

Beyond defence: Positioning Singapore as Asia's cybersecurity innovation hub

Outlook, growth opportunities, and strategic shifts

September 2026



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Executive Summary

01 Outlook: Global developments in cybersecurity

- Cybersecurity is experiencing disruption globally, across nine key trends in **technology, geopolitics, and regulation**.
- Among the nine key trends, **six have greater impact and momentum** in driving cybersecurity capability needs, **led by the Evolution in AI** trend.

02 Growth opportunities: Singapore is well-positioned to generate value amidst disruption

- Singapore is at the forefront of these disruptions and is well positioned to generate significant value.
- Singapore's **right-to-play** is underpinned by: 1) Conducive conditions for **innovation**; 2) High cybersecurity **spend**; 3) Robust **ecosystem** of cybersecurity players; 4) Sustained **government** support in cybersecurity and frontier technologies.
- Translating Singapore's cybersecurity strengths across demand, innovation, supplier ecosystem, and government support could unlock **2,300 new jobs** and grow the industry to reach as much as **USD 4.8B by 2030**.

03 Strategic shifts: To capture key growth opportunities

- **Five growth opportunities** have emerged as anchor bets for the next phase of Singapore's cybersecurity journey: **1) AI-enabled security platforms; 2) Enterprise Post-Quantum Cryptography (PQC) migration platforms; 3) Sovereign & enterprise cloud resilience; 4) Cyber-physical resilience platform; 5) Trust & security for next-gen connectivity.**
- To capture and generate value from the growth opportunities, Singapore should pursue **five strategic shifts**: 1) Build **new capabilities** that leverage and amplify Singapore's strengths; 2) Position strategically to draw **foreign investments**; 3) Motivate businesses **to adopt services for nascent capabilities** 4) **Export Singapore's strengths regionally**; 5) Focus on **higher-value new cybersecurity jobs**.

Research & data sources

Baseline market size estimates and projected growth are based on a combination of publicly available sources and an industry survey commissioned by the Cyber Security Agency of Singapore and led by Deloitte Singapore, which included ~160 industry respondents within the Singapore cybersecurity ecosystem, across buyers, suppliers, and enablers.

Growth opportunities and strategic shifts were identified using Deloitte-developed models, including an analysis of 700+ companies operating within Singapore's cybersecurity ecosystem.

These findings were subsequently validated through focus group discussions with ~30 experts from cybersecurity companies, institutes of higher learning, and government agencies.

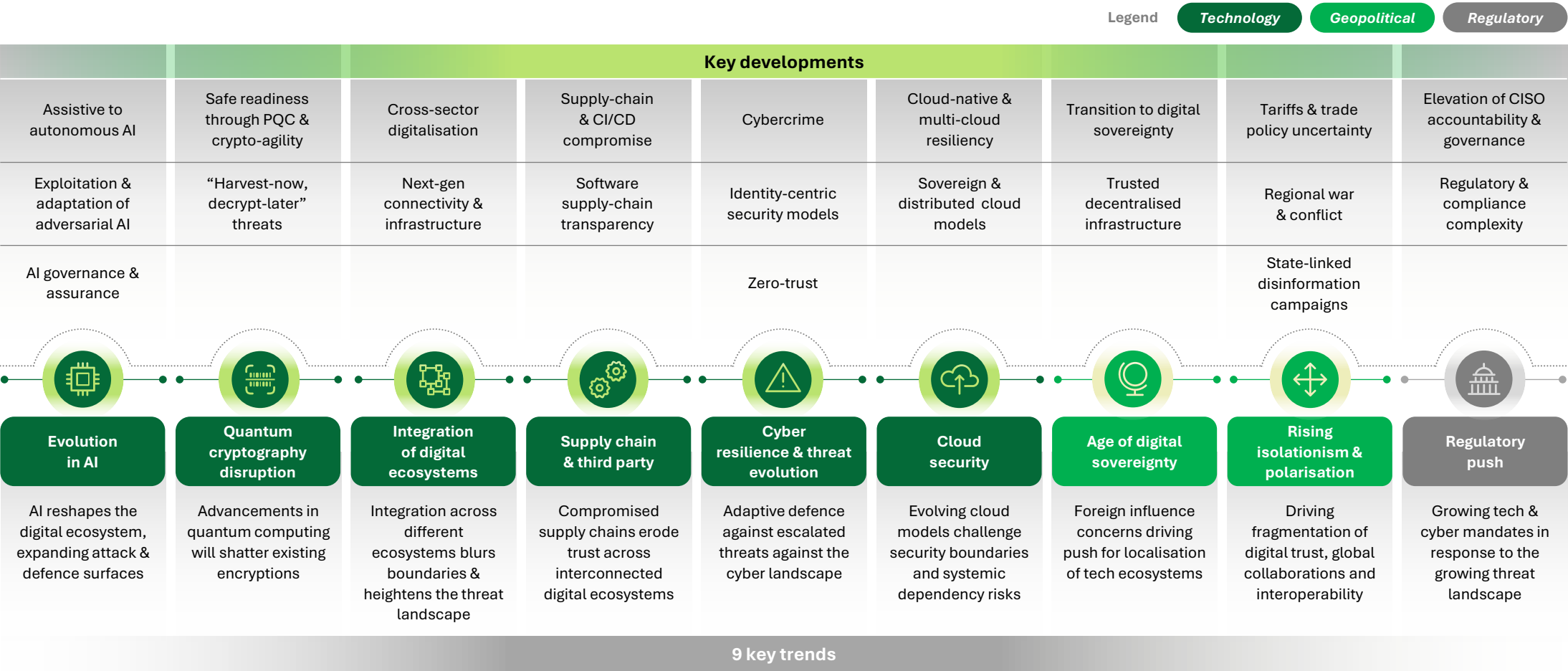
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01

