In collaboration with the Global Future Council on Agile Governance

WORLD ECONOMIC FORUM

Regulatory Technology for the 21st Century

WHITE PAPER

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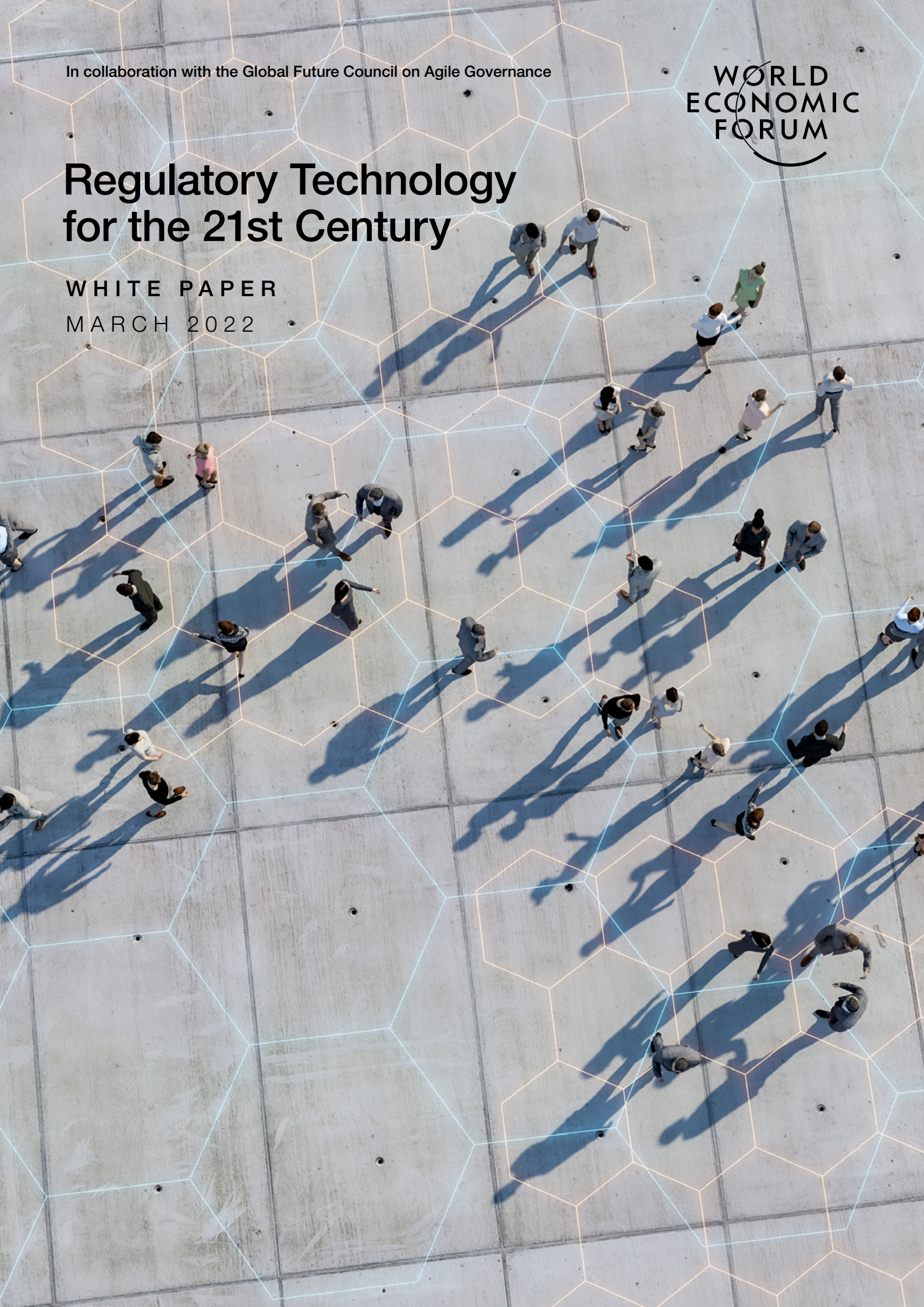

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RegTech defined

What is regulatory technology?

Regulation is central to governmental management of complex systems. It is routinely used by governments to increase market **efficiency**, ensure actors' **accountability** and support **coordination** across activities. However, if designed or applied ineffectively, regulation may trigger significant losses, impose unnecessary financial burdens and stifle innovation.

Emerging technologies have challenged governments' ability to regulate the Fourth Industrial Revolution. On the one hand, there is a need to minimize or eliminate technological risk. On the other hand, there is a desire to optimize the potential benefits of new technologies.

As a consequence, governments have shifted from traditional set-and-forget regulations to iterative and user-centred design practices, including experimental regulation (prototyping and testing) and outcome-based regulation. This new approach of agile governance has changed policy-making and promoted technological advancement, providing **many opportunities to design new regulatory tools and enhance the regulatory process** through RegTech. For example, artificial intelligence (AI) can be used to monitor data for regulatory risks, natural-language processing can help organizations better understand regulatory requirements, and blockchain can help track and verify compliance data.

