

An Enabling Regulatory Framework for Innovation: Web3 & FinTech



Commissioned by:

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Foreword

Hong Kong has made significant efforts to align itself with global trends and establish itself as a hub for innovation, technology and financial services, bolstering its status as an international financial centre. This progress is particularly evident in the development of Web3 technologies and applications, showcasing the collaborative spirit that characterises the city. The synergy between the public and private sectors in Hong Kong has been remarkable, working together to capitalise on the opportunities presented by Web3 and FinTech.

FinTech has consistently been a research priority for the Financial Services Development Council (FSDC). This year, the FSDC has published two research reports on blockchain technology and digital ID, respectively. These reports aim to promote the widespread adoption of these technologies within the financial services industry in Hong Kong, enhancing efficiency and advancing the transition to a digital economy.

Creating a conducive environment for FinTech innovations and navigating the paradigm shift driven by Web3 technologies requires an enabling regulatory framework that safeguards and empowers stakeholders in the industry. As innovations emerge—often beyond expectations—it is imperative to understand the fundamental principles required for effective regulation. Moreover, integrating insights from global best practices will enrich our understanding and contribute to more informed, resilient regulatory frameworks. The global interconnectedness also fosters increased cross-border collaboration in FinTech development.

To this end, the FSDC commissioned the Z/Yen Group to develop this report. It is designed to provide an overview of the current regulatory landscape in innovation, focusing on Web3 and its applications, and to share insights that can support Hong Kong in maintaining its competitive edge in the Web3 and FinTech arena, emphasising aspects of the regulatory framework. Moreover, the global community can also draw insights from Hong Kong's proactive and forward-looking approach in this field.

We hope that the observations from this report can serve as a reference when exploring an enabling regulatory framework for innovation and inspire stakeholders across the global financial spectrum toward new heights of innovation and cooperation.

Together, embracing the future with confidence and enthusiasm, there is a continued commitment to building a world-leading Web3 and FinTech ecosystem in Hong Kong.



Mr Laurence Li

Chairman

Financial Services Development Council

Executive Summary

Web 3

Web3, often referred to as the “Semantic Web” or “Decentralised Web”, represents a transformative advancement in the digital realm. It enhances the machine readability of web content and fosters a more intelligent, interconnected, and decentralised internet architecture.

Such developments have the potential to alter the financial services landscape. They are central to the emergence of decentralised finance (DeFi)¹, an important aspect of FinTech that can potentially address the inefficiencies of traditional banking systems. By eliminating intermediaries through decentralised exchanges and leveraging smart contracts, DeFi promotes a transparent, secure, and user-centric financial environment. This innovation is set to reduce transaction costs, enhance security measures, and lower barriers to entry, potentially reshaping financial services to be more inclusive and equitable.

Challenges Of Designing An Enabling Regulatory Framework For The Financial Services Industry

The emergence of DeFi and Web3 technologies challenges existing regulatory paradigms by introducing decentralised operations and blockchain-based transactions. These developments require regulators to adapt their strategies to effectively oversee a new financial environment that operates with a high degree of technological integration and less centralised control.

Inadequate regulation of financial institutions can lead to instability in national and global financial systems, consumer harm, and broader economic damage. To address these risks, regulators should focus on three key areas:

1. **Prudential regulation:** Ensures financial institutions comply with strict financial and operational standards to maintain solvency.
2. **Conduct of business regulation:** Promotes fairness in customer treatment, market transparency, and prohibits unfair practices.
3. **Systemic regulation:** Seeks to minimise the risk that the failure of a single institution could trigger a collapse of the entire financial system.

DeFi technologies are likely to influence all these regulatory domains, requiring a recalibration of oversight mechanisms. While it is crucial to protect financial systems and the public, a rigid regulatory framework can stifle growth and innovation in the FinTech and Web3 industries, thereby undermining the competitiveness of a financial centre.

¹ “Decentralised finance refers to financial applications which are run on a permissionless blockchain.” It is one of the applications of Web3.

Source: Eurofi. (February 2022). *DeFi: Opportunities, challenges and policy implications*

Common Regulatory Tools And Techniques

The following approaches are commonly seen in the oversight of FinTech and Web3 organisations by national governments:

- **A formal, structured approach:** Regulators impose specific restrictions on new technologies until sufficient information about their risks to systems and consumers is available. This proactive strategy aims to prevent potential disruptions or misuse in the early stages of innovation.
- **A laissez-faire approach:** Allows for small-scale innovations to progress relatively unimpeded until they reach a critical mass or result in a significant mishap. At this juncture, regulators intervene to establish a tailored legal framework that addresses the identified issues, balancing the need for regulatory oversight with innovation.
- **Ad-Hoc licencing:** The creation of an ad hoc licencing system for innovation which requires testing, data collection, and reporting.
- **Sandboxes:** Provides a controlled environment where businesses can test new models under temporary relaxation of certain regulations. Unlike the laissez-faire approach, sandboxes are time-limited and come with structured, standardised safeguards, allowing for safe experimentation within a regulatory framework.

Insights On Regulatory Considerations For Innovation – From Hong Kong’s Perspectives

In an era where digital innovation is rapidly reshaping financial markets, and while there is room for improvement, Hong Kong's approach to regulating the Web3 and FinTech sectors provides a reference point for the global community. This report, based on Hong Kong's experience and draws on feedback from local industry experts, gathers observations that could be beneficial across different regulatory environments.

Global Relevance

Hong Kong’s experience with Web3 regulation provides a robust case study for other regions seeking to foster innovation while ensuring market stability. Its regulatory roadmap, praised by the industry for clarity and foresight, serves as a model for reducing policy uncertainty and supporting strategic growth across diverse financial landscapes. This approach helps attract global talent and solidify its status as an innovative hub, a goal that many governments share.

The insights that we gain also include challenges and areas for improvement identified in Hong Kong—such as the need for a broader range of product offerings including derivatives, more flexible anti-money laundering protocols to address challenges of Web3 startups in securing banking services, modernising data protection laws to keep pace with innovation, and refining regulatory sandboxes. These challenges offer lessons on balancing regulation with innovation, which are universally applicable, ensuring that emerging frameworks can be both robust and adaptive.

Observations In Developing An Enabling Regulatory Framework For Global Uptake

Hong Kong has taken an early lead in developing Web3 and FinTech markets, areas of economic activity which are likely to increase significantly in importance over the coming decade. To capitalise on this advancement, efforts could be made to integrate these products and services into mainstream finance, supported by appropriate regulatory considerations. Hence, an enabling regulatory framework would be beneficial.

We have drawn from this work a number of observations and insights that may be of interest to international stakeholders who are keen to encourage innovation and to work with the new products and approaches that Web 3 is enabling.

- **Regulatory frameworks**

It is observed that regulators who are well-resourced and have the necessary powers and policy instruments can effectively supervise the functions and activities of Web3 and FinTech organisations. Specifically, applying regulation on a functional basis and proportionate to risk can ensure that regulations do not present a barrier to innovation and new market entrants.

- **Risk management and governance**

It is important for Web3 and FinTech organisations to maintain effective governance frameworks and clear lines of accountability, where key personnel adhere to high standards of competence and integrity; and have in place effective risk management frameworks, which are regularly reviewed.

- **Transparency and international cooperation**

Providing customers with the information they need to understand the functioning of the services they are offered, including stabilisation mechanisms and risks, redemption, rights and processes for effective dispute resolution, is crucial. Moreover, it is important for relevant regulatory stakeholders to understand their responsibility to cooperate and coordinate both domestically and internationally for effective collaboration.

1. Introducing Web3

The swift evolution of Web3 and FinTech continues to challenge existing regulatory frameworks – please see Annex 1 for a description of the development of the internet and what Web 3 entails. As new financial products and services quickly outpace established laws, regulatory uncertainties and risks to financial stability and consumer protection emerge. Therefore, there is a critical need for agile regulatory approaches that can quickly and effectively adapt to ongoing innovations in the FinTech sector. Ensuring that regulations are robust, relevant, and conducive to both growth and security in the financial ecosystem remains a priority.

The Global FinTech Challenge – The Drive Towards Web3

Around the world, policymakers have grasped the value that FinTech can add to their national economies. Some, such as Australia and the UK (in 2016), were early adopters and established programmes to facilitate the deployment of technology across their financial sectors. Despite the variations in policies, licensing, and legal requirements across different jurisdictions, the race to maximise relative competitiveness in this field has truly been joined.

In Hong Kong, the Hong Kong SAR Government (HKSAR Government) has actively fostered the development of Web3 technologies, aiming to broaden Hong Kong's adoption and bolster its status as a leading international financial centre. A Policy Statement on Development of Virtual Assets in Hong Kong was issued in October 2022², followed by the implementation of a comprehensive regulatory framework. This framework includes the licensing regime for virtual asset trading platforms, introduced in June 2023 and led by the Securities and Futures Commission (SFC). Regulations on other types of virtual assets are expected, along with the formation of a Web3 task force.

These efforts have translated into substantial growth in the Web3 sector. Since its inception in early 2023 to May 2024, Web3Hub@Cyberport³ has become one of Hong Kong's largest Web3 communities. It has attracted about 230 Web3 enterprises from over 15 countries and regions, including unicorns and virtual asset trading platforms licensed by the Government.⁴

Whether in the UK, Australia, Hong Kong or elsewhere, Web3 will require careful and balanced oversight by regulators, who face the dual challenge of enforcing financial regulations while fostering the growth of this nascent sector. Too heavy-handed an approach could stifle innovation and drive businesses offshore to more favourable jurisdictions.

The drive towards Web3 is propelled by two significant factors. The first is the development of increasingly sophisticated AI systems. By enabling machine learning algorithms to access and utilise the vast amount of information on the World Wide Web, businesses will be able to see transformative improvements in their processes and services. The second factor is the

² **HKSAR Government** (10.2024) Policy Statement on Development of Virtual Assets in Hong Kong https://gia.info.gov.hk/general/202210/31/P2022103000454_404805_1_1667173469522.pdf

³ Funded by the Hong Kong SAR Government, the establishment of "Web3 Hub@Cyberport" aims to support the development of local emerging industries and to attract international Web3 companies to set up operations in Hong Kong.

⁴ **Cyberport Press Release** (05.2024) Cyberport establishes "Web3.0 Investors Circle" [https://www.cyberport.hk/files/6658bcd4a8145627997578/\[Press%20Release\]%20Cyberport%20establishes%20Web3.0%20Investors%20Circle%20To%20support%20funding%20needs%20of%20Web3.0%20community.pdf](https://www.cyberport.hk/files/6658bcd4a8145627997578/[Press%20Release]%20Cyberport%20establishes%20Web3.0%20Investors%20Circle%20To%20support%20funding%20needs%20of%20Web3.0%20community.pdf)

advancement of blockchain and distributed ledger technology, which facilitates trustless transactions and enhances control over personal data.

The transition to Web3 offers several key advantages:

- It theoretically provides users with greater control over their data - Users retain ownership and have the discretion to choose whom they share their information with.
- It removes gatekeepers - Web 2 is dominated by a handful of large tech companies, but with Web3, due to its decentralised nature, no single entity is in control, making it more resistant to censorship and attack.
- It is more secure - The use of blockchain and distributed ledger technology means that transactions using Web3 applications are far more resistant to hacking and data breaches.

All of this means that Web3 has the potential to revolutionise the way we interact with the internet, and amongst the predicted growth areas are:

- **Decentralised finance:** A subset of FinTech designed to overcome some of the challenges facing the conventional banking system. DeFi uses a decentralised exchange that does not require intermediaries, by using smart contracts (see Box 1) and distributed ledgers to create a transparent and open financial environment that gives users control of their transaction data.
- **Zero-disclosure technology:** This technology offers enhanced privacy in the blockchain, allowing users to selectively share information, determine the recipients, and set access durations (see Box 2).
- **Modular blockchains:** These could potentially resolve Buterin's trilemma⁵, offering scalability, security, and decentralisation. The Blockchain Trilemma is a theory, proposed by Ethereum founder Vitalik Buterin, that states that blockchain networks cannot be secure, decentralised, and scalable all at the same time: increasing a blockchain's transaction processing speed and capacity typically requires more computing power and network bandwidth. This makes it more expensive and more difficult for nodes to operate. This can lead to fewer nodes on the network, thus making it more centralised and potentially compromising its security and decentralisation.
- **X-to-Earn Applications:** These connect in-game activities with real-world economic value with the support of Web3 technology so that players can get tangible rewards for the time and energy invested in games. Although this type of application already exists in Web2 format, X-to-earn links this reward structure to cryptocurrencies. However, according to CoinGecko⁶, 75% of blockchain games established since 2020 have failed, meaning this is a high-risk area.
- **Web3 Social Networks:** These networks offer enhanced anonymity and security for their users and provide a decentralised alternative to traditional social media platforms, which harvest user data.

⁵ Crooks N 2023 *What is the blockchain trilemma?* The Block <https://www.theblock.co/learn/249536/what-is-the-blockchain-trilemma>

⁶ Quian L 2023 *Is GameFi Dead? 3 in 4 Projects Have Failed* <https://www.coingecko.com/research/publications/how-many-gamefi-dead>

- **The Metaverse:** ‘Metaverse’ describes interlinked, persistent, shared, artificial reality spaces. The portmanteau of ‘meta’, beyond, and uni-‘verse’ implies an alternate space for social commerce is anticipated to continue merging the boundaries between the real and virtual worlds⁷. The use of blockchain and distributed ledger technology allows the ownership and trading of digital assets and real estate.

BOX 1: Smart Contracts

A smart contract is neither smart nor a contract, it merely is the implementation of a contracts terms as executable computer code.

A simple example of a smart contract would be a weather derivative contract which pays \$50,000 on every day in July when the temperature recorded by a given field on the Meteorological Office website is above 33 °C.

It is a code element containing two basic components:

- a) Conditions which trigger action(s) – in this case a temperature of 33 °C -; and
- b) Actions to execute – pay \$50,000.

