Technology:

The Driving Force Behind Singapore's Financial Services Sector

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From Karl Marx to Joseph Schumpeter, economists have long stressed the positive impact technology has on a nation's economic progress – and Singapore is a testament to this belief. This bustling metropolis has earned a reputation as one of Asia's four economic tigers having experienced impressive growth in recent years. Underpinning this meteoric rise to becoming one of the wealthiest nations in the world – the city-state only achieved self-governance in 1959 – is its ability to embrace and leverage technology in a business environment.

Singapore's flourishing tech sector has been born out of a range of converging factors, most of which have been engineered by its government: low business taxes, sophisticated IT infrastructure, accommodative investment opportunities, a pro-business ecosystem geared toward fostering innovation, a robust regulatory regime, and a prime location at the crossroads of Asia's biggest markets.

The nation's reputation as a global tech powerhouse was recently recognised by Bloomberg, which ranked Singapore 2nd in its annual Innovation Index – moving up one place from the previous year. The index highlights Singapore's willingness to allocate budget funds to help workers and companies transition to a digital economy.

Talking of reputations, Singapore has another it's extremely proud of that relies heavily on a willingness to tap into the region's technological prowess: as an International Finance Centre – the third largest in Asia, after Japan and Hong Kong.

Technology in the Financial Services Sector

Home to one of the most progressive banking systems in the world, Singapore attracts financial institutions from across the world who establish global or regional headquarters within its business-friendly environment. Consequently, the latest Global Financial Centre Index ranks Singapore as the 6th most competitive financial centre in the world.

None of this would be possible, however, without the sector's willingness to embrace digital transformation – which is broadly defined by the Monetary Authority of Singapore (MAS) as:

The technology landscape within the financial sector has evolved at a rapid pace during the digital age and the underlying IT infrastructure supporting the services it provides has expanded in scope and complexity. Therefore, many financial institutions are embracing digitalisation to enhance operational efficiency and offer better services to consumers – a trend that has been hastened by the Covid-19 pandemic, forcing regulated financial firms to increase their reliance on digital technologies to deal with enforced remote working, improve operational efficiency and deliver better and more convenient customer services.

> **"The adoption of new technology and the use of existing technology in innovative ways to achieve greater automation and enrich financial service offerings."**

The Rise of Fintech in Singapore

Singapore is perhaps best known for its fintech scene. This rapidly growing industry – which leverages technology to enhance or automate financial services and processes – has gained traction there, with the city-state staking its claim for 'fintech capital' status. Several recent reports and rankings support this, including the Global Financial Centre's fintech survey which ranks Singapore as the 7th most competitive fintech centre in the world – scoring "consistently high across all categories."

Singapore's thriving fintech ecosystem has been born out of several factors:

- **Support for emerging industries:** the reason many of the world's most innovative companies are looking to Singapore can be attributed to the country's enduring record of support for emerging industries from the government. For example, in 2019 MAS set aside S$225 million (US$165 million) to develop the sector over the following five years; and in December 2020, MAS announced the award of four digital banking licenses, allowing non-bank players to enter the heavily regulated financial services space – co-existing alongside traditional banks without being restricted by the need to operate physical premises.

- **Commitment to international partnerships:** the region's commitment to fostering close ties with international partners and encouraging foreign businesses to Singapore has caught the attention of fintech companies – both those with international ambitions and those that offer services to highly internationalised firms. For example, in 2019 Singapore signed an agreement with the Bank of International Settlements to establish a banking innovation hub there. Despite the diminutive size of the domestic market, Singapore's successful international collaboration has helped it grow to a size comparable to many larger contemporaries.

- **Embracing foreign direct investment:** according to UNCTAD's World Investment Report 2020, inflows of foreign direct investment to Singapore surged to US$92 billion in 2019, from US$79 billion the previous year – making it the 5th largest recipient of foreign direct investment in the world. Much of this rise can be attributed to fintech. For example, digital tech companies snaffled around 93% of the S$13.4 billion of venture investments in Singapore in the first nine months of 2019. This trend is visible in the growing number of regional headquarters established by international technology firms in Singapore.