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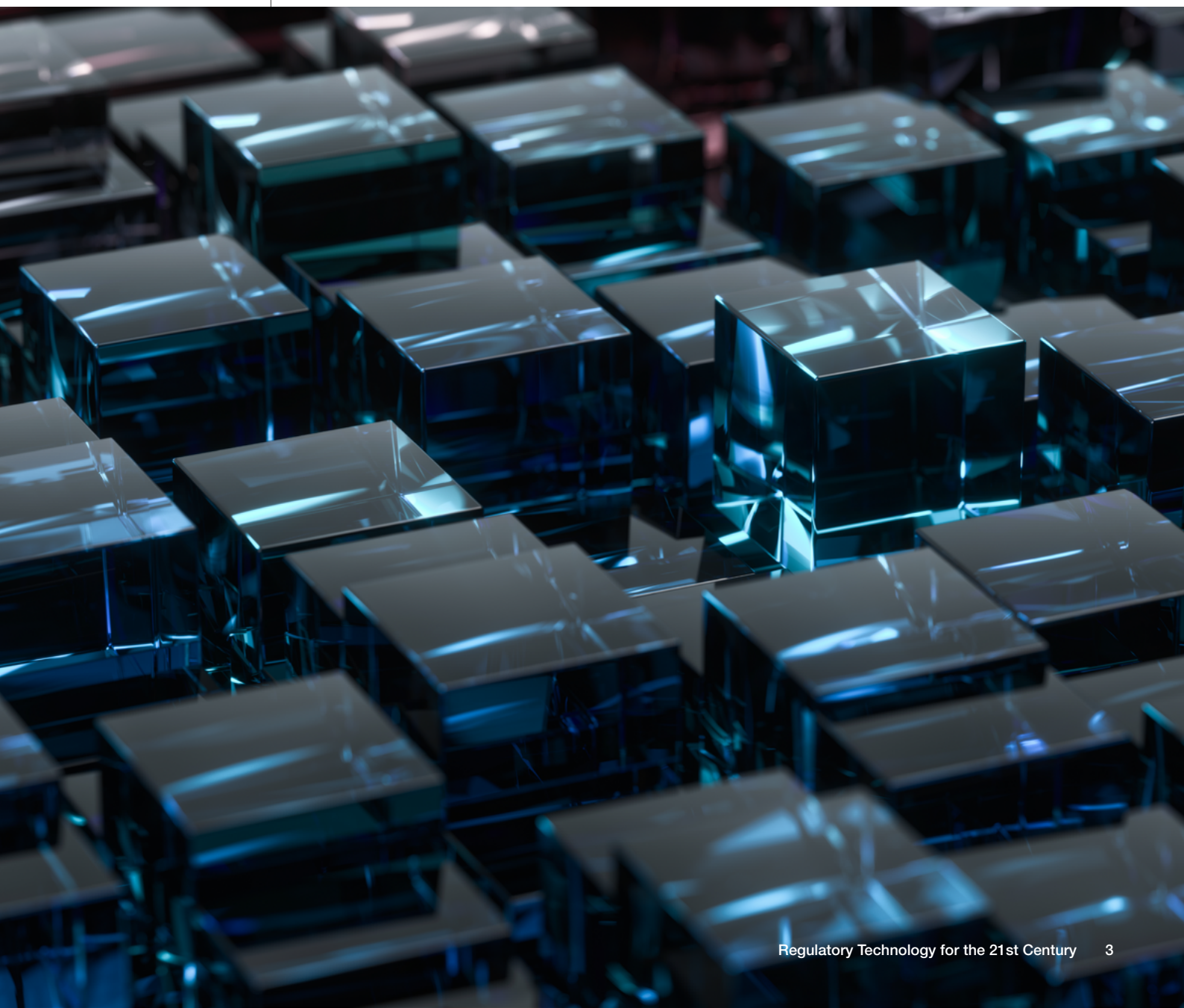

Definition

For the purposes of this paper, RegTech is defined as: *The application of various new technological solutions that assist highly regulated industry stakeholders, including regulators, in setting, effectuating and meeting regulatory governance, reporting, compliance and risk management obligations.*

The goal of RegTech is to prioritize and improve the effectiveness of regulations and governance while reducing the cost of compliance through modern technology. Solutions like codified-regulations, AI compliance systems, blockchain tracking and smart contracting all present potential to improve regulatory systems.

The question remains: how to best adopt transformative new RegTech applications – moving from static to dynamic regulation – while keeping regulation and governance true to their main objectives.

Why this definition?

- First, the definition recognizes **an increasing need for transparency and flexibility in modern regulatory practices**. RegTech aims to simplify regulation and streamline compliance processes by translating complex regulation into code. This can reduce associated risks and costs while harmonizing stakeholders' viewpoints. Legacy regulatory systems tend not to promote transparency and agility but **new technologies can counter this opaque processes**.

- Second, there is an **interdependency between regulators and the regulated**. Focusing on one stakeholder at a time will not improve current systems. RegTech is a utility for the whole industry that reduces the burden of compliance for the regulated, but also promotes effective governance from regulators.

Why now?

Collaboration among all stakeholders and the use of RegTech can facilitate better regulation, governance and compliance. Technological advancements have reached satisfactory maturity and a high level of community understanding. Therefore, such technologies can be confidently applied to improve efficiency.

21st century

The 21st century poses new challenges as regulatory systems struggle to keep up with the risks and opportunities of emerging technologies. It is important to recognize the challenges of balancing the need to innovate and the duty to protect and build trust among stakeholders.

