Academic, Science and Technology Cooperation in the Indian Ocean Region: Addressing the Contemporary Challenge of Artificial Intelligence and the Digital Divide

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The Academic, Science and Technology Cooperation (ASTC) pillar of the Indian Ocean Rim Association (IORA) represents an increasingly important framework for strengthening regional integration, scientific advancement, and sustainable development across the Indian Ocean region. Through promoting research collaboration, technological innovation, higher education partnerships, and knowledge-sharing, ASTC seeks to enhance the collective capacity of member states to address common regional challenges. In today's rapidly evolving global environment, one of the most pressing contemporary issues confronting the Indian Ocean region is the rise of artificial intelligence (AI), digital transformation, and the widening digital divide. These developments have profound implications for governance, economic competitiveness, education, employment, cybersecurity, and social inclusion. Consequently, ASTC cooperation has become highly relevant in supporting regional preparedness and resilience in the digital age.

The global expansion of artificial intelligence and emerging technologies is reshaping economies and societies at an unprecedented pace. AI systems increasingly influence sectors such as healthcare, finance, education, transportation, agriculture, public administration, and national security. While these technologies create significant opportunities for innovation and economic growth, they also generate substantial inequalities between technologically advanced and technologically developing states. Within the Indian Ocean region, disparities in digital infrastructure, scientific research capacity, technological access, and higher education systems remain significant. Many developing member states continue to face challenges relating to internet accessibility, digital literacy, research funding, and technological innovation. Without effective regional cooperation, these inequalities risk deepening existing socio-economic disparities.

The IORA Action Plan 2022–2027 recognises the importance of strengthening scientific and technological cooperation to support sustainable and inclusive development. In this context, ASTC serves as a critical platform for enabling regional collaboration in research, innovation, and education. The growing importance of artificial intelligence and digital technologies demonstrates why investment in scientific cooperation is no longer optional but essential for the region's long-term development and competitiveness.

A key institutional component of ASTC is the Indian Ocean Rim Academic Group (IORAG), which functions as IORA's academic and intellectual platform. IORAG facilitates dialogue between universities, researchers, policymakers, and academic institutions across the region. In relation to contemporary digital challenges, IORAG can play an essential role in promoting research on artificial intelligence governance, digital ethics, cybersecurity regulation, data protection, and the societal impacts of emerging technologies. Academic collaboration allows member states to exchange experiences, develop region-specific policy recommendations, and foster interdisciplinary research addressing technological transformation.

The rise of artificial intelligence also raises critical ethical and legal questions concerning privacy, surveillance, discrimination, and algorithmic governance. Many countries across the Indian Ocean region still lack comprehensive regulatory frameworks governing AI technologies and digital data protection. Through collaborative research and policy-oriented dialogue, ASTC initiatives can contribute towards developing balanced and human-centred approaches to digital governance. This is particularly important as developing states increasingly integrate digital technologies into public administration, financial systems, education, and law enforcement.

Equally important is the role of the Working Group on Science, Technology and Innovation (WGSTI), chaired by South Africa. The WGSTI promotes scientific cooperation, research partnerships, and innovation-driven development among IORA member states. In the context of AI and digital transformation, the Working Group can facilitate regional initiatives focusing on technological capacity-building, digital innovation hubs, scientific exchanges, and collaborative research programmes. By encouraging partnerships between universities, governments, and private sector actors, ASTC cooperation can help bridge technological gaps between developed and developing member states.

The digital divide remains one of the most urgent contemporary challenges within the Indian Ocean region. While countries such as Australia, Singapore, and United Arab Emirates possess advanced technological infrastructure and strong innovation ecosystems, many smaller or developing states continue to experience limited digital connectivity and insufficient research capacities. These disparities affect economic opportunities, access to education, employment prospects, and participation in the global digital economy.

The COVID-19 pandemic exposed the extent of these inequalities. During periods of lockdown and remote learning, states with limited digital infrastructure faced severe disruptions in education, public services, and economic activities. The pandemic demonstrated that digital resilience is now a fundamental component of national and regional security. ASTC cooperation can therefore support efforts to strengthen digital education, research collaboration, online learning systems, and technological capacity-building throughout the region.

Furthermore, scientific and technological cooperation is increasingly linked to cybersecurity challenges. As states become more digitally interconnected, vulnerabilities relating to cybercrime, cyber espionage, misinformation, and attacks on critical infrastructure continue to grow. Many Indian Ocean states lack sufficient cybersecurity expertise and institutional capacity to effectively respond to these threats. Regional cooperation through ASTC can support knowledge-sharing, technical training, and collaborative research on cybersecurity governance and digital resilience.

Another important aspect concerns youth and employment. Artificial intelligence and automation are transforming labour markets worldwide, potentially displacing traditional employment sectors while simultaneously creating new opportunities in technology-driven industries. For many developing states with youthful populations, preparing future generations for the digital economy has become an urgent policy priority. ASTC initiatives promoting scientific education, digital literacy, innovation training, and academic mobility can contribute significantly towards preparing young people for emerging technological realities.

Importantly, ASTC cooperation also strengthens South-South collaboration within the Indian Ocean region. Rather than depending exclusively on external technological powers, IORA member states can increasingly share expertise, research capacities, and innovation strategies among themselves. Countries such as India and South Africa possess growing technological sectors and research institutions capable of supporting broader regional digital development through collaborative initiatives and knowledge transfer.

Nevertheless, important challenges remain. Unequal research funding, brain drain, fragmented institutional coordination, and limited investment in higher education continue to constrain scientific advancement in several member states. Strengthening cooperation between governments, universities, and private sector actors will therefore be essential to maximise the effectiveness of ASTC initiatives.

In conclusion, the ASTC pillar of IORA has become increasingly significant in addressing the contemporary challenges associated with artificial intelligence, digital transformation, and the digital divide. As emerging technologies reshape global governance, economies, and societies, regional scientific cooperation is essential to ensure that no member state is left behind. Through institutions such as IORAG and WGSTI, IORA provides an important platform for promoting research collaboration, technological innovation, and evidence-based policymaking. Strengthening academic, scientific, and technological cooperation will ultimately be indispensable for enhancing regional resilience, promoting inclusive development, and ensuring that the Indian Ocean region can effectively navigate the opportunities and risks of the digital age.