Smart contracts operate automatically and can be powerful tools for dis-intermediating simple transactions and making administration and processing swifter, more efficient, and more accurate.

However, any error in the underlying data may result in an incorrect contractual outcome from the execution of code, triggering an incorrect transfer of assets, which may be difficult to unwind.

BOX 2: IDChainZ

IDChainZ (<https://www.chainzy.com/products/idchainz/>) uses ChainZy mutual distributed ledger technology to allow multiple parties to add, certify and exchange KYC and AML documentation.

Three types of parties’ exchange information:

- Subject: Individual on whom KYC / AML checks need to be conducted.
- Certifier: The organisation certifying the Subject.
- Inquisitor: The organisation conducting KYC/AML checks on the subject.

The document ring structure developed for IDChainZ provides the opportunity to organise documents logically and to set permissions. With sprites, pieces of self-executable code, subjects may set both time and use restrictions on inquisitors for access to their documents.

⁷ Mainelli M & Mills S 2022 *The Metaverse & Insurance - Pixel Perfect?* Long Finance & Distributed Futures
<https://www.longfinance.net/publications/professional-articles/metaverse-insurance-pixel-perfect/>

The Potential Impact Of Web3 On Financial Services

Ironically, despite its origins in the libertarian movement⁸, and its stated aims to embrace the decentralisation, democratisation, and ownership of the internet amongst its users, the Web3 movement has attracted a great deal of attention from the financial services sector. This is because, Web3's core traits are those of the blockchain - decentralised, permissionless, and trustless⁹. These hold enormous promise in the form of DeFi and self-custody digital wallets.

Users anywhere in the world could have access to the entire global financial system including payment, exchange trading, investing, lending, and borrowing, all with faster settlement and lower transaction costs, transforming inclusivity and helping to provide financial services to the estimated 2 billion people worldwide who do not have bank accounts¹⁰.

Moreover, the underlying technology of Web3, blockchain or 'distributed ledger technology', offers users an immutable and transparent way to store information. Distributed ledgers can be used to create digital deeds, allowing fractional ownership of real-world assets, such as ships, real estate, commodities, or artworks.

Further extending Web3's impact are Decentralised Autonomous Organisations, which could operate as corporations without a formal management structure. Members vote on all decisions, which are then executed by encoded rules.

All these activities have the potential to operate in the cloud, heedless of international borders or jurisdictions. As a result, DeFi has the potential to disrupt existing market structures, rendering existing institutions such as banks and stock exchanges obsolete.

⁸ **Wolf M 2019** *The libertarian fantasies of cryptocurrencies* Financial Times, Feb 12 2019

<https://www.ft.com/content/eeeacd7c-2e0e-11e9-ba00-0251022932c8>

⁹ **Mills S & McDowall B** *Responsibility Without Power? The Governance Of Mutual Distributed Ledgers*

<https://www.longfinance.net/publications/professional-articles/responsibility-without-power-the-governance-of-mutual-distributed-ledgers-aka-blockchains/>

¹⁰ **World Bank 2022** The Global Findex Database 2021 <https://www.worldbank.org/en/publication/globalfindex/Data>

2. An Enabling Regulatory Framework for Innovation

Role of the Regulator

The stability of national and global financial systems hinges on the effective regulation of financial institutions. Poor oversight can harm consumers and damage the economy¹¹.

Such vulnerability was highlighted by the 'Great Recession'¹² that began in 2007, which triggered a sharp decline in economic activity and had lasting effects for several years. Some commentators believed that its repercussions are still felt in some sectors of the world economy even years later¹³.

The cause of this recession was widely considered the bursting of the U.S. housing bubble, which led to a severe contraction of liquidity in global financial markets¹⁴. The evident regulatory shortcomings that had enabled such economic failures were subjected to rigorous public scrutiny, and regulatory reforms were enacted around the world across three major areas, in an attempt to prevent a recurrence of a similar crisis:

- **Prudential regulation:** This type of regulation is intended to ensure that financial institutions remain financially healthy by adhering to strict financial and operational standards¹⁵. It includes both micro-prudential regulation, which ensures the solvency of individual financial firms, and macro-prudential regulation, which aims to identify and mitigate systemic risks that could destabilise the broader financial system. Important aspects of this regulation cover capitalisation, liquidity requirements, and risk management practices.
- **Conduct of business regulation:** This type of regulation focuses on the behaviour of financial firms. It covers the treatment of customers, market transparency and ethical business practices and includes guidelines for accurate and timely disclosure of information, bans on unfair practices, and consumer rights¹⁶.
- **Systemic regulation:** This type of regulation is geared towards reducing systemic risk, or the risk that the failure of one institution could lead to the collapse of the entire financial system¹⁷. These regulations include oversight of activities that may pose systemic risk, stress testing of large banks, and monitoring of shadow banking activities.

The regulation of the financial services sector is inherently complex due to the varied activities it encompasses, oversight responsibilities are usually divided among multiple different agencies.

¹¹ OECD 2010 Policy Framework for Effective and Efficient Financial Regulation <https://www.oecd.org/finance/financial-markets/44362818.pdf>

¹² Federal Reserve History (accessed 10.06.2024) *The Great Recession and Its Aftermath* <https://www.federalreservehistory.org/essays/great-recession-and-its-aftermath>

¹³ Chen et al 2018 *Lasting Effects: The Global Economic Recovery 10 Years After the Crisis* <https://www.imf.org/en/Blogs/Articles/2018/10/03/blog-lasting-effects-the-global-economic-recovery-10-years-after-the-crisis>

¹⁴ Duggan W 2023 *A Short History Of The Great Recession* <https://www.forbes.com/advisor/investing/great-recession/>

¹⁵ APRA (accessed 10.06.24) *What is prudential regulation?* <https://www.apra.gov.au/what-prudential-regulation>

¹⁶ Moloney N (ed.) et al 2015 *The Oxford Handbook of Financial Regulation*, Oxford University Press ISBN: 9780199687206

¹⁷ Grochulski B & Slivinski S 2009 *Systemic Risk Regulation and the "Too Big to Fail" Problem*, Federal Reserve Bank Of Richmond https://www.richmondfed.org/publications/research/economic_brief/2009/eb_09-07

As technological innovation accelerates, regulators worldwide face the challenge of adapting to the rapid evolution of financial products and services. The emergence of Web3 technologies and virtual assets, along with the infrastructure supporting their trade, present both significant opportunities and new risks.

What Does an Enabling Financial Regulatory Framework Look Like?

The OECD identifies seven key attributes¹⁸ of effective regulatory regimes for financial systems. They can be summarised as:

- **Transparency:** Comprehensive data and information on the financial system must be collected, analysed and disseminated.
- **Surveillance:** Mechanisms must be in place to monitor financial system developments, assess potential risks and provide early warnings of potential problems.
- **Clarity:** Clear policy objectives should be set out which prioritise stability and confidence in the financial system.
- **Complementarity:** Policy instruments should be carefully designed to both minimise risks and maximise international coordination.
- **Comprehensive:** Regulation should adopt a precautionary and risk-based approach that is comprehensive. It should also provide clear incentives for compliance and enforce penalties for non-compliance.
- **Outward facing:** International coordination, convergence, and implementation are important to ensure compliance and competitiveness.
- **Proactive and flexible:** The framework for government intervention and regulation should be coordinated, reviewed periodically, and responsive to the evolving financial system.

Notably, international cooperation and coordination are mentioned twice in this list, underscoring its importance. Financial centres compete to attract new business and fiercely guard their competitive advantages. Regulators must walk a fine line between discharging their duties regarding protecting the integrity of financial systems while keeping their financial centre(s) attractive and competitive for international business. Given the interdisciplinary nature of financial services, ensuring that regulations are effective and facilitate international trade requires close cooperation with authorities in other regulatory regimes.

¹⁸ OECD 2010 Policy Framework for Effective and Efficient Financial Regulation <https://www.oecd.org/finance/financial-markets/44362818.pdf>

What Does An Effective Regulator Look Like?

An effective regulator plays a crucial role in fostering trust and confidence within financial systems, services, and the firms that operate within these markets¹⁹. A key part of this is built through communication, which acknowledges and addresses the concerns of stakeholders while developing and embedding strong ethics and a commitment to care for clients.

Regulators should have clearly understood the scope and objectives²⁰, against which performance can be measured and reported. Predictability is essential - stakeholders must understand when they are subject to regulatory oversight. The objectives, requirements, and application of regulations, as well as the outcome of decisions, must be predictable transparent, and accompanied by a transparent appeals process.

The development and application of regulations must be proportionate and fair. In particular, regulatory requirements, oversight, and intervention should reflect the nature, scale, sophistication, and complexity of market participants²¹; and above all, they must specifically target the problems which regulators intend to address.

It is essential for regulators to recognise the commercial impact of their regulations²² – onerous or excessively bureaucratic processes can undermine the ability of firms to operate profitably. Regulators should understand that there are limits to what regulation can achieve and should explore whether non-regulatory approaches – such as appropriate private-led initiatives – could be more effective in meeting their objectives without stifling market innovation or profitability.

Regulators should aim to ensure that the rules and guidance they issue are clear, straightforward and easily understandable. Establishing and maintaining standards of behaviour and competence for market participants is also crucial²³, ensuring that the market operates with integrity and efficiency.

To identify market failures or potential systemic risks, regulators are required to possess deep expertise and insight into financial markets. To this end, it is essential that regulators are appropriately funded so that they can employ sufficient, high-calibre staff who possess extensive practical experience in financial markets.

¹⁹ **ICAEW** (accessed 10.06.2024) *Principles for Good Financial Regulators* <https://www.icaew.com/technical/financial-services/inspiring-confidence-in-financial-services/principles-for-good-financial-regulators>

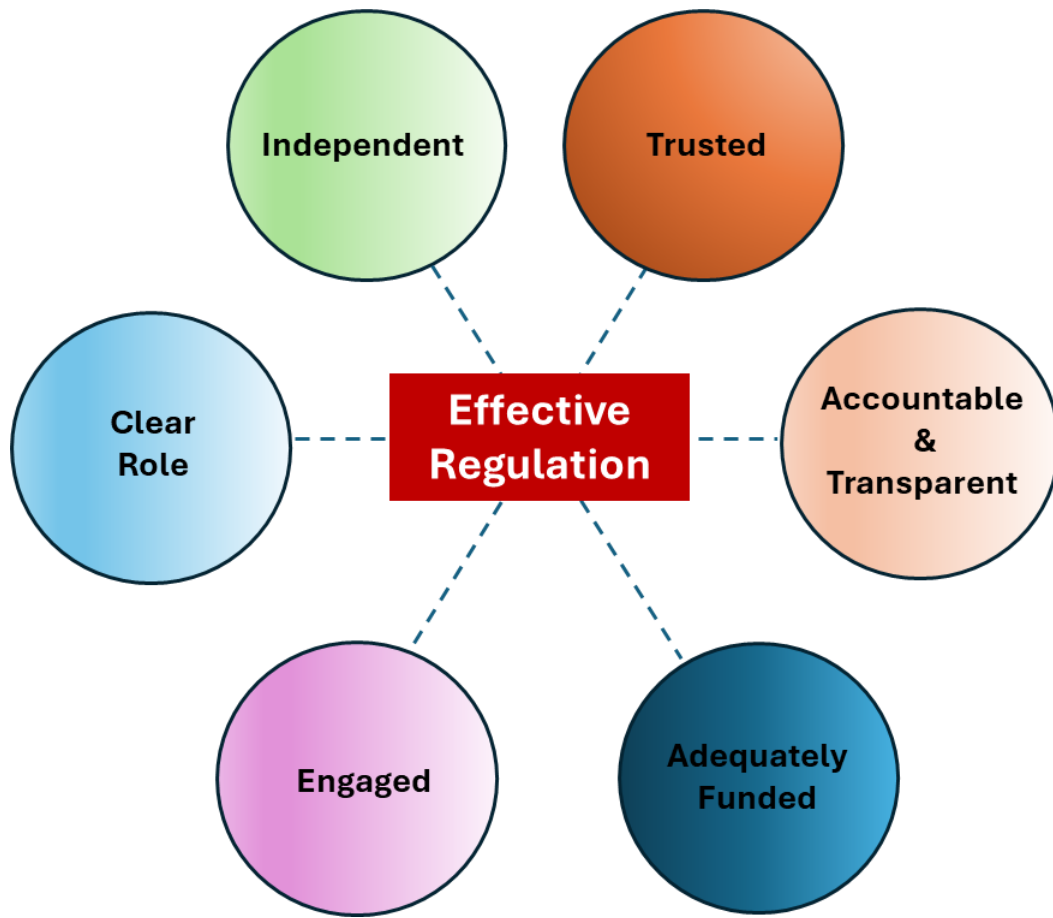
²⁰ **National Audit Office** (accessed 10.06.2024) *Principles of Effective regulation* <https://www.nao.org.uk/wp-content/uploads/2021/05/Principles-of-effective-regulation-SOff-interactive-accessible.pdf>

²¹ **European Banking Authority** (accessed 10.06.2024) *Single Rulebook* <https://www.eba.europa.eu/regulation-and-policy/single-rulebook/interactive-single-rulebook/15320>

²² **UK Government** (accessed 10.06.2024) *Business impact target: statutory guidance* <https://www.gov.uk/government/publications/business-impact-target-statutory-guidance>

²³ **SFCHK 2022** *Fit and Proper Guidelines* <https://www.sfc.hk/en/Rules-and-standards/Codes-and-guidelines/Guidelines/Fit-and-Proper-Guidelines>

Figure 1: Effective Regulation



Regulatory Framework For Web3

“There exists in such a case a certain institution or law; let us say, for the sake of simplicity, a fence or gate erected across a road. The more modern type of reformer goes gaily up to it and says, “I don’t see the use of this; let us clear it away.” To which the more intelligent type of reformer will do well to answer: “If you don’t see the use of it, I certainly won’t let you clear it away. Go away and think. Then, when you can come back and tell me that you do see the use of it, I may allow you to destroy it.” G.K Chesterton²⁴

As stated in the preceding section, regulators shoulder a responsibility for developing and embedding strong ethics and a duty of care to clients in the organisations they oversee.