Often, law and bureaucracy are hard to reconcile with technological change. As a result, regulation can hinder new ideas, products and business models. Industries and corporations in different verticals struggle with ambiguous, static or non-existent regulatory frameworks. Moreover, technologies transcend traditional industry definitions, straddling sectors and jurisdictions.

Post-COVID-19

During the COVID-19 pandemic, **economic conditions have required agile governance and technology deployment**. Regulators and regulated industries have revealed a need for more agile and responsive regulation when faced with social, economic and political disruptions.

In a world of increasing regulation and growing environmental, ethical and social needs, minimizing the burden of compliance is crucial to successful regulation and governance. Policy-making should therefore be rapid while maintaining operational functionality and social stability.

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The value of RegTech

Regulatory technologies support the shift from ‘reactive’ to ‘dynamic’ regulation – enabling regulatory formation and compliance to more effectively evolve with changing market dynamics.

Regulatory frameworks are often a response to market failures in a static model. They are frequently applied after recessions to avoid the recurrence of past system weaknesses. This 'reactive' nature can make compliance complicated and costly.

Highly regulated industries can find in RegTech a relief from such burdens, hence freeing financial and social capital for reinvestment. Effective RegTech deployment builds greater capacity to pre-empt changes in regulated markets, simplifies complex systems and quickly updates based on regulatory change. However, greater potential return comes from the **adoption of RegTech and agile governance together**. This increases the system flexibility to adjust underlying regulatory measures as opposed to overhauling or creating new processes.

Likewise, RegTech can make regulatory systems more resilient to disruption. Many modern businesses have been able to disrupt markets not from fundamental innovation, but by discovering a loophole that allows them to ignore the compliance burdens of the incumbent competitors. Discovery of these loopholes can highlight ingrained inefficiencies driven by legacy or over-regulation, and in fact increase consumer welfare. However, it also exposes threats to market competition, and labour and consumer protection that regulators struggle to manage. **RegTech enables a regulatory system to continuously evaluate and update when such loopholes are identified**. For example, it makes it easier to adjust processes to reduce regulatory burdens on incumbents, or enforce required market, labour and consumer protections on new entrants.

The concern in employing this "agile" approach is that it can result in a high level of regulatory uncertainty for business. An agile regulation model that employs continuous integration and delivery of regulations may increase the risk of long-term business investments. However, insights from other fields (see Box 1), suggest that agile approaches can support competition and encourage true innovation.

The rest of this paper provides case studies and best practices to support meaningful dialogue among regulated industries, regulators and technology innovators for the successful deployment of RegTech.

BOX 1 **Parallels of agile governance and agile software**

In the 1990s, the agile approach was introduced to software development and began to displace traditional "waterfall" monolithic development methodologies. The method was driven by evolving business needs that were not met by existing communication and project development strategies. Many software projects were cancelled before completion because the design process was not structured to allow for products to adapt to changing consumer preferences over time.

What emerged was a focus on iteration and dynamism to continuously evaluate the operational state of an application while in deployment. This was to ensure client interaction was prioritized and that individual interactions were valued in final specifications. The result was faster access to new software, with more rapid feedback to developers, allowing for software to be adjusted while in development. Proper infrastructure, well-defined interfaces and efficient automated processes have been the key for development objectives to be met despite continuous change.

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RegTech case studies

Through a series of RegTech use cases from a diverse group of industries and market segments, the opportunities and challenges to successful deployment of RegTech can be revealed.

Each case reveals insights into how RegTech can be applied and informs a set of principles to guide new technologies' application for regulation. The goal is to encourage governments and industries to implement RegTech and grow confidence in how and when it can be adopted.

Case study

Suade Labs: FIRE

Suade Labs' FIRE, a standardized financial regulatory data framework, streamlined reporting processes and made their data standard open source.

A Problem

The financial industry lacks a common data standard for financial regulatory information while the compliance burden on the industry continues to increase.

B Action

Who

Suade Labs (with initial funding from the European Commission)

What

After the 2008 financial crisis, significant regulatory reforms were imposed on the financial industry, increasing the compliance burden on the industry. Suade Labs developed an open-source data standard called FIRE, short for financial regulation. FIRE is an intuitively designed data standard for financial regulatory information that is available open source for all to use and contribute to.

Challenges

Expanding the FIRE data standard to cater for new regulatory reporting requirements and jurisdictions requires sufficient expertise in financial regulation, data management, risk management, financial markets and coding.

Technical elements

- JSON programming language was used to enable a low barrier to entry.
- GitHub was used for data storage and to enable stakeholders to view or contribute openly.
- FIRE creates high-quality data that allows natural language processing and machine learning tools to function in the regulatory reporting process.

Impact

FIRE facilitates regulatory reporting in financial services. It helps central banks and regulators evaluate data submitted from institutions by standardizing the data to facilitate regulatory reporting and compliance tasks. It helps financial institutions by streamlining the reporting process and making reporting more efficient.

C Insights

Scalable standards

RegTech tools should focus on adopting scalable standards to allow for increased efficiency, transparency and automation.

