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Communications, Space &
Technology Commission

RegTech

The Future of Regulatory Landscape

October 2022

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1 Summary

Over the last two decades, there has been an increase in regulatory complexity due to various factors, including the initiation of new regulations and policies, the emergence of unconventional business models, and the inconsistency in regulatory requirements imposed by multiple regulators. For example, there was an almost 750% increase in regulations between 2008 and 2020; In 2019, companies faced fines amounting to \$524 billion due to violations related to environmental, social, and governance regulations; USD 213.9 billion was incurred by companies in a single sector to maintain compliance in 2020. These staggering figures represent the financial services sector alone, with other sectors bearing the brunt of the constantly changing regulatory landscape.

Regulatory Technology (RegTech) was introduced as the remedy to the regulatory complexity faced by both regulators and regulated entities today. The term "RegTech" refers to the application of advanced and/or emerging technologies to solve specific issues/objectives and enhance monitoring and regulatory compliance of regulated entities and/or regulators in any sector. It has been demonstrated that utilizing these regulatory technologies provides operational benefits and significant improvements in the end-goal objectives, including regulatory compliance and consumer protection. Further, studies suggest that the use of RegTech could provide upwards of 600% returns on investment with a payback horizon of fewer than three years.

The global RegTech market stands at USD 8.7 billion in 2021, and it is forecasted to grow at a CAGR of 23% to reach USD 29.2 billion by 2027. Locally, the Kingdom of Saudi Arabia stands at the precipice of the RegTech revolution, with its RegTech market starting to take form. RegTech providers in the Kingdom are not sector-specific, as their offered solutions are applicable across multiple sectors.

This paper aims to shed light on regulatory technology, trace the evolution of RegTech to its current state, and highlight its roles in managing governance, risk, and compliance. It also shows how utilizing emerging and advanced technologies improves regulatory and supervisory performance, contributes to compliance, alleviates regulatory burdens, and increases operational efficiency. Finally, the paper probes the question of how Saudi Arabia can stimulate RegTech growth in an impactful and sustainable manner, as the application of RegTech offers many tactical and strategic benefits, including aligning with many of the goals in Vision 2030.

2 An Overview of Regulatory Technologies

The last fifteen years have seen a dramatic increase in the volume of regulatory requirements faced by organizations across industries and geographies. This constant evolution of regulatory requirements led to the increased complexity of meeting compliance targets, adding to the burden of compliance itself. As a matter of fact, the costs to ensure compliance increased by 16% annually in the period between 2015 and 2020 [27]. Furthermore, the cost of compliance borne by the financial services sector alone reached USD 213.9 billion in 2020, up approximately 18% from the previous year [2]. In 2019, companies faced fines amounting to \$524 billion, and they were related to environmental, social, and governance regulations. It is also predicted that the top 500 companies will spend \$8 billion annually on the compliance requirements needed by the General Data Protection Regulation (GDPR) [28].

Regulatory Announcements, Publications
and Changes (2008-2020)

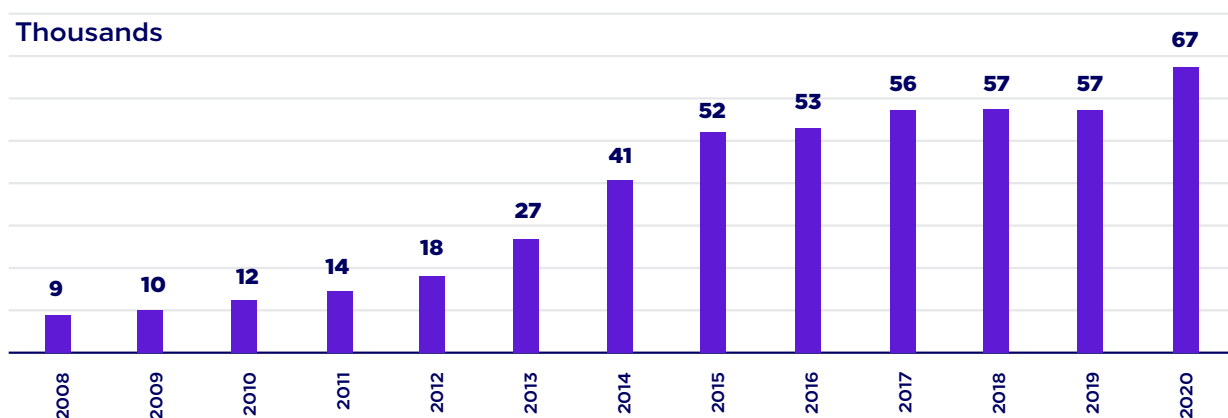


Figure 1: A Yearly View of the Inflation in Regulations [1]

In the face of these overwhelming intricacies, traditional methods and conventional systems of regulation management, from record-keeping to remediation, are no longer productive. As a result, regulators and regulated entities globally have been seeking ways to improve compliance productivity and monitoring accuracy at lower costs. Process redesign and lean strategies have yielded some results in this direction; however, the focus is shifting towards using advanced and emerging technologies to transform the regulation functions and requirements.

Technologies such as artificial intelligence, machine learning, cloud computing, distributed ledger technology, and robotic process automation, among others, offer significant benefits to the compliance and monitoring processes for both regulators and regulated entities alike. These benefits include those that improve operational excellence, including time savings or cost efficiencies, and those that generate improvement in the end-goal, such as improved customer experience or regulatory compliance.