The execution of this duty is supported by the cultural frameworks of the financial centre in which they operate in. Even in this digital age, networks of businesses and clients form, who have social as well as business ties, developed over years of doing business together.

Trust can be defined as a “willingness to act on the basis of beliefs about the motives of other parties and the level of risk involved with action²⁵.” Human interactions in the business arena create networks of trust and accompanying social mores, which makes ethical transgression less likely, though not impossible²⁶.

It is precisely for this reason that professional organisations are established. They are there to act as gatekeepers because incumbent professionals wish to ensure that prospective players are competent, and fit and proper persons, thereby safeguarding their collective professional reputations²⁷.

This is where regulators may encounter their first hurdle when confronted with Web3 applications that may fall within their scope: a cultural disjuncture.

²⁴ **Chesterton G 1929** *The Thing – Why I am A Catholic* Sheed & Ward; Reprint edition (1 Jan. 1957) ASIN : B0007DM88W

²⁵ **Joujeir R and Brennan R 2017** *The influence of culture on trust in B2B banking relationships* International Journal of Bank Marketing, Vol. 35(3): 495-515, May 2017

²⁶ **Tyler K and Stanley E 2007** *The role of trust in financial services business relationships*, Journal of Services Marketing, Vol. 21 No. 5, pp. 334-344 <https://www.emerald.com/insight/content/doi/10.1108/08876040710773642/full/html> .

²⁷ **Walker P 2004** *The genesis of professional organisation in English accountancy* Accounting, Organizations and Society Volume 29, Issue 2, February 2004, Pages 127-156
<https://www.sciencedirect.com/science/article/abs/pii/S0361368202000314>

BOX 3 - Disruption /dɪsˈrʌp.ʃən/

Noun

1. The action of preventing something, especially a system, process, or event, from continuing as usual or as expected.
2. The action of completely changing the traditional way that an industry or market operates by using new methods or technology

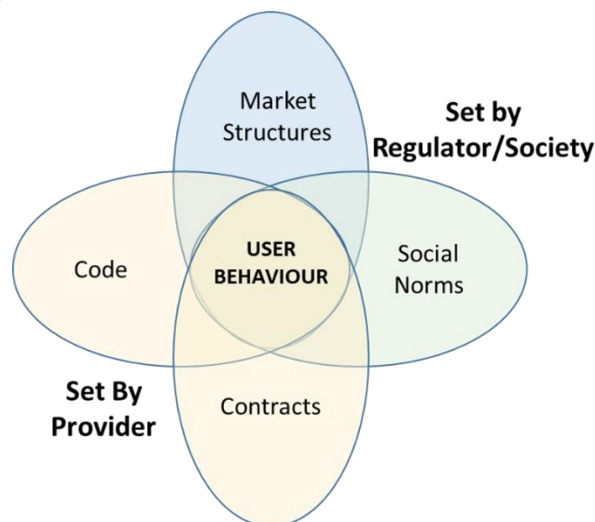
Cambridge English Dictionary (online edition)

<https://dictionary.cambridge.org/dictionary/english/disruption>

Mark Zuckerberg famously coined the phrase *“Move fast and break things”*²⁸ when he established Facebook in 2004, and this has been the mantra for internet-based businesses for much of the last twenty years. ‘Disruptors’ pride themselves on their ability to transform established markets (often ones in which they have no experience), turn accepted business models on their heads, kick down barriers to access for consumers, and create new products and services.

While this surge of innovation is undoubtedly beneficial—injecting capital, enhancing liquidity, and revitalising markets—it also requires a balanced regulatory approach. The smooth functioning of markets is contingent upon four interlinked factors (see Figure 2):

Figure 2: Market Interaction



Adapted from Oermann et al 2014²⁹

²⁸ Lyles J 2022 Did Mark Zuckerberg Say, 'Move Fast And Break Things'? <https://www.snopes.com/fact-check/move-fast-break-things-facebook-motto/>

²⁹ Oermann M et al 2014 “Approaching Social Media Governance” HIIG Discussion Paper Series, (May 2014), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2498552

1. **The legal framework and market structures** that enable commercial activities to take place.
2. **Social norms** (trust and reputation), that govern willingness to trade.
3. **The code** that governs interaction within the network – this can be algorithmic (e.g. a smart contract or blockchain) or analogue (e.g. a physical “rulebook”).
4. **The contracts** that define legal relationships between users and/or service providers.

From the perspective of a market participant, the first two of these are determined by external forces. The latter two are, however, the purview of the service provider.

The use of blockchain or smart contracts by businesses in the financial services sector requires that these external forces remain a material consideration. However, cryptocurrencies were specifically established to circumvent legal frameworks and social norms³⁰. Oftentimes, the advocates of such disruptive technologies prioritise market innovation over adherence to established market structures and ethical standards.

Initially, incumbent businesses often overlook these emerging newcomers until they start to take significant market share. Thereafter, they may react in one of three ways: they will either buy a smaller startup operating in this field and absorb its innovations into their own business models, develop their own innovative offerings, or demand that the regulator crackdown on the upstarts—sometimes, they might engage in all three simultaneously.

However, regulators can ameliorate the ripples caused by this culture clash by ensuring that incomers have effective governance arrangements in place to guarantee that the code and contracts developed by providers conform with market structures and social norms.

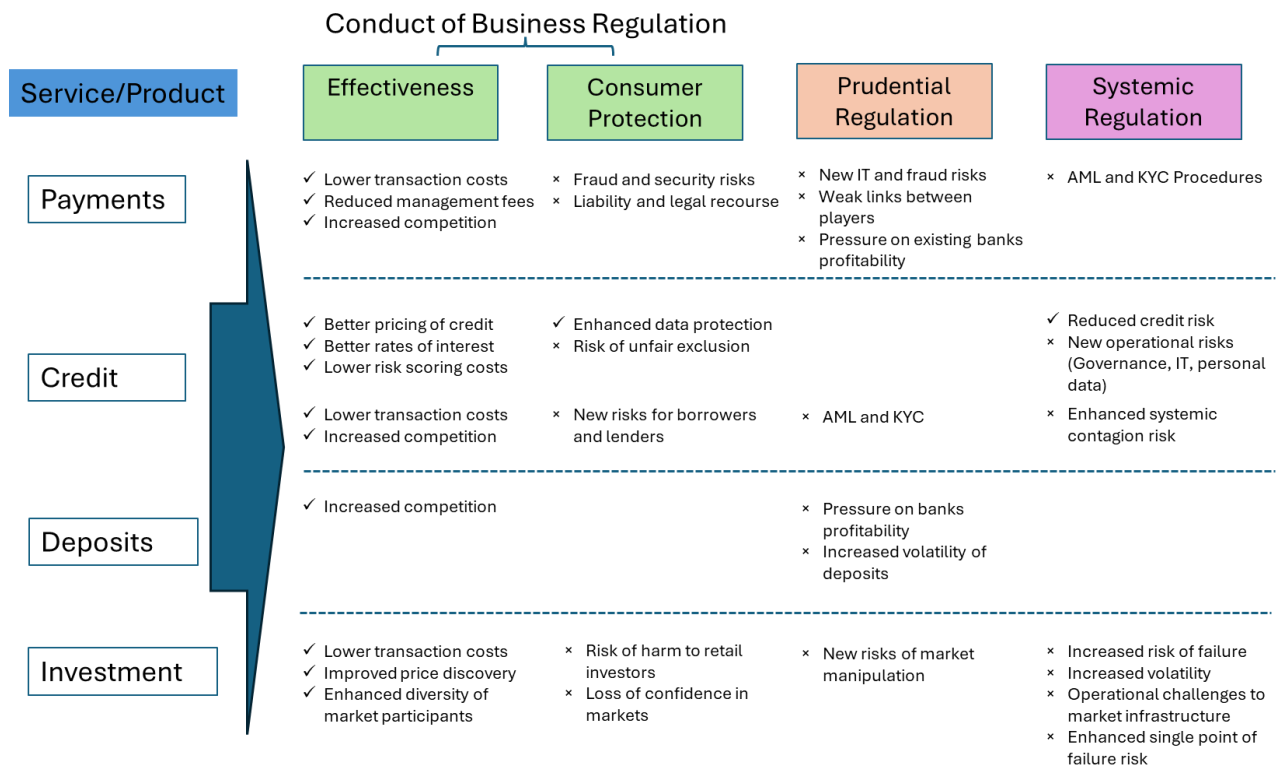
Managing Risks In The Era Of Web3

As described above, the regulator's role encompasses three key areas: ensuring that financial institutions remain financially healthy (prudential regulation), safeguarding financial systems (systemic regulation), and protecting customers to maintain trust in financial systems (conduct of business regulation).

Web3 has the potential to create risks across all three of these areas (see Figure 3). For example, while the application of DLTs in payment and securities transactions can diminish settlement risks by reducing the time and errors associated with traditional methods, it simultaneously raises liquidity needs, thus escalating liquidity risks. Additionally, the reliance on new technologies could lead to the emergence of novel single points of failure, such as disruptions in payment or exchange infrastructure, potentially destabilising the financial system.

³⁰ **Crypto.com** (accessed 12.06.2024) Why Was Bitcoin Created? <https://crypto.com/bitcoin/why-was-bitcoin-created>

Figure 3: New Risks & Regulatory Structures



Adapted from González-Páramo J 2017³¹

Types of Web3 Service Provider

A digital native is someone who has grown up in the information age and has an instinctive understanding of digital technologies and how they can be applied³². This is contrasted with a digital immigrant, who was born before the information age and often struggles with this instinctual grasp.

The rapid advancement and widespread adoption of digital technology across all walks of life has facilitated a surge of 'digital native' competitors in practically every industry. These competitors are outsiders to established sectors, but they have detected trends in customer behaviour and technologies that offer a chance of success against incumbents.

These competitors are often called disruptors and fall into one of two categories - mega-corporations such as Google, Apple, Amazon, or Facebook; and nimble start-ups without legacy structures. Sometimes, the mega corps will identify a promising area and acquire start-ups with promising business potential, integrating innovative business models into their portfolios.

³¹ **González-Páramo J 2017** *Financial Innovation In The Digital Age: Challenges For Regulation And Supervision*, Banco De Espana

https://www.bde.es/f/webbde/GAP/Secciones/Publicaciones/InformesBoletinesRevistas/RevistaEstabilidadFinanciera/17/MAYO%202017/Articulo_GonzalezParamo.pdf

³² **Prensky M 2001** *Digital Natives, Digital Immigrants Part 1, on the Horizon*, Vol. 9 Iss 5 pp. 1 - 6. 2001

<https://www.scribd.com/doc/263268940/digital-natives-digital-immigrants-part-1>

FinTech developments have typically been characterised by the unbundling and decentralisation of services, rapid changes in technologies and business models, strong economies of scale, cross-border and cross-sectoral expansion, and a focus on retail services³³.

The offerings of disruptors can, according to Schmidt and Sidje³⁴ be classified into 5 archetypes

- **Matchmakers:** These models facilitate connections between market participants, examples being peer-to-peer lending and insurance platforms.
- **Standardisers:** They offer customised value propositions based on modularised value creation, such as AI robo-advisors to provide personalised investment advice.
- **Service providers:** They design a value proposition that allows customers to optimise the use of their resources. For example, the blockchain tokenisation of real-world assets can transform assets into a virtual asset, which can be traded on public platforms, enabling fractional ownership, and enhancing access to finance markets. An example of this could be maritime finance, where small investors could take fractional shares in multiple vessels, thus spreading risk, whilst providing a much-needed injection of capital for ship owners³⁵.
- **Open collaborators:** They partner with stakeholders that are already embedded in a low-end target market to launch and grow offerings in base-of-pyramid markets. Examples could include leverage or aggregation to enhance offerings of green bonds.
- **Performance reducers:** Business models that focus on the reduction of performance varieties to realise 'good enough' value propositions. Performance reducers deliver their value propositions directly to customers, eliminating intermediaries and distributors. Examples can be found in direct banking and virtual asset exchanges.

The fundamental activities of Web3 operators – primarily buying and selling of assets or services – are not entirely new. However, what is new are the target clients they offer these services to (democratisation) and the use of technology to streamline delivery processes (disintermediation) so as to gain a share of new markets (e.g. unbanked customers) or to gain massive efficiencies and thus out compete incumbent operators.

In theory, regulators should be able to adapt existing frameworks to accommodate the offerings of Web3 firms, integrating them into the regulated financial ecosystem.

In practice, however, this can prove challenging as existing legislation is geared to traditional processes and structure, such as intermediaries, which DeFi applications sidestep as a critical part of their business propositions.

³³ Baines P et al 2022 *BigTech in Financial Services: Regulatory Approaches and Architecture*. IMF

<https://www.imf.org/en/Publications/FinTech-notes/Issues/2022/01/22/BigTech-in-Financial-Services-498089>

³⁴ Schmidt L & Sidje P 2022 *Disruption by design? Classification framework for the archetypes of disruptive business models* R&D Management 52, 5, 2022 <https://onlinelibrary.wiley.com/doi/10.1111/radm.12530>

³⁵ Mills S & Wardle M 2024 *Developments In Maritime Finance & Maritime Financial Centres* <https://www.longfinance.net/publications/professional-articles/developments-in-maritime-finance-maritime-financial-centres/>

The strict application of existing regulatory regimes to start-up Web3 operations, or to existing operators who wish to develop new offerings in this space has a chilling effect, which may drive Web3 firms to more accommodating regimes and adversely affect financial centres' competitiveness over the long term³⁶.

The Importance Of An Enabling Regulatory Framework For Decentralised Finance: A Case Study On Stablecoins

The effective analysis of risks by regulators is particularly important when examining the products and services at the heart of the DeFi revolution. Stablecoins, a pivotal innovation in this space, exemplify the need for such regulatory vigilance.