Mutually beneficial

RegTech works well when it is mutually beneficial and when there is buy-in from regulators themselves. FIRE benefits both financial industry players that implement it (through increased efficiency and automation) as well as regulators that regulate them (through transparency and improved financial stability).

Open source

Open-source standards (rather than proprietary ones or bespoke solutions) bring many benefits; for example, quality assurance, cost effectiveness and adaptability (and subsequently no lock in to a particular vendor). FIRE has been made available to the financial services industry as a public utility. It can be used by anyone, independently of Suade Labs' reporting solution, and anyone with suitable expertise can contribute to and expand the data standard.

Case study

General Motors: IBM's OpenPages with Watson

General Motors used IBM's OpenPages with the Watson platform to consolidate auditing data and processes for better risk management.

A Problem

Risk management in the automobile industry requires an integrated system that can monitor, measure and mitigate risks from across the entire business.

B Action

Who

IBM, General Motors

What

Automobile manufacturers have to confront a wide variety of risks in their daily operations – from natural disasters and cyberattacks, to supply chain disruptions and changes to regulations. As a result, risk monitoring and mitigation is an important component of the manufacturer's day-to-day considerations. General Motors recognized that its existing systems and processes were not integrated and therefore not optimizing risk mitigation. General Motors opted to consolidate their various risk management processes and procedures using IBM's OpenPages with the Watson platform.

Challenges

Building trust in an external (as opposed to in-house) technology management solution was overcome with a strong focus on stakeholder buy-in.

Technical elements

OpenPages with the Watson platform

Impact

General Motor's Audit, Risk and Control departments now benefit from a shared approach to their interpretation of the company's broader structure and processes. It became easier to understand potential risks and investigate and resolve risk profiles that affect different departments. It drove operational efficiency and more effective sorting of relevant information as well as saving considerable costs on IT maintenance.

C Insights

Transparency

Integration and standardization allow for increased transparency across risk profiles of the business.

Data sharing

Cross departmental data sharing practices and storing data on a single platform enables more meaningful analysis and improved business insights to be provided.

Stakeholder buy-in

RegTech adopters should focus on early stage planning and buy-in from internal stakeholders, training users early to allow users to take control of the implementation, and showcasing value and outcome. This should lead to increased organisational buy-in.

Agile

IBM and General Motors adopted an agile methodology and used pilot environments to develop and refine business requirements

Case study | Novo Hamburgo (Brazil): Supporting SMEs

To increase the ease of establishing a new business, the City of Novo Hamburgo implemented a series of technological solutions to increase the speed of administrational processes.

A Problem

The average time to open a new business in Novo Hamburgo was 480 days, leading to stunted local growth and a breach of trust between the public and private sector.

B Action

Who

Novo Hamburgo, mayor and local city administration, in partnership with the Municipal Secretariat of Economic Development, Brazilian Service for the Support of Small and Medium Enterprises (SEBRAE), and various civil society organizations.

What

The problem made new business formation by small and medium-sized enterprises (SMEs) unattractive. Improving administrative processes for SMEs involved de-bureaucratization through the development and application of a series of evidence-based policies. This was driven by investment in technological infrastructure, such as geo-referential platforms through satellite access (ArcGIS and SIG), integrating distinct licensing software and digitalizing processes. It also involved passing new municipal legislation and other regulatory instruments to diminish bureaucratization and to strengthen the capabilities of city hall employees.

Challenges

Success required a change in mindset and local culture regarding technology-driven decision-making. In addition, the project was constrained by a reduced budget, especially due to COVID-19 and the trade-off between investing in economic development and health. This was overcome through an IDB loan.

Technical elements

- ESRI Geospatial Cloud
- METROVERSE

Impact

Currently, 70% of the processes for opening a new business are concluded online within an hour.

C Insights

Trust

Instilling a relationship of trust between regulators and regulated industry players is a key benefit of RegTech adoption. Trust can be achieved through transparency (e.g. leveraging data and making evidence-based policies). Transparency, coupled with communication, is also beneficial when a change of mindset is required.

Technology adoption

Regulators should act as role models for the adoption of technology. This sets a high standard and encourages industry players to leverage RegTech and to be agile and innovative in their approach.

Upskilling

Regulators should invest in technology upskilling and participate in knowledge-sharing exercises. This use case benefited from capacity building of the municipal civil servants and cultural transformation.

SMEs

RegTech presents a large benefit for small businesses in particular due to an often-disproportionate compliance burden experienced by SMEs.

Identify TegTech champions

This use case benefited from the political will, vision and commitment of those that pushed this change forward.

Case study | Colombia: Ecosystem for Smart Regulation

The Colombian government developed a digital transformation roadmap and an ecosystem to support RegTech.

A Problem

The incoming Government in Colombia identified a lack of coordination and guidance to in their digital transformation agenda that impeded the adoption of technologies, including for regulatory purposes.

B Action

Who

The Presidency of the Republic of Colombia, Development Bank of Latin America (CAF) and associated teams.

What

The team set out to create policy instruments that would act as a main guideline for the design, development and implementation of digital transformation, AI initiatives and smart regulation in the country.

Challenges

Information asymmetry existed in the public sector and there was a lack of general knowledge regarding digital transformation among public officials and other entities involved. The teams involved also faced competing priorities to allocate resources on health, education and social welfare. Political will from leadership and access to finance to overcome these challenges.

