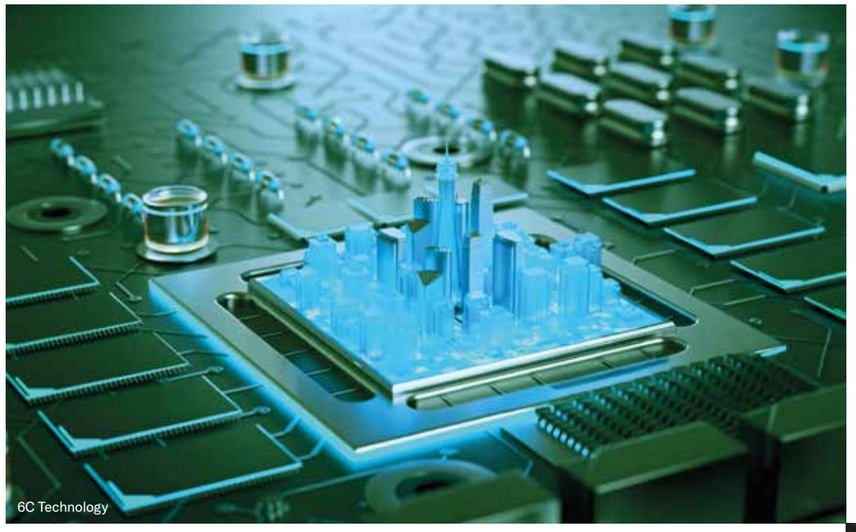
Smart City Frontier

From AI speech engines and diamond semiconductors to structural analysis, design software and battery-swapping stations for electric vehicles, Hong Kong start-ups are building the smart cities of tomorrow

Residents thrive when the systems beneath a city run intelligently and seamlessly: transport networks that move people sustainably and efficiently, secure communication channels that protect personal information, resilient buildings designed to withstand a changing climate and semiconductors that support next-generation electronics. In Hong Kong, a new breed of innovators is strengthening these foundations, pushing the world towards a future where every metropolis can be smart. Here are four breakthrough ideas reimaging the essential facets of urban life: how we live, move, connect and build.


6C Technology

DIAMOND-CHARGED INNOVATION

In a smart city, daily life relies on high-performance innovations, from the AI powering autonomous vehicles to data centres running next-generation cloud and edge computing, and medical devices delivering predictive, personalised services. None of this is possible without semiconductors, the essential ingredient in every electronic chip.

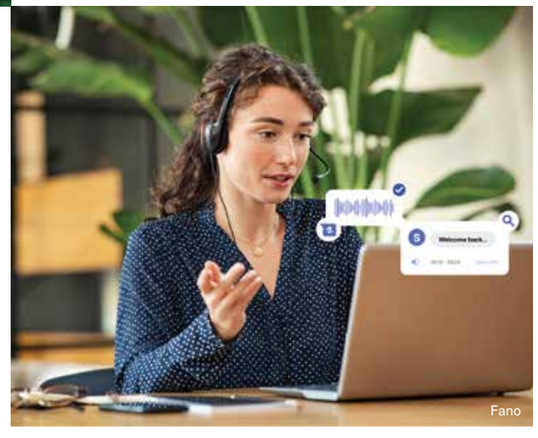
While silicon has long been the standard material used for semiconductors, 6C Technology is advancing the field with an engineered alternative: diamond, which the company described as "a supermaterial with extreme properties". But this is no ordinary diamond. Using a proprietary Microwave Plasma Chemical Vapour Deposition process that uses high-purity hydrogen, the team can configure and accelerate the growth of diamonds for industrial uses at a commercial scale. These diamonds are 15 times more effective at dissipating heat than silicon and are deployed in essential electronic components in computer systems and quantum-related technologies to prevent thermal overload breakdowns, permitting unrestricted performance, durability and energy efficiency of electronic systems. By turning this breakthrough into real-world production, 6C Technology is overcoming physics barriers to meet the demands of the advanced technologies that underpin the digital age.

One Energy

SWAP, RIDE, REPEAT

Seamless movement across a modern city relies on transport that is fast, flexible and low-carbon. With hundreds of millions of two-wheelers in use across Asia, the shift from gasoline to electric vehicles could significantly reduce the environmental impact of dense cities. One Energy is accelerating that transition with one of the world's first water-cooled, fast-charging battery-swap stations for zero-emission vehicles. Riders can exchange a depleted battery for a fully charged one in just 30 seconds, rather than waiting the usual five to seven hours to recharge.

In Hong Kong, the start-up works with leading food delivery platform Keeta and supplies solution and products to Foodpanda to promote green mobility and integrate its solutions into their fleets. One Energy is also expanding into markets with high motorcycle usage and rapidly growing e-motorcycle adoption, including Southeast Asia, Europe, Africa and Latin America. The company estimates that if at least one billion riders worldwide switch to electric motorcycles, up to 377 million tonnes of carbon emissions could be avoided. Its global expansion is shaping an era of sustainable urban mobility, one swap at a time.


Fano

IS THAT REALLY YOU?

Reliable communication is critical to a connected city, fuelling everything from financial transactions to critical business decisions. In a future where deepfakes and AI-generated speech could become even more prevalent, verifying authenticity is paramount. Hong Kong-born Fano is addressing this challenge with its award-winning agentic AI platform, Fano Callinter. Powered by an enterprise-grade mixed-language speech recognition engine with over 90 per cent accuracy, it analyses voice biometrics and speech sentiment to detect fraud and impersonation. Unlike most engines designed for Western languages, Fano's model covers ASEAN languages, including Cantonese, Bahasa Malaysia and Tagalog. It also features voice analytics, conversational AI and custom voice synthesis capabilities.

Trusted by major global banks and financial regulators in Hong Kong, and with a business footprint spanning Asia, the UK and the UAE, Fano ensures that, even in a world filled with synthetic voices, the real ones can still be heard.

Nida

STANDING THE TEST OF TIME

The strength of tomorrow's city also lies in its infrastructure: resilient and thoughtfully designed to meet future needs. Some of the region's most ambitious edifices—from the Guinness World Record-winning gridshell-glazed roof at MGM Cotai in Macau, Singapore's futuristic botanical park Gardens by the Bay and the roof of the stadium at Kai Tak Sports Park, Hong Kong's largest sports and entertainment venue—would not be so impressive without the technology developed by Nida. Its nonlinear integrated design and analysis (Nida) software enables engineers to model intricate structures with greater precision, reducing uncertainty while optimising design.

With a versatile product portfolio that supports advanced structural design across steel, reinforced concrete and composite materials, its solutions are used across Asia, the UAE, Europe and the US. Having obtained major global and regional certifications, Nida ensures that each acclaimed design not only narrates its own tale but also endures through time.

ENGINEERING TOMORROW, STARTING TODAY

These four start-ups—which translate complex science into tangible impact—are proudly supported by the city's largest I&T ecosystem, the Hong Kong Science & Technology Parks Corporation (HKSTP). Home to around 26,000 innovators and 2,400 technology companies, including 12 unicorns, HKSTP nurtures the trailblazers redefining how innovation shapes urban life. The future isn't just imagined in Hong Kong—it is engineered here, with breakthroughs making their mark around the world. To keep up with Hong Kong I&T Tomorrow, visit HKSTP's official website to explore more success stories from the city's next generation of tech pioneers.