



GRC and Regulatory Technologies
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Dr. Srinivas Josyula



IIM
Indian Institute of Management Visakhapatnam

1

Outline

Governance Risk and Compliance

Reg Tech

Digital Trust and Information/ Cyber Security

Privacy / GDPR

2

Agenda

- Governance Risk and Compliance
- Smart Regulations
- Demystifying Reg Tech
- Global and Indian Context
- Reg Tech use cases
- Reg Tech Adoption
- Implementation Approach
- Regulatory Sandbox
- Issues and Challenges

3



Governance

4

Corporate Governance is “the conduct of business in accordance with shareholders’ desires, which generally is to make as much money as possible, while conforming to the basic rules of the society embodied in law and local customs.”

~ Milton Friedman
Noble Laureate

“Global market forces will sort out those companies that do not have sound corporate governance.”

~ Mervyn King S.C.

5

Governance

- Governance is “the set of responsibilities and practices exercised by the board and executive management with the goal of providing strategic direction, ensuring that objectives are achieved, ascertaining that risks are managed appropriately, and verifying that the enterprise’s resources are used responsibly.”
- Strategic planning and corporate responsibility are best accomplished using an approach industry refers to as governance, risk management, and compliance (GRC)

6

Governance

- Governance means administering the processes and systems placed for satisfying stakeholder expectations.
- Corporate Governance means *a set of systems, procedures, policies, practices, standards put in place by a corporate* to ensure that relationship with various stakeholders is maintained in transparent and honest manner.
- The phrase “corporate governance” describes *“the framework of rules, relationships, systems and processes within and by which authority is exercised and controlled within corporations. It encompasses the mechanisms by which companies, and those in control, are held to account.”*
- “Corporate Governance is the application of best management practices, compliance of law in true letter and spirit and adherence to ethical standards for effective management and distribution of wealth and discharge of social responsibility for sustainable development of all stakeholders.” (ICSI)

7

Accepted Principles of Governance

COMMONLY ACCEPTED PRINCIPLES OF CORPORATE GOVERNANCE.

Regardless of the national jurisdiction and local conditions, there are some principles and issues of corporate governance that have been widely embraced over the years.

- **Rights and Fair Treatment of Shareholders**
- **Roles and Responsibilities of the Board of Directors**
- **Ethical and Professional Behaviour**
- **Financial Transparency and Disclosure**
- **Internal Controls (COSO framework)**

“Many large corporations have dominant control over business affairs without sufficient accountability or monitoring by their board of directors.” (Lorsch and MacIver, HBS).

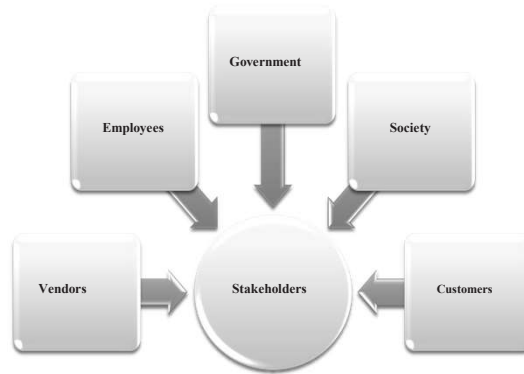
History has demonstrated that improvements in governance and compliance typically come as a result of scandals. When the pendulum swings too far toward self-regulation, the freedom to act outside of the rules proves to be irresistible.

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Governance - Stakeholders

- *Various stakeholders affected by the governance practices of the company :*

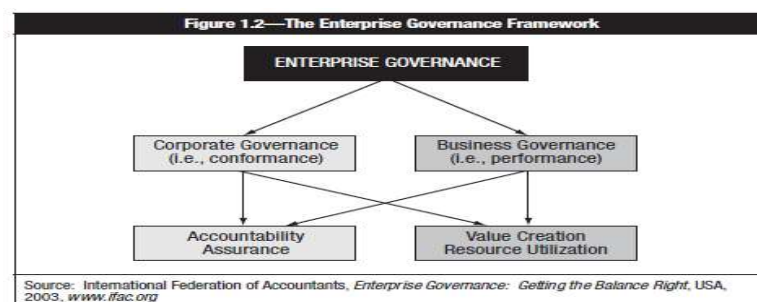


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Conformance and Performance

International Federation of Accountants (IFAC) states that **“enterprise/ corporate governance constitutes the accountability framework of the organization”** and identifies two dimensions namely :