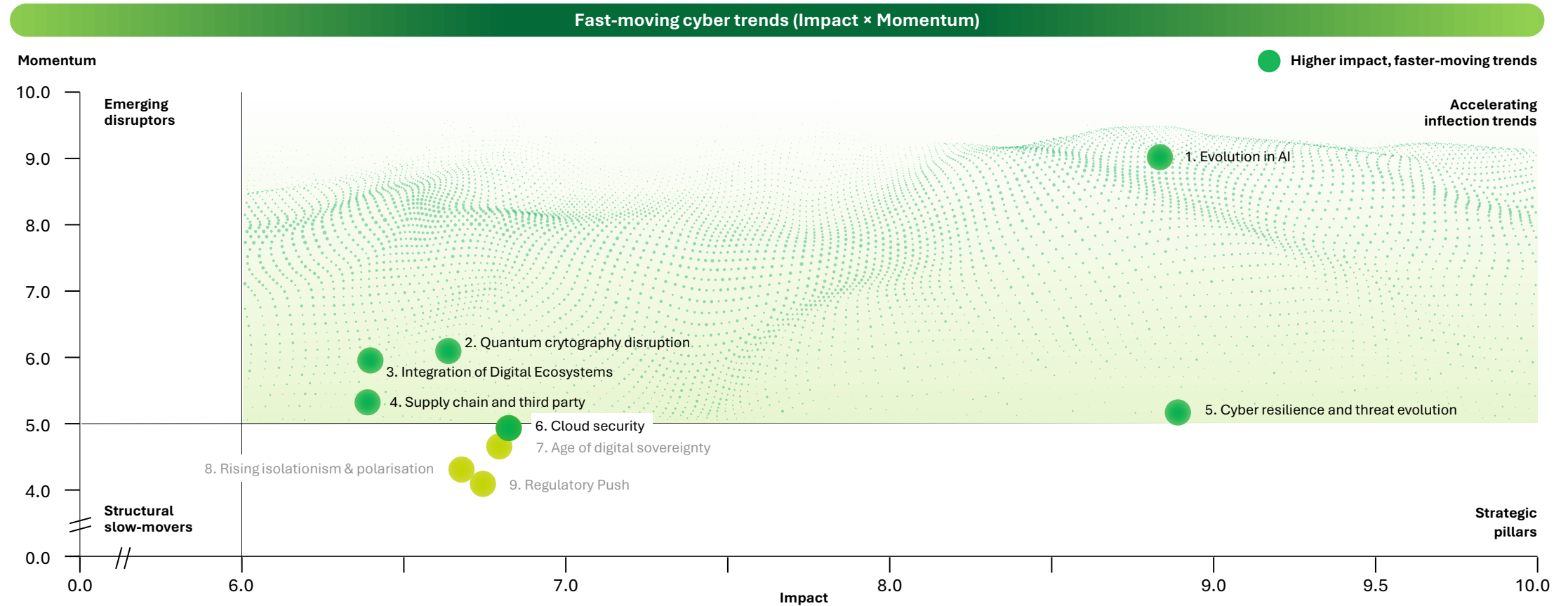
Outlook: Global developments in cybersecurity

Cybersecurity is experiencing global disruption, driven by nine key trends across technology, geopolitics, and regulation



Source(s): Deloitte analysis

Among the nine key trends, six have greater impact and momentum in driving cybersecurity capability needs, led by the Evolution in AI trend



Note(s): Scoring methodology: Each trend's impact was assessed across 10 cybersecurity domains against 6 impact areas (e.g., regulatory requirements, technology ecosystem and threat landscape). Each applicable impact area was scored 1 if impacted (otherwise 0), based on responses to the Deloitte Cybersecurity Industry Landscape Survey 2025. Scores were averaged across domains and converted to a 10-point scale. Momentum was assessed based on responses to the Deloitte Cybersecurity Industry Landscape Survey 2025, with the resulting survey score weighted against a 10-point digital-interest score derived from average Google Trends activity for related keywords from October 2024 to September 2025.

Source(s): Deloitte Cybersecurity Industry Landscape Survey 2025; Google Trends & Glimpse; Deloitte analysis

The background of the slide features abstract, flowing, curved shapes in shades of blue and white, creating a sense of movement and depth. These shapes are layered, with some appearing more prominent than others, giving the overall design a modern and dynamic feel.

02

Growth opportunities: Singapore is well-positioned to generate value amidst disruption

Singapore is at the forefront of these disruptions and is well positioned to generate significant value

Singapore's
right-to-
play is
underpinned
by...

1

Conducive conditions for innovation



2

High cybersecurity spend



3

Robust ecosystem of cybersecurity players



4

Sustained government push in cybersecurity and frontier technologies



Source(s): Deloitte analysis

Singapore's strong innovation activity is illustrated in its cybersecurity related R&D hiring and spending

Top 20 hirers of cybersecurity R&D

1	NCS	6	Accenture	11	Seagate Technology	16	Singtel
2	Ensign InfoSecurity	7	Palo Alto	12	UOB	17	PayPal
3	CrowdStrike	8	Dell	13	ST Engineering	18	Alibaba Cloud
4	M.Tech	9	Microsoft	14	OCBC	19	Cloud4C
5	Google	10	FireEye	15	Visa	20	Aspire Systems

The top companies reflect a mix of **tech MNCs, financial institutions, and national infrastructure providers.**

A notable proportion are **pure-play cybersecurity firms**, underscoring the sector's depth in specialised expertise and focused research.