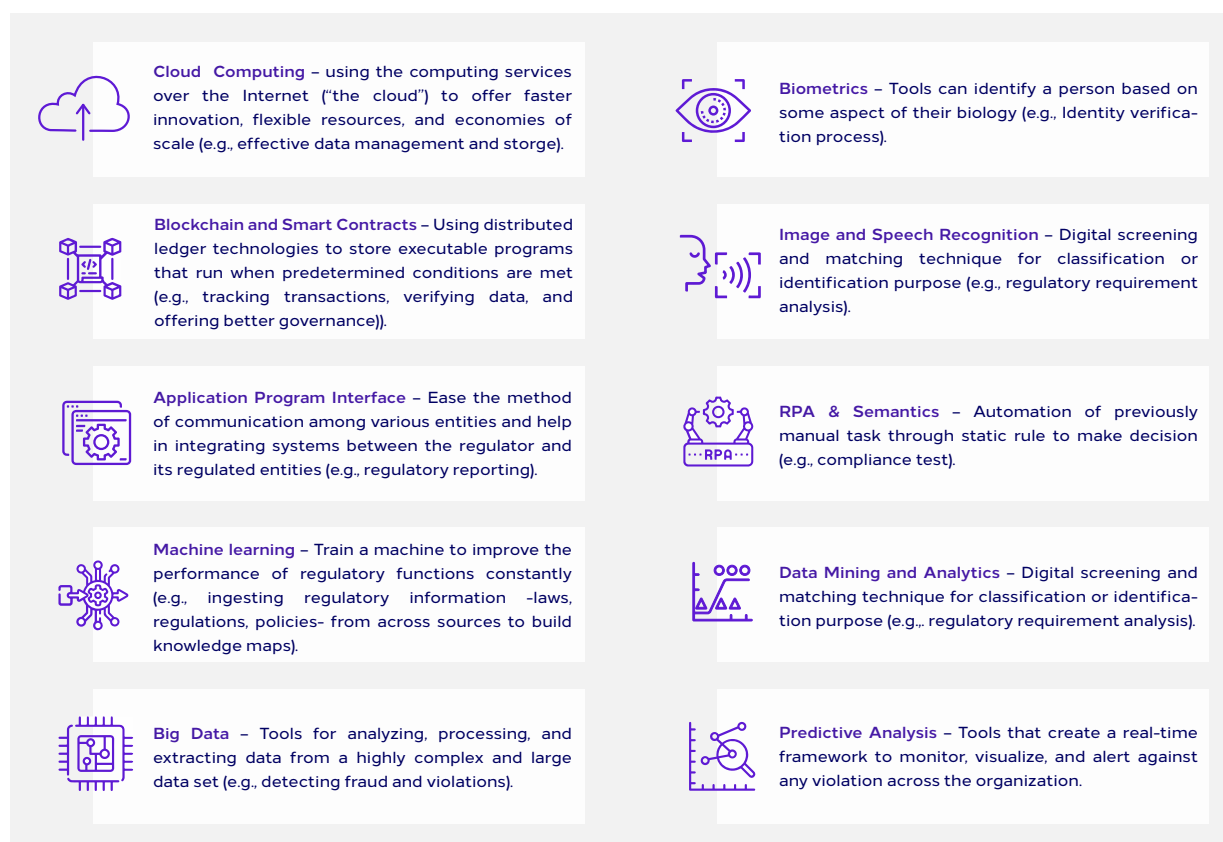


Figure 2: Examples of Utilizing Emerging Technologies as Regulatory Tools

3 What is RegTech?

‘RegTech’ is a portmanteau of the words ‘Regulatory’ and ‘Technology’, and it refers to the use of advanced and emerging technology for adherence to regulatory requirements. This application of technological innovation has led to the creation of the burgeoning RegTech industry.

While several definitions of RegTech have been propounded by various market players [3-8], no common definition of the term currently exists among institutional entities, analysts, specialized magazines, and consulting firms. Given that the roots of RegTech lie in the financial services sector, many definitions consider the two to be closely related, thus excluding RegTech from other sectors where it is prevalent and beneficial. Additionally, some reports consider RegTech as an offering for regulated institutions only, ignoring its application to the operations of regulators. In terms of objectives, publicly available definitions suggest that there are no specific guidelines as to whether RegTech is used only to address process and automation. However, it is clear from most reports that RegTech is viewed as a set of solutions aimed at leveraging new technologies to automate regulatory processes and increase compliance.

RegTech is defined as the application of advanced and/or emerging technologies to solve specific issues/objectives and enhance monitoring and regulatory compliance of regulated entities and/or regulators in any sector.

These observations call for a broader, sector-inclusive, and hence more up-to-date definition of RegTech, posited above. This definition accounts for all the components defined below, while many of the publicly available definitions consider various combinations of only some of these components.






Definition Component	Key Themes	
Objective		To Enhance Monitoring and Regulatory Compliance
		To Solve Specific Regulatory Issues / Objectives
Target Customer		Regulators and / or Regulated Entities
Applicable Sectors		Any Sector
Technology		Combine one or more Advanced and / or Emerging Technologies

Figure 3: Key Components and Themes Used to Define RegTech

The comprehensive definition of RegTech formulated with these key components in mind is useful to discern true RegTech offerings from other technological solutions, for instance, cybersecurity services solutions employed by regulators and regulated entities. Despite being a technological innovation using advanced technology, these do not solve regulatory issues or objectives and hence cannot be considered RegTech.

3.1 Journey of RegTech

The second half of the 20th century witnessed the emergence of ground-breaking trends and innovations in the financial sector, driven by increasing computing power, the decreasing cost of emerging technologies, and the proliferation of data. These factors underpinned the development of RegTech [4, 9-10].

- 1960-1990: Emergence of Financial Services

Driven by the post-war economic boom, the second half of the twentieth century was a period of rapid growth for the financial services sector. This period witnessed the rise of investments and the diversification of financial products and services. It also saw the globalization of the industry, during which financial markets across the world became increasingly connected. This led to the need for centralized compliance and compliance management tools, sowing the seeds for RegTech to emerge.

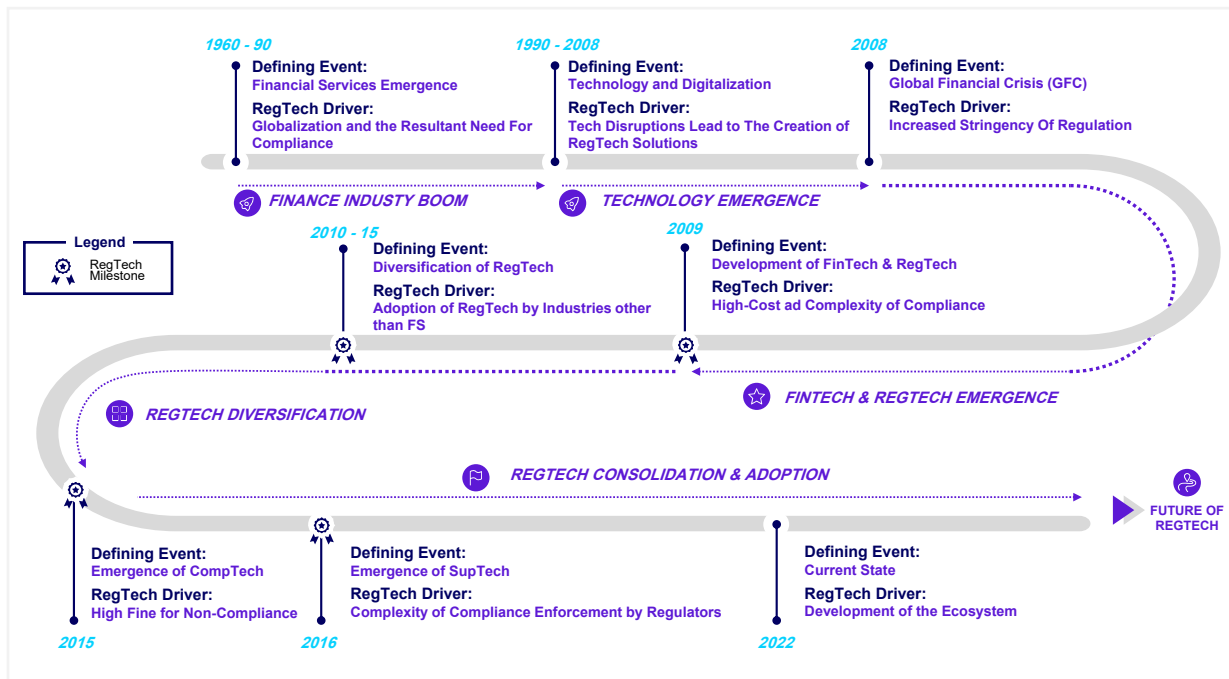


Figure 4: The Journey of RegTech

- 1990-2008: Technology and Digitalization

The dawn of the Internet era, starting in the late 1990s, led to the use of technology in the financial services sector through digital money and the introduction of technologies to support financial processes. Further down the line, technology moved away from being simply an enabler to becoming a disruptor. This led to the emergence of technology-enabled solutions, including those focused on improving compliance, such as risk monitoring and regulatory developments tracking solutions.

- 2008: The Global Financial Crisis

The global financial crisis of 2008 sent shockwaves through the financial sector by highlighting gaps and loopholes in the regulatory framework. This was a pivotal moment for RegTech and was a wake-up call for regulators, leading to increased stringency in global regulatory requirements to generate market stability and protect citizens from unfair commercial practices. Between 2008 and 2016, the market witnessed a 500% increase in regulatory changes in developed markets [11]. This new regulatory intensity added another layer of complexity for institutions, which in turn sought out means to relieve this administrative burden. This underscored the need for technological interventions to keep up with the ongoing regulatory changes.