1. Conformance and
 2. Performance
- They must be balanced



10



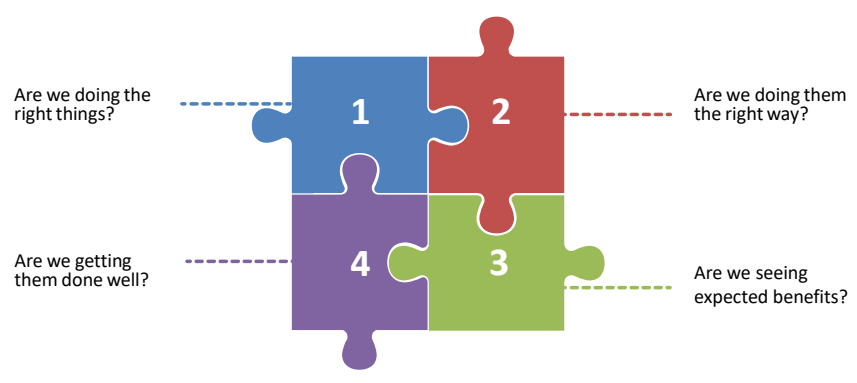
Conformance vs Compliance

- Conformance is voluntary adherence to a standard, rule, specification, requirement, design, process or practice.
- Compliance is forced adherence to a law, regulation, rule, process or practice.
- Conformance applies to strategies and plans that are adopted to be more productive or to improve quality.
- Compliance applies to laws and regulations that one has no option but to follow or face penalties. Such regulations may potentially be productive for society but don't necessarily contribute to an organization's goals.

11

11

Governance Answers Four Questions



Are we doing the right things? — 1

Are we doing them the right way? — 2

Are we getting them done well? — 4

Are we seeing expected benefits? — 3

12

12

Governance and Management Compared

Governance

Evaluate, Direct, Monitor and Control an enterprise

Enable enterprises to create value for their stakeholders or promote the creation of value

Includes:

- Financial accountability and oversight
- Operational effectiveness
- Legal and regulatory compliance
- Adoption of fair labor practices
- Social responsibility
- Governance of IT investment, operations and control

Management

Focus on Planning, Building, Running and Monitoring

Ensure alignment with defined goals and objectives established by the governing body

Ensure enterprise strategic vision achievement as directed by governing body

Create value for enterprise

Governance

Today, there is a need to upgrade the quality of board deliberation to provide greater strategic focus.

There are seven themes which appear critical to their medium-term strengths comprising:

1. *Business Strategy,*
2. *Financial Reports and their Integrity,*
3. *Risk,*
4. *Compliance,*
5. *Customer Protection,*
6. *Financial Inclusion and*
7. *Human Resources.*

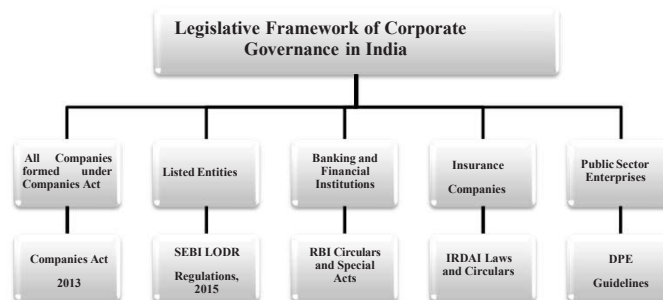
Contemporary Developments in India

- *The initiatives taken by Government of India in 1991, aimed at economic liberalization, privatization and globalisation of the domestic economy, led India to initiate reform process in order to suitably respond to the developments taking place world over.*
- *On account of the interest generated by Cadbury Committee Report (UK), the Confederation of Indian Industry (CII), the Associated Chambers of Commerce and Industry (ASSOCHAM) and, the Securities and Exchange Board of India (SEBI) constituted Committees to recommend initiatives in Corporate Governance.*

Kumar Mangalam Birla Committee (1999), Task Force on Corporate Excellence through Governance (2000), Naresh Chandra Committee (2002), N. R. Narayana Murthy Committee (2003), Dr. J. J. Irani Committee on Company Law (2004), CII's Task Force on Corporate Governance (2009), Corporate Governance Voluntary Guidelines (2009), NASSCOM Recommendations (2010), Policy Document on Corporate Governance (2012), Companies Act (2013), SEBI (Listing Obligations and Disclosure Requirements) Regulations (2015), Uday Kotak Committee (2017).

