

BECOMING A GLOBAL ARTIFICIAL INTELLIGENCE IN FINANCE HUB

Attracting Talents And Fostering Investments

Insights from the

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EXECUTIVE SUMMARY

In the ever-evolving landscape of finance, Artificial Intelligence (AI) has emerged as a transformative force, reshaping the way financial institutions (FIs) operate, innovate, and compete on a global scale. As the adoption of AI becomes increasingly pervasive, cities worldwide are vying to establish themselves as eminent AI in Finance hubs, so as to harness the full potential of this technological revolution.

In working with leading FIs, and conducting extensive interviews and surveys involving key ecosystem players, including FinTech companies (FinTechs), investors, and big tech companies, Oliver Wyman in collaboration with the Monetary Authority of Singapore (MAS) organised and carried out an in-depth study to examine how cities like Singapore can position themselves as globally-recognised AI in Finance hubs. The study addresses the challenges in attracting talents and fostering investments, amongst other hurdles, to build a vibrant AI in Finance ecosystem that benefits all stakeholders.

During the Elevandi Insights Forum hosted in conjunction with the Singapore FinTech Festival 2023, a closed-door roundtable was convened by MAS, Oliver Wyman, APIX and Amdocs, with local and international participants across the AI in Finance ecosystem. Participants discussed the existing challenges faced by their organisations and the industry at large in attracting AI talents and fostering AI investments, unveiling key insights on the potential opportunities and approaches to address those challenges.

These takeaways, along with the findings from Oliver Wyman's study, are summarised in this whitepaper across three core themes, each addressing key aspects of global AI talent acquisition, fostering global investments, and the indispensable role of regulators and ecosystem stakeholders in guiding these efforts.

In **Theme 1**, we explore the realm of attracting global AI talents, unveiling the intense competition worldwide amongst organisations across a diverse set of sectors and countries for these sought-after professionals. We shed light on the increasing need from FIs for “T-shaped” talents possessing a unique blend of technical prowess and financial acumen, underscoring the evolving demands of mid-level to senior roles in the financial sector. We confirm that the availability of cutting-edge projects and presence of prominent AI organisations as the most important factors in attracting global AI talents to seek employment, as has been the case in Singapore.

Moving to **Theme 2**, we navigate the intricate terrain of fostering global investments for AI, emphasising the symbiotic relationship between a robust investor community and a flourishing ecosystem of high calibre investable AI FinTechs. We unveil the challenges hindering collaborations between FIs and AI FinTechs, offering insights on the apprehensions faced relating to regulations, security, compliance, and reliability, which create hesitancy and friction in FIs when collaborating with FinTechs.

Finally, **Theme 3** explores the pivotal role of regulators and ecosystem stakeholders in building a AI in Finance hub by driving both talents and investments in AI. Beyond targeted funding and conventional academic training support, we underscore the transformative potential of regulatory interventions in fostering greater collaboration between FIs and AI Technology firms, while also advocating for initiatives to upskill junior and mid-level AI talents through mentorship programmes and virtual networks.

INTRODUCTION

Artificial Intelligence (AI) has undeniably brought about transformative changes for businesses and customers worldwide, and its momentum shows no signs of slowing down. The world began recognising the potential of AI to disrupt industries far before OpenAI's release of the widely popular ChatGPT application on 30 November 2022. Since then, we have witnessed the widespread proliferation of the use of AI, particularly the use of generative artificial intelligence (generative AI).

Within the financial sector, the world has witnessed the emergence of many innovative AI solutions. These solutions have unlocked immense value through improved cost efficiencies, tailored customer experiences, robust risk management, and more, across banking, insurance, and other financial services verticals.

For any global financial centre, the adoption of AI is not a choice but an imperative in our increasingly digital and data-driven world. For instance, New York recently unveiled their "AI action plan," which pledged to boost the AI skills of city employees, and evaluate AI tools and the risks associated with them. The UK's Financial Conduct Authority (FCA) and the Bank of England (BoE) established an Artificial Intelligence Public-Private Forum (AIPPF) to explore the means to support the safe adoption of artificial intelligence and machine learning (AI/ML) technologies within financial services. The government of the United Arab Emirates signed a Memorandum of Understanding (MoU) with MasterCard to increase AI capabilities and readiness in the region, beginning with MasterCard setting up a global centre for advanced AI and cyber technology in Dubai. These investments are a testament to the urgency and resolve of regulators to engage with financial ecosystem players on how best to leverage AI in this new age.

Leveraging AI takes on heightened significance for smaller global financial centres, such as Singapore, as it offers a means to overcome human resource limitations and enhance operational efficiency. Singapore unveiled its National AI Strategy (NAIS) in 2019, and relaunched NAIS 2.0 in 2023, which charts a course for Singapore to emerge as a preeminent AI innovation hub and a global leader in adopting AI as a force for good. Specifically, for the financial sector, the Monetary Authority of Singapore (MAS) has launched a series of initiatives and grants aimed at catalysing financial innovation and fostering AI collaboration within the ecosystem. These encompass Project NovAI, an AI utility for sustainable financing, the Veritas Initiative, for responsible AI deployment, and Project MindForge, dedicated to studying the potential opportunities and risks associated with generative AI in the financial sector. Concurrently, FIs in Singapore have eagerly embraced AI technologies, either by developing in-house solutions or exploring partnerships with AI FinTechs.