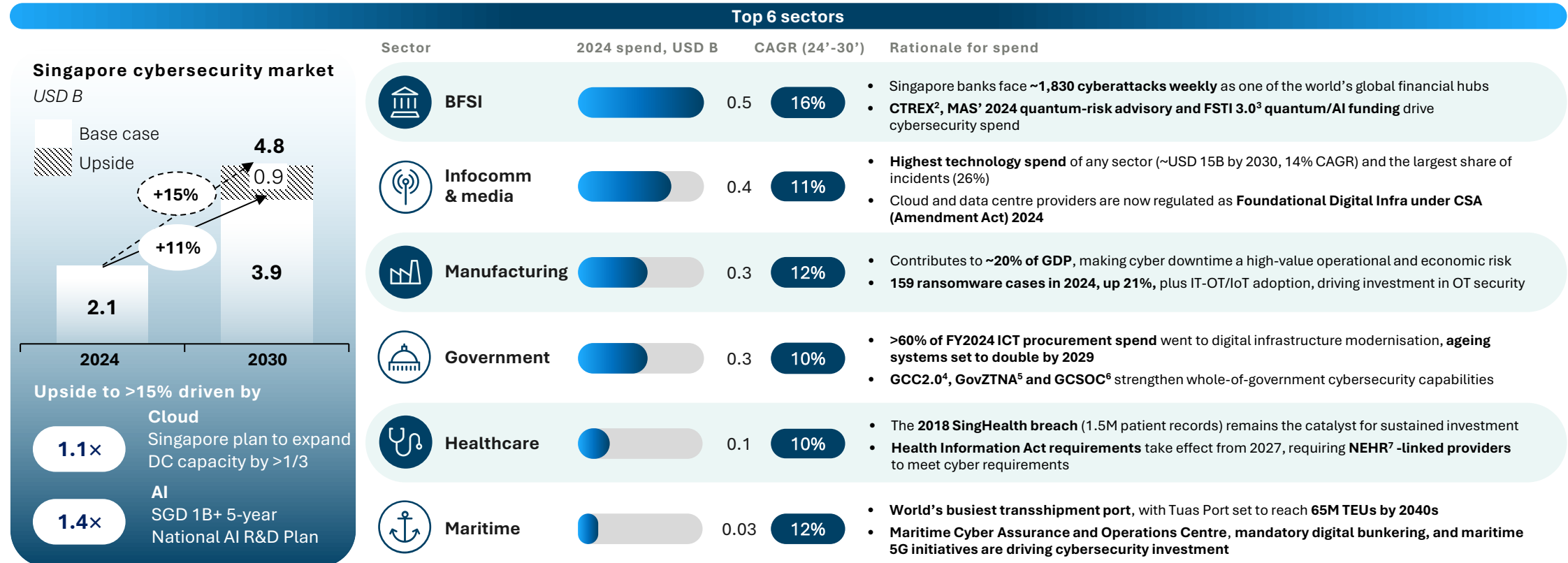
Top 20 spenders of cybersecurity R&D

1	Palo Alto	6	Microsoft	11	Ensign Infosecurity	16	Trend Micro
2	Alibaba Cloud	7	StarHub	12	Salesforce	17	Huawei
3	Fortinet	8	Seagate Technology	13	Check Point	18	Mastercard
4	Visa	9	Grab	14	Google	19	Group-IB
5	ST Engineering	10	Singtel	15	NCS	20	AWS

The top cybersecurity R&D spenders span **cloud platforms, financial institutions, and digital service providers.**

Most of the top cybersecurity R&D spenders operate outside the cybersecurity supplier ecosystem.

