



What's next for sustainable tech in 2024?

In this ebook, we predict how existing tech will become more sustainable and what will emerge as the climate leader in the next year.

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Technology won't save us. The people pushing for change will.

Climate-related upheaval has shaken humanity to its core more than once before today. The Roman Empire fell due to shifts in climate that affected agriculture and forced mass migration. The black death spread due to a rise in wet, humid conditions.¹

Today, we sit at a similar crossroads - continue with business as usual or make the great shift to sustainability.

This ebook explores the technologies that will bring sustainability and long-term efficiencies to businesses in 2024 and beyond. We predict the best place to invest for resilience and stability both for business and the planet.



Planning for climate and business uncertainty

2024 will be the year to make sustainable tech investments that secure business longevity. As we head toward the Paris Agreement 2030 target, now is the time to embrace circularity, reduce carbon and embed pioneering tech:

80% reduced emissions from a circular economy

Supply chains currently account for 80% of corporate greenhouse gas emissions²



MaaS is worth US\$40.1 billion

The value of the Mobility as a Service (MaaS) market will be US\$40.1 billion by 2030³



"Given Singapore's land scarcity and reliance on imports, indoor farming technologies can improve our food supply resilience."

Singapore's Climate Action Plan, Ministry of National Development⁴

2/3 of the workforce are Millennials

By 2030, climate-conscious Millennials will make up 58% of the workforce⁵



Carbon reduction by 7 gigatons

Quantum computing could reduce emissions by 7 gigatons of carbon a year⁶





The linear supply chain is out, circularity is in

Reduced raw material availability, new regulations on waste and political uncertainty have significantly impacted supply chain predictability since 2020. The shift to a circular supply chain in 2024 will bring two-fold benefits: wresting back control of these operations and achieving sustainability goals by positively impacting the planet.

Case study: Bridgestone

The circular economy is about reducing, reusing and recycling. Extending a product's lifespan keeps waste out of landfills for longer and reduces raw material use.

Tyre manufacturer Bridgestone uses IoT sensors to monitor sold products.

Customers receive real-time data on the tyre pressure of fleet vehicles.

The cloud-based IoT solution monitors the safety and performance of the tyres.

The information prolongs the product lifespan, reduces fuel consumption, and increases fleet efficiency.

Where to invest:



IoT

Connected cameras can inspect waste and identify items for recycling, reducing the cost of waste management and raw material sources⁷



E-waste collection

Singtel's project to refurbish and recycle CPE devices has kept an annual 87.8 tonnes of e-waste out of landfill.



MaaS Transport goes mainstream

Increasing traffic, emissions and fuel costs are making the world think differently about transport modes, and APAC is no different. In 2024, Mobility-as-a-service (MaaS) looks to make big gains as the shift to sustainable transport grows.

As a service model, MaaS considers the entire journey, not just the mode, to create efficient and low-carbon journeys:

Singtel x Anywheel

Bicycle hire service Anywheel uses Singtel M2M SIMs to provide a real-time view of available bikes for users. IoT-powered locks also protect the bikes from theft and damage.

Singtel x BYD

Using Singtel's global carrier network, BYD's connected vehicles can move between countries without interrupting service for drivers. Reliable connectivity is making these EVs the leading choice.

Where to invest:



M2M

For fast implementation, SIM-powered M2M allows for rapidly scaling fleet mobility solutions such as e-bike deliveries or bio-fuel vans.



5G

Enabling connected solutions in hard-to-reach places such as underground or remote locations, 5G offers greater reach for mobility providers.



Smart cities will cope better with climate upheaval

Smart cities improve the lives of citizens, protect public assets and seek efficiencies for economic stability. These characteristics will make urban environments resilient to the inevitable changes that climate upheaval will bring.

By 2050, 80% of the world's citizens will live in cities so it is critical that we use resources effectively and enable greater connectivity for sustainable solutions.⁸

Smart city leaders:

Singapore

High-performing internet speeds power Singapore's position as a top smart city. Safety, medical access and speedy public services also rank as top features.



New York

Arguably the most famous US city boasts mobility as its key smart city feature. Leading the change in a car-obsessed nation, New Yorkers appreciate easy public transport and bike sharing.

