A*STAR and Siemens collaborate to advance smart and sustainable manufacturing solutions

4 July 2025, Singapore – The Agency for Science, Technology and Research (A*STAR) and Siemens have signed a Memorandum of Understanding to accelerate innovation and digital transformation for smart and sustainable manufacturing for companies in Singapore and across ASEAN. The collaboration aims to address key challenges by facilitating faster access to industrial artificial intelligence (AI) and automation expertise, and developing sustainable manufacturing processes that meet international standards. This will also support companies expanding into the region in becoming more agile, resilient, and globally competitive.

Smart and Sustainable Advanced Manufacturing Catalyst: A Testbed for Industry

As part of the collaboration, Siemens will become the first technology partner for A*STAR's Smart and Sustainable Advanced Manufacturing (SSAM) Catalyst, an innovation sandbox hosted within the A*STAR Advanced Remanufacturing and Technology Centre (A*STAR ARTC).

At this innovation sandbox, Siemens presents an integrated portfolio of automation, electrification, industrial software, and AI solutions with comprehensive capabilities across the entire product lifecycle—from design and engineering to advanced manufacturing and operations. These solutions bridge the digital and physical worlds, empowering companies to accelerate innovation, boost efficiency, and build resilient, future-ready operations that define the next era of industrial production.

A*STAR ARTC looks to build a dynamic innovation sandbox ecosystem, bringing together technology partners such as Siemens, solution integrators, and end-users to co-develop solutions and translate research into real-world impact. A*STAR ARTC draws on its research expertise and a suite of advanced technologies—from next generation manufacturing process, smart manufacturing and intelligent sustainability analytics to precision imaging and autonomous systems, to help companies transform their operations and adopt next-generation manufacturing solutions to stay competitive.

The SSAM Catalyst demonstrates how industrial automation, digitalisation and AI solutions can be integrated with A*STAR's advanced manufacturing technologies. Companies can experiment with these solutions, accelerating the development of use cases that address industry-specific needs in sectors such as Aerospace, Fast-Moving Consumer Goods and Biomedical, as well as complex semiconductor equipment manufacturing.

More information on the SSAM Catalyst can be found in **Annex A**.

Paving the Way for More Sustainable Manufacturing

The A*STAR Institute of Sustainability for Chemicals, Energy and Environment (A*STAR ISCE²) and Siemens are collaborating on selected research projects to explore how industrial automation and digital tools can support decarbonisation in the Chemicals and Energy sector. The collaboration also includes efforts to demonstrate how Siemens' Digital Twin capabilities—which empower chemical engineers to simulate and optimise chemical processes, and design production facilities—can be applied to integrate engineering and operations in manufacturing plants. This can help companies manage the complexity of plant design and accelerate construction timelines.

This collaboration between A*STAR and Siemens exemplifies strong synergy between the private and public sectors in advancing the regional advanced manufacturing ecosystem. By aligning innovation, sustainability and industry needs, the collaboration aims to position Singapore as a launchpad for scalable solutions that can benefit ASEAN and beyond.

"Our partnership with A*STAR reflects Siemens' deep commitment to shaping the future of manufacturing in ASEAN. By combining Industrial AI, digital twin technology, and intelligent automation, we are enabling companies to transform at speed and scale—toward greater resilience, sustainability, and global competitiveness," said Thai-Lai Pham, President and CEO of Siemens ASEAN.

"Together with Siemens, we are developing solutions that will accelerate digital transformation and support decarbonisation efforts across the region. This represents A*STAR's continued commitment to translational research, bridging the gap between frontier research and real-world applications with industry partners. This multi-faceted collaboration looks to strengthen Singapore's position as a regional hub for smart and sustainable manufacturing in ASEAN," said Prof Lim Keng Hui, Assistant Chief Executive, Science and Engineering Research Council, A*STAR.

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About Siemens
Siemens AG (Berlin and Munich) is a leading technology company focused on industry, infrastructure, mobility, and healthcare. The company's purpose is to create technology to transform the everyday, for everyone. By combining the real and the digital worlds, Siemens empowers customers to accelerate their digital and sustainability transformations, making factories more efficient, cities more livable, and transportation more sustainable. Siemens also owns a majority stake in the publicly listed company Siemens Healthineers, a leading global medical technology provider pioneering breakthroughs in healthcare. For everyone. Everywhere. Sustainably. In fiscal 2024, which ended on September 30, 2024, the Siemens Group generated revenue of €75.9 billion and net income of €9.0 billion. As of September 30, 2024, the company employed around 312,000 people worldwide on the basis of continuing operations. Further information is available on the Internet at www.siemens.com.

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About the Agency for Science, Technology and Research (A*STAR)
The Agency for Science, Technology and Research (A*STAR) is Singapore's lead public sector R&D agency. Through open innovation, we collaborate with our partners in both the public and private sectors to benefit the economy and society. As a Science and Technology Organisation, A*STAR bridges the gap between academia and industry. Our research creates economic growth and jobs for Singapore, and enhances lives by improving societal outcomes in healthcare, urban living, and sustainability. A*STAR plays a key role in nurturing scientific talent and leaders for the wider research community and industry. A*STAR's R&D activities span biomedical sciences to physical sciences and engineering, with research entities primarily located in Biopolis and Fusionopolis. For ongoing news, visit www.a-star.edu.sg.

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ANNEX A – INFORMATION ON THE SMART AND SUSTAINABLE ADVANCED MANUFACTURING CATALYST

The Smart and Sustainable Advanced Manufacturing (SSAM) Catalyst will demonstrate cutting-edge industrial automation, digitalisation and industrial artificial intelligence (AI) solutions that will enable manufacturers to harness data-driven intelligence, optimise real-time operations, and drive predictive, autonomous decision-making across the production lifecycle.

The solutions will look to address key industrial challenges faced by sectors including Aerospace, Fast-Moving Consumer Goods, Pharmaceuticals and Semiconductors, from resource scarcity and shifting market dynamics to climate imperatives and workforce transformation.

The SSAM Catalyst will cover three capability areas:

1. **Design with Purpose, Engineered for Precision:** Advanced simulation and validation tools that reduce development time, minimise physical prototyping costs, and ensure end-to-end accuracy and consistency. These solutions streamline verification processes, accelerate approval cycles, and boost first-time-right outcomes.

2. **Seamless Intelligence, Operational Efficiency:** Industrial AI-powered solutions for data-driven decision-making that improve equipment efficiency and optimise operations. The solutions feature scalable Information Technology or Operational Technology integration with robust data protection and operational resilience to safeguard critical systems against disruptions.

3. **Lights-Out Manufacturing - The Future of Autonomous Production:** Fully automated, human-free manufacturing operations that enable intelligent, self-optimising factories. These solutions maximise efficiency, ensure consistent quality, and reduce operational risk.