As global financial centres aspire to establish themselves as leading AI in Finance hubs, the following five essential drivers are necessary to support the growth and flourishing of AI adoption in the financial sector:



Talent to ideate, develop and deploy AI solutions



Investment to fund AI startups and projects



Collaboration between ecosystem stakeholders to experiment and implement novel AI solutions



Regulatory environment to provide a stable foundation for AI advancements and collaboration



Technology infrastructure to support AI development by offering cost-efficient and reliable tools and data

In collaboration with MAS, Oliver Wyman embarked on an extensive study, which included in-depth interviews and surveys involving industry leaders and key players in the financial ecosystem. This concerted effort underscored the central importance of two core drivers: talent and investment. Central to this study was the thorough examination of the multifaceted challenges associated with these essential drivers, as well as further exploration of the potential strategies required for cities, with Singapore at the forefront, to establish themselves as leading AI in Finance hubs. These insights, complemented by the outcomes of the Elevandi Insights Forum roundtable conducted in November 2023 on a similar topic, serve as the foundation for this paper, "Becoming a Global Artificial Intelligence in Finance Hub: Attracting Talents and Fostering Investments."

THEME 1

ATTRACTING GLOBAL AI TALENTS

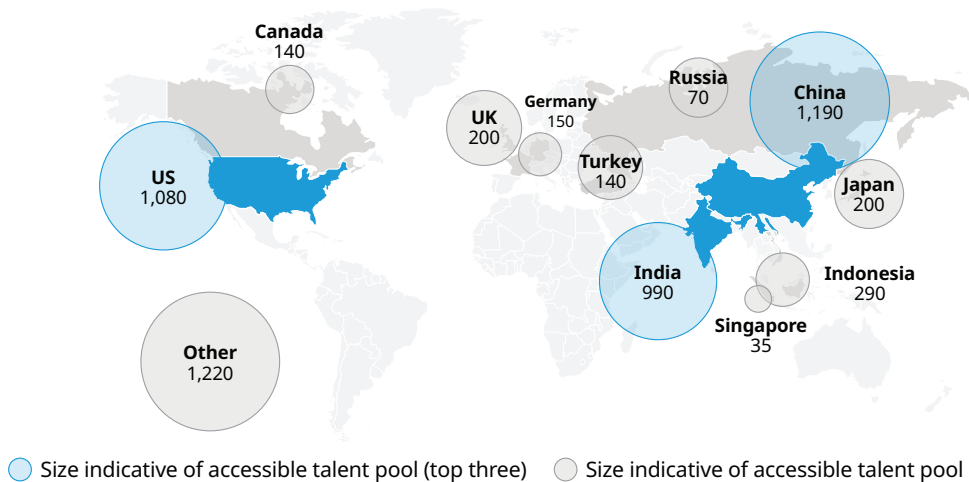
The rapid advancement of AI technology has precipitated a paradigm shift for organisations in terms of the roles and volume of AI talents required to excel in today’s environment. AI roles today include machine learning engineers, data scientists, and prompt engineers, amongst others. These talents play a pivotal role in shaping the trajectory of AI-driven innovation within their respective organisations. They are responsible for driving the development and implementation of AI-embedded technologies, thereby empowering organisations to enhance their competitive standing in the market.

A) Overview of the AI talent landscape: Where are our talents?

There are an estimated 5.7 million AI talents¹ worldwide, with the majority residing in China, the United States, and India. Within Southeast Asia, sizeable talent pools exist in countries such as Indonesia and Vietnam, which are expected to grow in the coming years due to the increasing prevalence of AI-related job opportunities.

Exhibit 1: Pool of Artificial Intelligence and Data Analytics (AIDA) talent and mobility in selected countries

Number of AIDA talents, in thousands



Notes: Total global AIDA talent pool size is approximately 5,700,000 as of end 2023; number of AIDA talents are indicative estimates based on Oliver Wyman analysis of related talent pools and LinkedIn profiles of AI talent.

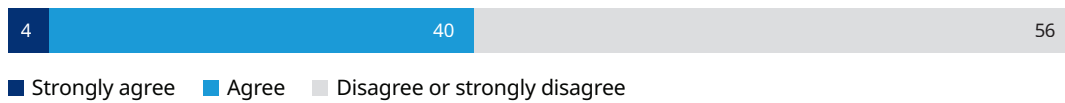
Source: Oliver Wyman analysis, Evans Data Corporation and Developer population (developer talent pool), LinkedIn (AIDA talent), US News (leading AI/Computer Science universities), Organisation for Economic Co-operation and Development (share of international IT students)

¹ Our indicative estimates are based on Oliver Wyman analysis of related talent pools and LinkedIn profiles of AI and Data Analytics talents, and includes AI-related technology workforce and top-tier technology talents from across academia, industry, and non-profit organisations.

Singapore, with its well-established local universities, has nurtured a sizeable AI talent pool by consistently producing graduates equipped with relevant AI skills. In 2022, over 10,000 students² enrolled in analytics and computer science programmes at local universities, underscoring the commitment of Singapore’s education system in grooming the next generation of AI talents. However, our study reveals challenges in sourcing strong AI talents, particularly individuals with five to 10 years of industry experience.

Exhibit 2: “Singapore’s AI talent pool is large enough”

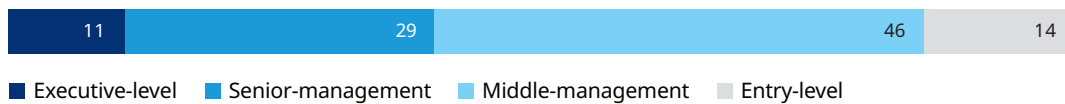
% of responses



Source: Oliver Wyman AI in Finance Ecosystem Survey 2023

Exhibit 3: “What roles are most lacking in Singapore’s AI talent pool?”

% of responses



Source: Oliver Wyman AI in Finance Ecosystem Survey 2023

This scarcity extends across various AI-related positions, including principal data engineers, data analysts, lead AI scientists, and more. In the face of intense global competition for a limited talent pool, organisations must strategise on how to attract the right individuals with the requisite skillsets to fully harness AI.