15

Legislative framework for Corporate Governance



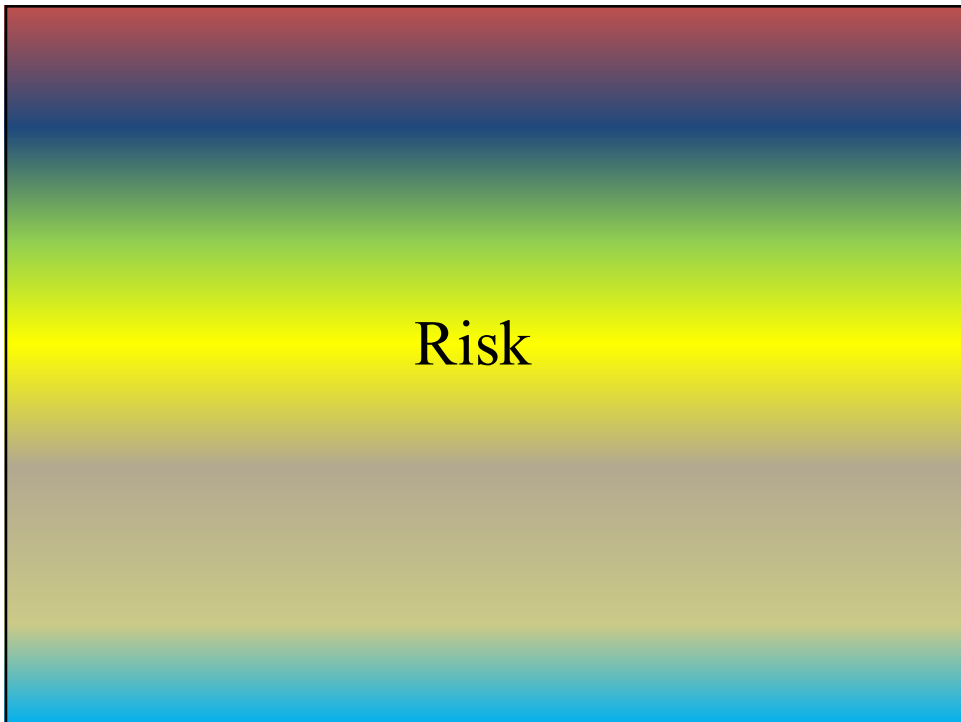
The Companies Act, 2013 clearly indicates focus of regulators toward enhancing the responsibility and accountability of boards. The Act outlines various requirements for Governance, disclosures and enhanced roles, responsibilities and liabilities of the board, its committees and independent directors.

Enhanced disclosures and assertions in Board Report, Annual Return and Directors' Report with regard to Managerial Remuneration, risk management, internal control for financial reporting, legal compliance, Related Party Transactions, Corporate Social Responsibility, shareholding pattern, public money lying unutilised, etc.

16



17



18

Risk Management

- Risk typically refer to the possibility of a loss or an injury created by an activity or by a person.
- Risk management seeks to *identify, assess, and measure risk and then develop countermeasures to handle it*. This typically does not mean eliminating risk but rather seeking to mitigate and minimize its impact.
- Risk should not be viewed as inherently bad. All opportunities come with some degree of risk.
- An organization that is totally risk averse is not likely to be very attractive to investors and may be doomed ultimately to fail

19

19

Risk Management

The types of risks that impact companies vary depending on the home country location, industry, level of globalization, and many other factors.

Banks worry about credit and market risks.

Many firms worry about reputation and legal risks.

Risks can be internally or externally based, but one area of risk impacts all companies: operational risk.

20

20

Risk Management

Risk may be classified according to controllability, i.e. Controllable risk and Uncontrollable risk.

- Controllable risk is categorized as Unsystemic Risk and
 - Uncontrollable risk is categorized as Systemic Risk.
- but one area of risk impacts all companies: **operational risk.**

<u>Systemic Risk</u>	<u>Unsystemic Risk</u>
<ul style="list-style-type: none"> • It is not fully uncontrollable by an organisation. • It is not entirely predictable. • It is usually of a macro nature. • It usually affects a large number of organisations operating under a similar stream. • It cannot be fully assessed and anticipated in advance in terms of timing and gravity. • The example of such type of risks is Interest Rate Risk, Market Risk, Purchasing Power Risk. 	<ul style="list-style-type: none"> • It is usually controllable by an organization. • It is reasonably predictable. • It is normally micro in nature. • If not managed it directly affects the individual organisation first. • It can be usually assessed well in advance with reasonable efforts and risk mitigation can be planned with proper understanding and risk assessment techniques. • The examples of such risk are Compliance risk, Credit Risk, Operational Risk.