Technical elements

Not applicable

Impact

The creation of a Privacy by Design, Default Sandbox for AI Projects and the use of data to draft smart regulations.

C Insights

Trust

Creating trust and confidence in regulators among the private sector is fundamental.

Data/evidence-base approach

Convince regulators that regulation should be based on data, and subsequently leverage data to understand which areas should be regulated in. These two steps overcome issues such as information asymmetry within the public sector and promote transparency.

Stakeholder buy-in

This allows for deployment and implementation to be carried out efficiently.

Case study | Xalgorithms: Oughtomation

Regulations can be difficult to implement in a technical system, but solutions like Xalgorithms provide innovative solutions to interpret and comply with these rules.

A Problem

A need was identified to automate high-precision rules, such as jurisdictional taxation, efficiently.

B Action

Who

Xalgorithms

What

Applying dynamic ecological constraints (rules) was identified as an effective way to manage/execute regulatory processes. However, fiscal and regulatory methods were too blunt to be applied at the time. "Oughtomation" is a general-purpose request-response messaging system under free/libre/open licensing for use across any digital network.

Challenges

Balancing the time required to develop interest from diverse individuals and organizations with the need to focus on system development and documentation presented challenges.

Technical elements

- IPFS or Cassandra
- Rust
- Electron/react
- Diverse data sources

Impact

Deployment of "Oughtomation" will make it easy for anyone to publish, discover, fetch, scrutinize and prioritize rules, to be directly read and understood by non-specialized humans and machines, for any purpose, in any language. It can also lower the costs associated with interactions across commercial systems.

C Insights

Multidisciplinary teams

Cross-division teams help convert rules into a form that can be discovered and leveraged by individuals who are not specialized, as well as machines.

Interoperability

The ability to use the system across different forms of regulations and systems is important, especially when navigating a fragmented regulatory framework.

Stakeholder buy-in

Receiving buy-in from regulators and governments to support innovative RegTech initiatives is an ongoing challenge.

Open relationship

Ensuring free/libre/open relationships was identified as a key success factor.

Design principles

Following a set of design principles (i.e. simplicity, intuitiveness, decentralization, modularity, least power, tabular declarative style) makes a significant impact on the user experience.

Other

Additional key success factors included directing the team's focus to human-centred automation and being a tolerant brand that is driven by community.

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3 Common success factors

When RegTech is viewed as an emergent technology trend that allows digital innovation to transform highly regulated industries, one can make a case for the mechanisms that, in most situations, make these tools more effective in creating and meeting regulatory obligations (mechanisms such as engagement, design and applications). In the dynamic, less predictable environment of real-world problems, RegTech provides strategic tools to support standardization, automation and streamlining of regulatory processes. In times of disruption, like recent events in the financial system and the global pandemic, such mechanisms have proven critical to cutting through red tape and keeping essential services running while also ensuring that optionality is maintained until the disruptive period is over.

3.1 Engagement

Public-private partnerships 2.0 (PPP 2.0):

RegTech requires an active evolution of more traditional collaboration models. It requires designing *with* partners rather than *for* them, and, in doing so, creating more confidence in the market as a result of such partnerships. The key is for non-public sector partners, both businesses and people sector organizations (where relevant), to be active players in the work, and not merely passive recipients of public sector decisions.

Stakeholder capitalism-led

To ensure equity and shared responsibility across stakeholders and regulators from top to bottom, RegTech design and implementation needs to be grounded in stakeholder capitalism principles – creating long-term value for all those involved. It is particularly key to secure buy-in from stakeholders for regulatory principles that may be evolutionary rather than permanent, so that they can support and ensure effective operationalisation of these principles even as they change with the times.

Champion-driven trust

Building comfort with RegTech applications can be difficult, especially when the general public is involved. There is a need for clear communication to reduce information asymmetries and generate buy-in to a new system. Including trusted "champions" – such as public officials, senior private leaders or community activists, who can communicate RegTech in ways that are accessible to a wide range of demographics—can be an effective means of driving adoption at scale.

3.2 Design

Radical user centricity

Approaching regulation, enforcement and user adoption through the experience of traditionally-product and service centred design thinking, including standard semantics and reference points that enable streamlined processes and global policy coordination. The focus should be on minimizing pain points and enhancing user experiences, not just on what is efficient or possible from a supply perspective. Here, the parallels with agile practices in software development are particularly apt, as the radical shift emerged when solving users' problems was prioritized over comprehensive vision.

Regulation for risk, safety and mitigation

Transition from the “regulate-and-forget” to the “adapt-and-learn” era of regulation to tap into the broader innovation and creativity space and not solely focused on safety guardrails. This is particularly critical for the emergent phenomena handled by RegTech, where existing templates, standards, benchmarks and ostensible “best practice” are no longer applicable

Dynamic

A regulatory approach that nurtures experimentation, iteration and prototyping via regulatory sandboxes and other mechanisms creates an environment that can better support RegTech integration. Examples of this are seen in Singapore and UK Financial Conduct Authority and Arizona fintech sandboxes. However, dynamic does not mean erratic. It is important that regulatory updates are consistent, so as to not undermine the ability for business to make long-term decisions. The best RegTech balances between the openness for iterative experiments, and sufficient structure for reasonably predictable outcomes.