The development of stablecoins has been necessary due to the extreme volatility of existing virtual assets such as Bitcoin (see Figure 4), which can see fluctuations exceeding 10% within hours³⁷. This volatility undermines the suitability of such cryptocurrencies for everyday financial transactions, necessitating an alternative that offers stability.

Figure 4: Quarterly Tracking Of Bitcoin Value To 04.06.24



Source- Coindesk

Stablecoins are virtual assets whose value is pegged to that of another currency, commodity, or financial instrument, thus minimising its volatility. Stablecoins come in several varieties³⁸:

- **Fiat-collateralised stablecoins** maintain a reserve of a fiat currency (or currencies) such as the U.S. dollar, as collateral. Other forms of collateral can include precious

³⁶ Ferran E 2023 *International Competitiveness and Financial Regulators' Mandates: Coming Around Again in the UK*, Journal of Financial Regulation, Volume 9, Issue 1, April 2023, Pages 30–54, <https://academic.oup.com/jfr/article/9/1/30/7070769>

³⁷ Lapin N 2021 *Explaining Crypto's Volatility* Forbes <https://www.forbes.com/sites/nicolelapin/2021/12/23/explaining-cryptos-volatility/>

³⁸ Khatri Y 2023 *What are the different types of stablecoins?* <https://www.theblock.co/learn/251859/the-different-types-of-stablecoins-explained>

metals like gold or silver as well as commodities like crude oil. This backing by tangible or traditionally stable assets helps mitigate the volatility typically associated with cryptocurrencies.

- **Crypto-collateralised stablecoins** are backed by other cryptocurrencies. However, as the reserve cryptocurrency may also be prone to high volatility, this type of stablecoin has to be over-collateralised, often up to twice the value of the stablecoins issued³⁹.
- **Algorithmic stablecoins** keep their value stable by controlling supply through an algorithm, akin to the monetary policy of central banks. Since the abandonment of the Gold Standard⁴⁰, central banks do not necessarily rely on physical reserves to uphold the value of their fiat currencies. Similarly, algorithmic stablecoins adjust their supply based on certain criteria to stabilise price. However, the algorithms governing these stablecoins can sometimes lack the transparency and credibility that is typically associated with central bank operations.

In offering 24/7 instant settlement on a shared global ledger, stablecoins have the potential to become a core part of the global payments infrastructure over the coming decade, with significant implications for clearing houses and other intermediaries.

Some of the benefits they offer include:

- **Separation of currency and jurisdiction:** The movement of stablecoins does not require clearance through onshore domestic banks. This can facilitate transactions independently of the jurisdiction of individuals or the currencies. This characteristic is especially beneficial in global trade, allowing for smoother and more flexible financial transactions between parties in different countries.
- **Elimination of currency exchange fees:** By using stablecoins, businesses and individuals can avoid the fees and delays associated with currency conversions. This has significant implications for large-scale corporate financing, as well as small import/export companies and could facilitate global trade.
- **Rapid transactions 24/7:** When linking to other Web3 applications, such as DeFi and smart contracts, stablecoins provide the perfect on/off ramp to Web3 services, greatly enhancing the potential of Web3 to enhance cross-border, frictionless economic activity with no transaction fees, as well as providing accessible finance to developing countries.

While the benefits of stablecoins are compelling, they come with risks, both at the user and the macro-scale financial system level.

³⁹ **Grobys K et al 2021** *On the stability of stablecoins* Journal of Empirical Finance, Volume 64, December 2021, Pages 207-223 <https://www.sciencedirect.com/science/article/pii/S0927539821000761>

⁴⁰ **The World Gold Council** (accessed 05.06.2024) *The Classical Gold Standard* <https://www.gold.org/history-gold/the-classical-gold-standard>

User Considerations With Stablecoin

For users, there are three key considerations when using stablecoin:

- **De-pegging risk⁴¹**: The fundamental appeal of stablecoins lies in their promise of stability. Market fluctuations, poorly designed algorithms, or liquidity issues can cause a loss of confidence in stablecoin and deviation from its intended peg - as witnessed in the collapse of the algorithmic stablecoin TerraUSD⁴².
- **Moral hazard**: Stablecoin assets are generally issued by centralised entities that control the backing assets and the issuance process. Users must have confidence that the issuer maintains sufficient reserves and upholds trust in its financial management and governance arrangements. The shadow of FTX⁴³ still lies across the virtual asset industry.
- **Reserve management⁴⁴**: The management and auditing of reserve assets are critical for fiat-collateralised stablecoins. Poor management, fraudulent behaviour, or lack of transparency by the issuer can undermine confidence in the stablecoin and, thus, the asset's stability.

Macro-Economic Concerns With Stablecoin

Stablecoins could pose a significant threat to macro-economic stability in four key areas:

- **Currency substitution⁴⁵**: If citizens and businesses in a jurisdiction start using stablecoins as an alternative to the sovereign currency, there could be implications for the ability of its central bank to manage fiscal policy effectively. Furthermore, currency substitution could reduce the ability of the exchequer to raise the revenues needed for funding public services.
- **Market, liquidity and credit risk⁴⁶**: The choice of asset and the management of the stablecoin's reserve assets are important and beg the question as to whether they could be liquidated at, or close to, prevailing market prices. Where sovereign bonds are used, a rapid sell-off or 'fire sale' could destabilise the bond market, with severe macroeconomic consequences.
- **Inflation⁴⁷**: In substance, stablecoins appear to differ little from other forms of financial intermediary-created money such as fractional reserve banking and money market funds. In the case of crypto-collateralised or algorithmic stablecoins, the activities undertaken by the issuers could be viewed as "money creation", something that central banks generally disapprove of. In the case of single currency fiat collateralised stablecoins (such as Libra), a significant stock of safe assets and a

⁴¹ Fluid AI (accessed 05.06.2024) Why do Stablecoins De-peg? <https://fluidai.com/blog/why-do-stablecoins-depeg>

⁴² Chainalysis 2022 The Trades That Triggered TerraUSD's Collapse <https://www.chainalysis.com/blog/how-terrausd-collapsed/#:~:text=Summary,of%20both%20LUNA%20and%20UST>.

⁴³ Zahn M 2024 A timeline of cryptocurrency exchange FTX's historic collapse <https://abcnews.go.com/Business/timeline-cryptocurrency-exchange-ftx-historic-collapse/story?id=93337035>

⁴⁴ Ahmed R et al 2024 Public information and stablecoin runs BIS White Paper <https://www.bis.org/publ/work1164.htm#:~:text=Greater%20reserve%20transparency%20can%20increase,or%20transaction%20costs%20are%20high>.

⁴⁵ McDonald C and Zhao L 2022 Stablecoins and Their Risks to Financial Stability <https://www.bankofcanada.ca/wp-content/uploads/2022/11/sdp2022-20.pdf>

⁴⁶ Polizou C et al 2023 Stablecoins: A Deep Dive into Valuation and Depegging S&P https://www.spglobal.com/division_assets/images/special-editorial/stablecoins-a-deep-dive-into-valuation-and-depegging/rl_stablecoins.pdf

⁴⁷ Arner D 2020 Stablecoins: risks, potential and regulation BIS Working Papers No 905 <https://www.bis.org/publ/work905.pdf>

substantial part of the money supply could be taken out of the control of the central bank and the banking system with systemic consequences.

- **Money laundering, tax avoidance and the proceeds of crime⁴⁸:** The inherent traits of virtual assets - decentralised, permissionless, and trustless - makes them attractive for illicit activities, including money laundering and tax evasion. Current methods include the use of nested services, gambling platforms, mixers, fiat exchanges, and services headquartered in high-risk jurisdictions (see box 3). Without adequate safeguards and oversight, DeFi Web3 applications offer enhanced opportunities for money laundering and the funding of terrorism. Should a reputable financial centre become a hub for such malpractices, it could tarnish the integrity of its legitimate financial services.

BOX 4 - Potential Laundering of Virtual Assets

Criminals exploit the anonymity provided by blockchain technology to launder proceeds from illegal activities, effectively masking their origins and converting them into fiat currency. This laundered money can then be moved into the legitimate banking system.

Several methods are commonly used for this purpose:

Nested services - These are services operating across one or more legitimate exchanges that offer over the counter (OTC) brokerage to easily, securely and anonymously trade large amounts of virtual assets. Some exchanges have lax compliance standards for nested services, allowing bad actors to exploit them for money laundering purposes.

Gambling platforms - Funds are paid into the platform using anonymous accounts. They are either cashed out or placed in bets (often in collusion). Once the money is dispensed from the gambling account, it appears legitimate.

Mixers - These are services that blend virtual assets from multiple addresses before sending them to wallets. This increases anonymity and obfuscates the source of funds before they are transferred to legitimate businesses or major exchanges.

Fiat exchanges - These change virtual assets into fiat money. They can be regulated exchanges, peer-to-peer (P2P), or non-compliant platforms that are not subject to regulation.

⁴⁸ **Hart R 2024** *Tether Cryptocurrency Becoming 'Preferred Choice' Among Money Launderers And Scammers, UN Warns* Forbes <https://www.forbes.com/sites/roberthart/2024/01/15/tether-cryptocurrency-becoming-preferred-choice-among-money-launderers-and-scammers-un-warns/#:~:text=The%20agency%20said%20tether's%20stability,used%20by%20organized%20crime%20groups.>

3. The Impact Of An Enabling Regulatory Framework On Financial Innovation

Over the past two decades, rapid technological advances have transformed societal structures and economic dynamics. The widescale adoption of digital technology has seen massive changes take place in short periods of time. These disruptions have radically transformed personal relationships, business organisations and the way economic value is created.

In this context, the pace and impact of disruptive change on the financial system is influenced by two fundamental forces:

- The ability of both established financial players and new entrants to conceptualise a future for financial services and their capacity—technological, financial, and organisational—to realise this vision.
- The impact of regulators and policymakers (as the drivers or the brakes) on the changes needed during the transition.

As discussed in earlier sections, regulation in the financial service sector is, by necessity, more intensive than in other sectors because of the potential damage that the sector can do to a country's or, indeed, the global economy. A strong financial system is essential for maintaining stability and fostering economic growth, and stability requires that financial institutions work properly.

Traditional regulation has, therefore, focused on this goal rather than promoting innovation—and since the 2008 financial crisis, many governments have doubled down on this position.

In this context, the emergence of FinTech and Web3 has posed significant challenges to both regulators and policymakers. A rigid regulatory framework can act as a hinderance to growth and innovation within these sectors. For instance, despite Korea being a major player in technology, the growth of its domestic FinTech industry has been slow, and pre-regulation by law is cited as the main reason for this⁴⁹. Korean FinTech firms hindered by regulations often find it difficult to develop their business. It can take several months and thousands of dollars to obtain regulatory approval to operate a FinTech startup. Such delay and expense are detrimental in an industry where today's bright ideas quickly become yesterday's news, and companies at that stage have limited capital.

Regulatory Approaches For Web3 & Innovation In The Financial Services Industry

As the landscape of financial services continues to evolve with innovations like Web3, regulators face the challenge of fostering growth while managing risks. To effectively navigate this terrain, regulators can consider the following four approaches:

⁴⁹ Lo E 2023 *Fuelling South Korea's Start-up Scene: On FinTech*
<https://research.hktdc.com/en/article/MTU1MjE1MTE1Mg#:~:text=Regulatory%20compliance%20and%20language%20barriers,non%E2%80%91compliance%20can%20be%20severe.>

- **A formal, structured approach:** This method involves putting certain restrictions on innovation until a better understanding of it and the associated risks to financial systems and consumers. Following a period of observation, regulators might either revise existing regulations or develop new frameworks to ensure a level playing field for both new entrants and incumbent stakeholders. Examples of this approach include Indonesia's Financial Service Authority developing Regulation No.37/POJK.04/2018⁵⁰ on Equity Crowdfunding in response to the growth of equity crowdfunding platforms. In Hong Kong, the approach towards virtual asset trading platforms was initially restrictive, especially for retail clients, to minimise their risk exposure. After careful evaluation, regulations were adjusted to allow limited participation in virtual asset products and stablecoins, balancing consumer protection with market innovation.
- **A Laissez-faire approach:** In a laissez-faire system, small-scale innovation is allowed up until the point that it becomes too large to ignore or leads to a negative incident. At such a tipping point, regulators will create a specific legal framework designed to address the emergent issue. An example of this can be found in Ant Financial⁵¹ which created the world's fourth-largest money market through the Alipay Digital Wallet before incurring a regulatory crackdown.
- **Ad-Hoc licencing:** Effective regulation is required to manage the risks detailed in Figure 3. However, it requires an understanding of the innovation in question. The creation of an ad hoc licencing system for innovation, which includes testing, data collection, and reporting, provides a practical framework to test innovations in a live environment. This approach enables regulators to pick up any issues before they become significant and incorporate them into any prospective legislative framework. The downside of this approach is the possibility of becoming bureaucratic, increasing the cost of doing business to navigate compliance with these regulations. Furthermore, the success of this approach relies on the regulator's ability to design and implement an effective licencing system, which requires a team of highly knowledgeable and skilled staff.
- **Sandboxes:** Strictly speaking a sandbox is not an approach, but rather a tool employed by regulators. Although there is no formally agreed definition⁵², the term refers to tools which allow financial services institutions to conduct live testing on innovative products and services under the supervision of a regulator. Sandboxes suspend or limit the application of certain regulations to the businesses operating within the sandbox. Unlike a laissez-faire approach, which permits unregulated development until a market or systemic issue arises, sandboxes offer a structured and standardised environment with clear boundaries. Businesses are permitted to operate within these sandboxes for a designated period of time, which helps mitigate potential risks to the wider financial system.