- 2009: FinTech and RegTech Development

In the wake of the global financial crisis, financial institutions' compliance costs rose dramatically, including the payroll for the compliance department, regulatory reporting costs, and systems required for the compliance process. The development of technology-based financial products and services (FinTech) also created a shift in regulatory regimes, further exacerbating the costs of compliance for institutions and prompting them to seek solutions to mitigate these costs. This increasingly digital nature of the industry also led to an exponential increase in the volumes of data generated. This pressed governments to regulate certain practices better, leading to a need for better data management processes. These factors combined led to the inception of RegTech, wherein technology was used to address regulatory reforms and close the gaps highlighted by the global financial crisis and the emergence of financial technologies.

- 2010-2015: RegTech Diversification

The years following the inception of RegTech saw its diversification, with the application of numerous advanced technologies to target sectors beyond financial services. This is a milestone in the RegTech journey and marks the beginning of the use of RegTech in industries such as information and communications technology, healthcare, and energy.

- 2015: Emergence of CompTech Solutions

As the global economy began to find its footing, the regulatory landscape focused more on consumer protection, data protection, and competitive practices. Regulated entities were also being alerted to the importance of compliance to avoid monetary sanctions. In fact, from the global financial crisis to 2019, financial institutions racked up fines worth \$36 billion globally for non-compliance, showing a clear need for better risk management [12]. This resulted in the emergence of a new branch of RegTech called "CompTech" or "Compliance Technology", which refers to technological solutions specifically designed for compliance.

- 2016: Emergence of SupTech Solutions

The impact of changing regulatory priorities, though implemented by regulators, resulted in increased complexity of supervision for them as well. As a result, their workload increased significantly, generating interest in solutions focusing solely on the supervisory aspect of compliance. Targeted to law and policymakers, a new branch of RegTech called “SupTech” emerged to facilitate better monitoring of the market and impose compliance with regulatory requirements.

- 2022: Current Market Situation

Today, the RegTech market is still in its beginning and is on an upward trend with double-digit growth projections. Numerous players of all sizes are entering this market to address the growing need for regulation and compliance. Fast-paced technological developments continue to fuel this growth, both from a regulator's perspective in search of efficient and effective supervision, and from a regulated entity's perspective in search of compliance. This growth is further supported by creating an ecosystem that strategically helps the market thrive.

3.2 RegTech Ecosystem

The inception and growth of RegTech thus far have been primarily shaped by market forces; however, its future growth would be mainly associated with activating its existing ecosystem. The key components of this ecosystem can be the success factors that propel RegTech forward. Therefore, many nations worldwide focus on cultivating these ecosystem components, which in turn, can foster the development of RegTech as a whole.

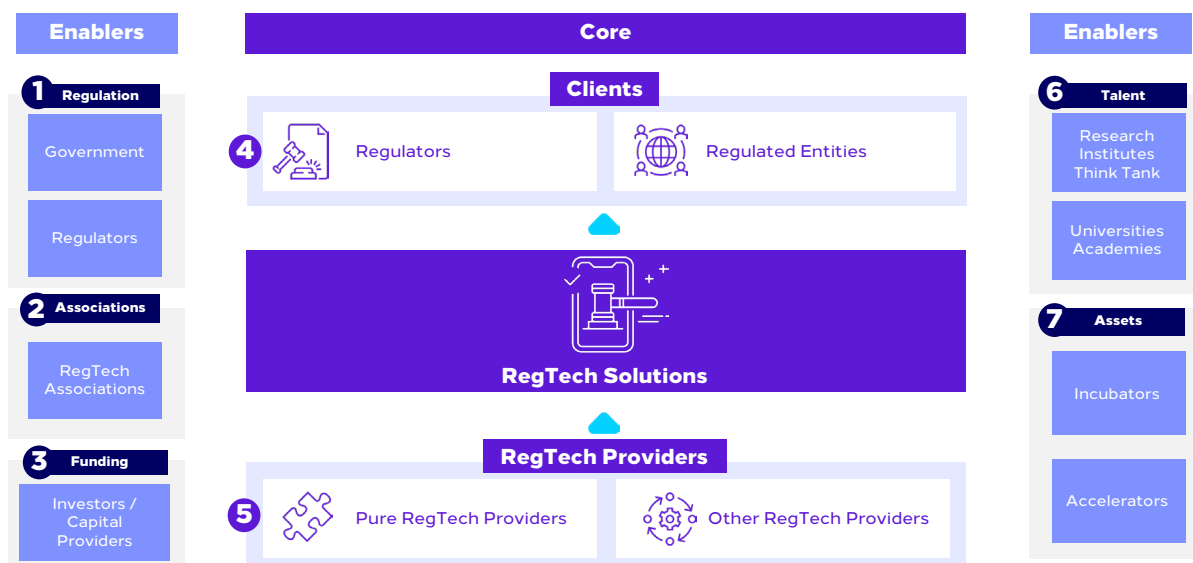


Figure 5: The Ecosystem of RegTech

The RegTech ecosystem can be broadly divided into two types of components: core components and enablers. The core components form the demand and supply side of the ecosystem, where the enablers support the core components by creating a conducive environment for the growth and development of RegTech.

-Regulation:

Typically, governments play a significant role in developing new or emerging sectors. Governments and regulators can take the helm of activities such as education, planning, and providing financial incentives to encourage growth. Various regulators around the world have undertaken these activities to bolster the growth and adoption of RegTech. For instance, the European Banking Authority (EBA) in 2020 launched a RegTech industry survey to all the relevant stakeholders with the objective of better understanding the ongoing activity in this area and raising awareness of RegTech [3]. Another regulator, the Hong Kong Monetary Authority (HKMA), released a two-year roadmap to promote RegTech adoption in the banking sector, focusing on accelerating the use of technology in risk management and compliance [15].

- Associations:

Industry associations are working groups of its key players. These players band together with the shared mission of supporting and organizing novel initiatives to transform the industry's current state and drive the market forward. To achieve such goals, they formulate policies, advocate them with regulators, and support the overall industry collaboration. The RegTech Association of Australia, established in 2017, is a prime example of how associations can spur RegTech. It is a non-profit organization comprising regulators, regulated entities, RegTech companies, and professional services firms. Its objective is mainly focused on accelerating the adoption of RegTech and making Australia one of the leading centers for global RegTech excellence. Another example is the ABBL (an association of the banking sector in Luxembourg), which frequently facilitates workshops to form insights on compliance with both the General Data Protection Regulation (GDPR) and Anti-Money Laundering Law (AML) to promote the development of regulated banking services.

- Funding:

Funding is an essential component of the RegTech ecosystem. It can be sourced from private companies such as equity firms and venture capitalists who invest in RegTech in any form. Furthermore, it can be obtained from the public sector, including government entities and agencies, through grants, tax incentives, and other financial instruments to fund technological innovation. For instance, the Australian Government grants \$50,000 to \$100,000 for RegTech project feasibility studies. If the study is successful, grants will be extended up to \$1 million to develop a proof of concept [13]. In another instance, The UK government has set tax credit incentives targeting businesses performing research for RegTech development [14].

- Clients:

Clients are one of the core components of the RegTech ecosystem and can be either regulated entities or regulators open to innovation. Singapore's "Smart Nation" is an example of an innovative initiative by a regulator to adopt the technology. Another initiative has been made in Saudi Arabia, where the Communications and Information Technology Commission (CITC) issued a regulation for spam reduction [16] and then supervised the implementation of a RegTech solution to prevent SMS spam and fraudulent messages. The blockchain-based solution is intended to be used by Telecom operators and SMS aggregators to register tag names and sender IDs and enable consumers to set preferences on their received messages. Regarding the regulated entities, companies and enterprises in various sectors are currently adopting RegTech solutions. This can be observed in Figure 6, which shows the RegTech revenue in different sectors worldwide. For instance, the global RegTech revenue in the ICT and healthcare sectors reached \$1.8 and \$1.2 billion in 2021, representing 23% and 15% of the total revenue, respectively [25].