- **Robust regulation:** Singapore's determination to remain at the forefront of regulation and best practice has set it apart from its peers. For example, its 2018 Cybersecurity Bill established a robust framework for oversight and maintenance of security and data protection processes – which has since been revised to bring it up to date in the wake of the Covid-19 pandemic. This sets out a licensing framework that's designed specifically to encourage providers in a 'vibrant cybersecurity ecosystem', which is essential for any fintech community.

How Are Financial Services Firms Using Technology?

Let's look at some of the ways the Singapore Financial Services sector is using technology to streamline processes and add automation. We'll explore how specialist GRC tools add structure to help firms operate efficiently and keep pace with the highly volatile regulatory environment they operate in.

Regulatory Horizon Scanning & Change Management

Mature financial services organisations ease the burden of regulatory change management by using tools that offer automated regulatory horizon scanning and regulatory change management workflows.

These specialist tools link to third-party regulatory content providers and send notifications when an applicable regulation changes. The tools enable banks to link regulations to internal policies and procedures and assign dedicated owners. When a regulatory change happens, the owner is notified and can easily understand which procedures need to be amended to align with the new guidelines. The process doesn't stop there, the tools also provide a framework for a structured change management workflow involving relevant stakeholders and a stringent sign off and approval process. Everything is time stamped and the system provides a complete audit trail for regulators and helps business leaders to understand the status of the change implementation.

Identifying Opportunities (as well as risks)

Risk management tools have been around for many years and are widely used in financial institutions. Most banks and financial services providers have a risk management programme which includes performing regular risk assessments, building a comprehensive risk register, and setting KPI's & risk tolerances. But FinServ giants in Singapore have taken this even further by using risk management tools to look at opportunities as well as risks. Risk management tools are essentially there to look at scenarios and predict what might happen - whether it be good or bad - a risk or an opportunity. Of course, organisations should be looking at serious risks and setting mitigating actions for those that exceed their risk tolerance, but they should also look to exploit the good outcomes that might happen by maximising opportunities in the same way they mitigate risk. Mature organisations use data analytics tools and reports within GRC software to log opportunities and investigate their positive impact on the business to gain budget and buy in from business leaders.

Making Risk Informed Strategic Decisions

Leading financial services firms understand the importance of strategy management. Many of them are already using strategic planning tools to break down their strategy into actionable tasks with key deliverables & metrics. Businesses must look to align their strategic plans with their goals and objectives whilst considering their impact on the daily running of the business. They do this by using tools with API's that link to other systems to pull in operational data that affects their strategy. We've seen banks in Singapore take this even further by linking their strategy planning to their risk and compliance obligations. Strategic risks are added to the risk register. Risks are linked to strategic tasks and projects along with key dependencies and associated compliance obligations.

Compliance Management & Policy Management

In addition to regulatory compliance, financial firms have a whole host of internal policies, procedures, operating guidelines, and certifications & standards they must adhere to. This brings policy management into sharp focus. Singapore firms use specialist policy management tools to house a centralised obligations library. These tools ensure everyone always has access to the latest copy and provides a time stamped history of all revisions and changes. It enables firms to implement a structured policy approval process with automated workflows – to assure accountability. Employee attestations can be set up to show that employees have read and understood the policy. All of this provides proof of compliance to regulators in the form of real-time dashboards and reports.

Cyber Risk

Cyber risk is high on the agenda for most financial services firms as they grapple with new and emerging threats. Due to the sensitive information banks hold and the high risk of theft and money laundering, Singapore banking firms are leading the way with technology to manage cyber security. Firms have found that integrating cyber risk into their overall enterprise risk framework provides visibility of cyber risk across the entire organisation and helps them understand the wider impact on other business functions. Software offers best-practice frameworks to easily manage complex compliance requirements like ISO 27001, NIST HIPAA, PCI DSS, SOC 2 and GDPR. The tooling facilitates them to implement mitigating actions, set controls, and manage incidents through to completion.

With Opportunity Comes Challenges

While digital transformation brings significant benefits to financial institutions – and the wider ecosystem – it also increases exposure to a range of technology-related risks, including cyber-attacks, money laundering and terrorism financing – a scenario that is heightened against the backdrop of a global pandemic. Consequently, the regulatory landscape is changing as the need for robust risk management frameworks that strengthen the financial services sector ecosystem in Singapore becomes increasingly apparent. Central to this is MAS – the central bank and financial regulatory authority of Singapore – which is demanding that boards set the tone by taking considerably more responsibility for managing technology risk.