⁵⁰ **OJK 2018** *Indonesian Equity Crowdfunding Regulation* <https://ojk.go.id/id/regulasi/Documents/Pages/Layanan-Urun-Dana-Melalui-Penawaran-Saham-Berbasis-Teknologi-Informasi-%28Equity-Crowdfunding%29/POJK%2037%20-%202018.pdf>

⁵¹ **Zhu j & Xu J 2023** *China ends Ant Group's regulatory revamp with nearly \$1 billion fine* <https://www.reuters.com/technology/china-end-ant-groups-regulatory-revamp-with-fine-least-11-bln-sources-2023-07-07/>

⁵² **European Parliament 2022** *Artificial intelligence act and regulatory sandboxes* [https://www.europarl.europa.eu/RegData/etudes/BRIE/2022/733544/EPRS_BRI\(2022\)733544_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2022/733544/EPRS_BRI(2022)733544_EN.pdf)

Sandboxes

Delving into the role of regulatory sandboxes, it is clear that they have become a go-to tool for regulators seeking to unpick the potential risks associated with FinTech innovations. Regulatory sandboxes have two purposes:

- They facilitate the development and real-world testing of financial technologies, allowing innovations to be refined in a controlled setting; and
- They allow regulators to better understand innovations, which is essential for developing effective regulatory regimes to guide and support businesses

A World Bank report published in 2020⁵³ indicated that over 50 countries were experimenting FinTech sandboxes. By 2023, this had increased to over 70⁵⁴. However, the value of regulatory sandboxes cannot be realised unless they are integrated into a broader innovation and digital financial transformation strategy, which encompasses the development of digital financial infrastructure, and an effective regulatory framework which can bring FinTech (and DeFi) into the financial services ecosystem.

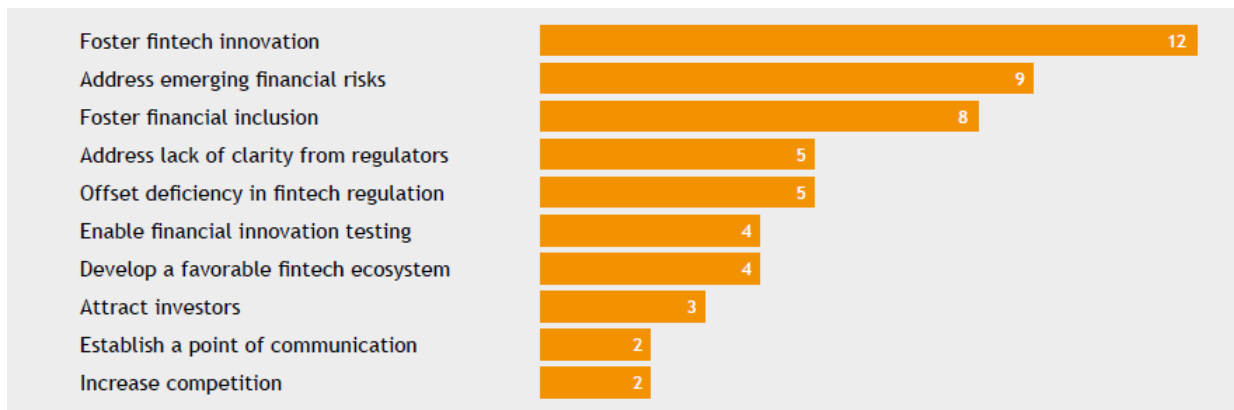
The operation of sandboxes can be resource-intensive - as the number of participating entrepreneurs rises, ensuring adequate resources, mentorship, and support becomes increasingly important - and in jurisdictions with a nascent FinTech sector, a more structured approach (see above) may achieve better policy insights for driving regulatory reform.

In 2022, a survey conducted by the Alliance for Financial Inclusion (AFI) revealed insights from 46 regulators and financial service authorities within their network regarding their motivations for implementing regulatory sandboxes. The predominant driver, as highlighted in their responses, was to foster FinTech innovation (see Figure 5).

⁵³ **World Bank 2020** *Global Experiences from Regulatory Sandboxes*
<https://documents1.worldbank.org/curated/en/912001605241080935/pdf/Global-Experiences-from-Regulatory-Sandboxes.pdf>

⁵⁴ **Open Bank Project** (accessed 17.06.2024) *How Regulatory Sandboxes Foster FinTech Innovation*
<https://www.openbankproject.com/blog/how-regulatory-sandboxes-foster-FinTech-innovation/>

Figure 5: Result of An AFI Survey On Motivations For Establishing A Sandbox



The desire to foster innovation raises the risk that regulators may indulge in a race to the bottom in an attempt to attract innovators, de-prioritising consumer safeguards such as data protection and market safeguards. In some cases, the choices that regulators make with regard to sandboxes may even unfairly disadvantage incumbent financial services organisations, slowing down or stifling innovation from existing practitioners.

In order to overcome these potential pitfalls, regulators developing and managing regulatory sandboxes and the infrastructure to support innovations should adhere to five principles:

1. **Activity-based regulation:** Regulation should be directed at the activities and functions performed rather than at the type of organisation performing them.
2. **Proportionate regulation:** Regulation should be graduated to reflect the size of the organisation to which it applies and the risks generated. It should also take account of the resources available to start-ups compared to major financial institutions.
3. **Compatible regulation:** It is essential that regulation is created and remains consistent with international standards, particularly with respect to financial stability, transparency, market integrity and anti-money laundering and counter-financing of terrorism (AML/CFT).
4. **Non-restrictive regulation:** The whole purpose of regulatory sandboxes is to promote innovation and competition in financial services so the regulatory regime within them should facilitate entry by new, smaller companies.
5. **Technology-neutral regulation:** Echoing the first principle, regulations should focus on the activities, products and services delivered by the technology rather than the technology itself. By focusing on what the technology does rather than how it does it, regulators can ensure that all applications are treated equitably and that newer technologies are not hindered by outdated rules.

4. Insights On Regulatory Considerations For Innovation – From Hong Kong’s Perspectives

To illustrate the potential of regulation to foster innovation, we have looked in more depth at Hong Kong’s approach to virtual assets, which has focused on risk-based and prudent regulation and adhered to the principle of "same activity, same risk, same regulation". This philosophy guides the Government and regulators as they continuously review and adapt the regulatory framework to incorporate evolving FinTech businesses, products, and services, ensuring comprehensive oversight.

Hong Kong’s regulators are commonly ‘technology agnostic’ and focus on the activity rather than the means used to deliver it. This approach acknowledges that FinTech products and services often intersect various regulatory domains. For instance, the Anti-Money Laundering & Counter-Terrorist Financing Ordinance, Money Service Operator licenses, the licensing and supervision of Stored Value Facilities, and the Personal Data and Privacy Ordinance are among the traditional regulations that FinTech firms must navigate, as detailed in Annex 2.

In line with these principles, a comprehensive regulatory regime has been established, covering a broad spectrum of virtual asset-related activities. This regime promotes innovation while prioritising investor and market participant protection. A significant milestone in this evolving landscape was the implementation of the licensing regime for virtual asset trading platforms and the amendment of Anti-Money Laundering/Counter-Terrorist Financing (AML/CTF) requirements on 1st June 2023. Initially, access to virtual assets was restricted for retail investors, but following consultations and assessments of market maturity, certain products have been made available to them. This development underscores the importance of ongoing assessments to gauge market understanding and acceptance of such new innovations.

In addition, the SFC has issued guidance regarding the supervision of tokenised assets and investment products. Further regulatory planning is underway, with consultations published and pending legislation for various aspects of the virtual asset sector, including stablecoin issuers⁵⁵ and over-the-counter trading⁵⁶.

The collaborative efforts among Hong Kong’s licensing and regulatory agencies have fostered an environment of excellent communication with stakeholders. Each agency has dedicated FinTech teams and has utilised regulatory sandboxes for experimentation. These proactive measures aim to ensure that policy directions are clearly communicated well, with stakeholder consultations facilitated through the issuance of circulars and discussion documents.

In addition to regulatory frameworks, Hong Kong is actively pursuing innovations within the financial market, such as the development of tokenised green bonds and central bank digital currencies like the e-HKD and e-CNY. These initiatives have seen milestones, particularly in

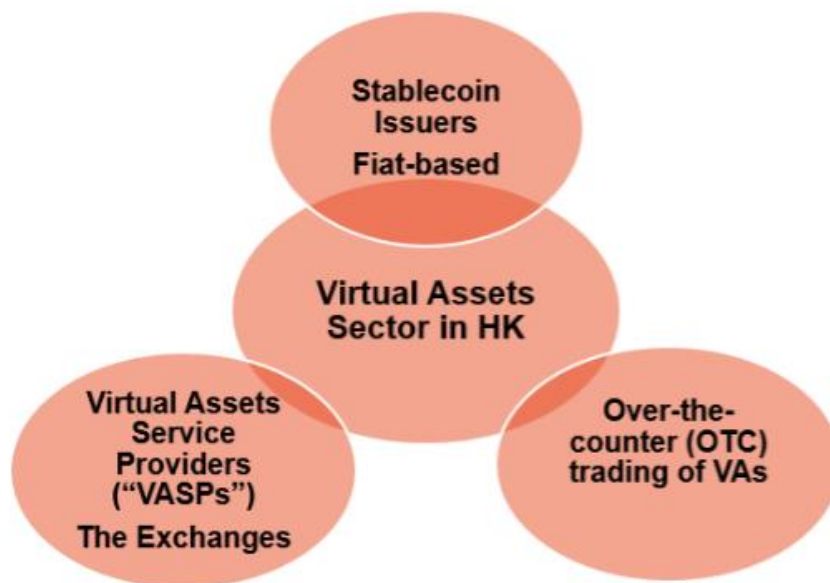
⁵⁵ **FSTB, HKMA** (July 2024) *Legislative Proposal to Implement the Regulatory Regime for Stablecoin Issuers in Hong Kong*
https://www.fstb.gov.hk/fsb/en/publication/consult/doc/Stablecoin_consultation_conclusion_e.pdf

⁵⁶ **HKSAR Government** (February 2024)
Government launches consultation on legislative proposals to regulate over-the-counter trading of virtual assets
<https://www.info.gov.hk/gia/general/202402/08/P2024020800238.htm>

cross-border payments and foreign exchange transactions through the mBridge programme, reaching a minimum viable product stage in June 2024.⁵⁷

Regulatory sandboxes are integral to this ecosystem, with most regulators either incorporating virtual assets into existing sandboxes or establishing new ones to streamline processes. The SFC Regulatory Sandbox, for instance, supports virtual asset trading platform operators intending to carry out relevant activities under the SFO and/or the AMLO. Following plans to introduce a licensing regime for stablecoin issuers, the HKMA has also launched the Project Ensemble Sandbox to accelerate the adoption of tokenisation, further demonstrating Hong Kong's commitment to fostering a secure, innovative financial landscape.

Figure 6 The Regulatory Landscape For Virtual Assets In Hong Kong



⁵⁷ **HKMA** (June 2024) *Project mBridge reaches MVP stage*
<https://www.hkma.gov.hk/eng/news-and-media/press-releases/2024/06/20240605-4/>

The Views Of Hong Kong's Industry Players In The Web3 Sector

In the course of the preparation of this report, the authors conducted interviews with an SFC-licensed virtual asset trading platform based in Hong Kong and an industry association that has a broad member base from the Web3 ecosystem respectively. This section summarises their insights and perspectives on the evolution of regulatory frameworks for innovation in Hong Kong.

- **HashKey Group / HashKey Capital⁵⁸**

Established in 2018, HashKey Group is an end-to-end digital asset financial services group in Asia. Operating within regulatory frameworks that uphold compliance standards, HashKey offers investment opportunities and tailored solutions across the digital asset ecosystem and Web3 landscape for retail investors, large institutions, family offices, funds, and professional and accredited investors. They also foster growth and collaboration in the industry. Headquartered in Hong Kong, their core businesses include HashKey Exchange, a licensed virtual asset trading platform regulated by the SFC.

- **Web3 Harbour⁵⁹**

Established in 2023, Web3 Harbour is a Hong Kong-based industry association dedicated to engaging and representing Web3 builders, investors, users, and business leaders to promote a pro-innovation, pro-collaboration, and truly inclusive environment for the development of the decentralised internet and virtual asset economy. Members include startups, traditional conglomerates, investment firms, professional services providers, tech communities, and Web3 enthusiasts, all with a shared interest in collaborating to address common challenges, advocate for favourable policies, and foster responsible growth in the virtual asset sector.

The Development of Regulatory Framework for Innovation In Hong Kong

The development of the Web3 regulatory framework in Hong Kong is generally perceived to have progressed through three distinct phases:

1. **Early adoption (Pre-2019):** Initially a niche activity, early adoption of virtual assets was bolstered by a skilled talent pool and a vibrant, albeit small, market. By 2019, before the introduction of a licensing regime for virtual asset trading platforms, Hong Kong was home to several top ten global virtual asset companies.
2. **Regulatory interest and global challenges (2019-2021):** The second phase was marked by a growing interest in virtual assets by the SFC, which precluded paths to retail services. This, combined with the global impact of Covid-19 which closed international borders, temporarily slowed the momentum, leading to some Web3 firms relocating.

⁵⁸ HashKey Group - <https://group.hashkey.com/en/about>

⁵⁹ Web3 Harbour - <https://www.web3harbour.org/>

3. **Licensing regime and policy framework (2022-present):** This period was marked by a series of new licensing regimes and policy frameworks designed to balance Web3 innovation with robust consumer protections. The result has seen a resurgence of Web3-affiliated firms relocating to Hong Kong, positioning the city as a globally important centre for FinTech, especially in virtual assets trading.

Specific insights from HashKey Group/ HashKey Capital

We appreciate the recognition of the evolution in regulatory frameworks, particularly the transition from early adoption to a structured licensing regime that encourages Web3 innovators to establish a presence in Hong Kong. This regulatory enhancement mandates these institutions to adapt and elevate their operations to accommodate virtual assets, thereby opening new business avenues within the traditional financial system. This strategic move positions Hong Kong as an attractive hub for Web3 companies due to its combination of regulatory foresight, geographical proximity to Mainland China, and robust financial infrastructure. This is advantageous for Web3 companies seeking to establish or expand operations in a supportive and well-regulated environment.