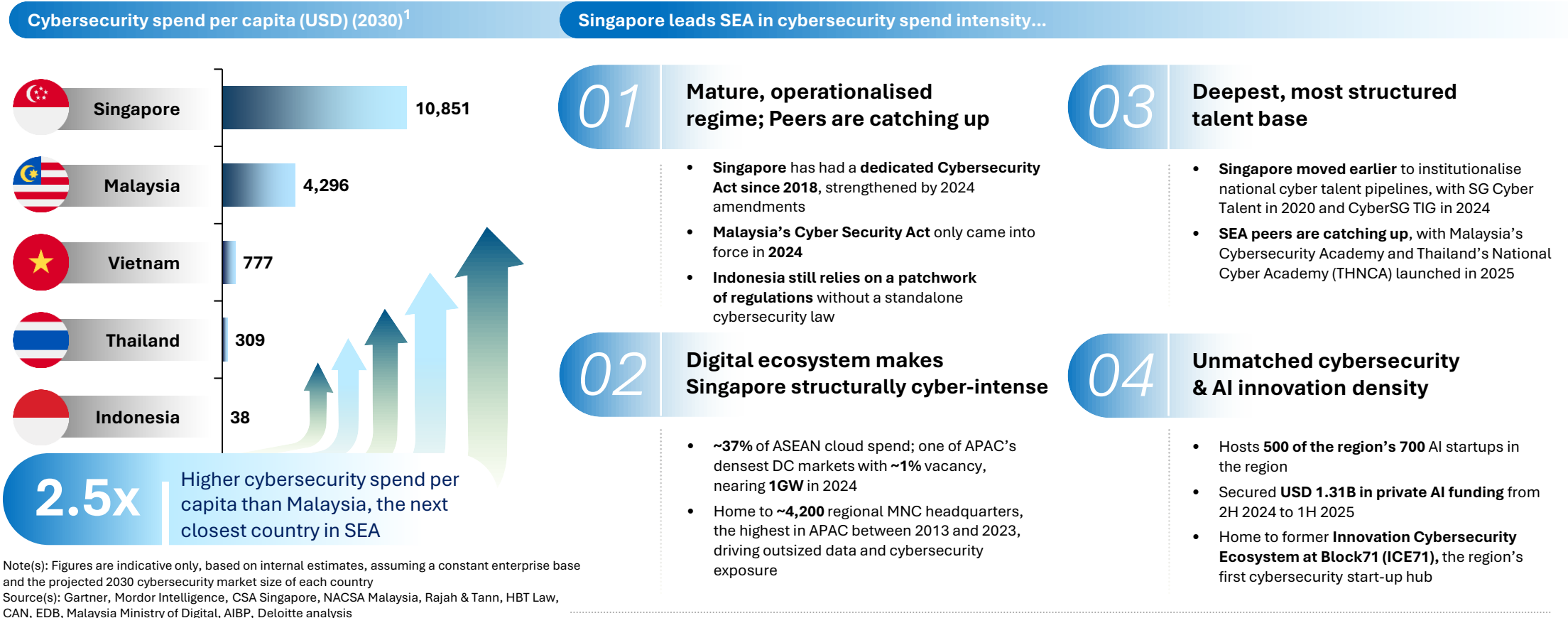
Singapore's cybersecurity spend is projected to grow >11%, driven by cloud and AI adoption across six key sectors facing regulatory, cyber attacks, and digitalisation pressures



Note(s): 1. Determined by taking an aggregated view of both cybersecurity spend and growth, 2. Cyber and Technology Resilience Experts Panel established by MAS in 2024, 3. Financial Sector Technology and Innovation, 4. Government on Commercial Cloud 2.0, 5. Government Zero Trust Architecture, 6. Government Cyber Security Operations Centre, 7. National Electric Health Record

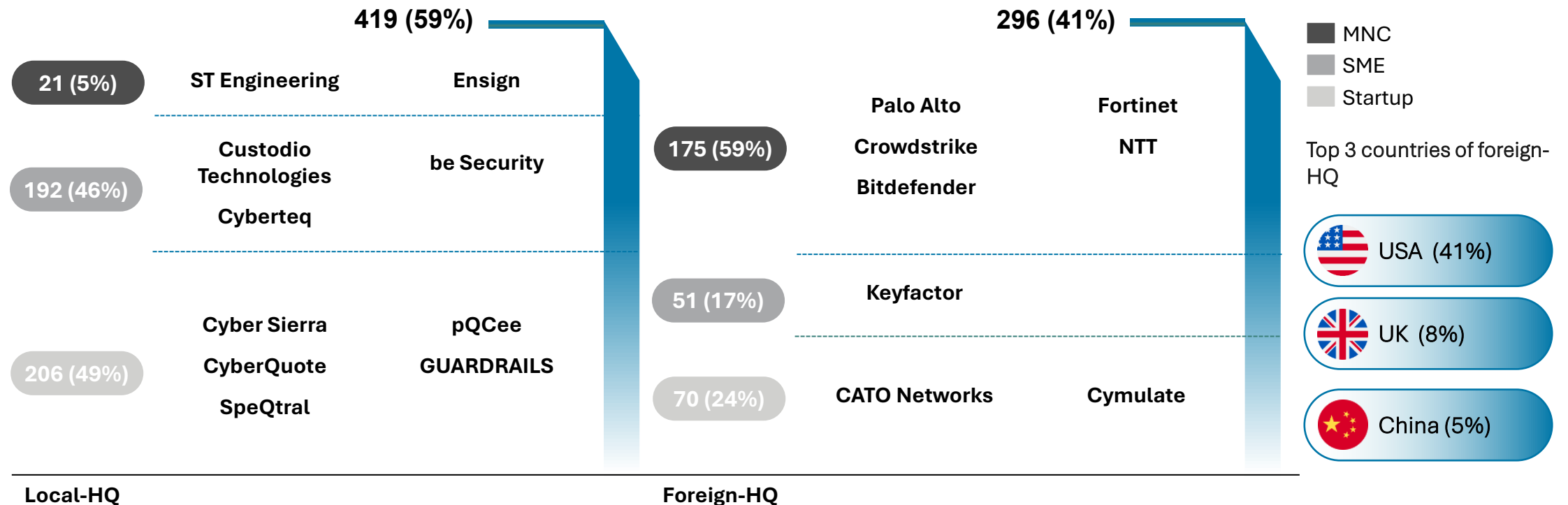
Source(s): Gartner, Mordor Intelligence, Deloitte Cybersecurity Industry Landscape Survey 2025, PSC Singapore, European Repository of Cybersecurity Incidents for Singapore, Check point, Singstat, GovTech, MOH, MPA, Deloitte Analysis

Singapore leads SEA in cybersecurity spend intensity, with enterprises spending >2.5x of the next closest peer, while other neighbouring countries remain early-stage growth markets