21

21

Types of Risks on the basis of impact on finance

<u>Financial Risk</u>	<u>Non-Financial Risk</u>
<p>The risk which has some direct financial impact on the entity is treated as financial risk.</p> <p>This risk may be Market risk, Credit risk, Liquidity risk, Operational Risk, Legal Risk and Country Risk.</p>	<p>This type of risks do not usually have direct and immediate financial impact on the business, but the consequences are very serious and later do have significant financial impact if these risks are not controlled at the initial stage.</p> <p>This type of risk may include, Business/Industry & Service Risk, Strategic Risk, Compliance Risk, Industry, Fraud Risk, Reputation Risk, Transaction risk, Disaster Risk.</p>

22

22

Types of Risks

Financial Risks

1. Market Risk (interest risk, currency risk, equity risk etc)
2. Credit Risks (
3. Liquidity risk
4. Operations/ system/ management risk
5. Obsolescence risk
6. Geopolitical risk
7. Legal risk

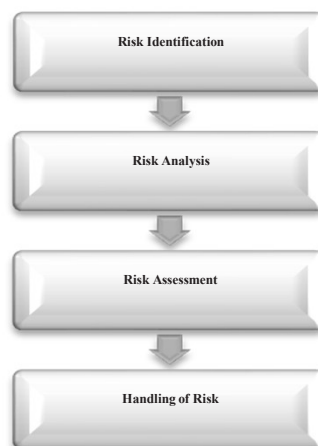
Non financial Risks

1. Business/ Industry & Services Risk
2. Strategic Risk
3. Compliance Risk
4. Fraud Risk
5. Reputation Risk
6. Transaction Risk
7. Disaster Risk
8. Regulatory Risk
9. Technology Risk

23

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Risk Management process



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Risk Practitioner Goals

To ensure the enterprise can deliver on its goals, clearly defined objectives are necessary.

At a high level, risk practitioners' goals are to:

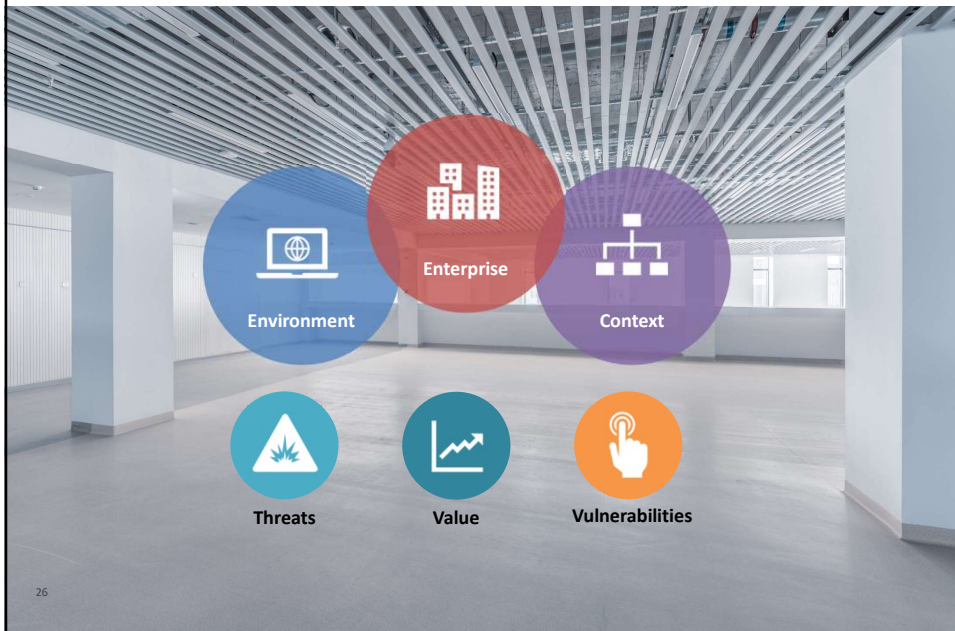
- Provide accurate, complete and timely information required for informed decisions made by senior management
- Identify and assess risk, and its likelihood of occurrence and impact to enterprise
- Allow for the ability to balance performance and conformance requirements to best suit the enterprise