Following incidents like the one involving JPEX, Hong Kong's regulators have reinforced their commitment to market integrity by implementing preventive measures, which are well recognised.

A critical aspect of this regulatory evolution is whether the regulators themselves are equipped with the skilled personnel necessary to effectively manage and facilitate the growth of this complex sector. The ability of regulatory bodies to adapt and respond to the demands of the digital asset market is essential for maintaining Hong Kong's competitive edge as a global leader in digital finance.

Specific insights from Web3 Harbour

“Money follows the mouth”: The policy statement of virtual asset development in Hong Kong is a meaningful indicator of the direction of travel with regards to regulation, which other jurisdictions refer to and often emulate.

The current regulatory framework in Hong Kong, while not without its flaws, is seen as progressively evolving. Regulators are trusted and the consensus is that Hong Kong's regulatory regime is one of the most robust internationally – particularly when it comes to consumer and investor protection.

Industry stakeholders appreciate the regulators' approach of not simply replicating traditional financial regulations for the virtual asset sector - given the early stage of development of the industry, this would act as a significant barrier to entry, and it was noted that Web3 companies are fleet-footed – any negative change in the regulatory or policy environment could lead to firms moving to other jurisdictions.

Potential Opportunities

There are signs that a well-structured regulatory framework is in the pipeline for ‘professional investor’ over-the-counter trading, and the introduction of such would provide clearer legal guidance that could enhance market stability. Furthermore, allowing stablecoin issuance in a fully regulated environment will mean that scaling is possible, opening up wider virtual asset markets and acting as a bridge between Web3 and real-world economies.

Challenges persist, it has been commonly observed that some Web3 startups find it challenging to open standard business accounts with banks. This may be due to risk aversion by banks regarding money laundering and the funding of terrorism,⁶⁰ which are exacerbated by the complexity of identifying the original source of crypto funds. Therefore, some banks have taken a precautionary approach and refusing engagement or limiting their engagement with the Web3 sector to larger, established entities. The interviewees recognise that HKMA is aware of this issue and has been facilitating communication between banks and VATPs to address it.

Specific insights from Web3 Harbour

Hong Kong regulators’ focus on customer protection is admirable and welcome. While the current regulatory framework balances protection with market development, it is crucial to monitor this equilibrium moving forward. Overly stringent regulations risk slowing the pace of service development on Hong Kong-regulated platforms and may not align with industry and investor expectations. Maintaining a balanced approach is key to ensuring that regulations do not restrict offerings or liquidity, thereby preventing investors from seeking alternatives on unregulated platforms, where they may encounter risks and reduce the competitiveness of local platforms. While concurrently considering investor suitability, expanding the range of services offered by SFC-regulated VATPs to include options such as staking and derivatives could enhance Hong Kong’s value propositions, enabling access to these services onshore within a regulated environment.

Additionally, revising Hong Kong’s data protection regulations/ guidelines, which have not been updated since the 1990s, is important. Data protection has become increasingly critical with advances in AI and the widespread use of immutable ledgers in blockchain technology.

In terms of implementation, the use of sandboxes in Hong Kong was widely praised. However, it was noted that there could be clearer communication between regulators as to how sandboxes operate. Currently, it is felt that sandboxes are introduced by different regulators, and the lack of standardisation would limit interoperability, hindering its growth and effectiveness.

Finally, more publicity regarding Hong Kong’s regulatory success could bolster the city’s status as a leader in FinTech and Web3 internationally. Highlighting that is vital for attracting investments and talent, as well as reinforcing its position as a prime destination for top FinTech companies.

⁶⁰ Varun V 2024 Prospects and Models of Combating Cryptocurrency Crimes The India-EU Dialogue as a Perspective? Eurocrim <https://eucrim.eu/articles/prospects-and-models-of-combating-cryptocurrency-crimes/#:~:text=Cryptocurrencies%20have%20emerged%20as%20a,a%20means%20to%20raise%20funds.>

Specific insights from HashKey Group / HashKey Capital

While being encouraged by the potential for well-structured regulatory framework in other emerging areas in the virtual asset market, such as over-the-counter trading and stablecoin issuance, continued engagement with regulators and stakeholders is crucial in addressing fundamental challenges.

Banks often lack the necessary knowledge about Web3, leading to operational difficulties such as hesitancy to open accounts for related companies. The gap in understanding causes banks to rely on traditional risk models that may not accurately assess the unique aspects of Web3 businesses, resulting in restricted services.

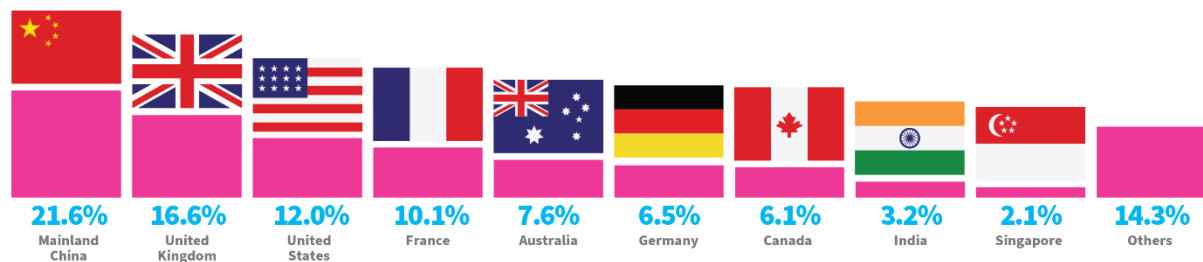
On the other side, Web3 companies sometimes withhold full disclosure of their business nature due to fears of being associated with high-risk activities like fraud and money laundering. This fear is compounded by the perception of Web3 operations as unconventional. Even when accounts are opened, they are under close scrutiny and may be short-lived due to ongoing compliance concerns.

Overall, the interviewed organisations highlight a general consensus that Hong Kong offers a supportive and proactive regulatory environment for Web3 and FinTech innovators. Stakeholders commend the clear regulatory roadmap which diminishes policy uncertainty and facilitates long-term strategic planning. This forward-thinking approach has led to a surge of talent migration to Hong Kong, bolstering its status as a premier global hub for Web3 development. We provide further details of the approaches taken in London, Shenzhen, and Australia in Annex 3.

5. Hong Kong's Progression As A Global Innovation Hub

In 2023, Hong Kong was home to over 1,000 FinTech companies and 4,200 start-ups, marking a 25% growth from the previous year.⁶¹ Notably, 26% of the startup founders originated from abroad, with the majority coming to Hong Kong from Mainland China, followed by the United Kingdom, the United States, France, and Australia.⁶² (see figure 7)

Figure 7: Major origin countries/territories of non-local founders



Source **Startmeup.HK**

This multi-national wave is partly a result of the Hong Kong SAR Government's drive for talent acquisition. Hong Kong Talent Engage, which was established in October 2023, is tasked with formulating strategies to recruit tech talent from Mainland China and overseas and provides one-stop support for entrepreneurs and skilled individuals seeking to relocate to Hong Kong⁶³. This comes on top of a range of policy initiatives designed to attract and retain individuals with specialist skills⁶⁴, including the Top Talent Pass Scheme which seeks to attract top talents with rich work experience and good academic qualifications from all over the world to explore opportunities in Hong Kong. The relaxation of the Immigration Arrangements for Non-local Graduates, the extension of the limit of stay from 1 to 2 years for key professions, relaxed visa requirements for talents from selected South-Asian nations and a streamlined visa process for investors who make investments of over HK\$ 30 million

The Smart Centres Index

The Smart Centres Index (SCI)⁶⁵ is an initiative to track the development of technology and financial centres across the world in their support for and readiness for new technology applications. It aims to help investors, governments, and regulators track the attractiveness of technology centres for new technologies and products by measuring how attuned centres and their regulatory systems are to attracting innovation and growth in science, technology, energy systems, machine learning, distributed ledgers, and FinTech.

For the 9th edition of the SCI, 131 commercial and financial centres were researched of which 79 are included in the index. The index is compiled using 135 instrumental factors

⁶¹ **HKSAR Government** (accessed 21.06.2024) *Speech by Mr Paul Chan FS at Hong Kong FinTech Week 2023 Press Release* <https://www.info.gov.hk/gia/general/202311/02/P2023110200370.htm>

⁶² **Startmeup.HK** (accessed 21.06.2024) *Hong Kong's Startup Ecosystem* <https://www.startmeup.hk/about-us/hong-kongs-startup-ecosystem/>

⁶³ **Hong Kong Talent Engage** (accessed 24.06.2024) <https://www.hkengage.gov.hk/en/supporting-services/verify-email/token-request/>

⁶⁴ **Hong Kong Government** (accessed 24.06.2024) *Top talent to drive HK's growth* https://www.news.gov.hk/eng/2023/11/20231116/20231116_135159_566.html

⁶⁵ **Wardle M & Mainelli M 2024 Smart Centres Index 9**, Long Finance <https://www.longfinance.net/publications/long-finance-reports/the-smart-centres-index-9/>

(quantitative measures provided by third parties such as the World Bank, the OECD, and the United Nations) combined with financial centre assessments provided by respondents to the SCI questionnaire. The 9th edition of the SCI used 1,661 assessments provided by 246 respondents.

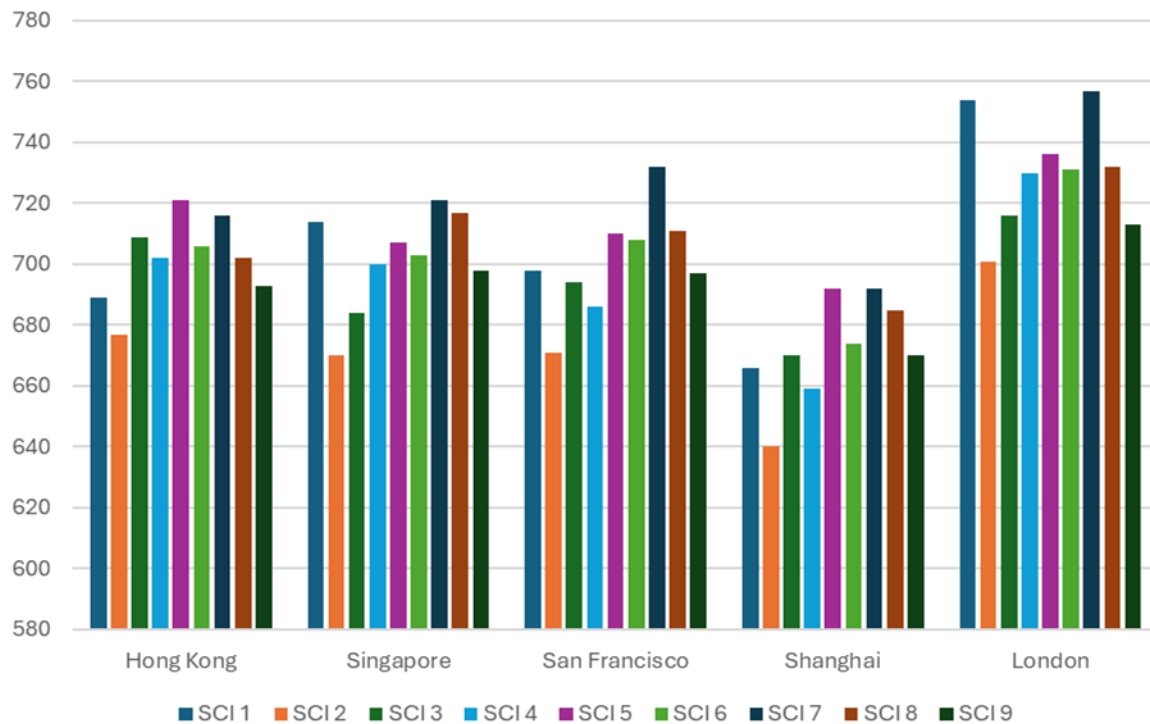
In SCI 9 Hong Kong was ranked 12th as a global tech centre (see Figure 8)

Figure 8: The Smart Centre Index 9 Global Rankings

Centre	SCI 9	
	Rank	Rating
London	1	713
Zurich	2	703
New York	3	702
Oxford, UK	4	701
Cambridge, UK	5	700
Los Angeles	6	699
Singapore	7	698
San Francisco	8	697
Geneva	9	696
Tel Aviv	10	695
Seattle	11	694
Hong Kong	12	693
Dubai	13	692

It is notable that this table contains 3 centres, Oxford & Cambridge (in the UK) and Seattle (in the US) which are not global financial centres. It is also significant that the ratings for centres are extremely tight (a mere 20 points separates Hong Kong from the top spot), which leads to a great deal of volatility in the rankings. Figure 9 illustrates the ratings for the last nine issues of the SCI some of Hong Kong's closest competitors. It is worth highlighting that Hong Kong displays less volatility than most of its competitors.

