomatic technology ties to Southeast Asia.

While these technology-based relations between ASEAN states and foreign actors benefit Southeast Asian technology development, they also risk domestic dependence on international entities. The geo-strategic implications of said dependence prove especially challenging for ASEAN when considered against the backdrop of increasingly tense technological competition between China and the West. From this perspective, foreign investment in Southeast Asia could be used as a tactic to further carve out an international sphere of influence and acquire new, or reinforce old, regional allies. For countries like Cambodia — which have technological ties to both China and the West — the situation is especially fraught. It remains paramount, then, that Southeast Asian countries collaborate both internally — with universities, corporations, and other institutions — and externally with other member-states. The necessity of building indigenous, sustainable, and robust ASEAN technology development structures will only increase in the coming decade.

IR4.0 is significantly impacting the private sector, and ASEAN states can benefit greatly from the engendered changes. Indeed, private corporations are increasingly integrating emerging technologies into their workstreams and business solutions; and start-ups based on robotics, AI, blockchain, and other emerging technologies are appearing all over Southeast Asia — as evidenced by Filipino-based start-ups Plentina and Expedock and Thai-based start-up Robowealth. In general, institutions across industries — including the financial, medical, and energy industries — are beginning to implement innovative, technology-based solutions.

For instance, in Indonesia, Pertamina — the nation's largest state-owned energy company — is using AI and machine learning to derive deeper business insights; and BRI Group — one of the world's largest micro-finance institutions — launched an AI platform to reduce the loan approval process. ASEAN states should leverage the resources of such institutions across industries to devise novel solutions to societal problems. Thailand's AI Consortium and the Philippines' SPARTA program provide good examples of what such a multi-industry partnership could look like. An ASEAN-wide partnership of the same nature would allow for even more fruitful and productive collaboration and research and development efforts in the region. It would also lay the foundation for the creation of an economically sustainable model of innovation, lead to the creation of more value and capital for the region, and incentivize the region's population to further embrace innovation.

Universities and educational institutions, both private and public, have also begun to modify their course offerings and shift their research efforts to reflect the advent of emerging technologies. For example, Singapore Management University has rebranded an entire school — now the School of Computing and Information Systems — to introduce a greater focus on computer science and emerging technologies. Strong and relevant educational opportunities are critical for keeping pace with IR4.0, and partnerships between states and universities in the region allow for more people to learn about emerging technologies and may even attract professors, researchers, and students from around the world. ASEAN states should continue to work with educational institutions to increase scope and encourage more students to start learning about emerging technologies from a younger age.

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There are, however, a number of challenges to technology development preventing some of the countries in the region from establishing the advanced technology development capabilities necessary to keep pace with the global changes of IR4.0. Limited resources — including finances, computing power and hardware, educational resources, and people knowledgeable about or available to work with emerging technologies — cultural or language barriers, brain drain, lack of national strategy or coordination, and — with Myanmar providing a notable recent example — political instability are keeping ASEAN states from individually leveraging the opportunities of IR4.0.

Rather than working alone, countries in the region should band together to develop new technologies to overcome these challenges. ASEAN states should pool their resources together to better streamline innovation, focus on high-value propositions, and offer an attractive reason for the most talented and motivated individuals to stay in the region. Vietnam has taken steps in this direction, having recently announced plans to build several ASEAN-wide data centers for AI research and development, but more needs to be done. States such as Indonesia, Singapore, or Malaysia that have more advanced algorithmic governance structures could provide support to countries with underdeveloped or developing innovation infrastructure such as Laos or Myanmar. ASEAN governments could fund university technology exchanges for students from other member-states to increase the spread of ideas and mutual understanding. These efforts, combined with increased collaboration between public and private institutions and governments, would give ASEAN a sustainable and indigenous workforce and pave the way for the region to become an international cornerstone for algorithmic governance and technology development.

As nations around the world become increasingly reliant on the emerging technologies of IR4.0, science diplomacy and a streamlined approach to innovation in Southeast Asia have the potential to transform the region into a global leader in technology development and innovation and to strengthen ASEAN identity and independence.