Among ~700 cybersecurity companies, Singapore has a rich ecosystem of players, from local-HQ startups & SMEs to foreign-HQ MNCs, supporting a depth of innovation and regional scale

Singapore is both a local supplier base and a regional hub for global players, combining both the depth of innovation from start-ups and SMEs, and the scale and credibility from MNCs



Note(s): 1. Startup is defined as ≤ S\$100 million in revenue or ≤ 200 employees, ≤ 10 years since incorporation, 2. SME is defined as ≤ S\$100 million in revenue or ≤ 200 employees, > 10 years since incorporation, 3. MNC is defined as > S\$100 million in revenue and > 200 employees with operations beyond Singapore

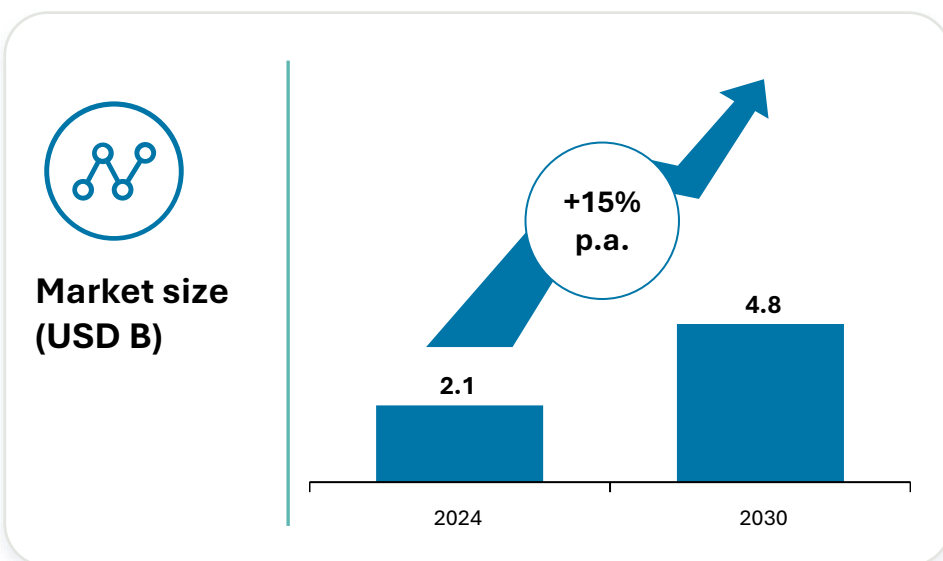
Source(s): TIG Cyber Catalogue, IMDA, CSRO Licensed Service Providers, F6S, Lusha, GovWare, Tracxn, Deloitte Analysis

Sustained government support is catalysing cybersecurity spending and innovation across three fronts

01	Frontier technology investments drive demand for cybersecurity	USD 800M* National AI R&D Plan Investment to strengthen Singapore’s AI R&D capabilities from 2025-2030, driving demand for secure AI infrastructure capabilities.	USD 200M Quantum Investment to boost quantum tech research and talent over 5 years, under National Quantum Strategy.	USD 30B RIE 2030 Investment to strengthen capabilities in AI, data, and compute, increasing the need for security-by-design across frontier technologies.
02	Cybersecurity regulations fuel spending	Cybersecurity Amendment Act (2024) Expands cybersecurity obligations beyond Critical Information Infrastructure (CII) to include Systems of Temporary Cybersecurity Concern (STCCs) and other critical systems.	Digital Infrastructure Act (announced in 2025) Upcoming baseline requirements to strengthen the resilience and security of major cloud service providers and data centres.	Proposed guidelines on AI risk management (2025) Applies to all financial institutions and establishes expectations for AI governance, risk management, and lifecycle controls.
03	Grants, R&D funding, and ecosystem programmes grow local cybersecurity supply ecosystem	USD 792M Startup Singapore Equity scheme Funding allocated in 2026 to support promising deep-tech start-ups and strengthen the broader frontier technology ecosystem on which cybersecurity firms can build, collaborate, and scale.	USD 12M Cybersecurity R&D funding Awarded to 18 projects under CyberSG R&D Programme Office, converting research into deployable solutions and build the local supply ecosystem.	USD 90M CyberSG ecosystem funding Allocated to the CyberSG R&D Programme Office and the CyberSG Talent, Innovation and Growth Collaboration Centre (TIG Centre) to develop talent and promote innovation.

Note(s): 1. Research, Innovation, and Enterprise 2030, 2. Systems of Temporary Cybersecurity Concern
Source(s): Deloitte Analysis, IMDA, CSA, Budget 2026, The Straits Times

Translating Singapore's cybersecurity strengths in demand, innovation, supplier ecosystem, and government support, could grow the industry to USD ~4.8B and create 2,300 new jobs by 2030



New jobs created by 2030

+2,300 new jobs

(USD 108,000 annual wage/worker in 2030)

Based on 9,500 workers and an average annual wage of USD 62,000 per worker in 2024

Sources of value leaks today



Reliance on foreign vendors

Despite high cybersecurity spending, Singapore remains highly reliant on foreign vendors (~50% vs. 20% in mature markets such as UK)



Local IP creation

Despite strong innovation momentum, cybersecurity IP creation remains limited, making up <3% of SG's ICT IP filings



SG Cybersecurity exports

Local supplier exports contribute only 34% of revenue (vs. UK: 55%, China: 60%) suggesting headroom to scale regionally