Figure 9: SCI Ratings Over Time



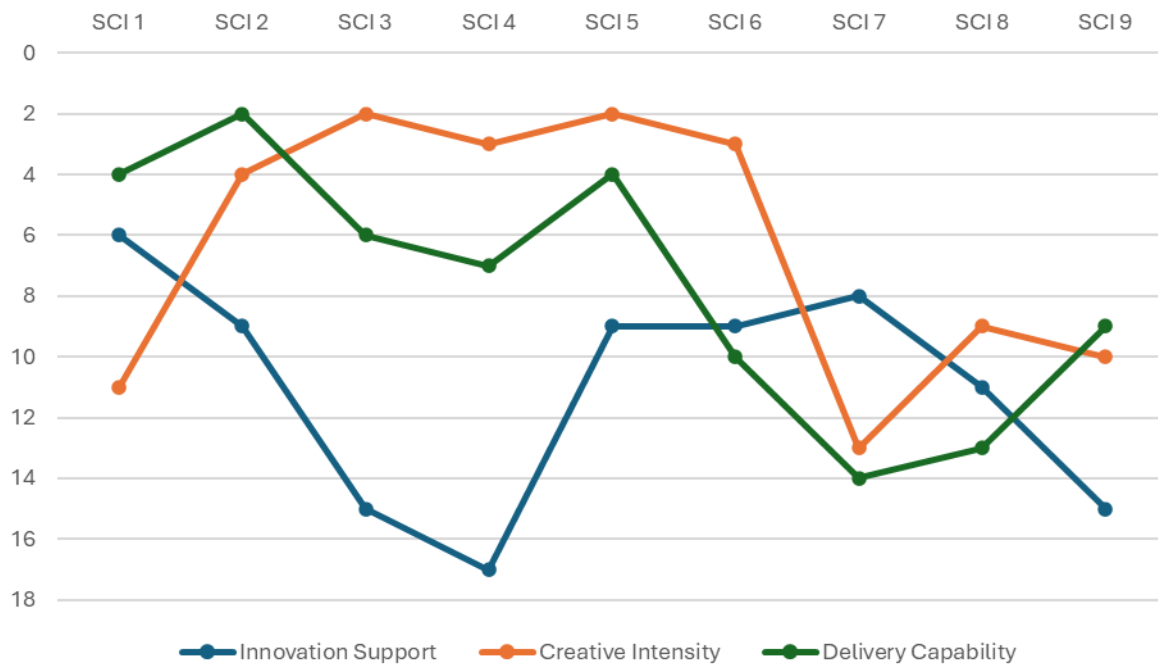
Over the nine editions of the Smart Centres Index, Hong Kong has shown less volatility in its ratings over time than other leading centres, and it has closed the gap significantly with the leaders.

The SCI ratings and rankings evaluate technology and innovation centres across three distinct dimensions:

- **Innovation support:** This dimension assesses the regulatory framework and the degree of support provided to the technology and innovation sectors by the commercial ecosystem.
- **Creative Intensity:** The extent to which technology and innovative industries are embedded in the economy of the centre.
- **Delivery capability:** The quality of the innovation work being undertaken in the centre.

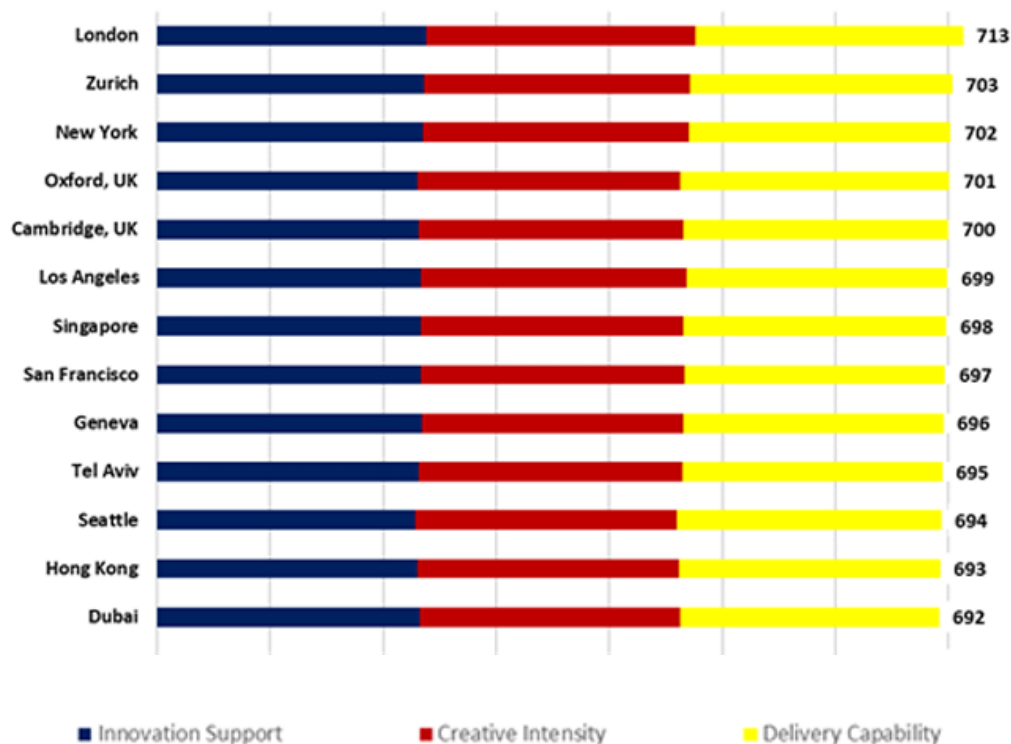
Figure 10 shows Hong Kong's global rankings across each of these three dimensions across the last nine editions of the SCI. All three dimensions are highly ranked. However, according to this analysis, the perception is that Hong Kong's performance in creative intensity and delivery capability are higher than its performance in innovation support.

Figure 10: Hong Kong's Ranking Across The Three Dimensions



The contribution of these three dimensions on overall performance in the SCI is illustrated in Figure 11. It is evident that even marginal changes in any one of these dimensions can significantly influence the overall ranking in the index.

Figure 11 The Contribution Of The Three Dimensions To Overall Ratings



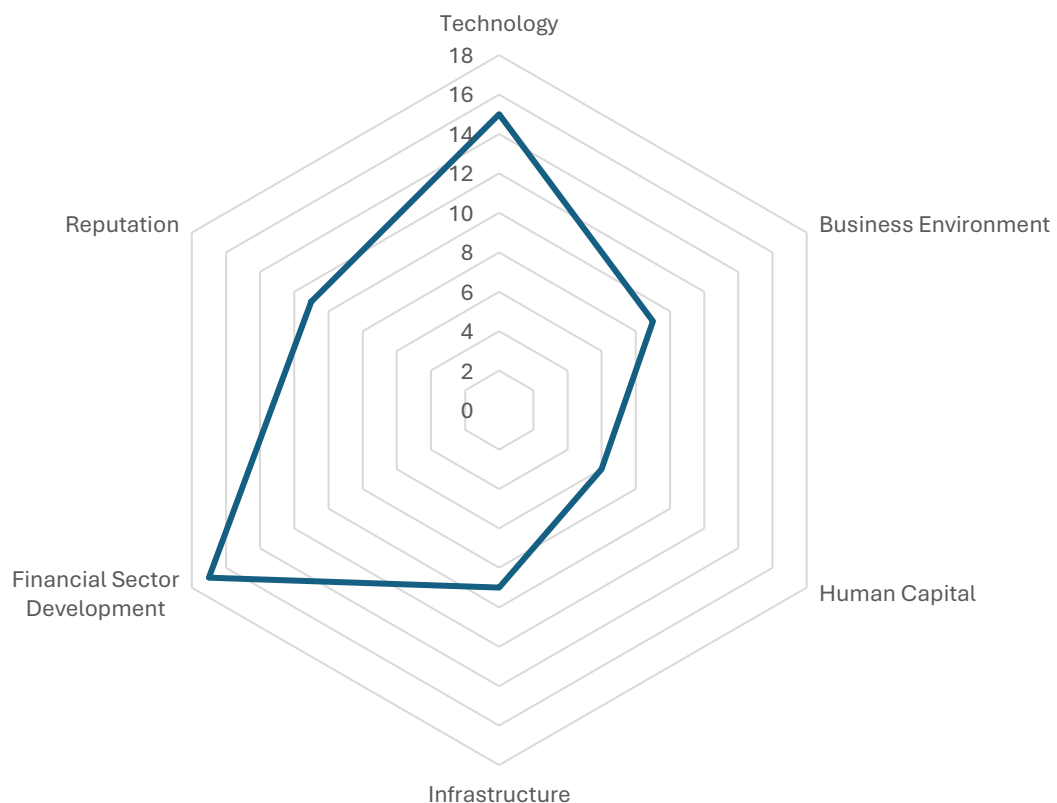
The SCI is constructed using 135 instrumental factors, which are grouped into six broad areas of competitiveness: Technology, Financial Services, Reputational, Business Environment, Human Capital, and Infrastructure. These areas and the instrumental factor themes which comprise each area are shown in Figure 12.

Figure 12: SCI Areas Of Competitiveness



Figure 13 illustrates Hong Kong's the challenges that Hong Kong faces in each of these areas -scoring highly on financial sector development and technology, but lower in human capital and infrastructure.

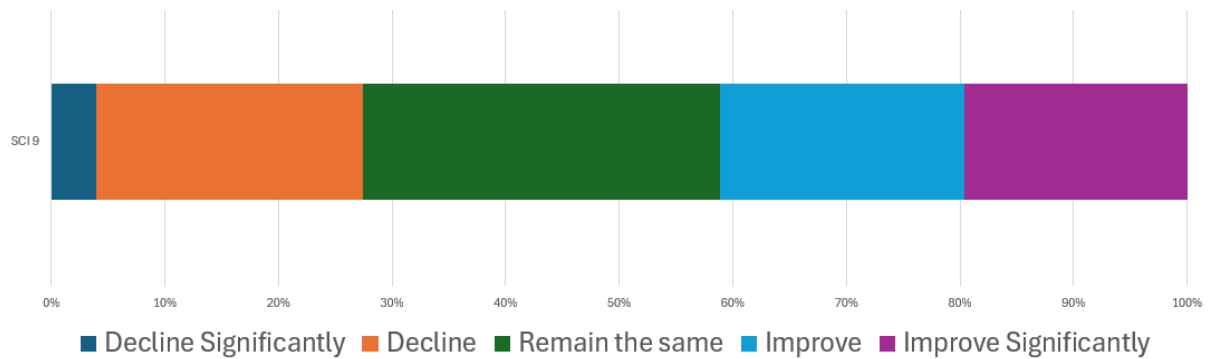
Figure 13: Hong Kong's Performance In The SCI Areas Of Competitiveness



According to this analysis, Hong Kong's reputation as an international financial centre and its access to advanced technology are significant advantages, although there is a perception that access to skilled human capital, more investment in infrastructure and an enhanced regulatory environment could enhance the island's competitiveness.

Finally, respondents to the SCI are asked to predict how the status of each centre they rated is likely to change in the future. Figure 14 illustrates the results for Hong Kong in SCI 9.

Figure 14: Future Performance



As can be seen, the perception in SCI 9 was that over 40% of respondents believed that Hong Kong's performance was likely to improve or improve significantly in the future.

6. Conclusion

Competition between financial centres to develop capacity and capability in the FinTech space is intense, and the performance gap amongst top centres has narrowed considerably. All centres face common challenges, such as attracting and retaining high-quality talent and investing in infrastructure. However, the key test facing financial centres is developing a conducive regulatory environment that supports and nurtures innovation while maintaining the regulatory frameworks that protect financial systems and consumers.

We have drawn from this work a number of observations and insights that may be of interest to international stakeholders who are keen to encourage innovation and to work with the new products and approaches that Web 3 is enabling.

- **Regulatory frameworks**

It is observed that regulators who are well-resourced and have the necessary powers and policy instruments can effectively supervise the functions and activities of Web3 and FinTech organisations. Specifically, applying regulation on a functional basis and proportionate to risk can ensure that regulations do not present a barrier to innovation and new market entrants.

- **Risk management and governance**

It is important for Web3 and FinTech organisations to maintain effective governance frameworks and clear lines of accountability, where key personnel adhere to high standards of competence and integrity; and have in place effective risk management frameworks, which are regularly reviewed.

- **Transparency and international cooperation**

Providing customers with information they need to understand the functioning of the services they are offered, including stabilisation mechanisms and risks, redemption, rights and processes for effective dispute resolution, is crucial.

Moreover, it is important for relevant regulatory stakeholders to understand their responsibility to cooperate and coordinate both domestically and internationally for effective collaboration.

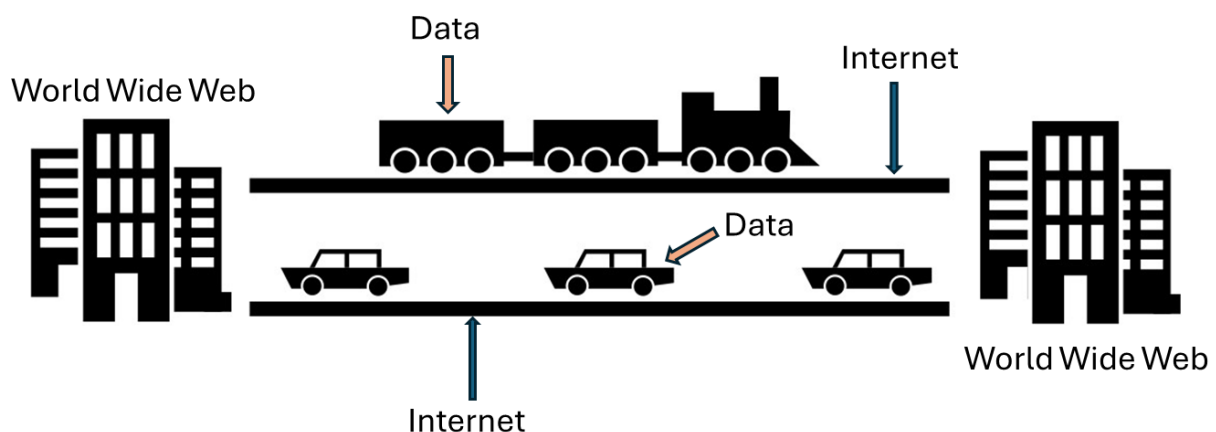
Annex 1 - Introducing Web 3

To address the challenges that regulators and businesses face concerning the oversight and management of Web3 applications, it is crucial to understand how Web3 differs from Webs 1 and 2, and to clarify the distinction between the World Wide Web (the 'Web' referred to in Web3) and the internet. The terms 'internet' and 'World Wide Web' are often conflated by regulators, policymakers, and the public⁶⁶, yet they represent quite different concepts.

In simple terms, the World Wide Web, is composed of the pages that users see when they are using a connected device⁶⁷, whereas the internet is the network of computers and servers that the web works on, and the protocols and systems that allow these devices to connect⁶⁸.