3.3 Applications

Human and machine intelligence

Balancing qualitative (human) and quantitative (machine) insights will lead to policy decisions informed by multiple and varied data sets and create more predictive mechanisms to ensure that policy-making stays in front of cultural change. Increased investments in AI, analytics and general digitization (e.g. hybrid cloud adoption to drive process automation) will help create a preferable future with a more frictionless path for implementing RegTech compliance solutions. These investments should include sufficient space for the underlying algorithms themselves to evolve in order to accommodate dynamic technological shifts.

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4 RegTech roadmap

In employing RegTech, regulated industries and involved stakeholders are embracing a dynamic regulatory environment and taking the first necessary step towards preparing for a future of agile governance. In doing so, regulators and the regulated should not have to upend or rewrite entire regulatory and compliance frameworks to begin this journey.

There is room for experimenting with RegTech applications. The most value will be observed by testing and learning from the application of RegTech tools. For those compelled to act, this section acts as a roadmap to start implementing of RegTech.

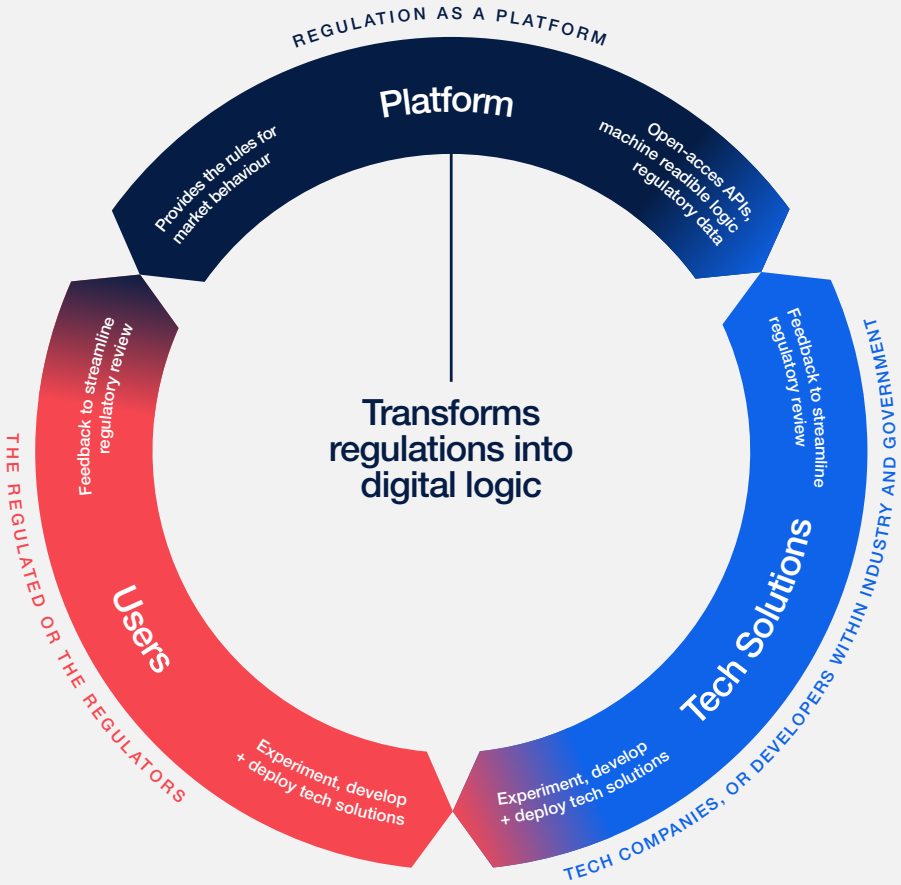
To encourage further deployment of RegTech, regulators and the regulated should ask themselves:

- What is my/our entry point into the RegTech ecosystem?
- What are the opportunities to use RegTech?
- What types of RegTech tools and solutions are applicable?
- How should our institutions apply these RegTech solutions and who does this involve?
- How should our institutions prioritize these solutions?

4.1 Find your entry point

Think of RegTech as a stool that stands on three legs, as illustrated in Figure 1: the platform, users and tech solution. RegTech stakeholders (e.g. governments and businesses) are not unique to one portion of the market. For example, governments who act as the regulator can manage the regulation platform, they can develop technological solutions to help interpret regulation and/or they can be the user of such technology to help them more efficiently regulate a market.

FIGURE 1 **Overview of the RegTech ecosystem**



These are the key points of entry into the RegTech ecosystem to consider as organizations and governments begin to build in new regulatory practices.

Regulation as a platform

Regulation as a platform is the concept that regulation can be designed to facilitate regulatory interactions and reporting across an industry or marketplace. The proliferation of digital advancements, such as AI and natural language processing, and big data enable the digitization of regulation, enabling active use of technology in regulatory and compliance processes.

The underlying regulatory legislation still informs the rules for market behaviour. However, regulation as a platform transforms government regulation into a form of digital logic, or "computable regulation", which can be accessed by technology developers through open-access APIs and turned into RegTech applications.

Streamlining the regulatory review process

Regulatory frameworks can be riddled with accumulation and accretion of legislation. RegTech creates a constant feedback loop between the RegTech users, developers and regulation itself to streamline the regulatory review process. The deployment of RegTech makes it easier to identify and eliminate redundant rules and regulations, sometimes automatically if the right data privacy structures are in place. This feedback loop creates a system of continual improvement, rather than commissioning systematic reviews that can be costly and years apart.