Singapore: Regulating Technology in One of the Most Innovative Financial Centres in the World

The ancient Greek philosopher Heraclitus once said: "Change is the only constant in life." So, if change is inevitable, why fight it? Proactive businesses can lay the foundations for future success by embracing worthwhile change. Singapore's financial services sector has done just that by harnessing the power of technology to transform it into a global force. But what about unwanted change?

Change does not only present opportunities; challenges also arise that threaten to derail any progress being made – especially when unwanted change is thrust upon us. The rapid pace of digital transformation in Singapore's financial sector has seen the associated risks accelerate beyond the provisions of current regulatory guidelines – a worrying shift that has gathered momentum during the Covid-19 global pandemic.

While unwanted change can completely blindside an organisation, even worthwhile change represents a step into the unknown for them. Therefore, they must be supported by – and willing to espouse – robust regulations from relevant bodies that enable them to both embrace opportunities and overcome challenges.

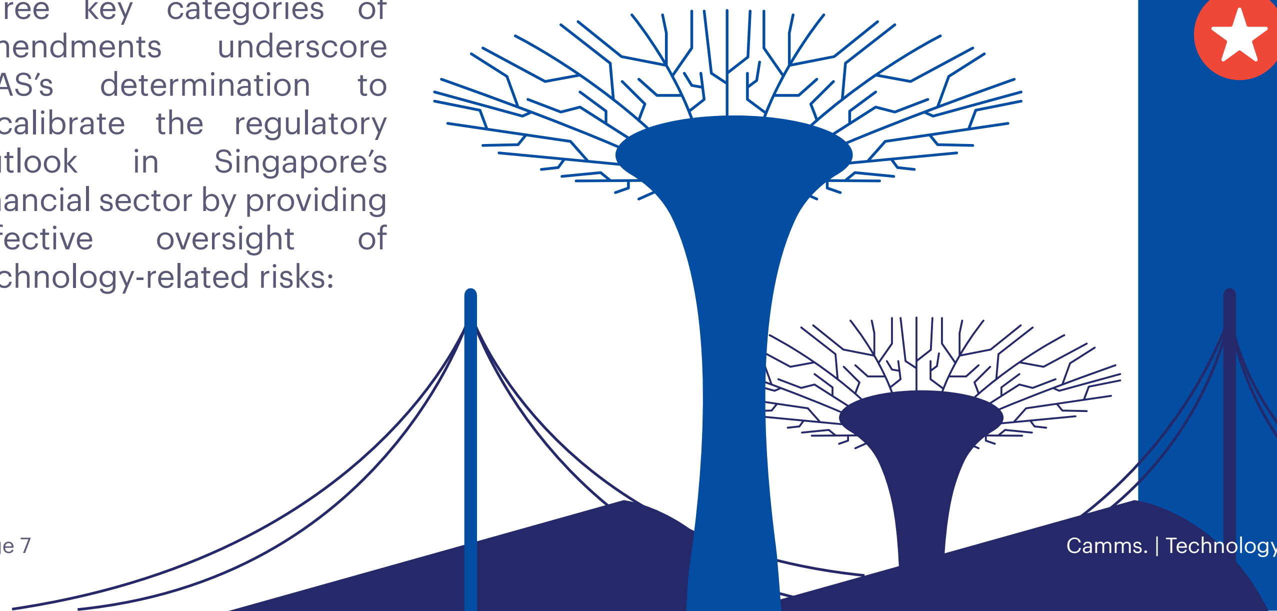
Singapore's emergence as one of the most competitive financial centres in the world has been underpinned by MAS. However, the city-state's financial regulatory authority has had to rethink its approach to risk management in the face of headwinds.

MAS Technology
Risk Management Guidelines

The blow dealt by the global pandemic was so severe that it has already reshaped the financial regulatory landscape in Singapore. While digital transformation has brought significant benefits to the financial ecosystem – such as improved operational efficiency and better and more convenient customer services – and helped transform Singapore into one of the most tech-enabled financial centres in the world, it has also increased institutions exposure to a range of technology risks. This potentially crippling development has been exacerbated by the increased reliance on digital technologies to deal with the pandemic.