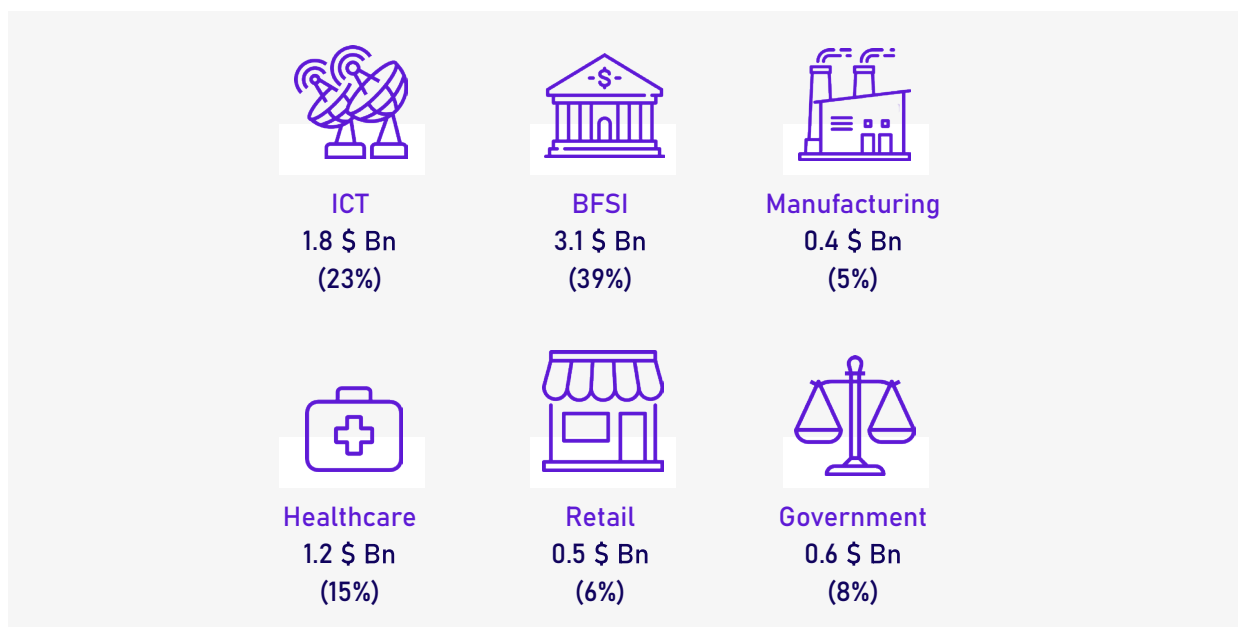


Figure 6: The Global RegTech Revenue in Various Sectors

- RegTech Providers:

RegTech providers are another core component of the RegTech ecosystem, and they can be supported by promoting innovation and entrepreneurship. This involves improving the ease of doing business, strengthening research institutions, improving legal, technological, and other infrastructures, and attracting skilled talent. Such initiatives are necessary to support local providers, spur the creation of new startups, and attract foreign providers to domestic markets. Nowadays, clients and RegTech providers have been found to exist in proportion with each other. As a matter of fact, they currently are clustering in certain countries that offer a higher density of potential clients, a wide range of available funding, highly skilled and talented workforce, and the essential structural features of the economy [18].

- Talent:

RegTech development requires specific expertise in innovative technologies and regulatory tools; hence, it is vital to have the support of research institutes and universities in providing knowledge and qualifying talent in the market. They can offer training courses and academic programs in emerging technologies and their applications in solving regulatory objectives. Forums, workshops, and conferences should be held as well to understand RegTech further, share experiences, consider its primary challenges, and explore recent developments in the fields of regulation, supervision, governance, risk management, and compliance.

- Assets:

Incubators and accelerators support the growth and chances of success of RegTech startups by providing mentorship, capital, and support services. These assets can be operated and funded by governments. Another approach would be encouraging the private sector to invest in such assets. Incubation and acceleration programs for RegTech startups can provide office space, expenses, legal services, and regulatory assistance, in addition to mentorship and funding access opportunities. Regulatory sandboxes are another novel and popular example of incubators. Several regulators and government entities in Saudi Arabia, the United Kingdom, and India have launched sandboxes to provide RegTech startups with a secure development and testing environment.

4 Why RegTech?

Emerging technologies have significantly changed the world and its various sectors. They make services more accessible, transform processes into highly automated operations, and considerably enhance productivity and efficiency. RegTech is expected to provide extended impact through these emerging technologies. For instance, a recent study found that regulated entities consider the most relevant benefits of RegTech to be greater accuracy, speed, and data optimization as compared to legacy systems [3]. Another report point to the impact RegTech can create, indicating that investments in RegTech can provide businesses with more than 600% return on investment with a payback period of fewer than three years [29]. This clearly points to the considerable transformation potential that RegTech brings to the business landscape. For instance, proper adoption of RegTech solutions as regulatory tools will help in several perspectives, including governance, time saving, risk management, analytics, cost efficiency, customer and employee experiences, and regulatory fines and compliance.

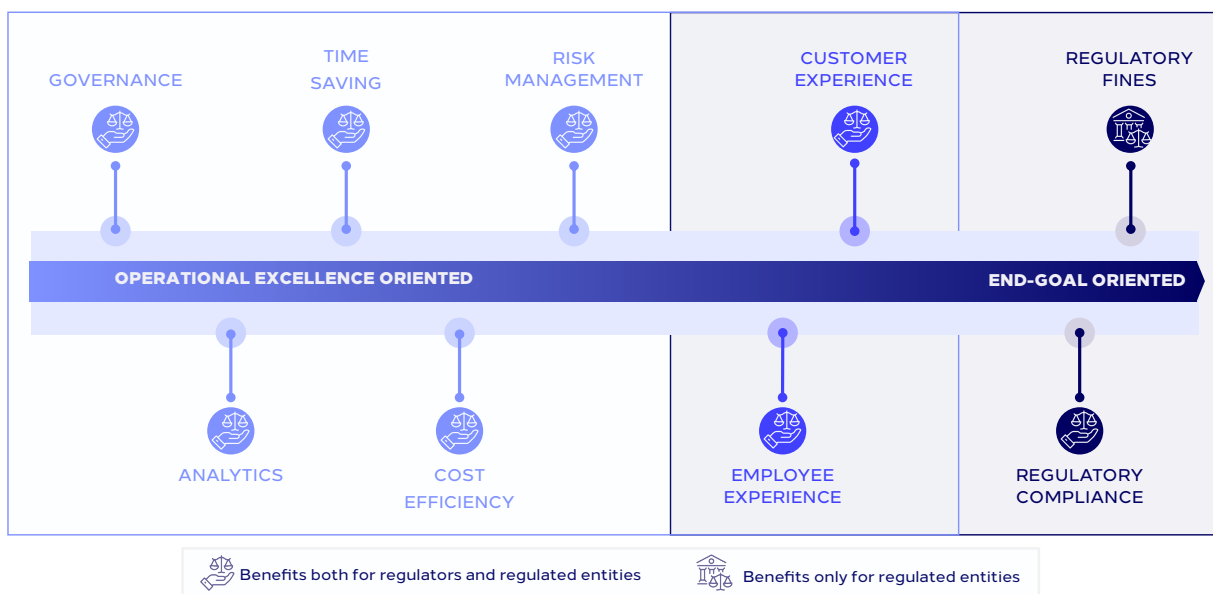


Figure 7: Benefits of Regulatory Technology

- **Governance:** using emerging technologies enables the efficient administration of regulatory activities, such as enhancing effectiveness in compliance assessment, managing regulatory policies and procedures, and performing internal control and accountability for risk. For instance, cellular roaming issues and fraud detection can be resolved by having a private blockchain among service providers and telecom regulators. Once the smart contracts are agreed on and deployed, it would be impossible to alter their behaviors, and this will enable rapid and validated authorization as well as real-time settlement, thereby dramatically lowering costs and fraud.