² Sourced from the 2022 enrolment data for the undergraduate and masters programmes at the National University of Singapore (NUS), Nanyang Technological University (NTU), and Singapore Management University (SMU) for courses related to AI, data science, and computer science.

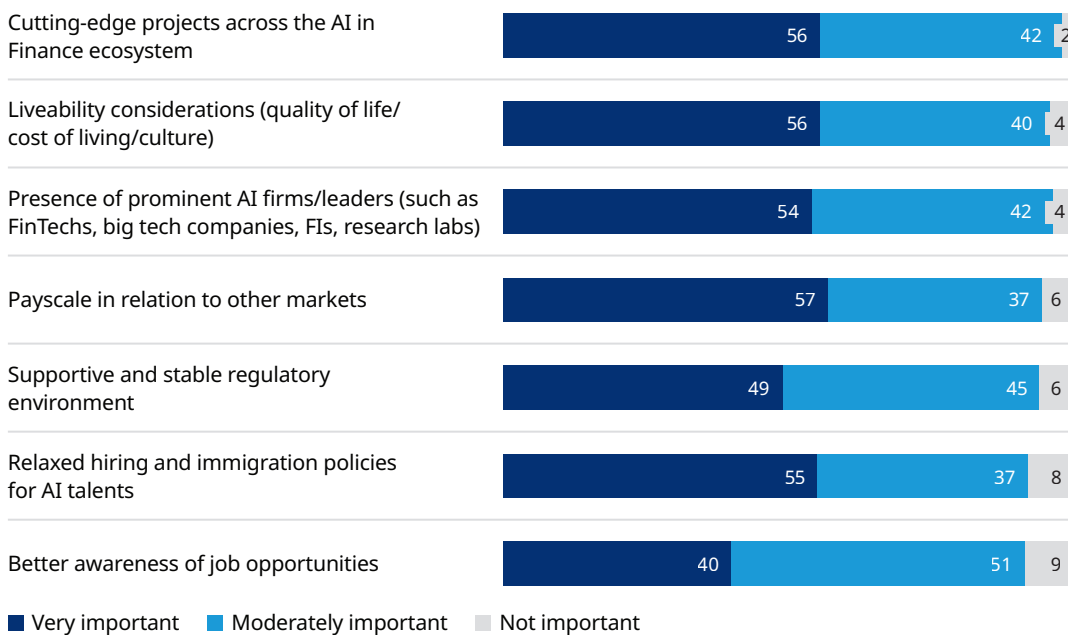
B) Competing for AI talents: What are talents looking for?

The main factors attracting global AI talents

The competition for global AI talents remains intense, as numerous organisations across diverse sectors and geographical regions actively vie for the same pool of highly coveted professionals in both domestic and overseas markets. Hence, it is imperative to understand which factors serve to attract talents to various organisations and jurisdictions.

Exhibit 4: Top factors attracting global AI talents

% of respondents selecting each option



Source: Oliver Wyman AI in Finance Ecosystem Survey 2023

More than 96% of ecosystem stakeholders regard the availability of cutting-edge projects and presence of prominent AI firms in a country as important factors in attracting global AI talents to seek employment there, as has been the case in Singapore. Both factors reflect the ambitions and drive in today's AI talents, who desire to seek out high-impact use cases and projects for their career development. Given the advanced nature and continuously evolving intricacies of AI within the financial industry, the renewed perception of career advancement prospects in the financial sector could serve as a pivotal factor for FIs and AI FinTechs to attract AI talents.

Liveability considerations are also one of the top factors which attract global AI talents. Many AI talents are concerned about various aspects of living, such as the cost of living and the ease of cultural assimilation, all of which would influence their decision on whether to relocate to Singapore to seek employment. This is evidenced by many prominent big tech companies and AI research firms offering lucrative salary packages to fortify their competitive edge and ease the concerns of the talents they are keen to attract or retain. The incentives could come in the form of generous stock options, bonuses, and compensation packages which cover relocation and living expenses.

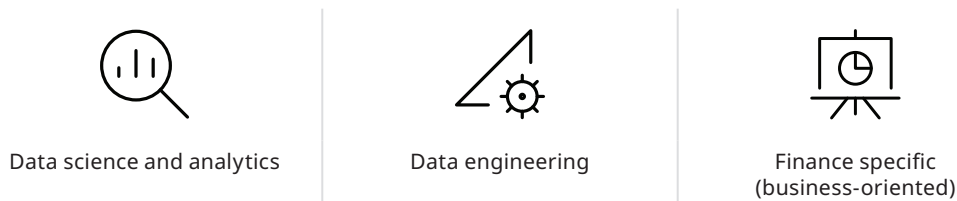
Most FIs and AI FinTechs are unable to compete with the incentives offered by big tech companies and AI research firms for AI talents. Even within the financial sector, the competition for AI talents remains rigorous. Presently, there is an uneven talent distribution across organisations. AI capabilities are concentrated within the few leading FIs, leaving the majority of FIs and FinTechs with little resources or capabilities to invest in AI. This situation requires FIs and FinTechs to understand what factors draw talents to organisations apart from attractive remuneration packages, and explore alternative strategies to effectively attract talents.

C) Seeking AI talents: What are employers looking for?

Strong demand for talents with hybrid skillsets

When looking at the types of skillsets that AI talents must possess, study contributors expressed the increasing expectation for individuals to possess a blend of technical AI and financial skillsets to excel in AI roles within the financial sector. While technical competencies in areas such as data science and analytics are critical, financial skillsets such as the understanding of credit risks and banking products are equally important and often missing amongst AI talents today. Having individuals with hybrid skillsets is essential for identifying the potential use cases for AI and contextualising their solutions to the current challenges within the financial sector, thereby helping to develop effective AI models and solutions.