To keep pace with emerging technologies and shifts in the current threat landscape, MAS issued their new Technology Risk Management Guidelines on 18 January 2021 – a heavily updated and refreshed version of the previous 2013 guidelines. These amended guidelines apply to all financial institutions and provide the bedrock for refortifying Singapore's financial ecosystem, so it has the strength to flourish during the post-pandemic economic recovery.

Three key categories of amendments underscore MAS's determination to recalibrate the regulatory outlook in Singapore's financial sector by providing effective oversight of technology-related risks:



- **Additional guidance on the roles and responsibilities of the board of directors and senior management:** the aim of the provisions under this amendment – such as the appointment of a CIO or CISO to be accountable for managing technology and cyber risks – is for the board and senior management to comprise members who can competently oversee their organisation's technology strategy, operations, and risks.

- **More stringent assessments of third-party vendors and entities that access financial institutions IT systems:** this amendment has been divided into two parts: assessment of tech vendors – such as software development, quality assurance and security practices – and assessment of third parties' suitability in connecting to APIs and governing third-party's API access.

- **The introduction of monitoring, testing, reporting, and sharing of cyber threats within the financial ecosystem:** this represents the most extensive amendment under the revised guidelines and can be divided into four parts under the wider banner of cyber resilience and awareness: cyber threat monitoring and information sharing, cyber incident response and management, cyber security assessments, and simulation of cyber-attacks tactics, techniques and procedures.

Staggeringly, the total number of reported cybercrime cases accounted for nearly half (43%) of total crimes in Singapore last year amid the Covid-19 pandemic – with ransomware (154%) and botnet attacks (94%) experiencing significant spikes. The Singapore Computer Emergency Response Team handled 9,080 cases in 2020, up from 8,491 in 2019 and 4,977 in 2018, according to data compiled by the [Cyber Security Agency of Singapore.]

This wave of cyber-attacks across Singapore's financial ecosystem exposed the shortcomings of the MAS Technology Risk Management Guidelines. The new, improved guidelines highlight the importance of maintaining cyber resilience – the ability to anticipate, withstand, contain, and rapidly recover from a cyber incident. To achieve this the board of directors and senior management are expected to maintain trust and confidence in their services by continuously strengthening their cyber resilience.

The guidelines also bang the drum for proactive cyber awareness processes as part of a financial institution's technology risk management strategy. They recommend that this should be achieved using cyber intelligence, cyber security operations and cyber security assessments.

Revisions to the Guidelines on Corporate Governance

Prior to the implementation of the updated Technology Risk Management Guidelines in January 2021, they went through a consultation phase that allowed relevant stakeholders to respond to – and enhance – the draft guidelines. Similarly, another set of guidelines issued by MAS that aim to improve regulatory compliance within the financial services sector is going through the same process: The Guidelines on Corporate Governance for Designated Financial Holding Companies, Banks, Direct Insurers, Reinsurers and Captive Insurers which are incorporated in Singapore – this provides guidance on good practices that financial institutions should observe in relation to their corporate governance.

The consultation paper – released in May 2021 – sets out MAS's plans to update the guidelines to incorporate the 2018 Code of Corporate Governance. The current guidelines – which was last revised in 2013 – contains the 2012 version of the code. In August 2018, this was revised to reinforce board competencies and place greater emphasis on disclosures of the relationship between remuneration and value creation. There was also more focus on the consideration of the interests of stakeholder groups other than shareholders.

In addition to this Code of Corporate Governance compliance approach, the consultation paper sets out several other key proposals that could strengthen the regulatory framework for managing technology within Singapore's financial services sector, including:

Benchmarking to international standards and good practices: this covers three areas: role and responsibilities of the board of directors, remuneration practices, and unresolved concerns of independent directors.

Appointment of non-directors to the Board Risk Committee (BRC): financial institutions are expected – as part of their responsibility to oversee the establishment and operation of an independent risk management system – to appoint directors with skills and expertise relevant to their business strategy and objectives. However, a limited pool of suitably qualified candidates with skills in specialised risk areas such as technology has raised concerns. Therefore, MAS has proposed that an expert, who is not a director, can be appointed as a member of the BRC.

