Stronger support and partnerships to bring urban innovations to the market

The theme for this year's Urban Solutions and Sustainability (USS) Research & Innovation Congress, "Re-inventing Cities of Tomorrow", reflects the importance of harnessing technology and innovation to reimagine and reshape the future of Singapore's urban environment. The Congress brings together participants across government agencies, academia and industry to exchange ideas and explore innovative solutions on urban sustainability.

2 In his opening speech, Minister for National Development Mr Chee Hong Tat highlighted the importance of research and innovation to maintain Singapore's competitive edge and ensure a high-quality living environment for Singaporeans. He announced the following key initiatives to accelerate the translation of research and innovation into meaningful, real-world outcomes:

a) USS Translation Fund

The USS Translation Fund is a new $40 million funding programme by the Ministry of National Development (MND) and Ministry of Sustainability and the Environment (MSE) to support local companies develop, pilot and commercialise promising urban and sustainability solutions. Administered by the USS Innovation & Enterprise Office (USS IEO), a national platform hosted by A*STAR, the fund helps companies translate high-potential USS research into cost-effective market-ready products. By supporting the commercialisation of innovative solutions, the Fund creates potential business opportunities across key USS sectors including the built environment, water, environmental services, and agri-food industries. More details are in Annex A.

b) Streamlined Procurement of Research Innovations & Technology (SPRINT)

MND will launch a new green lane procurement programme, SPRINT, to streamline procurement and expedite government adoption of innovative research products. SPRINT will be administered by HDB and BCA, and piloted by MND Family agencies. During the pilot phase, companies that meet SPRINT's requirements become qualified vendors, enabling direct procurement by MND Family agencies. This streamlined process is expected to halve procurement timelines. SPRINT will also help companies strengthen their credentials as part of the panel of qualified government suppliers, widen their market access, and build their industry track records. More details are in Annex B.

c) Built Environment AI Centre of Excellence

MND, in partnership with the Singapore University of Technology and Design (SUTD), is launching a new $30 million Built Environment AI Centre of Excellence (BE AI CoE). This centre will foster collaboration between Government agencies, academia and industry to develop AI-driven solutions that address key challenges in the BE sector, such as manpower shortages in the labour-intensive construction and facilities management sectors, and climate change impacts. The CoE aims to transform work processes to enhance productivity, sustainability, and liveability whilst nurturing 'AI bilinguals' – professionals with both technical AI expertise and practical understanding of BE sector challenges. More details are in Annex C.

3 Additionally, the Building and Construction Authority (BCA) will launch a decarbonisation technology roadmap at the Heat Resilience Breakout session on 6 February 2026:

d) Built Environment Decarbonisation Technology Roadmap

BCA and Singapore Green Building Council (SGBC), with support from A*STAR, have jointly developed a roadmap which identifies close to 70 key technologies and strategies. This roadmap will guide research and innovation

efforts towards achieving the Singapore Green Building Masterplan's (SGBMP)'s "80-80-80" targets by 2030 and work towards our longer-term target for net-zero emissions by 2050. Market-ready strategies and solutions such as alternative cooling and ventilation technologies, AI-controlled energy optimisation systems and low carbon construction practices will help developers and building owners decarbonise their building portfolios, while identified emerging technology priorities will support Singapore's Research, Innovation, and Enterprise (RIE) 2030 plan. More details are in Annex D.

END

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ANNEX A

URBAN SOLUTIONS & SUSTAINABILITY (USS) TRANSLATION FUND

1. The USS Translation Fund is a new initiative under Singapore's Research, Innovation, and Enterprise (RIE) 2030 plan. $40 million has been allocated to support the USS Translation Fund. This will support companies in translating their research prototypes into market-ready solutions and prevent promising ideas from being held back due to high upfront capital costs and commercialisation risks.

2. The USS Translation Fund will support key activities that commercialise research innovations, including engineering development, test-bedding, and pilot demonstrations across key USS sectors such as the built environment, water, environmental services, and agri-food. Eligible projects must address national priorities, originate from previous publicly-funded research, possess a functional prototype and show a clear pathway to commercialisation.