Experiment, develop and deploy solutions

Experimentation between the developers and users is critical to growing RegTech applications. As an evolving industry, new innovations will be encouraged by prioritising mechanisms of experimentation such as regulatory sandboxes and the use of foresight. These techniques help capture the potential of emerging technologies for regulatory compliance and provide a means to capture learnings and improve RegTech.

4.2 Find the opportunity areas

RegTech can be extremely effective in reducing regulatory burdens, especially in complex regulatory environments. It is important not to overcomplicate regulatory processes where they are functioning; prioritize deploying RegTech in key industries or products/services that will benefit from its application. To name but a few, lowering the cost of compliance or increasing reporting transparency.

High potential applications of RegTech exist when an industry or product/service has:

- Many different regulations/standards
- Complex sets of regulations/standards
- New standards being created or applied
- Costly compliance checks/processes
- Precise reporting requirements
- High compliance risks
- Uncertainty due to frequent changes to regulations/standards
- Uncertainty due to changing sector/industry conditions

4.3 Choose the technology solution

Rising compliance costs made innovative technologies a natural solution to reduce costs. RegTech uses technologies, such as cloud computing, big data and artificial intelligence, to meet regulatory compliance while automating parts of the process.

Identifying the most suitable technology solutions for a given regulatory process requires identifying the opportunity area and understanding:

- Where frictions are in the regulatory process (e.g. the execution stage, reporting stage)
- What the nature of these frictions is (e.g. information asymmetry, data consistency)
- What processes could be improved to remove such frictions (e.g. automation, data security)

Being aware of these points, one can broach the question of which technological solution is most applicable.

While not exhaustive, some examples of RegTech applications are provided below in Table 1. These examples can be considered individually, but are often most impactful when used in combination.

TABLE 1 **Regulatory technologies and potential applications**

Technology	Example applications
Machine readable code	Automated processing of new regulations
Search functions	Identifying relevant regulations
Chatbots	Providing easy regulatory advice
Big data	Analysis and synthesis of data for reporting
(Robotic) process automation	Reducing manual, human tasks
Machine learning	Prioritizing and optimizing reporting, Horizon scanning
Blockchain/distributed ledger technology	Tracking and verifying data
Cloud-based platforms	Effective data management and storage
Natural language processing	Legislation scanning, information management, labelling
Surveillance/image recognition	Identify verification

4.4 Experiment with RegTech applications

The biggest barrier to RegTech is the deployment. Given the size and complexity of regulation, improving regulation without significant reforms may appear an insurmountable effort. However, the aim of RegTech is not to upend or rewrite the entire compliance frameworks. It is to work with existing systems and drive improvement from the bottom up.

As outlined by the case studies, there are several key areas of an experiment (e.g., a pilot, sandbox) to consider which map to the common success factors identified.

Engagement

Engagement is an ongoing process – before, during and after a RegTech experiment. It requires collaboration and engagement with all relevant stakeholders, an in-depth understanding of current and potential institutional structures, and identification of appropriate teams and resources.

Case-study success factors:

- Public-private partnerships 2.0 (PPP 2.0): Designing with partners, not for partners
- Stakeholder capitalism-led: focused on creating long-term value for all those involved
- Champion-driven trust: Including “champions” to help drive adoption

Design

Among other things, a RegTech experiment requires clear objectives (i.e. the challenge), application criteria, guidance and supervision, connections with auditors, feedback mechanisms, and defined monitoring and evaluation parameters.

Case-study success factors:

- Radical user centricity – leveraging product and service-centred design thinking
- Regulation for risk, safety and mitigation – transitioning from the “regulate-and-forget” to the “adapt-and-learn” approach
- Dynamic–nurturing experimentation, iteration and prototyping

Application

Engagement is an ongoing process – before, during and after a RegTech experiment. It requires collaboration and engagement with all relevant stakeholders, an in-depth understanding of current and potential institutional structures, and identification of appropriate teams and resources.

Case-study success factors:

- Human and machine intelligence: Balance qualitative (human) and quantitative (machine) insights so policy-making stays in front of cultural change.

Below: @gremlin/ Gettyimages

4.5 Prioritize the RegTech applications

The benefits of RegTech are attractive. However, it may not always be the best solution. This is due to various reasons including cost, capacity, technical complexity and/or legal constraints. When the context is well defined, the advantage of RegTech applications is clear. Therefore, governments and organizations should build the right environment which enables the use of RegTech when the benefits are clear against alternatives.