Singapore's government leaders have been outspoken digital champions who recognise technology's invaluable contribution to their thriving financial sector. They remain committed to technology within this sphere, as evidenced by their proactive efforts around regulatory compliance. It's this dynamic approach that has enabled the sector's regulatory body, MAS, to adapt in the face of escalating tech-related risks. This is reflected in their commitment to establishing and maintaining a strong regulatory framework – one that recognises that change is inevitable and can pivot accordingly. To comply with, and benefit from, these robust regulations, financial institutions must understand their current requirements and horizon scan future changes to the regulatory landscape.

Technology and Financial Services in Singapore: What Does the Future Hold?

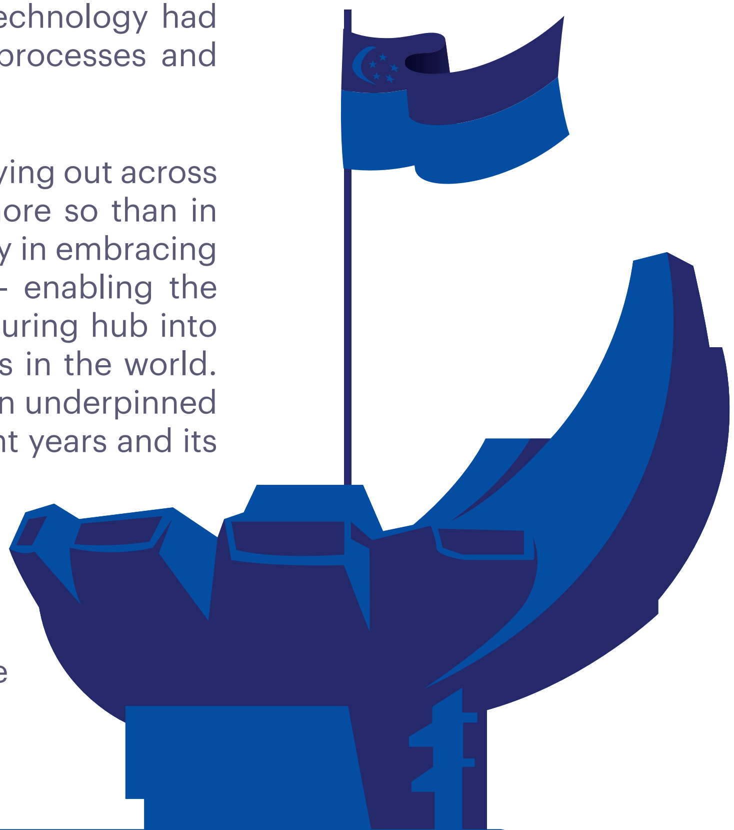
As early as 1994, Microsoft co-founder Bill Gates had the foresight to say: "Banking is necessary, but banks are not". Anyone who thought at the time that this was merely a provocative, throwaway statement was in for a surprise – eventually. The birth of the portmanteau 'Fintech' was still over a decade away, and its evolution into an industry disruptor even further in the distance. Mr Gates didn't have a crystal ball, he just recognised that digital technology had the potential to disrupt traditional banking processes and procedures.

Fast-forward 27 years and his prediction is playing out across the financial services landscape. Nowhere more so than in Singapore, whose government has led the way in embracing innovative change quickly and with agility – enabling the city-state to transform itself from a manufacturing hub into one of the most competitive financial centres in the world. This ability to punch above its weight has been underpinned by the exponential growth of FinTech in recent years and its adoption by traditional financial institutions as they have sought means to innovate and transform. Crucially, it has also been supported by the robust – and dynamic – controls the Monetary Authority of Singapore (MAS) has implemented to regulate technology in the financial space.

So, what does the future hold for the evolution, management, and regulation of technology in Singapore's financial services sector?

Post-Pandemic World

Singapore's financial sector has displayed resilience amid the Covid crisis, leaving it well-placed to emerge into the post-pandemic world full of vigour. Take FinTech funding for example, which rebounded in Singapore in Q2 2020, compared to China and India where it fell sharply during the same period – demonstrating that investors still recognise the opportunities that exist there.