- **Time Saving:** RegTech automated tools allow regulators and regulated entities to optimize and automate their regulatory functions, thereby reducing any manual effort or labor-intensive processes. As an example, utilizing artificial intelligence to analyze a high volume of regulation documents (consisting of 1.5 million) can be completed within a few minutes, compared to the need for several days once the manual analysis is applied [30].

- **Risk Management:** RegTech can reduce the risk of regulatory non-compliance due to lesser operational and human errors resulting from manual processes. In addition, it helps in processing large volumes of data and leveraging predictive analytics to identify undetected risks, compliance breaches, business liabilities, and then provide early warnings.

- **Analytics:** RegTech solutions provide customized, real-time data to provide insights such as trend analysis and generate KPIs around risk monitoring, market dynamics, and compliance activity tracking. It also offers novel capabilities in data analysis, discovers hidden risk sources, presents consolidated reporting for regulatory purposes, and aids in the processes of decision-making.

- **Cost Efficiency:** implementing RegTech solutions enables operations' efficiency, thus reducing operating costs and delivering significant money savings. Recent research has shown that an organization serving 10 million customers can save up to 40% in costs annually by utilizing RegTech to enhance the processes related to "Know Your Customer" processes [15]. Another study shows that implementing regulatory tools in electronic invoicing to facilitate tax compliance would result in savings equivalent to around \$18 billion over ten years [32]. Moreover, a use case of RegTech in monitoring the movement of trucks and heavy vehicles has reduced accidents by an average of USD 88 million every year [32].

- **Customer Experience:** adopting RegTech solutions can enhance customer experience by improving the efficiency and effectiveness of governance and supervision, protecting consumers from abusive behavior by market players, upholding their rights and data privacy, and easing required processes such as customer onboarding.

- **Employee Experience:** implementation of RegTech solutions enables the improvement of employee experience by monitoring company regulations and culture and their compliance with applicable policies, regulations, and procedures. It even automates repeatable regulatory functions, enhances the efficiency of managing compliance, and eventually frees up human capacity and enables them to focus on essential tasks such as analysis and decision-making. RegTech can also improve the effectiveness of regulatory processes, such as minimizing false-positive alerts for suspicious activity in transaction monitoring.

- **Regulatory Compliance and Fines:** using RegTech solutions facilitates the ease and accuracy of organizations' compliance with applicable regulations. It simplifies the interpretation of regulations, streamlines compliance processes, and enables them to respond dynamically and quickly to changing regulatory requirements. On the other hand, RegTech improves the accuracy of compliance checks performed by regulators. These advanced solutions also automate market monitoring to enable regulators to detect any potential non-compliance. In fact, by utilizing a RegTech solution, regulators can receive large volumes of documents through a cloud-based platform, use AI and NLP models to analyze and inspect these documents in detail for regulatory compliance purposes, and then generate automated reports indicating any necessary remediation actions needed from the regulated company.

CASE STUDY | Aargauische Kantonalbank (AKB) uses RegTech solutions by NetGuardians to improve compliance and cut costs by ~75%.

Switzerland-based AKB faced increasing compliance costs and struggled to keep track of and comply with changing anti-money laundering regulations in Switzerland and the European Union. As a result, the bank turned to a RegTech solution offered by NetGuardians to manage these challenges. By virtue of artificial intelligence and machine learning models, the solution automated many tasks that AKB previously performed manually. It also improved fraud detection accuracy by reducing false positives by 90% and detecting new and emerging fraud patterns. This effectively reduced the cost of compliance for AKB by 75% and reduced the time spent on investigating risks by 93%. Additionally, the solution ensures compliance with the “Customer Security Programme”, a recent regulation in the Swiss AML landscape. The solution hence keeps the AKB AML systems up to standard [17].

5 RegTech Applications

The journey of RegTech implicitly describes the evolution of how RegTech has been applied over the years. In its initial years, RegTech was used primarily by regulated entities in response to the progressively complex regulatory requirements and the resultant mounting compliance costs and non-compliance fines. RegTech solutions were aimed at surmounting compliance challenges faced by institutions. However, in recent years, buoyed by the benefits RegTech brought to regulated entities, regulators have begun to apply RegTech to their regulatory and supervisory functions and benefit from its operational efficiencies in their processes.

5.1 RegTech Applications in Various Sectors

Irrespective of the sector, RegTech finds applications across some specific regulatory objectives [18, 19]. These include but are not limited to:

- **Registration:** applying RegTech to manage the registration of new businesses and organizations.
- **Licensing:** using RegTech to manage the licensing aspects of businesses, organizations, and their employees, such as ensuring that everyone employed by a real estate firm is a licensed realtor.
- **Monitoring:** utilizing RegTech for surveillance to gather information about the conduct and market dynamics; for instance, it can be used to surveil communications for ethical and legal compliance.
- **Compliance:** applying RegTech to analyze the consolidated data to ensure compliance and identify non-compliance with the sector's regulations. For instance, analysis of financial information reported by a company to analyze its compliance with the terms of its license.
- **Regulatory Analysis:** applying RegTech to better understand, monitor, track and manage the different regulations that affect the organization across multiple jurisdictions.

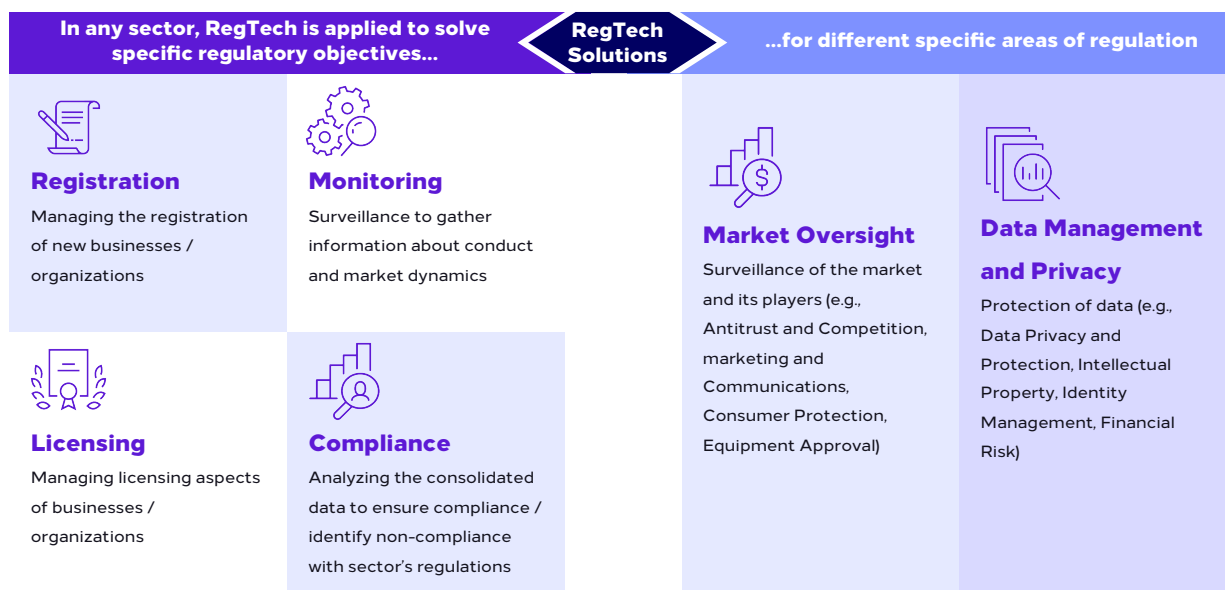


Figure 8: Applications of RegTech in Various Sectors

The application of RegTech across these objectives can span different areas of regulation, including but not limited to:

- **Market Oversight:** this involves surveillance of the market and its players across antitrust, competition, marketing, communication compliance, and consumer rights protection.
- **Data Management and Privacy:** it covers protecting data, whether collected throughout the business, intellectual property, personally identifiable information, or financial data, to prevent money laundering and financial terrorism.