3 moves to capture the value

Ride the new tech wave

Shift to higher-value emerging tech (e.g. AI security, PQC) to drive margins and productivity via premium services and AI-enabled workflows

Build exportable, IP-driven firms

Scale local IP, start-ups and R&D to capture domestic demand and expand globally to drive export growth

Grow high-wage roles

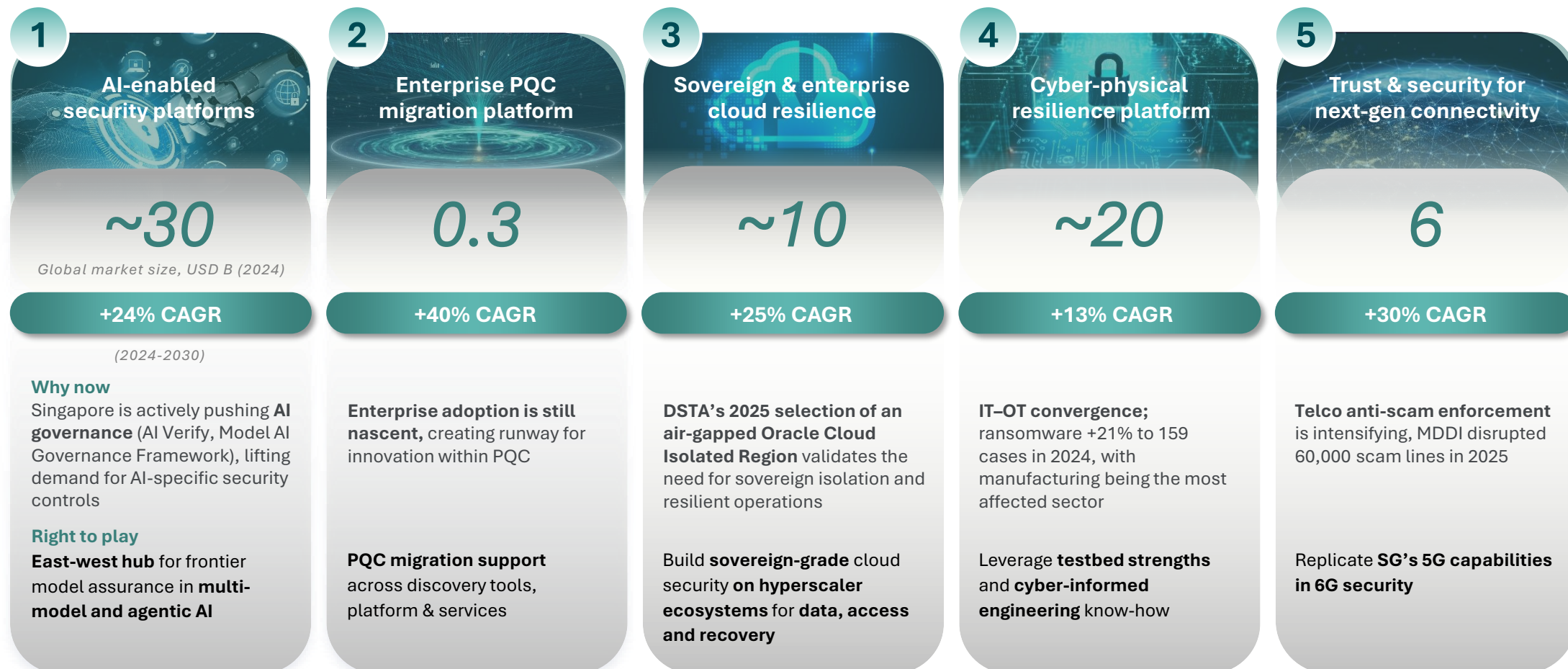
Develop high-skill frontier roles and expand the local talent pipeline to build domestic capability and reduce reliance on imported expertise



03

Strategic shifts: To capture key growth opportunities

5 growth opportunities have emerged as anchor bets for the next phase of Singapore's cybersecurity journey



Source(s): Grand View Research, MarketsandMarkets, Cyber Security Agency, DSTA, MDDI, Deloitte analysis

To capture and generate value from the growth opportunities, Singapore needs to embark on 5 strategic shifts



Build capabilities that leverage and play to Singapore's strengths



Posture strategically to draw foreign investments to support capability building



Motivate businesses to adopt services for nascent capabilities to drive demand for capability build



Export Singapore's strengths regionally, with differentiated approaches for products vs. services focus



Focus on higher-value new cybersecurity jobs to manage redundancies from disruptive tech

Shift #1: Build cybersecurity capabilities that best leverage and play to Singapore's strengths

Growth opportunity	Key capabilities to build ¹	What each enables	Across all
 AI-enabled security platforms	Multi-model security testing & red teaming	Stress-tests AI systems with attacker techniques; validates the full AI workflow	AI-enabled SOC AI-augmented monitoring & detection across all platforms
	Multi-agent runtime defence	Enforces guardrails on what AI agents can access and execute	
 Enterprise PQC migration platform	Automated discovery tools	Discovers cryptographic use beyond network- and certificate-level	AI-enabled VAPT Continuous AI-driven vulnerability assessment & pen-testing
	PQC migration-as-a-service	Inventorises crypto usage and runs enterprise-wide migration	
	PQC migration platform	Deployable SDKs / libraries embedding quantum-safe crypto into existing protocols	
 Sovereign & enterprise cloud resilience	Sovereign crypto-agile key control stack	Hardware vault that stores encryption keys and logs / controls access	AI-enabled compliance Automated, continuous compliance and assurance
	Multi-cloud machine identity defence	Monitors machine accounts; protects API keys, service accounts, and tokens	
	Cleanroom cloud incident recovery	AI-orchestrated real-time recovery that prioritises critical systems	
 Cyber-physical resilience platform	Cyber-physical exposure management	Discovers IT, OT, and IoT assets and maps realistic attack paths	AI-enabled compliance Automated, continuous compliance and assurance
	Sector OT cyber ranges & scenarios	Industry-specific cyber ranges emulating real systems, data flows, and threats	
 Trust & security for next-gen connectivity	5G network API security services	Standardised telecom APIs to verify if a number / SIM was changed	AI-enabled compliance Automated, continuous compliance and assurance
	Intent-driven security for 6G networks	Monitors core network functions, identity (SIM / eSIM), edge and devices	