Perhaps most significantly, the pandemic has accelerated the pace of digital adoption by businesses to deal with enforced remote working, improve operational efficiency and deliver better and more convenient customer services – and the FinTech ecosystem in Singapore has benefitted from this trend. In some sub-sectors of the financial services sector there – such as those involved in the facilitation of payments and wealth management – this has had a positive impact on business performance. Further evidence that the sector will be well-placed to navigate the post-pandemic landscape, with technology a driving force behind its future success.

Building on Solid Fintech in Singapore

The growth trajectory of FinTech in Singapore has been impressively steep in recent years, with a range of accommodative factors paving the way to success: significant investment from the government and overseas, commitment to international partnerships, regional access to customers and partners, business and tech talent pool, and progressive regulatory support.

To maintain this rapid progress and ensure Singapore remains one of the most competitive FinTech centres in the world, all key stakeholders must build on these solid foundations:

To support growth as the FinTech sector matures, Singapore must continue attracting global investors to the region – from angel investors, venture capitalists, and private equity funds to government-linked capital providers.

Existing initiatives that encourage innovation by providing public sector financing to early-stage start-ups – including SG Start-up, FSTI, and FSTI 2.0 – must be reviewed and expanded upon when necessary. For example, during the pandemic, Singapore has provided solidarity grants to help FinTech start-ups survive this turbulent period – a strong message from the government that it considers innovation a priority and is willing to invest in it.

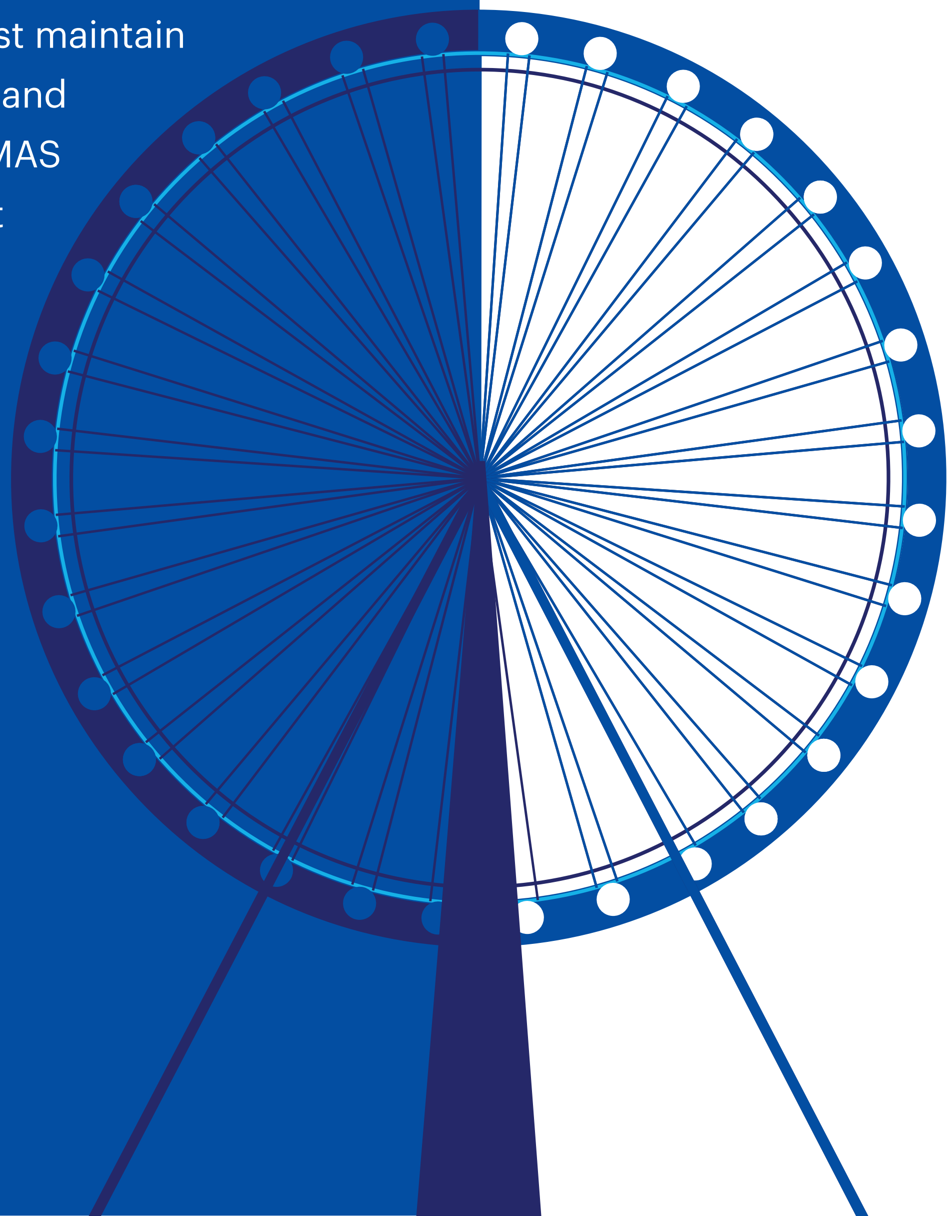
Levelling the playing field by facilitating FinTechs' access to the financial services infrastructure. For example, in February 2021 MAS implemented policy that allows non-bank financial institutions that are licenced as major payment institutions to directly access real-time fund transfer services FAST and PayNow – a vital provision amid a pandemic that has reshaped the payments landscape.