CASE STUDY | Solaris Bank uses RegTech solutions to streamline identity management.

Berlin-based Solaris Bank found itself increasingly enmeshed in the complexities generated by the changing regulatory environment in the European Union, combined with the complexities of developing a compliant application process for its fully digital product. Subsequently, the online bank turned to IDNow's RegTech solutions to ensure compliance with various cross-geographic regulations about automatic identity verification and enhance the entire customer onboarding process for its products without compromising compliance. The solutions serve sub-objectives such as insights analysis, compliance reporting, and others in the areas of data management and privacy, generating significant time savings for Solaris Bank. Additionally, the fully digital customer onboarding process enhanced customer experience, resulting in an 80% conversion rate. These benefits are gained in addition to complying with applicable European laws such as GDPR and AML [20].

5.2 RegTech Applications in the ICT Sector

As the market diversified, specific applications of RegTech in ICT have been identified. While many of these applications are similar to the regulatory objectives and areas served by RegTech in other sectors, certain functions apply to ICT only, such as the solutions used for the equipment approval and domain administration [18, 21]. Figure 9 lists nine potential applications in which RegTech can be utilized:

- **Antitrust and Competition** aims to encourage competition in the ICT market by monitoring and limiting the power of the most prominent players. Antitrust usually refers to ensuring that significant shifts in the market, such as mergers and acquisitions, do not result in monopoly positions. Competition usually refers to monitoring market players to prevent illegal and unofficial groupings of companies from influencing the market's direction. It also monitors the relationship between market players (e.g., use of spectrum and infrastructure sharing agreements).

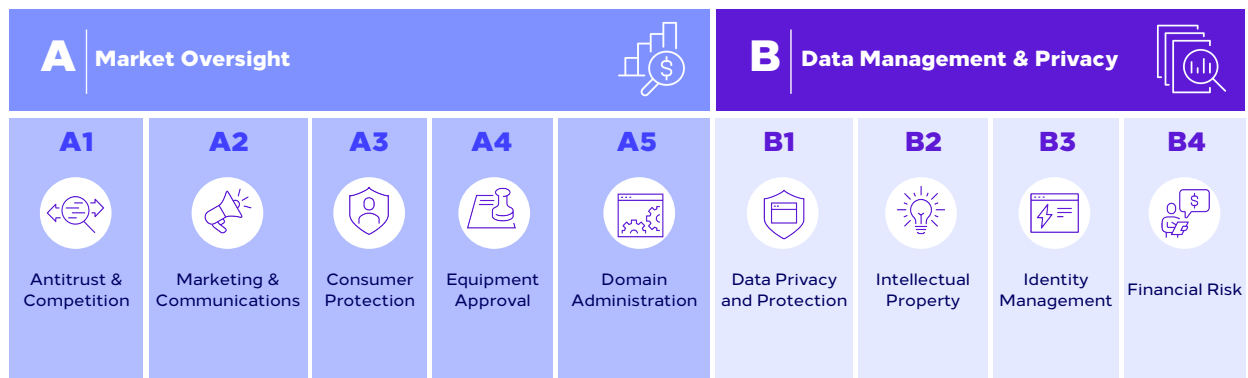


Figure 9: Applications of RegTech in the ICT Sector

- **Marketing and Communications** monitor the companies' marketing and communication practices to prevent the publication of misleading or false content (e.g., promoting a particular data plan without detailing its terms and conditions).
- **Consumer Protection** targets making the ICT market a safer and more reliable environment by protecting both online and offline consumers from unfair commercial practices. It consists of monitoring the market and its players to prevent abusive behaviors towards consumers (e.g., unjustified price increases, aggressive retention activities of the company during a fixed/mobile portability process, and non-compliant behavior of service providers' employees).
- **Equipment Approval** defines and manages the requirements for IT and telecommunications equipment to comply with specific technical standards. Such equipment must be registered with the regulator before it can be used, sold, or distributed in the market.
- **Domain Administration** identifies the procedure related to Internet domains and the standards that domain names need to follow. It also manages the Internet domain's lifecycle, including renewal, modification, and cancellation.
- **Data Privacy and Protection** aims at protecting personal data stored on computers or in an organized paper filing system by market players (e.g., protecting subscribers' identification, contact information, and sensitive data).
- **Intellectual Property** protects the ownership rights for ICT-related innovations and protected works through various instruments such as ensuring companies' compliance with IP-related regulations (including those related to patents, trademarks, and copyrights) and managing the registration process of website domains.
- **Identity Management** defines and manages all aspects of the "Know Your Customer" (KYC) operations starting from initial onboarding, identity verification, and enhanced due diligence, through to ongoing monitoring and remediation.
- **Financial Risk** monitors the organization's practices regarding fraud prevention and client management. It includes screening individuals against a global watchlist, preventing and combating money laundering, and monitoring organizations' activities to detect fraud.

CASE STUDY | SFR uses RegTech solutions to secure and enhance customer onboarding and achieves 20% cost reductions.

SFR, a Paris-based telecommunications company, aimed to improve its in-store experience in 800+ stores by migrating to a fully digital onboarding experience. However, this raised compliance and data security complexities, leading SFR to seek solutions that could handle large volumes of identities to be verified securely and compliant with European KYC and data protection laws. They had utilized two RegTech solutions, offered by a provider called AriadNext, to help migrate to a fully digital, secure, and compliant customer onboarding process using artificial intelligence, biometrics, and facial recognition technologies. In addition, the two solutions allowed SFR to address regulatory objectives such as insight analysis and data consolidation in the area of identity management, generating significant time- and cost-efficiencies. As a result, the telecommunications company reduced its customer onboarding time to almost 12 seconds and a 20% reduction in front- and back-office expenses. The digital onboarding experience also improved the customer onboarding experience while maintaining regulatory compliance [22].

6 Global RegTech Market

The global RegTech market across sectors reached USD 8.7 billion in 2021, and it is expected to grow at a CAGR of 23% to reach USD 29.2 billion by 2027 [18]. Much of RegTech development is geographically centered in North America, the UK, and Europe, making up approximately 85% of the global RegTech market. It is expected for developed economies to be the flag-bearers for RegTech, given the increasing regulatory stringency, expanded state of technology, and availability of monies to prioritize RegTech development. This is forecasted to continue in the future, with the three regions representing 85% of the market in 2027. On the other end of the spectrum, South America is anticipated to represent a meager 0.01% of revenues in 2027 [18].