Exhibit 5: Top three skillsets lacking in Singapore's AI talent pool today



Source: Oliver Wyman AI in Finance Ecosystem Survey 2023

Evolving requirements for professionals at all levels

- **AI talents with financial knowledge:** Junior to mid-level AI talents are expected to possess a strong technical foundation and the capacity to swiftly acquire the requisite knowledge needed to tailor solutions to the financial services context. Notably, study contributors mentioned the potential of recruiting AI talents from diverse sectors to yield more innovative solutions, primarily because they bring fresh perspectives unencumbered by legacy systems. Nevertheless, it is important for these talents to be cognisant of the regulatory disparities and risk factors in the development of AI models, areas where the guidance of seasoned finance professionals would prove invaluable.
- **Senior leaders with the awareness of AI's potential:** Conversely, senior management should possess a comprehensive understanding of the capabilities, limitations, and risks of AI. This proficiency would empower leaders to identify the strategic opportunities for effective AI utilisation within their organisations, and help them make informed decisions on strategic investments, resource allocation, talent acquisition, and risk management. In addition, senior leaders need to understand the importance of the ethics of AI, and prioritise developing robust governance frameworks for the responsible use of AI, which is also aligned with established guidelines. Examples of such guidelines include the Fairness, Ethics, Accountability, and Transparency (FEAT) set of principles developed by MAS in the use of AI and data analytics in Singapore's financial sector³, and the high-level principles on AI developed by the Hong Kong Monetary Authority (HKMA).⁴ Developing AI systems in a responsible and sustainable manner could prove to be vital in securing the long-term success of adopting AI within FIs and FinTechs.
- **Democratisation of AI across all roles:** AI is becoming increasingly democratised across all functions and levels both now and for the foreseeable future. Finance professionals who are not directly involved in the development of AI models should acquire fundamental AI skills to navigate and excel in the rapidly evolving job landscape. These skills could include being proficient in utilising AI tools, crafting effective prompts to obtain accurate and valuable insights from AI-powered chatbots, and understanding and identifying the ethical and reputational risks associated with the use of AI in their day-to-day operations.

³ Monetary Authority of Singapore [Veritas Initiative](#). Retrieved 9 January 2024.

⁴ Hong Kong Monetary Authority. [High-level Principles on Artificial Intelligence](#). Retrieved 9 January 2024.

THEME 2

FOSTERING GLOBAL INVESTMENTS FOR AI

Besides talents, it is increasingly important for emerging and leading global AI in Finance hubs to attract and monitor AI-related investments in driving the growth of AI FinTechs within the ecosystem. Investments are defined as funds from angel investors, venture capital firms (VCs), family offices, and private equity firms. While corporates also play a huge role investing in in-house AI teams and research, this is not a key focus of this paper.

A) Overview of AI investment landscape: What does Singapore's AI investment landscape look like?











High availability of funds

Leading and emerging global AI in Finance hubs typically find ways to draw investments into the city. The investments are needed to fund research and development efforts, build data infrastructure, attract and retain top AI talents, implement and integrate AI solutions, and ensure regulatory compliance. Without sufficient investments, ecosystems would lack the necessary resources to innovate, develop cutting-edge technologies, and effectively apply AI in the financial industry.

As one of the most active investment hubs in the region, Singapore boasts a strong investor community offering funding support for FinTechs across all developmental stages. The strong appetite of VCs for AI-related investments is reflected by Singapore being one of the top 10 countries receiving the most VC funds for AI-related investments.⁵ When discerning investment opportunities, investors attribute value to Singapore's strong global branding, stability, and favourable regulations, resulting in higher valuation premiums compared to neighbouring countries. This sentiment is further validated through the study, where almost seven in 10 ecosystem players agreed there is strong availability of VC funding in Singapore compared to other AI in Finance hubs among the neighbouring countries.

⁵ CB Insights. AI Investments by country. Retrieved 31 October 2023.

Exhibit 6: Top 10 cumulative VC-backed AI investments by country
AI investments by country¹

Country	Number of deals	In US\$ billions
 USA	13,831	227
 China	3,026	53
 UK	1,974	14
 Israel	1,059	14
 Canada	974	7
 Germany	757	4
 Hong Kong	115	4
 France	603	4
 Singapore	455	3
 India	825	2

1. CB Insights as of 31 October 2023, Goldman Sachs research based on Stanford Institute for Human-Centered Artificial Intelligence data and revenue growth estimates of AI related companies.

Source: CB Insights, Oliver Wyman analysis

Exhibit 7: Ecosystem sentiment on availability of private investments for AI FinTechs in Singapore

% of responses



Source: Oliver Wyman AI in Finance Ecosystem Survey 2023

Shortfall of investable opportunities in AI FinTechs

While there is ample supply of investment capital, this does not always translate to an increase in investments. In Singapore, investors are grappling with a scarcity of investable opportunities — a relatively small market size limits the pool of AI FinTech companies, while a lack of successful collaboration between FIs and AI FinTechs hampers credibility. This scenario creates a vicious cycle which further restricts collaborations between FIs and AI FinTechs.

B) Challenges in growing investable AI FinTechs: Why does low collaboration hinder innovation?

Given that a number of AI FinTechs offer business-to-business (B2B) solutions that depend on FIs as their main clients, close collaboration with these FIs is imperative for AI FinTechs to achieve innovation and success.

However, apprehensions related to regulations, security, compliance, and reliability create hesitancy and friction in FIs when collaborating with FinTechs. Mitigating the following challenges could be pivotal in enhancing the vibrancy of the broader AI in Finance ecosystem.