Extending FinTech bridges to the Association of Southeast Asian Nations (ASEAN) and developing cross-regional alliances would enable Singapore to leverage the ASEAN economic corridor and trigger further growth.

While Singapore has implemented several worthwhile initiatives in recent years to develop talent, more could be done to set its talent pool apart from the rest of Southeast Asia. This might include the government encouraging local talent to go on overseas secondments to gain valuable experience in other FinTech environments.

As financial institutions begin to explore new digital business models, future partnerships between these institutions and FinTech's will provide opportunities to scale in scope and impact. Effective collaborations have the power to extend the reach of financial services to the underbanked, creating greater financial inclusion. For example, a survey of more than 60 FinTechs by the Singapore FinTech Association showed that 63% would like to partner with financial institutions for reasons such as improving customer access and gaining access to financial services infrastructure.

An established and transparent legal and regulatory framework has been a cornerstone of Singapore's rise to becoming one of the most attractive locations for FinTechs in the world – and can be a driving force for future success as the pace of digital adoption continues to accelerate. To perpetuate worthwhile innovation, the government must maintain its progressive attitude towards regulatory compliance and ensure regulations remain current – most notably, the MAS Technology Risk Management Guidelines. Get this right and the sector's increased exposure to technology-related risks – including cyber-attacks, money laundering and terrorism financing – will be mitigated. Consequently, Singapore's FinTech space will have a solid platform fromwhich it can grow investment, build cross-regional alliances, improve talent, open up the financial services infrastructure, and promote effective collaboration with financial institutions.



The Role of an Integrated Risk Management System

There's a conveyor belt of superlatives to describe Singapore's ability to leverage digital technology in the financial services sector – from earning a reputation as a global tech powerhouse to being considered one of the most competitive FinTech centres in the world. And while it's clear to see that such high praise would be impossible without the robust regulatory framework that MAS has established in the sector – a vital requirement amid businesses heightened exposure to a range of technology-related risks – there is another crucial layer in the process that must not be overlooked: compliance. You can have the most considered and perfectly crafted regulations in place, but if businesses within the sector fail to comply with them the whole process falls over.

Business solutions are vital tools for achieving regulatory compliance. The challenge is integrating software that can help you stay one step ahead of the constantly changing regulatory environment and compliance frameworks. With integrated solutions in risk, strategy, projects and people, Camms business software helps organisations make the right decisions, manage risks and align their talents.

Camms.Risk – a cloud-based SaaS solution – enables organisations to drive risk, incident and compliance management across all IT systems and processes using a comprehensive set of modules:

Risk, treatment and control management

Embeds risk management into the business's culture, so it can identify, track and manage risks effectively.

Audit management via Camms.Risk Audit Management

Schedules and manages internal and external audits and utilises the results.

Incident management via Camms.Risk Incident Management

Facilitates incident and near misses reporting in real-time, and the investigation process post-event.

Compliance management via Camms.Risk Compliance Management

Identifies areas of non-compliance to drive business action and address legislative changes.

Stakeholder dashboarding via Camms.Engage

Intuitive functionality provides executives and the board with key information when they need it.

Analytics and ad hoc reporting via Camms.Insights

Built-in dashboards and standard reports provide critical insights and executive reporting.