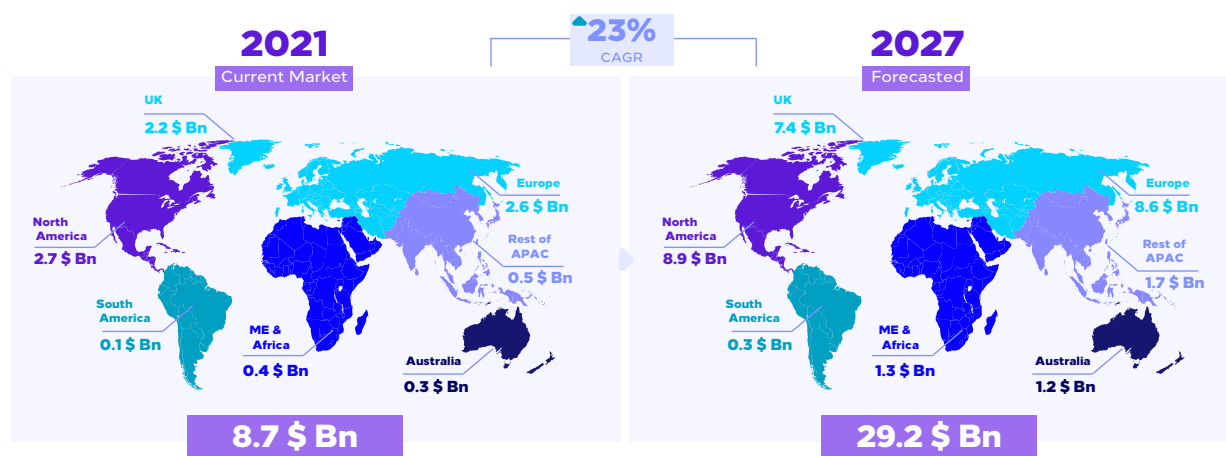


Figure 10: Global RegTech Market by Geography

Examining the market in terms of RegTech providers, two kinds emerge – the first are those that are purely RegTech, i.e., those which have RegTech solutions as their primary, if not only, offering; the second are providers which started as IT or other solutions providers, and then expanded their portfolios to include RegTech solutions, or added RegTech capabilities to existing solutions. These RegTech providers are targeting a wide range of sectors, with a slight focus on the financial services, information communication technology, and healthcare sectors (which represent 39%, 23%, and 15% of the global RegTech revenue in 2021, respectively) [18].

With the global RegTech market reared for significant growth in the coming years, Saudi Arabia's market is also beginning to take form. Nowadays, the Kingdom is home to a few RegTech homegrown providers, which mostly started as IT companies but recently diversified into RegTech [33]. Though the RegTech market is still nascent in Saudi Arabia, there has been activity on the front that signals ambition toward driving the development and adoption of RegTech in the Kingdom. An instance of the Saudi spotlight on RegTech is the Saudi G20 Presidency which focused on RegTech, among other topics. A TechSprint was launched in partnership with the Bank of International Settlements (BIS). It was designed to showcase the potential for advanced and emerging technologies to resolve operational problems in the areas of regulatory compliance and supervision [31].

As part of its critical strategic objectives, the Communications and Information Technology Commission (CITC) in Saudi Arabia is leading a national effort to utilize a RegTech solution (based on blockchain) to help protect the public from receiving inaccurate, malicious, and fraudulent SMS messages. The regulatory authority mandated that all telecommunication service providers have a node in a private distributed ledger such that their relevant information is mirrored and synchronized with the blockchain. This is to ensure the consistency of any changes and eliminate the possibility of any data tampering. The private blockchain network is also connected with a platform to allow licensed SMS aggregators to provide registration services to advertisers and digitally store their message headers and content templates. With the proposed blockchain-based system, CITC aims to improve efficiency, reduce the length of tag name registration, and provide better customer satisfaction.

7 Implications for Saudi Arabia

The growing popularity and maturity of RegTech across the globe, along with its benefits to the economies adopting it, makes a strong case for stakeholders in Saudi Arabia to apply focus to developing the domestic RegTech market. A few initiatives in this direction have already been taken. However, as the benefits of RegTech become more apparent, it would be advantageous for various sectors to cultivate RegTech development and adoption.

RegTech shows promise to contribute to achieving several objectives set by Vision 2030. This includes accelerating the digital economy, promoting small and medium-sized enterprises and their contribution to the gross domestic product, and improving foreign direct investment in the Kingdom. This solid strategic alignment of RegTech with the Kingdom demonstrates the lasting benefits RegTech can have for the Kingdom and its economy [24].

On the tactical front, laying focus on building the RegTech ecosystem in Saudi Arabia can have benefits such as improving governance, providing analytics to the large quantum of data generated, saving the time and cost of compliance for both regulators and regulated entities, improving the customer experience, introducing efficiencies to the operations of compliance teams, and improved regulatory compliance in the Kingdom.

7.1 Catalyzing RegTech in Saudi Arabia

Though the benefits of RegTech are evident, regulators and government agencies must make deliberate and strategic moves to foster the adoption and development of RegTech. For RegTech to flourish, its entire ecosystem must be mobilized. Regulators and government agencies are in the unique position of directly exerting influence over many of the enablers in the ecosystem, which in turn can stimulate the core components and boost the demand for and supply of RegTech in the ecosystem. Some potential measures that can increase the enabling components are described as follows:

- Enhancing 'Regulatory Functions' to catalyze RegTech:

Regulation is one of the ecosystem's key enablers and arguably among the most potent ones. Regulatory focus can be directed towards solving key challenges stifling current RegTech growth. Some such initiatives can include:

Developing a market accessibility program to facilitate the implementation of RegTech solutions in Saudi Arabia. This involves reducing barriers to entry, promoting the development of the domestic industry, and lightening the requirements to set up partnerships with local players (e.g., data center service providers) to ultimately give Saudi Arabia a leading position in the RegTech sector.

Building knowledge repositories and defining avenues for partnership with regulators to provide RegTech providers seeking to enter the Saudi market with access to domestic regulatory knowledge. This includes developing a publicly available central repository platform containing all the latest regulations and regulatory updates RegTech providers need to deliver services in the region.

Designing a pilot RegTech project to be run in tandem with legacy systems for the two-fold benefit of strengthening regulatory compliance while introducing regulated entities to the benefits of RegTech, such as reduced manual effort, auditable outcomes, and reduced cost of compliance. This will help facilitate the trial and subsequent adoption of RegTech.

CASE STUDY | Dairy Food Safety Victoria launched a RegTech Portal to enhance the monitoring of regulated entities and leverage data to elevate food safety in Victoria, Australia.

Dairy Food Safety Victoria (DFSV) is a statutory authority responsible for regulating the Victorian dairy industry to safeguard public health. DFSV licenses all dairy businesses operating in Victoria, where these companies are responsible for producing more than 65% of Australia's dairy products. As part of its effort, DFSV implements a regulatory system that underpins the industry's reputation for safety and quality. In 2022, DFSV launched the Dairy RegTech initiative to support businesses to better comply with regulations using technologies. Dairy RegTech was launched as a voluntary program in which Victorian dairy licensees can choose to participate as an alternative to the traditional audit-only approach to regulation. Licensees choosing to participate in the program are granted access to the DFSV custom RegTech portal, where they can continuously upload their key food safety data. This proactive sharing of data allows the dairy licensee to transition to an alternate audit model where audits are more targeted and focused, enabling the auditor to provide valuable feedback to the business. This data is also analyzed to determine a food safety culture score, based on which further action can be taken. In this way, misbehaviors and non-compliances can be detected early, and action can be taken to protect the integrity of food safety in Victoria [23].