Lack of understanding of use cases

Opportunities for FIs, aiming for external solutions, to openly share their challenges with AI FinTechs are limited. Even when they do, the alignment between FIs and AI FinTechs is often not optimal, resulting in a lack of tailored solutions. This disconnect can lead to growing frustration among FIs when it comes to collaboration, increasing their reluctance to engage with AI FinTechs regularly. Consequently, this situation hinders deeper collaboration, preventing AI FinTechs from gaining a nuanced understanding of the FIs' specific needs and thought processes, which would be crucial for crafting solutions that effectively address the FIs' most pressing pain points, thereby perpetuating a challenging cycle.

Concerns regarding risk and regulatory compliance

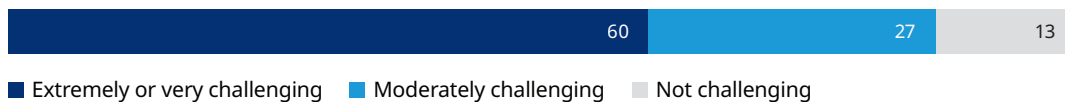
FIs are typically subjected to stringent requirements by regulators. As such, AI FinTechs working with FIs have to undergo similarly thorough and time-consuming due diligence processes. These processes could sometimes last up to a year before AI FinTechs are able to commence with the proofs of concept (POCs) with the FIs. This extensive timeline presents substantial impediments to smaller AI FinTechs which, despite having the compliance levels necessary to proceed, do not have sufficient liquidity and funding to tide them over for the duration of the due diligence period.

Data scarcity for model training

Numerous AI solutions require extensive datasets to train, validate, develop, and refine models. Often, such datasets are subject to stringent regulations and are not publicly available, prompting AI FinTechs to seek relevant data from FIs. However, our study contributors pointed out the associated risks and potential liabilities when sharing such data, mainly data privacy and security concerns. As a result, three out of every five AI FinTechs experience challenges in accessing data, which becomes a key roadblock in their efforts to develop effective AI-based solutions. Initiatives that can effectively address this data sharing and scarcity issue are therefore paramount to increasing further collaborations between FIs and AI FinTechs.

Exhibit 8: Accessibility of data to develop AI-based solutions

% of FinTech responses



Source: Oliver Wyman AI in Finance Ecosystem Survey 2023

C) Challenges in attracting investable AI FinTechs: Why are ease of hiring and relocating important?

In the context of becoming a leading AI in Finance hub and growing the ecosystem, the size of the AI FinTech pool plays a pivotal role in determining the overall quality of the AI FinTechs operating within it. When the quality of local AI FinTechs is subpar, larger numbers within the pool increases the probability of discovering high-quality ventures to some extent. However, the luxury of scale is not always available to smaller countries with limited resources.

For smaller nations, overcoming the challenges associated with a limited pool of local AI FinTechs is imperative. The solution lies in attracting AI FinTechs from overseas to bolster the local ecosystem, thus creating a more extensive and investable landscape. Many countries actively position themselves as prime destinations to lure successful global AI FinTech firms. Some cultivate an environment that fosters AI FinTechs' growth, while others sweeten the deal with financial incentives to entice AI FinTechs to establish a presence.

In the case of Singapore, the following two recurring challenges demand attention to attract a greater number of high-quality, investable AI FinTechs:

Perception of immigration and hiring policies

Our study's FinTech and VC contributors frequently voiced concerns regarding the relocation of global talents and AI FinTechs to Singapore. The issue transcends individual ease of relocation, extending to streamlined work visa issuance, accessibility of visas for family members, and the relocation of entire business teams. The challenges faced by organisations include the limited availability of Employment Passes (EPs), local hiring prerequisites, and foreign employee caps. While there have been recent improvements in immigration policies for AI talents, such as relaxed Complementarity Assessment Framework (COMPASS) assessment criteria and extended employment validity periods, there can be greater collaboration between MAS and other government agencies to facilitate immigration processes and support overseas AI FinTechs seeking to establish operations in Singapore.

High cost of living

Singapore's reputation as an expensive destination for expatriates serves as an additional deterrent to relocation efforts. Singapore is one of the world's most expensive cities in which to live, with our study findings highlighting a notable increase in rental and living expenses as a primary concern for foreign talent relocation. Addressing rental expenses, in particular, could significantly alleviate the second key impediment to the relocation of global AI FinTechs to Singapore.

THEME 3

ROLE OF REGULATORS AND ECOSYSTEM STAKEHOLDERS IN DRIVING TALENTS AND INVESTMENTS

The talent and investment challenges we identified can be addressed through active engagement between regulators and ecosystem stakeholders. This necessitates robust collaboration among ecosystem participants, the attraction and nurturing of AI FinTechs, and the enhancement of talent quality and accessibility.

A) Enable robust collaboration and innovation

The strength of an AI in Finance ecosystem lies in the collective knowledge, resources, and expertise of its participants, and collaboration is the key to unlocking this value. By fostering collaboration among diverse stakeholders within the financial sector, including industry players, startups, academia, investors, and government agencies, the complementary strengths of each ecosystem player can be leveraged to address complex challenges and collectively drive economic and societal impact through AI. In turn, the increased vibrancy of the ecosystem from greater opportunities for collaboration will attract top-tier talents and AI FinTechs, leading to higher prospects of getting investable AI FinTechs within the ecosystem. We hereby propose three measures as starting points for ecosystem players to consider in fostering collaboration: Firstly, increasing the awareness of industry and FI use cases; secondly, designing fit-for-purpose secure data sharing infrastructure or mechanisms; and thirdly, providing greater clarity around data sharing and governance.