Oslo

Technology is making life easier for citizens of Norway's capital with recycling, public engagement and fulfilling employment ranked as the top areas of success.



Beijing

Flying up the smart city rankings, Beijing has gone from 30th to 12th smart city in just 3 years. How? Citizens' willingness to share data that benefits their urban experience.⁹



The sustainability-conscious young are getting old and taking the reins

Once the radical change-makers, millennials are turning 40 and shifting into senior-level positions that give them greater buying power. With climate change and recessions as markers of their economic experience, this now middle-aged generation seeks certainty and sustainability, and this outlook will influence their decision-making.

Winning the trust of millennial buyers:



Be ethical, even if it costs more

This generation is willing to pay 73% more for products that align with their values¹⁰



Be digital-first

Millennials are 62% more likely to buy from a brand after online engagement¹¹



Be a sustainability-driven corporation

40% say they would switch jobs over corporate climate commitments¹²



Quantum will herald a new dawn of humanity

Much like the printing press enabled a new era of intelligence and information sharing, quantum computing will power an artificial intelligence far greater than human capabilities. The technology's impact on sustainability will accelerate its development into 2024 and beyond.

Quantum's potential to reduce emissions is so great that it could abate 7 gigatons of carbon a year, allowing us to achieve the Paris Agreement target of 1.5°C warming.⁶

Able to problem-solve and detect efficiencies at a rate far faster than today's supercomputer, quantum computing will enable a rapid transition to low-impact and high-value technologies. Applying this capability in the deployment of AI to achieve sustainability will enable us to put the brakes on climate breakdown.

Where to invest:



Edge Computing

As AI capabilities grow Edge Computing is needed to transfer data on a massive scale. Leveraging 5G enables this transmission to happen at speed.



Quantum-Safe Network

The QSN is built specifically for the threats posed by quantum computers. Using cryptographic techniques, it secures against quantum attacks.

Beyond 2024

2024 will see a significant shift towards sustainability, and the years after will reap the benefits of efficiency, security and business resilience.

Although increased digitalisation runs the risk of widening the digital divide, the next decade's focus on diversity and equality will ensure that social sustainability is achieved.

These emerging trends will define our next decade:



1 The distinction between the natural and technical world will get blurry

Much like the metaverse is blurring the real and virtual worlds, bioengineering and pharimatech will interweave our natural and technical worlds. Leading the change in this evolution will be smart farming technologies and pharmaceutical advances that increase food supplies and protect human health.



2 Zero trust security will protect our ecosystem service

An ecosystem service is the economic and health benefits humans derive from the natural world. When tech-enabled water supplies, energy infrastructure and food processing are protected by cyber security, ecosystems are also protected, and the careful balance between humans and nature is maintained.



3 Smart grids will power smart manufacturing

As the electrification of transport and manufacturing expands, so will the increasing demand for electricity supplies. IoT sensors and AI technology will be embedded to ensure reliable supply by detecting anomalies, directing power and preserving stability.

Tech for the long term

The right investments in the near term will reap the benefits year after year

Green data centres

The notoriously tricky Scope 3 emissions can be significantly reduced with an investment in green data centres. Using sustainable energy sources for cooling and operations, these centres allow for increased digitalisation without hurting the planet.

Digital transformation

Reducing emissions puts companies ahead of those reliant on offsets to meet ever more stringent targets. Virtualisation, IoT emissions measurements and AI-driven efficiencies are helping companies push towards 2030 emissions targets.



About Singtel

Singtel is Asia's leading communications technology group, providing a portfolio of services from next generation communication, 5G and technology services to infotainment to both consumers and businesses.

The Group has a presence in Asia, Australia and Africa and reaches over 770 million mobile customers in 21 countries. Its infrastructure and technology services for businesses span 21 countries, with more than 428 direct points of presence in 362 cities.

For consumers, Singtel delivers a complete and integrated suite of services, including mobile, broadband and TV. For businesses, Singtel offers a complementary array of workforce mobility solutions, data hosting, cloud, network infrastructure, analytics and cyber security capabilities.

Singtel is dedicated to continuous innovation, harnessing technology to create new and exciting customer experiences and shape a more sustainable, digital future.

For more information about our technologies and solutions, visit www.singtel.com/business.

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