3. The USS Translation Fund is administered by the Urban Solutions & Sustainability Innovation & Enterprise Office (USS IEO), a national platform hosted by A*STAR. Beyond grant administration, the USS IEO will also actively collaborate with government agencies to engage technology adopters and suppliers (including startups, SMEs, and large local enterprises) to maximise the impact of this funding. This will allow technology suppliers to build credibility with future clients and secure commercial contracts. This will also create a virtuous cycle that accelerates the adoption of public research Intellectual Property (IP), while strengthening local technological capabilities.

ANNEX B

STREAMLINED PROCUREMENT OF RESEARCH INNOVATIONS & TECHNOLOGY (SPRINT)

1. Streamlined Procurement of Research Innovations & Technology (SPRINT) aims to expedite government adoption of innovative research products. This pro-enterprise programme supports promising and innovative companies (including spin-offs and small- and medium-sized enterprises (SMEs)) in scaling up innovative Built Environment (BE) research solutions. SPRINT will be piloted by MND Family agencies first before it is extended across the public sector.

2. Companies that meet the SPRINT programme's requirements will become qualified vendors under SPRINT, enabling MND agencies to directly procure their solutions. For example, an SME with a BE solution that has been successfully piloted by an MND agency can be referred to SPRINT to help them scale up their solution. If the company and their solution qualify under SPRINT, other MND agencies can directly procure their solutions, and this streamlined process is expected to halve procurement timelines.

3. SPRINT qualification helps companies establish their credentials as qualified government suppliers, widen their market access, and build their industry track records. Beyond this, collaboration with the public sector enables these companies to strengthen their technical and research capabilities to develop impactful and scalable solutions for public good.

4. SPRINT is co-chaired by MND and Enterprise Singapore (ESG), and administered by the Housing & Development Board (HDB) and the Building and Construction Authority (BCA).

ANNEX C

ESTABLISHMENT OF THE ARTIFICIAL INTELLIGENCE CENTRE OF EXCELLENCE FOR THE BUILT ENVIRONMENT

1. The Ministry of National Development (MND), in partnership with the Singapore University of Technology and Design (SUTD), is launching a new S$30 million Artificial Intelligence Centre of Excellence for the Built Environment (BE AI CoE) tapping on NRF's Research, Innovation, and Enterprise (RIE) funds.

2. Artificial Intelligence (AI) has advanced rapidly, with the potential to transform processes and boost competitiveness across many domains. Within the Built Environment (BE), AI can enable the development of smarter and more efficient solutions to address national challenges, including:

    a. Manpower shortage in the labour-intensive construction and facilities management (FM) sectors through AI-augmented robotics and automation;

    b. Climate change impacts through advanced multi-objective modelling and simulation that enable faster, more comprehensive analysis of environmental impacts, energy efficiency optimisation, and adaptive design strategies for severe weather events.

3. AI is also a critical enabler to ensure that MND's key priorities, such as large-scale estate rejuvenation, are effectively met. Estate rejuvenation is a complex, long-term endeavour that can benefit from AI-enabled tech solutions across all stages of the BE lifecycle, from upstream urban planning to downstream facilities management.

4. The BE AI CoE will adopt a collaborative approach to bring together Government agencies, academia and progressive industry partners to advance applied AI research and co-develop BE solutions whilst fostering innovation partnerships between the public and private sectors.

5. The CoE will also strengthen Singapore's long-term research and industry capabilities by attracting and nurturing "AI bilinguals" — professionals with both technical AI expertise and practical understanding of BE sector challenges. Through joint project collaborations across leading researchers and progressive BE firms, the CoE will facilitate effective knowledge transfer between academia, Government agencies and industry, and uplift the entire BE ecosystem.

6. The desired outcomes for the BE AI CoE are to:

    a. **Transform work processes** throughout the BE lifecycle by developing AI solutions with needle-moving impact in terms of productivity, sustainability, and liveability.

b. **Catalyse public-private partnerships** in applied AI research and accelerate research translation and time-to-market by establishing a focal point that brings together government, academia and industry.

c. **Build up AI capabilities** within Singapore's BE ecosystem by developing deep local expertise and anchoring talents through the CoE.