A useful analogy is to consider the internet as the infrastructure — the roads and railways — that connect various towns and cities, whereas the World Wide Web represents the buildings — houses, offices, and shops — that make up those towns and cities. See Figure A for more details.

Figure A: The Internet And the World Wide Web



Source: Authors Image

Since the birth of the internet in 1990, when Sir Tim Berners-Lee and others developed Hyper-Text Transfer Protocol (HTTP), HyperText Markup Language (HTML), Universal Resource Identifiers (URIs), and Universal Resource Locators (URLs)⁶⁹, the internet has evolved through four distinct phases:

- 1. Connectivity:** This initial phase enables the linking up of computers and servers to create the structures necessary for the web to function, enabling the digitisation of data.

⁶⁶ **University Of Alabama** (accessed 03.06.2024) World Wide Web vs. Internet: What's the Difference? <https://businessdegrees.uab.edu/blog/internet-vs-world-wide-web-whats-the-difference/>

⁶⁷ **Cern** (accessed 03.06.2024) <https://home.cern/science/computing/birth-web/short-history-web>

⁶⁸ **Britannica.com** (accessed 03.06.2023) <https://www.britannica.com/technology/Internet>

⁶⁹ **World Wide Web Foundation** (accessed 03.06.2024) <https://webfoundation.org/about/vision/history-of-the-web/>

2. **Digitalisation of business processes:** The second phase enables the digitisation of business processes, paving the way for the development of e-commerce.
3. **Digitalisation of interactions:** The third phase expanded digitisation to encompass both business and social interactions, enhancing service delivery and freeing up data for broader use.
4. **Internet of Everything:** The final stage, which we are currently in, is the so-called “Internet of Everything”, which has enabled the connection of web-enabled devices and a wealth of new products and services - see Table 1.

Table 1 - Four Phases Of The Internet

Phase 1	Phase 2	Phase 3	Phase 4
Connectivity	Networked economy	Collaborative experiences	Internet of everything
Digitise access to information	Digitise business process	Digitise interactions (business and social)	Digitise the world, connecting
<ul style="list-style-type: none"> • email • web browser • search 	<ul style="list-style-type: none"> • e-commerce • digital supply-chain • collaboration 	<ul style="list-style-type: none"> • social • mobility • cloud • video 	<ul style="list-style-type: none"> • people • process • data • things
The first phase started over 20 years ago and is referred to as 'connectivity'. Email, web browsing, and searching for content was just beginning.	The second phase started in the late 1990s and was the 'networked economy' phase. This was the birth of e-commerce and digitally connected supply chains. It changed the way we shopped and how companies reached new markets.	The third phase started in the early 2000s and is known as the 'collaborative experiences' phase. This phase is dominated by widespread use of social media, mobility, video, and Cloud computing. This phase completely transformed the world of work.	The current phase is called the 'internet of everything (IoE)'. This phase connects people, processes, data, and things, turning information into actions that create new capabilities, richer experiences, and unprecedented opportunities.

If we are in the fourth phase of the Internet, how is it that we are only in the third phase of the World Wide Web?

The answer to this question is found not by looking at the web (the towns and cities, see figure A), or internet (the roads and railways), but the data that passes through and between them (the cars and trains), and to stretch an analogy to breaking point, it is the difference between a bicycle (exposed and visible) and an electric car with tinted windows (secure, efficient and anonymous).

Web1 was known as the "Static Web," and dates back to the earliest days of the World Wide Web (1990 to 2006). During this period, websites were accessed from desktop computers and were mostly one-way communication tools. They were static, and had limited user interaction, primarily through forms or primitive forums⁷⁰.

Web2 is known as the "Social Web," it remains the predominant web format. It sprang to life in 2007 with the launch of the first iPhone and has been boosted by a revolution in fast, accessible internet access. The ability of citizens to walk around with the internet in their pockets revolutionised the way the web was used, propelling an avalanche of user-generated content, catalysing social interaction, and initiating a cascade of dynamic, interactive websites.

Web3 is known as the "Semantic Web" or "Decentralised Web". Semantics is the study of meaning in language and in this context, it refers to making web content more understandable by machines ⁷¹. In other words, making data more intelligent, interconnected, and decentralised.

⁷⁰ **Practical E-Commerce** (accessed 03.06.2024) <https://www.practicalecommerce.com/Basic-Definitions-Web-1-0-Web-2-0-Web-3-0>

⁷¹ **Stackpole T 2022** *What is Web3?* Harvard Business Review <https://hbr.org/2022/05/what-is-Web3>

Annex 2 – Relevant Regulations

Hong Kong's regulators are commonly 'technology agnostic' and focus on the activity rather than the means used to deliver it. This approach acknowledges that FinTech products and services often intersect various regulatory domains. For instance, the Anti-Money Laundering and Counter-Terrorist Financing Ordinance, Money Service Operator licenses, the licensing and supervision of Stored Value Facilities (SVFs), and the Personal Data and Privacy Ordinance are among the traditional regulations that FinTech firms must navigate, as detailed in below:

- Regulated activities include, but are not restricted to, dealing in or providing advice on securities or futures contracts (including crypto-currency futures), asset management, foreign exchange trading and clearing must be licensed by the SFC⁷². New regulations will shortly be developed covering over the counter (OTC) derivatives. SFC regulations are 'technology agnostic' and focus on the activity rather than the means used to deliver it.
- The Banking Ordinance (BO) (along with its subsidiary legislation) provides the legal framework for banking supervision in Hong Kong and is overseen by the Hong Kong Monetary Authority⁷³. The ordinance is strictly applied to loans.
- The Anti-Money Laundering and Counter-Terrorist Financing Ordinance (AMLO) is overseen by the Hong Kong Customs and Excise Department⁷⁴. which issues Money Service Operator licences which cover currency exchanges and remittance services.
- The HKMA is responsible for the licensing and supervision of SVFs, including e-wallets and prepaid cards⁷⁵. The ordinance covers both device-based and network-based facilities.
- The Personal Data Privacy Department (PDPD)⁷⁶ is an independent statutory body set up to oversee the enforcement of the Personal Data (Privacy) Ordinance (Cap. 486) which came into force on 20th December 1996. The ordinance provides a principles-based regime that controls the collection, holding, processing and use of personal data in Hong Kong. Breaches result in the issuance of a cessation notice. Failure to comply can result in fines or even imprisonment.

⁷² ICLG 2023 *FinTech Laws and Regulations Hong Kong 2023-2024* <https://iclg.com/practice-areas/FinTech-laws-and-regulations/hong-kong>

⁷³ HKMO (accessed 18.06.2024) https://www.hkma.gov.hk/eng/regulatory-resources/regulatory-guides/circulars/1997/05/circu_19970519-1/

⁷⁴ HKCED (accessed 18.06.2024) <https://www.fstb.gov.hk/fsb/aml/en/legislation/legislation.htm>

⁷⁵ HKMA (accessed 18.06.24) <https://www.hkma.gov.hk/eng/smart-consumers/e-wallets-and-prepaid-cards/#:~:text=The%20Monetary%20Authority%20is%20responsible,Protection%20of%20users'%20float>

⁷⁶ PCPD (accessed 18.06.2024) https://www.pcpd.org.hk/english/data_privacy_law/ordinance_at_a_Glance/ordinance.html

Annex 3 – International Approaches To FinTech Policy & Regulation

London is ranked as one of the most “FinTech-friendly” centres in the world, and in 2022 it was second only to the United States as the most popular destination for FinTech investment. The UK’s drive to FinTech has been shaped by the recommendations made in an independent strategic review published in February 2021⁷⁷. The key recommendations for the regulation of FinTech were:

- The development of a comprehensive digital finance package to create a regulatory framework suited for emerging technologies.
- The launch of a "Scalebox" programme to support firms that scale innovative technologies.
- The establishment of a Digital Economy Taskforce (DET) to ensure alignment of FinTech initiatives across government departments.
- The integration of FinTech into the broader national trade policy.

The UK Financial Conduct Authority (FCA) pioneered the world's first regulatory sandbox in 2015 and has successfully run sandboxes ever since. The Bank of England is currently consulting on the architecture around the new Digital Securities Sandbox⁷⁸.

The UK was an early adopter of payments technology, and open banking (the financial services model that allows third parties to access a consumer's financial data, such as their bank account information and payments, with their consent) has reached a degree of market maturity. The FCA continues to take an active interest in applying Open Banking beyond retail.

In addition to these developments, the UK government has also issued an AI Action Plan⁷⁹, being positioned as an AI regulation policy paper. It issued a new AI rulebook (which has a “pro-innovation” framework⁸⁰). The FCA’s Data Strategy positions the regulator as a potential creator and user of RegTech solutions.

There are no prohibitions or restrictions specific to FinTech businesses in the UK. However, the FCA prohibits the marketing, distribution or sale to all retail clients, of derivatives and exchange traded notes associated with unregulated, transferable crypto assets. As a result, there has only been limited innovation within the Web3 space in the UK, primarily focusing on the digitisation of real-world assets.

⁷⁷ **UK Government 2021** *The Kalifa Review of UK FinTech* <https://www.gov.uk/government/publications/the-kalifa-review-of-uk-fintech>

⁷⁸ **Bank Of England 2024** *Speech by S Mills* <https://www.bankofengland.co.uk/speech/2024/may/sasha-mills-keynote-address-at-london-city-week>

⁷⁹ **UK Government 2022** *National AI Strategy - AI Action Plan* <https://www.gov.uk/government/publications/national-ai-strategy-ai-action-plan>

⁸⁰ **UK Government 2023** *AI regulation: a pro-innovation approach* <https://www.gov.uk/government/publications/ai-regulation-a-pro-innovation-approach>

The Greater Bay Area (GBA) is emerging as a central hub for China's Web3 development. The Mainland's fintech ecosystem is characterised by strong government support, a vibrant Web3 and blockchain market, and a focus on data security, creating a conducive environment for Web3 and fintech projects to thrive. The RMB 6 billion milestone reached by the country's blockchain industry in 2023 not only signifies growth but also indicates that the industry has entered a phase of stability and maturity⁸¹.

With over 33% of the nation's blockchain projects concentrated in East China, the GBA is poised to play a critical role in shaping the future of digital finance and other Web3 applications in the Mainland. Shenzhen, often referred to as China's Silicon Valley, leads the charge with its robust tech ecosystem, vibrant startup culture, and focus on long-term innovation—factors that have positioned it as the top city in China for patent applications. Similarly, Guangzhou is advancing with a solid financial foundation and a focus on integrating blockchain into key industries such as trade and supply chain management.

The *"Three-Year Action Plan for the Construction of the Digital Greater Bay Area"* released by the Guangdong provincial government⁸², further underscores the area's commitment to digital transformation. This plan aims to streamline cross-border business operations between Hong Kong, Macau, and Mainland China by providing digital services for business registration, financing, and tax management. Notably, there is also an ongoing collaborative effort between the HKMA and Mainland authorities to promote FinTech innovation and secure data exchange between Guangdong and Hong Kong while adhering to existing regulatory frameworks.

With Hong Kong's unique proximity to the Mainland, it is well-positioned to enhance collaboration and innovation in this rapidly evolving landscape.

Australia provides a good case study of a compromise between innovation and regulation and drives home the importance of adopting a principles-based approach to fintech regulation. In recent years the regulator has prioritised the interests of consumers, reformed conflicted remuneration structures and changed the way add-on products are distributed. The resulting changes to the provision and distribution of financial products has seen FinTechs being well placed to seize the opportunity and take market share away from incumbent providers.

In 2015 the Australian Securities and Investments Commission (ASIC) established an Innovation Hub to help FinTech start-ups navigate the regulatory laws it administered⁸³. The intention was to apply these laws on a 'streamlined basis', and support Fintech startups by providing informal guidance from senior regulatory advisers.

⁸¹ CCID 2023-2024 China Blockchain Development Annual Report
https://13115299.s21i.faiusr.com/61/1/ABUIABA9GAAGm6LrtQYo48q_Zg.pdf

⁸² The State Council of the People's Republic of China November 2024 Coordination promoted on digitalisation
https://english.www.gov.cn/news/202311/23/content_WS655ec3d9c6d0868f4e8e189e.html

⁸³ ASIC (accessed 23.09.24) Innovation Hub <https://asic.gov.au/for-business/innovation-hub/>

Closely on the heels of this initiative, in 2016, Australia launched its strategy to promote fintech. The aim being to enhance Australia's FinTech capability by supporting the evolution of FinTech start-ups and innovators⁸⁴.

Australia's regulatory regime is flexible in terms of delivering licensing and regulatory oversight tailored to the scope of a start-ups business, while ensuring consumers remain informed. The legislative framework makes it possible for ASIC to grant waivers (or relief) from the law to facilitate business. ASIC also established regulatory sandbox in 2020.

The result has been the rapid growth of Fintech in Australia, and a A\$45 billion fintech industry that is especially strong in payments, middle and back-office systems, neobanks, blockchain and Regtech.

One innovation that Australia has trialled has been the effective use of data and improved availability of data to Fintech organisations. Reforms to Australia's data and privacy regulations led to the establishment of Consumer Data Right (CDR)⁸⁵ in 2020. CDR is a regulated data sharing framework that gives consumers greater control over their personal data and enables them to share it securely with trusted third parties.

Developed by the Australian Government, it is an opt-in service that enables consumers to share their data to accredited third parties, firstly with banks with the energy sector next in line, in exchange for information on the right products and best deals.

Reviews of the programme have been mixed however, with the Australian Banking Association claiming that CDR disadvantages mid-tier banks and smaller Fintech participants by driving up compliance costs⁸⁶.

⁸⁴ **Australian Treasury 2016** *Australia's Fintech Priorities* <https://treasury.gov.au/publication/backing-australian-fintech/australias-fintech-priorities>



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Hong Kong's Financial Services Development Council was established in 2013 by the Hong Kong Special Administrative Region Government as a high-level, cross-sectoral advisory body to engage the industry in formulating proposals to promote the further development of the financial services industry of Hong Kong and to map out the strategic direction for the development.

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