Note(s): 1. Non-exhaustive

Source(s): NIST, CSA, GSMA, Deloitte analysis

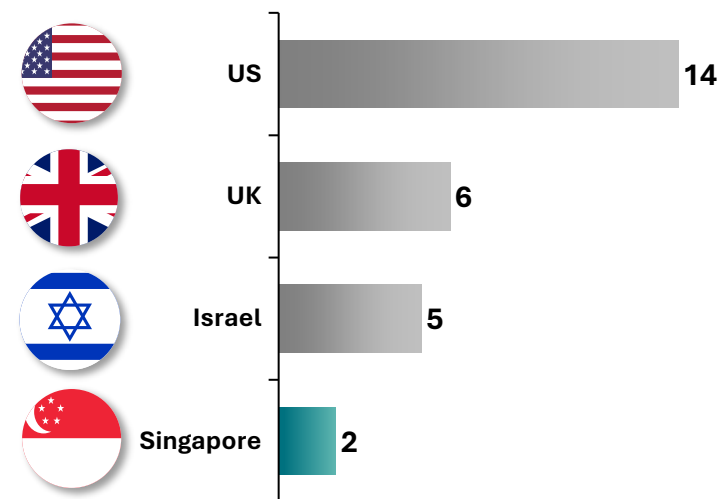
Shift #2: Position strategically to attract foreign investments to help build capabilities

Singapore has limited cybersecurity-focused VCs

02 of 15

Global top cybersecurity-focused VCs active in Singapore, with the rest mainly operating in the US, UK and Israel

Cybersecurity VC count by country



Room to attract global capital, drawing on 2 proven models



Government-backed global innovation prize competition

Multi-year AI cybersecurity competition (AlxCC)

USD 30M

Global prize pool

- Global draw for frontier-AI labs, Anthropic, Google, Microsoft & OpenAI supplied models and credits
- Attract top teams worldwide onto a global stage (DEFCON)
- Winning systems open-sourced for commercialisation

Learnings for Singapore

Host a flagship cybersecurity challenge, build global visibility and pull in frontier-AI labs and talent



Government x Platform co-investment fund

CrowdStrike

Accel

USD 100M

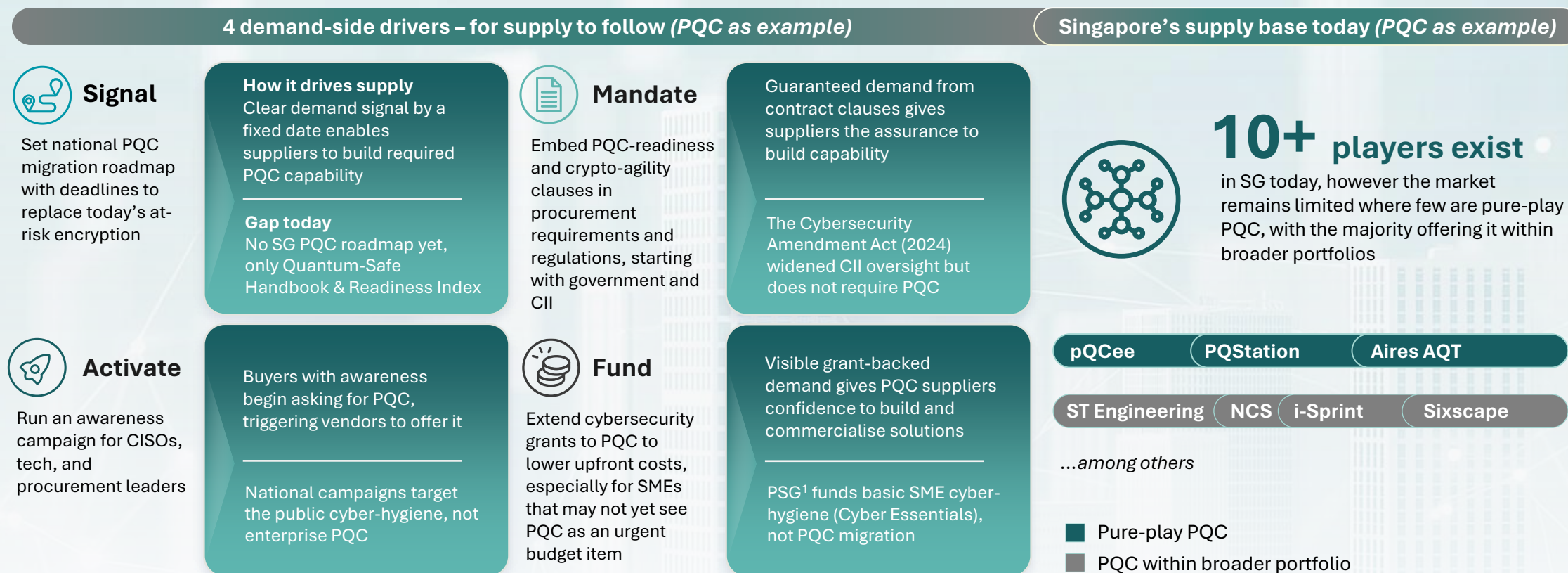
Strategic fund (Falcon Fund II)