Increase the awareness of industry and FI use cases

A recurring and vital theme underscored by our study's FI and AI FinTech contributors centres around the strategic importance of establishing contextually relevant use cases that foster collaborative problem-solving. These use cases serve as the foundation for collaboration, with FIs contributing valuable context and delineating specific problem statements across diverse domains, such as Environmental, Social, and Governance (ESG), compliance, and credit risk. At the same time, AI FinTech can provide their distinct perspectives and innovative solutions to bridge these knowledge gaps.

Exhibit 9: Top three AI use cases to be explored in the financial sector



ESG and climate



Compliance, fraud detection,
and anti-money laundering



Credit risk assessment

Source: Oliver Wyman AI in Finance Ecosystem Survey 2023

While leading FIs boast the capacity and resources to internally develop a multitude of solutions, there are specific areas where collaboration with AI FinTechs proves indispensable:

- **Levelling the playing field for AI adoption:** Some FIs may find themselves lagging in AI readiness, making it challenging to keep pace with the rapid technological advancements reshaping the financial landscape. In such cases, AI FinTechs play a pivotal role in equipping these FIs with the requisite tools and capabilities, enabling them to compete effectively. This support may manifest in the form of offering FIs analogous solutions or services to what their tech-savvy counterparts have cultivated in-house. For instance, if a traditional bank struggles to implement advanced credit risk assessment models, a FinTech specialising in AI-powered credit risk analytics can step in to provide a turnkey solution, levelling the playing field for the bank to enhance its risk management capabilities.
- **Industry-wide utility solutions:** Collaborations between FIs and FinTechs extend beyond the interests of individual organisations. Some use cases entail the development of industry-wide utility solutions that confer collective benefits upon the entire financial sector. FinTechs could contribute to these initiatives by crafting innovative AI solutions that address systemic challenges and bolster industry-wide efficiency and resilience. For instance, multiple FIs can collaborate with AI FinTechs to create a centralised, AI-driven solution that offers real-time fraud prevention capabilities, safeguarding the entire financial ecosystem. For example, MAS, together with six major commercial banks in Singapore, is developing COSMIC, which stands for “Collaborative Sharing of Money Laundering/Terrorism Financing (ML/TF) Information and Cases,” a digital platform focused on securely sharing information to combat financial crime.
- **Niche applications requiring specialised expertise:** Within the realm of financial services, certain use cases possess niche applications that render them economically unfeasible for FIs to cultivate in-house. In such scenarios, FinTechs specialising in these niche areas emerge as invaluable collaborators, providing their expertise to develop tailored solutions catering to these unique requirements. For instance, FIs looking to enhance their customer experience by digitising and automating the process of handwritten customer forms may choose to partner and leverage an existing FinTech’s Optical Character Recognition (OCR) solution, rather than develop an in-house solution which can be cost-prohibitive and resource-intensive.

These are potential opportunities for collaboration that FinTechs could seize to pursue and grow their deals pipeline. However, it would also require ecosystem players, including FIs, investors, and regulators, to facilitate the collaboration process through increased engagement with FinTechs to raise the awareness of these challenges, or open innovation or hackathon calls that share specific problem statements for FinTechs to solve.

Design fit-for-purpose secure data sharing infrastructure or mechanisms

To address the challenge of data scarcity, it is worth exploring the establishment of secure infrastructure or mechanisms that enable the sharing of data for testing AI models safely. While AI FinTechs stand to gain significantly from working with real data, some FIs express legitimate concerns regarding data privacy and sharing. A few jurisdictions have witnessed notable successes in implementing secure, certified sandbox-equivalent environments for the exchange of data. However, there remains a critical need to design robust guardrails and governance frameworks to ensure data security and privacy.

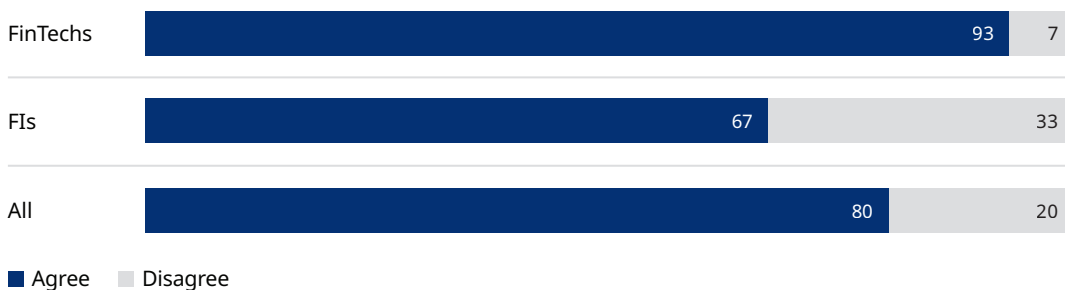
The goal is to instil confidence among FIs in sharing data safely and efficiently. One promising avenue being explored by countries is the adoption of Privacy-Enhancing Technologies (PETs). Examples include homomorphic encryption, secure multiparty computation, federated learning, synthetic data, and more. These technologies enable the collection, processing, and analysis of data while simultaneously safeguarding personal information, upholding data privacy, and protecting commercially sensitive data.

For example, synthetic data, which is artificial data replicating the statistical characteristics of actual data, is increasingly widely seen as a viable alternative in the absence of real data. About 80% of ecosystem players acknowledged the utility of synthetic data for training and developing AI models, with FinTechs being more favourable towards synthetic data compared to FIs. In the absence of authentic data, synthetic data has the potential to play a pivotal role in initiating AI-based innovation in a very practical and concrete way, particularly for data-hungry FinTechs. While synthetic data offers advantages such as customisability and the ability to generate large volumes of data in a cost-efficient manner, there are still inherent limitations in terms of data reliability and the ability to capture the nuances of real data. Nevertheless, with the growing advancement of synthetic data creation techniques, the gap in usability between synthetic and real data in the financial sector could potentially narrow over time.