TABLE 2 **What governments and organizations need to consider to prioritize the deployment of RegTech?**

Present	Immediate future	For the future
Assess Determine the regulatory problems that need to be addressed, e.g. inefficient or costly processes	**Scan** Monitor for disruptive innovations and trends; identify changing user groups and technology applications; develop a range of options, including and excluding RegTech solutions	**Invest** Allocate resources and funding into building capacity, technological and expertise, and into emerging tools and supporting infrastructure
Experiment Embracing an agile approach to regulation more broadly; identify opportunities to conduct small-scale tests and experiments with technology	**Augment** Systematically incorporate RegTech to existing processes; focus on promoting outcomes-based regulation; validate the use of RegTech tools	**Scale** Identify opportunities for system transformation; continuously measure and improve impacts; couple with RegTech applications with regulatory review
Learn Learn from experience of others across industry and internationally; understand the options, applications and implications of different technologies	**Consult** Generate buy-in from close stakeholders; consult industry and organisational staff; co-design the augmentation process	**Engage** Deep industry and/or cross sector engagement; consider international systems and regulatory requirements; promote a cultural change to support broader RegTech adoption

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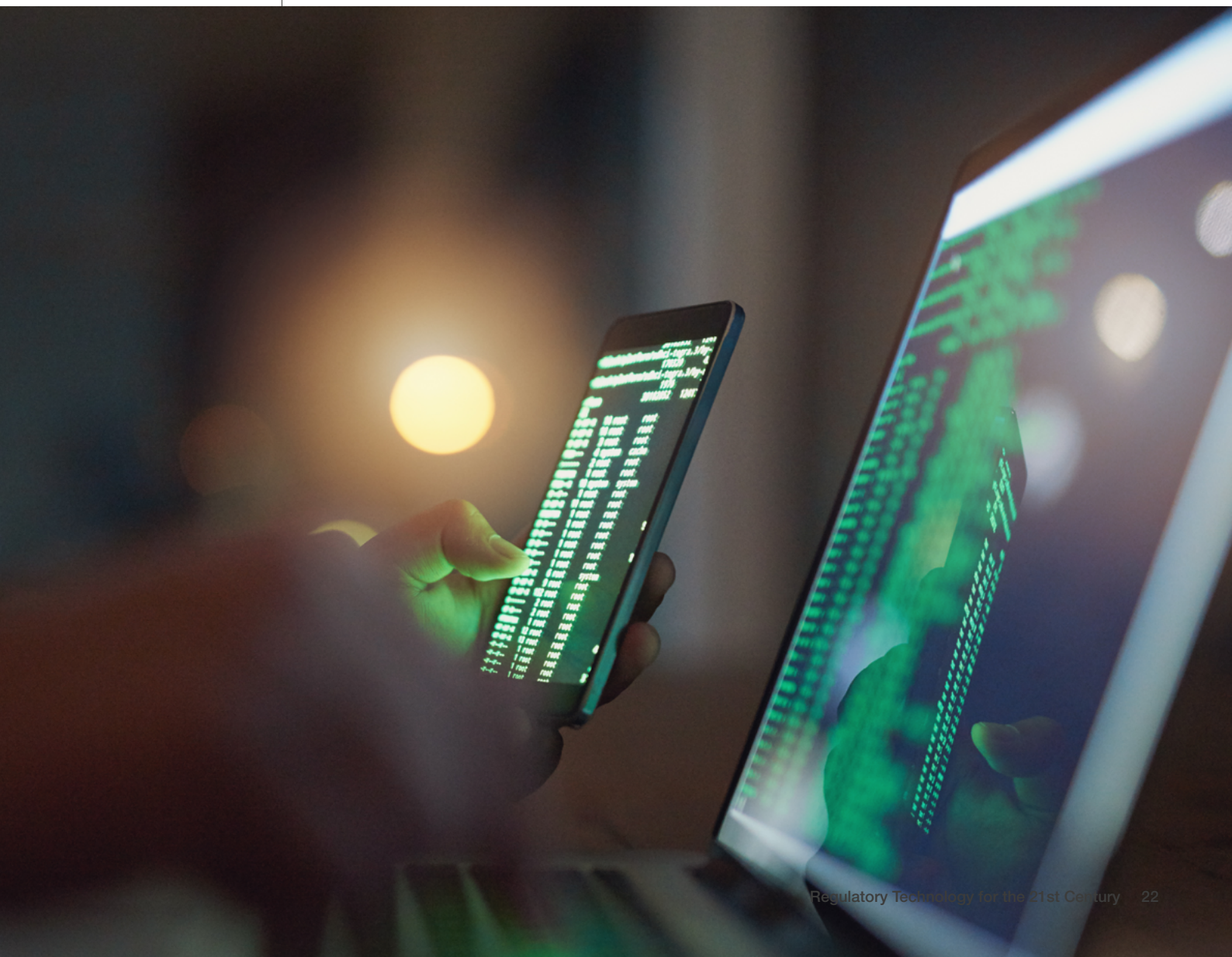
5 Final remarks

The adoption of RegTech cannot occur without further rethinking of the regulatory environment. Regardless of the technologies adopted, regulation must not remain a static exercise on checking boxes. Gone is the deterministic approach to regulations where governments only ask what can go wrong and what are the consequences. Instead, a probabilistic, performance-based approach – entertaining the evolution of new economic or social scenarios, new technologies and new business models – is required to future-proof regulation and the technologies deployed.

The success of RegTech and agile governance is co-dependent, often with no "best" or "final" solution. RegTech is necessary to standardize, automate and streamline the regulatory process in support of agility. Agile governance ensures that regulation is designed and deployed in a way that maximizes the potential of RegTech. The first step towards adoption is to acknowledge that the combination of RegTech and agile governance does not require upending or rewriting entire regulatory frameworks. It entails bringing a more incremental and iterative experimental mindset to begin this journey.



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