- Encouraging 'Associations' for RegTech:

'Associations' play a role in the ecosystem by connecting RegTech stakeholders nationally and internationally. They exist with the sole objective of furthering the RegTech market by organizing events and forums, driving policy and regulatory changes, and representing the interests of RegTech providers and clients alike. Therefore, it is essential to establish local RegTech associations that focus on building networks between various RegTech stakeholders (e.g., regulators, regulated entities, RegTech providers, etc.). Furthermore, they can help in developing the RegTech industry, highlighting and addressing critical issues faced by enterprises, fostering talent-building, and driving the development and adoption of RegTech in Saudi Arabia.

- Promoting 'Funding' for RegTech:

'Funding' is a pre-requisite to the development of RegTech, and it can be sourced from private enterprises and investors or made available through the government and public sector. A sector regulator's onus in the area of fund development is two-fold:

Studying the state of RegTech in the Kingdom and determining the areas where funds are lacking and valuable. For example, grants can be provided to encourage research, development, and innovation in emerging technologies and their applications to solve regulatory objectives. Moreover, funds can be geared towards building essential national digital infrastructure, such as Arabic natural language processing algorithms, so that RegTech solutions are efficiently integrated with local regulators.

Designing programs to give financial incentives, stir economic growth, and promote RegTech investments. For instance, these programs can offer subsidies and tax benefits to support regulated entities undertaking RegTech solutions that improve and simplify their regulatory compliance. Such initiatives will boost demand for RegTech solutions from regulated entities.

- Fostering 'talent' development for RegTech:

Talent development is integral to RegTech growth and plays a vital role in fostering knowledge, awareness, innovation, and skills required for RegTech adoption. Regulators and government entities should start by studying the current talent landscape to identify skill gaps and devise mechanisms to fill the identified gaps. This can be accomplished by stimulating the educational entities – universities, academia, research institutes, and think tanks – to help cultivate the fundamental capabilities required to make Saudi Arabia a hub for RegTech. In addition, initiatives such as forums, conferences, hackathons, and challenges should be held to bring awareness of RegTech to the Kingdom and draw international attention as a hub for technology.

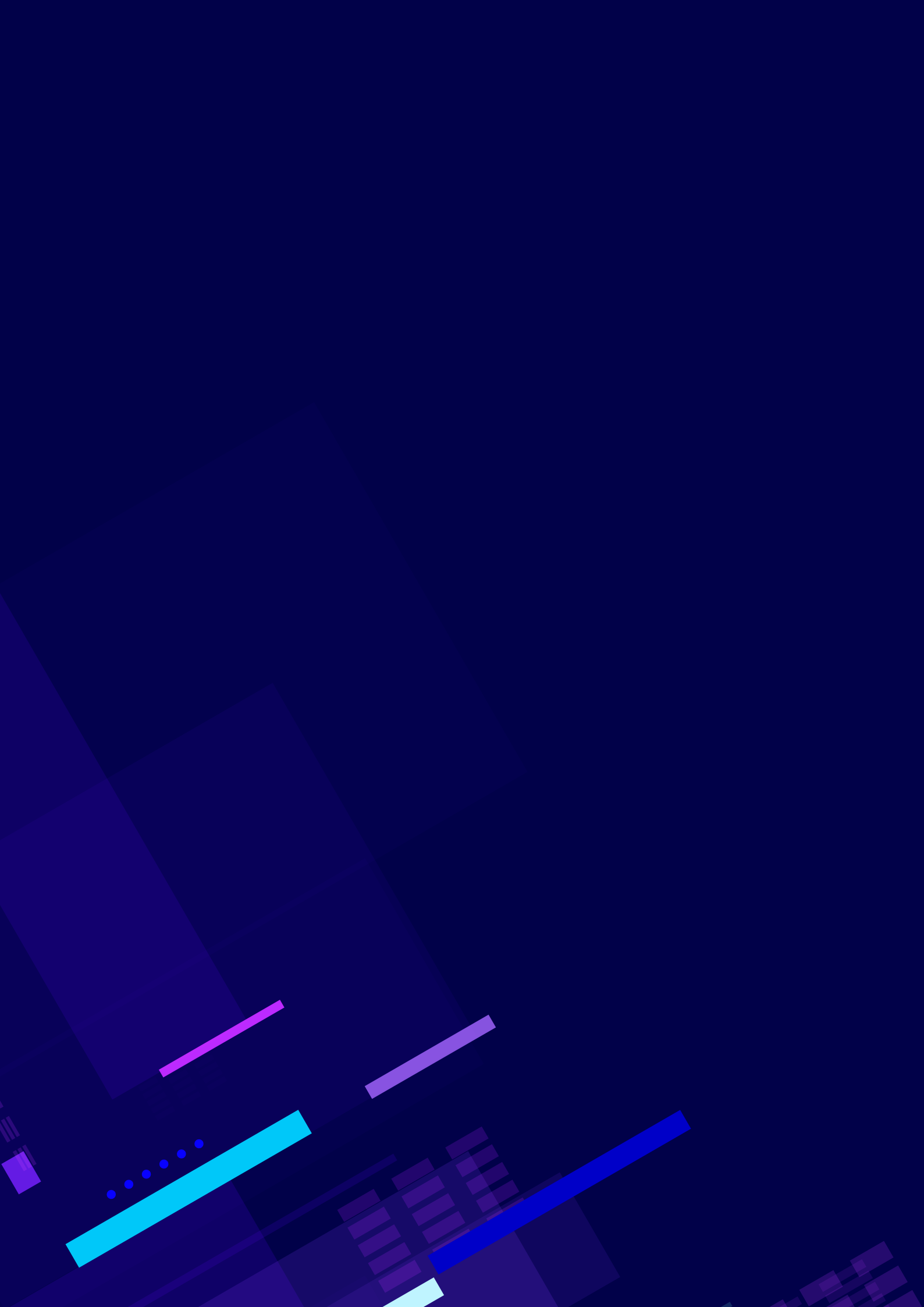
- Designing 'assets' to propel RegTech:

Among the most popular methods to encourage the growth and development of RegTech is to create a sandbox for players to test out their solutions in a controlled environment with regulatory checks and balances in place. Consequently, regulatory sandboxes have been adopted by many sectors worldwide, including the United Kingdom, Canada, Australia, India, Singapore, Saudi Arabia, and Bahrain. For example, CITC has launched an emerging technologies sandbox that includes ICT-specific RegTech development. The sandbox provides a structured environment to experiment and test innovative solutions for regulatory challenges in a real-world environment under a set of conditions and regulatory supervision before taking the proposed solutions to market. Such an approach can potentially leapfrog the development of RegTech in the Kingdom and must be fortified and promoted to propel RegTech.

7.2 Final Insights:

The catalysts defined in the previous section can lead to RegTech in the Kingdom flourishing, and in turn bringing a plethora of benefits to the regulators and regulated entities operating in the region. Encouraging the development and adoption of RegTech inadvertently encourages research and use of advanced technology such as artificial intelligence, machine learning, natural language processing, distributed ledger technology, and robotic process automation, among others. It will also support in leading the Kingdom further towards its ambition of digital transformation. This is in addition to the core benefits RegTech offers, from ensuring integrity and compliance across all market operations to contributing to customer protection. For all these reasons, the growth of RegTech must become among the primary ambitions of sector-specific regulators.

This is an opportune time to ramp up investments in developing the RegTech ecosystem, particularly in industries such as ICT, where the use of RegTech is rudimentary. For example, the use cases for and benefits provided by RegTech have been empirically proven, to some extent, in the financial services sector, which might be one of the most complex ones regarding regulatory complexity and sensitivity of data. As the market has begun to diversify, it would be advantageous for Saudi Arabia to build preeminence in RegTech for ICT, making the Kingdom home to technological and regulatory innovations.



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