By harnessing these innovative solutions, we can move closer to resolving the data scarcity challenge and fostering responsible data sharing practices, so as to further drive the development of more AI solutions from AI FinTechs and FIs.

Exhibit 10: Usefulness of synthetic data for AI model training

% of responses, by stakeholder type



Source: Oliver Wyman AI in Finance Ecosystem Survey 2023

Case study

The UK government has recognised the importance of providing data to FinTechs, prompting the Financial Conduct Authority (FCA) to launch a Digital Sandbox⁶ to facilitate experimentation and collaboration between ecosystem stakeholders. The Digital Sandbox supplies eligible participants with high quality, General Data Protection Regulation (GDPR)-compliant datasets and tools in a secure and controlled environment, allowing scalable experimentation while safeguarding data assets. The FCA has also experimented with the creation of synthetic data. It previously hosted a three-week “DataSprint” with over 100 industry participants, and has collaborated with data-specialised firms such as Smart Data Foundry. The FCA conducted two pilot trials, and both resulted in successful outcomes, with the majority of participants benefitting from funding, partnerships, and product launches.

Provide greater clarity around data sharing and governance

In the ever-evolving realm of AI technology, the role of regulatory frameworks has grown increasingly pivotal. Across the globe, many countries have taken proactive measures, developing guidelines and frameworks designed to foster the responsible use of AI. Notably, the United States, through the National Institute of Standards and Technology (NIST), has introduced the AI Risk Management Framework.⁷ Organisations may employ this framework to ensure the trustworthy deployment of AI systems. Similarly, Singapore’s Infocomm Media Development Authority (IMDA) has established the AI Verify framework.⁸ Specifically, within the financial sector, MAS has unveiled the FEAT principles and Veritas toolkit in collaboration with industry partners, so as to offer clear directives for the development, deployment, and governance of AI technologies in a responsible manner.⁹ While these endeavours represent a commendable starting point in establishing standardised practices for FIs, our study findings indicate that they may not yet fully address some critical areas. For instance, AI-specific cybersecurity measures and secure data management practices are rapidly becoming indispensable components of AI governance. This gap highlights the need for the continuous evolution of AI guidelines to keep pace with technological advancements.

6 Financial Conduct Authority. [Digital Sandbox](#). Retrieved 9 January 2024.

7 National Institute of Standards and Technology. [AI Risk Management Framework](#). Retrieved 9 January 2024.

8 Infocomm Media Development Authority. [Artificial Intelligence in Singapore](#). Retrieved 9 January 2024.

9 Monetary Authority of Singapore. [MAS Launches Global Challenge to Accelerate Innovation in Responsible AI Solutions; MAS Announces Winners of the Global Veritas Challenge 2021 at Singapore FinTech Festival](#). APIX. [Global Veritas Challenge 2021](#). Retrieved 9 January 2024.

B) Attract and nurture AI FinTechs

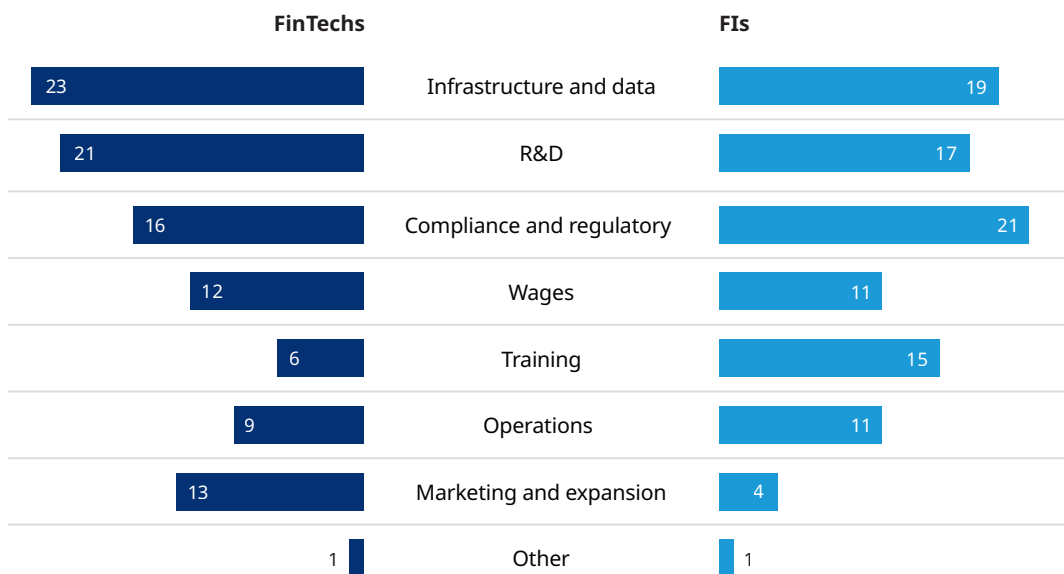
Provide timely and targeted financial support

Grants and financial support play a pivotal role in the decision-making process for AI FinTechs and FIs seeking to establish their presence in a new jurisdiction. They are also an area where regulatory bodies hold the potential to profoundly impact the success of AI FinTechs. In Singapore, MAS launched the Artificial Intelligence and Data Analytics (AIDA) Grant, which provides financial support to local AIDA-related projects, encouraging the expansion of existing innovation labs and further development of Singapore’s FinTech talents. This strategic initiative underscores the unwavering commitment of Singapore’s government to enhance the local AI in Finance ecosystem through targeted financial support.