Camms.Connect

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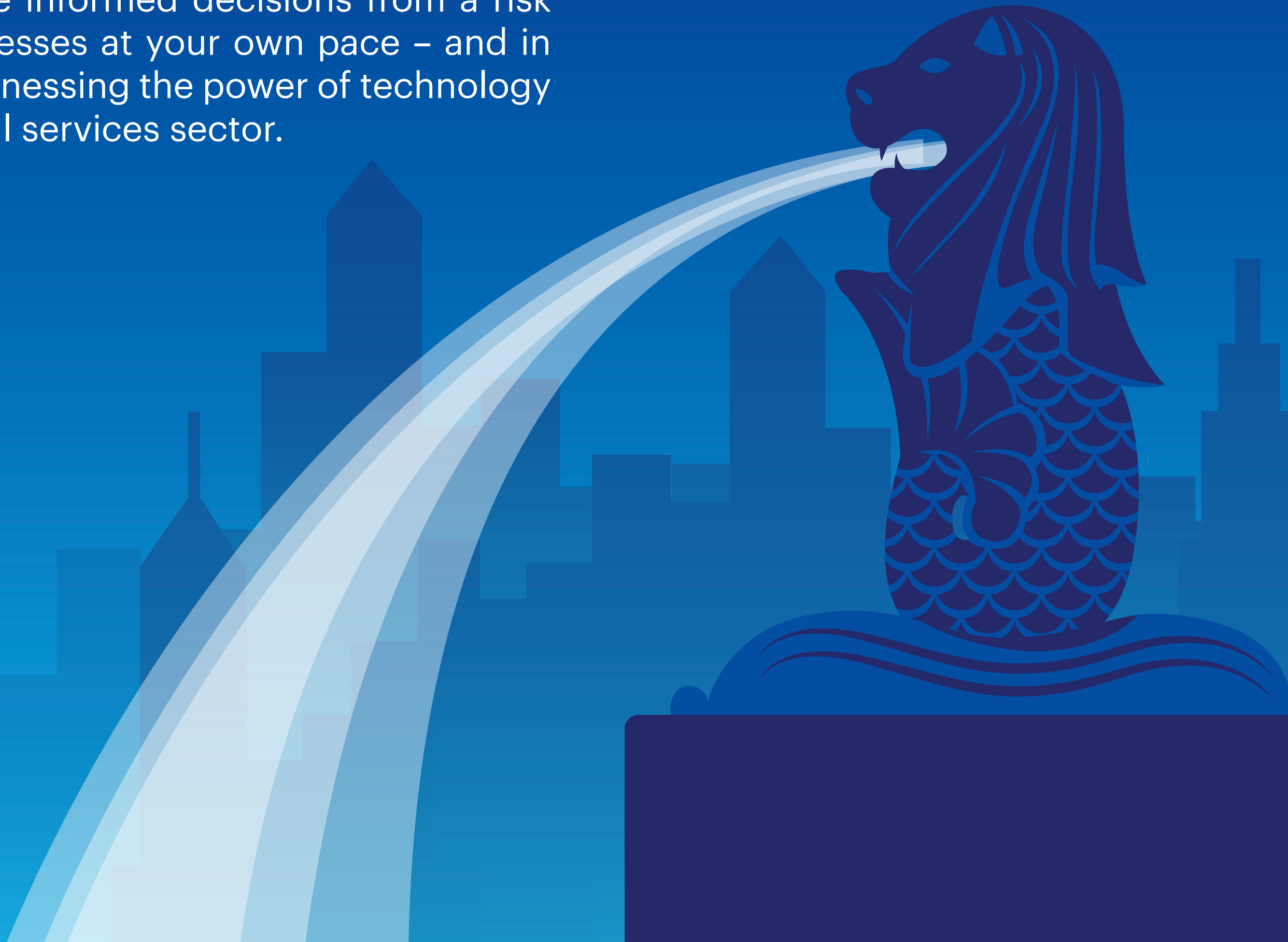
By marrying regulation with compliance via an integrated risk management system, Camms can help your business make informed decisions from a risk perspective and scale risk management processes at your own pace – and in doing so reinforce Singapore's aptitude for harnessing the power of technology to drive worthwhile change within the financial services sector.

Request Demo



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