- Co-invests in cybersecurity startups; grow fund from USD 20M (Fund I) to USD 100M (Fund II)
- Portfolio firms gain API integration, CrowdStrike Marketplace access & go-to-market

Learnings for Singapore

Government partners a hyperscaler / platform to anchor a co-investment fund here, drawing in capital, platform access, and follow-on investors

Shift #3: For nascent capabilities, Singapore can drive enterprise adoption, enabling suppliers to build capability; PQC is a case in point where limited demand constraints supply



Notes(s): 1. Productivity Solutions Grant (PSG)

Source(s): IMDA, MAS, CSA, GovTech, CSA, Company websites of PQC suppliers in SG, Deloitte analysis

Shift #4: Singapore should focus not only on domestic capability building, but also on regional scale-up and exporting its differentiated strengths

What Singapore can potentially export regionally



Cloud security

Convert **GCC¹** from a domestic cloud reference into an **export platform**, showcasing SG cloud security solutions and linking local startups to international demand



Proven abroad: Estonia exports its digital-government know-how via e-Estonia Briefing Centre, the same can be done for cloud security



OT security

Turn **Singapore's OT strengths** - 5 iTrust / SUTD testbeds, OT roadmap, training and OT-ISAC², into **G2G2B regional testbeds** that help companies validate, reference and win OT projects abroad



EU FEDeRATED (2019–2024) demonstrates a scalable multi-country living-lab model, with 15 partners, 22 labs across Europe, ~200 stakeholders (not OT security specific)



Note(s): 1. Government on Commercial Cloud, 2. OT Cybersecurity Information Sharing and Analysis Centre (OT-ISAC)
Source(s): EU-FEDeRATED, e-Estonia Briefing Centre, Business Wire, Bitdefender, Deloitte analysis

Export strategy should differ by company model



Services-led

- Leverage SG's **strong base of cybersecurity managed and professional services providers** to export services (e.g., PQC migration)
- **Scale through regional delivery teams and partner networks** to localise implementation

For example...

Ensign

SG-based cybersecurity services firm with ~1,000 employees, offices across multiple APAC countries, and ranked 1st in Asia in MSSP Alert's Top 250 MSSP 2024



Products-led

- **Compete in specialised product niches** (e.g., AI security)
- **Scale through integration and channels**, by plugging into major cloud / security platforms, and connecting with global distributors, investors and enterprise buyers

For example...

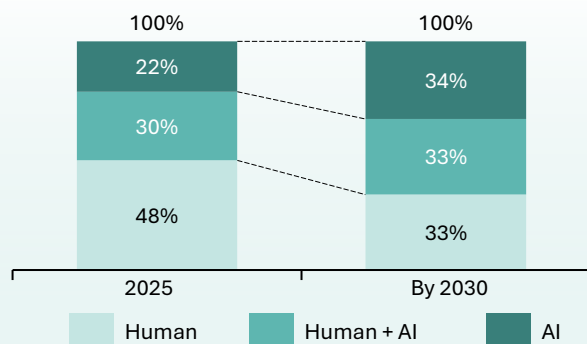
Horangi Cybersecurity

SG-based cloud-security startup acquired by Bitdefender, with its cloud security capabilities added into Bitdefender's GravityZone portfolio to reach a larger global customer base



Shift #5: Pivot focus towards higher-value new cybersecurity jobs aligned with the growth opportunities to manage the impact of redundancies from disruptive technologies

AI is reshaping how cyber work gets done...



Human-only work falls ~15 pts (48% → 33%) as AI augments routine tasks

...Shifting the role mix from automatable to higher-value

At risk — automatable

- Security operations analyst
- Associate security analyst

Emerging — higher-value roles

- OT cybersecurity engineer
- AI cybersecurity specialist
- Quantum-ready cryptography advisor
- AI behaviour auditor
- Cybersecurity data scientist

To capture the shift to higher-value work, focus on 3 levers



Hire for technical readiness

Weigh projects, labs, certs, and portfolios; AI does not replace complex technical judgement



Hire interdisciplinary talent

Value cross-discipline capabilities and transferable soft skills



Reward skills, not tenure

Variable pay tied to proven skills and a shift from tenure-based to skills-based pay

Conclusion



All in all, amidst the disruptive developments in global cybersecurity, Singapore has a strong role to play as a **cybersecurity innovation hub for APAC**.



Strong cybersecurity innovation **elevates Singapore's trust factor** and brings **purpose to Singapore's bold investments in frontier technologies**.



Cybersecurity is a space where **sharpness of capabilities is of greater importance than scale**. Singapore being a **small yet highly innovative** nation, is well positioned to **build those sharp and forward-looking capabilities** for its own demand, for ASEAN's demand and also for global demand.



The **future of cybersecurity** will be **shaped not by the largest players**, but by those who are **agile and innovative** enough to see around the corner and **steer frontier technologies** to make our digital world safe and trusted.

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