ANNEX D

BUILT ENVIRONMENT DECARBONISATION TECHNOLOGY ROADMAP

1. Singapore is committed to reduce its greenhouse gas emissions to about 45 to 50 million tonnes (MtCO2e) by 2035, from the projected 60 MtCO2e target in 2030.

2. Technology plays a key role in the transition to encourage the switch to low-carbon alternatives and drive transformational change. To this end, the Building and Construction Authority (BCA) and the Singapore Green Building Council (SGBC), with support from A*STAR, have refreshed the 2018 Super Low Energy Building Technology Roadmap. Renamed the Built Environment Decarbonisation Technology Roadmap, it identifies close to 70 key technologies and strategies and adopts "whole-life carbon" approach, addressing both operational and embodied carbon emissions.

3. Since January 2025, BCA and SGBC have engaged about 100 built environment stakeholders, including building owners, consultants, Institute of Higher Learning (IHLs), material suppliers and technology solution providers to co-create the roadmap.

4. The technology roadmap serves two primary purposes; Firstly, it encourages stakeholders to leverage market-ready solutions to reduce whole-life carbon emissions in their building projects. Secondly, it provides the research community with a clear directive on emerging technology priorities, to support Singapore's Research, Innovation, and Enterprise (RIE) 2030 plan. More details of the solutions identified in the roadmap are listed in Table 1.

Table 1: Examples of solutions identified in the BE Decarbonisation Technology Roadmap

Themes	Strategies	Number of solutions	Examples
Operational Carbon Reduction	District Integration	3	• District Cooling System (DCS) • District-Level Control Algorithms for Dynamic Optimisation
	Passive	9	• Ventilated Facades • Advanced Facade/Envelope Solutions that are retrofittable for existing buildings (E.g. On-site retrofit glass that can be installed from building interior by affixing Low-emissivity glass over existing windows) • CO_2 Absorbing Coatings (Carbon Capture Coatings) with sequestration capabilities

	Active	23	• Alternative Cooling and Ventilation Technologies (E.g Magnetocaloric cooling chillers, thermoelectric cooling, hybrid radiative cooling) • Energy Recovery Systems • Dual Temperature Chiller Plant
	Smart Technologies and AI	8	• Occupant-Centric Air Conditioning and Mechanical Ventilation (ACMV) Optimisation • Smart Operations with Digital Twins
	Renewable Energy	5	• Facade-integrated Photovoltaics (BIPV) • Micro Wind Turbines • Vibration Energy Harvesting Materials
Embodied Carbon Reduction	Carbon Avoidance Design	*(Design Concept)*	• Adaptive Reuse • Kit-of-Parts
	Low-Carbon Materials	11	• Supplementary Cementitious Materials • CO_2 to aggregates • Geopolymer Concrete with CO_2 Sequestration
	Low-Carbon Construction	5	• Construction Site Microgrid and On-Site Renewable Energy Integration • Lean Construction Methods and Resource Circularity
	Circularity in Construction	2	• Advanced Construction & Demolition (C&D) Waste Processing • Material Passports
	Digital Carbon Tools	3	• AI Agentic solution for Whole Life Carbon Management

More details can be found in the public report: https://go.gov.sg/decarbroadmap

About BCA

The Building and Construction Authority (BCA) champions a safe, sustainable, and liveable built environment for Singapore. As a leader in the sector, BCA is dedicated to driving industry transformation and setting rigorous standards in building safety, quality, and environmental sustainability. By advancing innovation, digitalisation, and the development of a skilled workforce, BCA fosters a dynamic industry that is ready to meet the evolving needs of the nation and build a resilient and progressive built environment for all. For more information, visit www.bca.gov.sg

About SGBC

The Singapore Green Building Council (SGBC) enables sustainability across the building and construction value chain, championing capability development and innovative solutions that support industry transformation through our membership, certification, and outreach programmes. The repository of proven green building solutions helps to enable green procurement in the industry, profiling leading and innovative solutions that go towards building a greener, healthier built environment.

Together with a growing pool of industry-recognised Green Mark Accredited Professionals, SGBC addresses every touchpoint of the green building ecosystem.