However, to improve the effectiveness and efficacy of such grants, regulators should address any shortcomings on existing grants related to rigid assessment criteria and long disbursement periods, as these have often disproportionately impacted smaller FinTechs with limited working capital and liquidity. While these issues are not exclusive to the field of AI, providing timely funding support targeting the right areas where organisations face the most challenges, coupled with more flexible approval criteria, would have the potential to stimulate the growth of innovative AI solutions and further entice foreign AI FinTechs to relocate.

Exhibit 11: Most helpful areas where government incentives can support organisations with AI adoption

% of responses, by stakeholder type



Source: Oliver Wyman AI in Finance Ecosystem Survey 2023

Establish incubators and accelerators with a focus on AI in Finance

Incubators and accelerators have achieved remarkable success in nurturing some of the world's most promising startups. They do so by providing invaluable mentorship, exposure to potential investors, strategic partnerships, and a conducive growth environment for emerging companies to flourish. Encouraging and supporting such initiatives will undoubtedly strengthen the allure of global entrepreneurs and technology talents, fostering an environment conducive to rapid ideation, the execution of POCs, and expansion opportunities into adjacent markets.

This ultimately enhances the appeal of a leading AI in Finance hub to global AI FinTech companies, and acts as a catalyst for increased investments through the emergence of innovative projects and highly investable AI FinTech ventures. With the unwavering support of incubators and accelerators, the cultivation of highly successful AI FinTechs that can be hailed as "regional champions" becomes a reality, serving as compelling examples of the opportunities and pathways the hub can offer to startups.

Roll out AI in Finance accreditation for FinTechs

Boosting the confidence of FIs in AI FinTech solutions is pivotal to foster deeper levels of collaboration. One viable approach to tackle this challenge involves implementing a comprehensive, government-endorsed accreditation framework tailored specifically for AI FinTechs. This accreditation should align seamlessly with globally recognised standards, ensuring that accredited AI FinTechs not only gain credibility within domestic markets for collaboration with local FIs, but also possess the credibility to expand into international markets. The establishment of an internationally recognised accreditation system can serve as a compelling incentive for overseas AI FinTechs to consider relocating to Singapore, propelling these companies towards even greater success on a global scale.

Case study

The IMDA in Singapore has initiated an accreditation programme dedicated to nurturing and expanding the local Infocomm and Media (ICM) technology ecosystem. This programme seeks to recognise and support promising and innovative ICM companies based in Singapore, aiming to establish their qualifications as strong contenders for government and large enterprise projects. Applicants undergo thorough assessments that encompass technical, financial, and operational competencies.

Since its launch in 2014, the programme has yielded impressive results, generating more than 3,300 projects with a combined value exceeding S\$1.5 billion for the accredited companies. This accreditation process, along with the resultant increase in business opportunities, has significantly enhanced the appeal of these companies to growth capital investors. As a result, there has been a substantial influx of over S\$1.1 billion in new growth capital investments for accredited companies during and after the accreditation process, thereby altering the risk-reward dynamics favourably for investors.

C) Enhance talent quality and accessibility

Upskilling programmes for junior talents and senior management

Elevating the quality of talent is imperative in bridging the existing talent gap. Governments are actively nurturing dynamic AI hubs to attract technology professionals by allocating resources to educational reforms geared towards upskilling the workforce for AI-related roles.

However, the shortage of experienced AI professionals necessitates the implementation of structured programmes designed to expedite the growth of AI practitioners with expertise relevant to the financial industry. Regulators can explore the introduction of mentorship or apprenticeship schemes, connecting junior AI talents with leading technology firms involved in cutting-edge AI projects, both locally and internationally. Such programmes serve to accelerate the development of AI talents by exposing them to pioneering projects.

Concurrently, FIs should equip their senior leadership with comprehensive AI knowledge and actively offer specialised courses to acquaint them with the potential of advanced technologies, including an understanding of their capabilities and limitations. This could cover essential topics, such as generative AI and other transformative innovations in the field.

Build a global AI in Finance network of talents and expertise

Establishing a globally interconnected network of AI expertise and knowledge is crucial for smaller countries to compete with larger AI hubs in terms of local talents and firms. Our research underscores the importance of forging robust research partnerships that bridge academic institutions, industry players, and AI firms. Such collaborations drive innovative technological advancements and elevate the overall vitality of the AI ecosystem.

Furthermore, the increasing acceptance of remote work opens new avenues to attract AI talents. Cities with a lower cost of living can leverage this trend to become significant players in AI, offering their AI talents better prospects at other leading AI hubs without the talents needing to relocate. Leading AI in Finance hubs in turn can enhance their AI workforce by encouraging companies to tap into a virtual talent pipeline, while keeping the intellectual property and development of cutting-edge solutions within their city.

CONCLUSION

The imperative of attracting talent and investment to establish a city as a global AI in Finance hub is unmistakable. Nevertheless, numerous cities encounter analogous obstacles when endeavouring to cultivate a strong AI talent pool and attract more investments for AI in Finance. In the case of a smaller city like Singapore, the endeavour to entice and nurture high-quality, investable FinTech companies is particularly challenging due to the city's inherent size limitations.

However, the narrative does not culminate here. Across the globe, key industry leaders recognise these shared challenges, albeit with nuances in intensity depending on the jurisdiction. They also exhibit a keen interest in bolstering efforts aimed at fortifying AI in Finance ecosystems. This marks a promising beginning because what lies ahead demands the collective commitment of all ecosystem participants, spanning both emerging and established AI in Finance hubs. Together, AI in Finance ecosystem players must forge a unified vision to elevate the vibrancy of the AI ecosystem and collaboratively pave the path forward.

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