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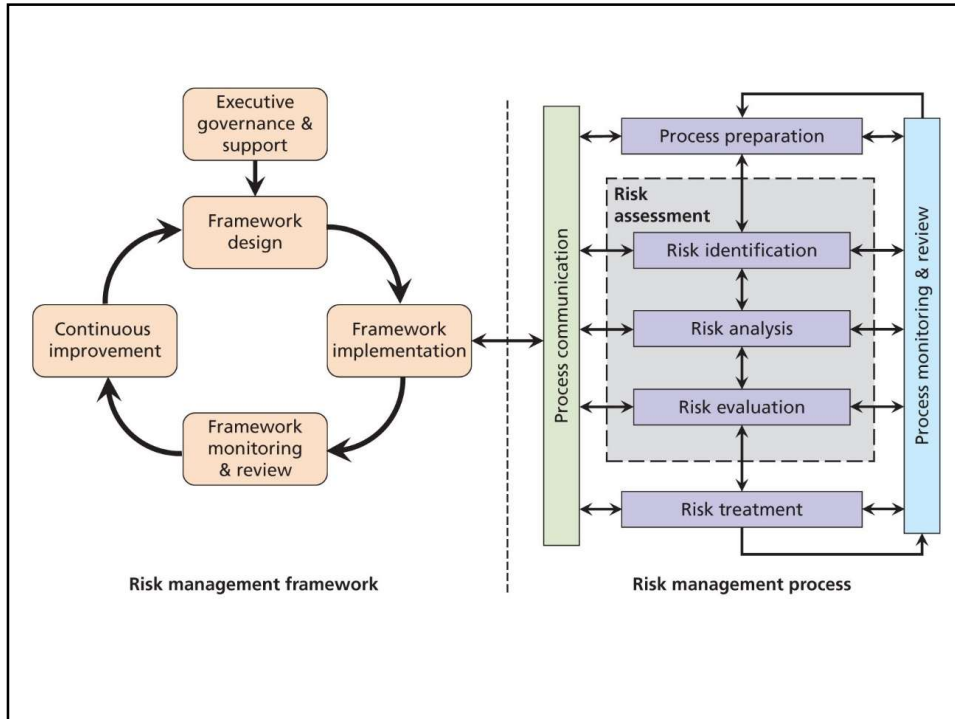
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Assessing Enterprise Context

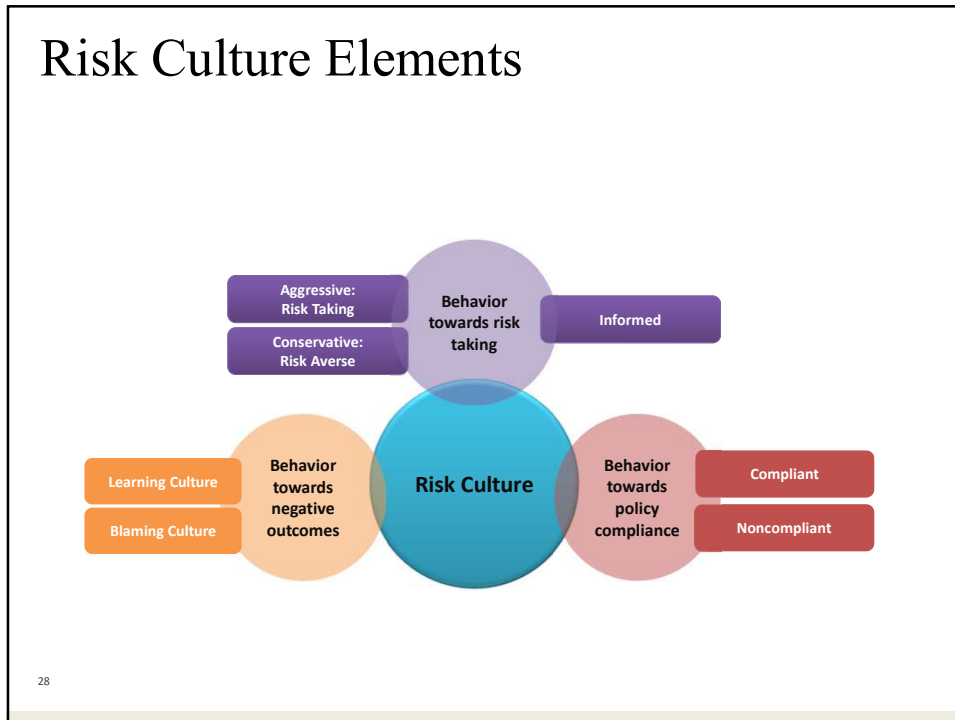


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Defining the Organization's Risk Tolerance and Risk Appetite

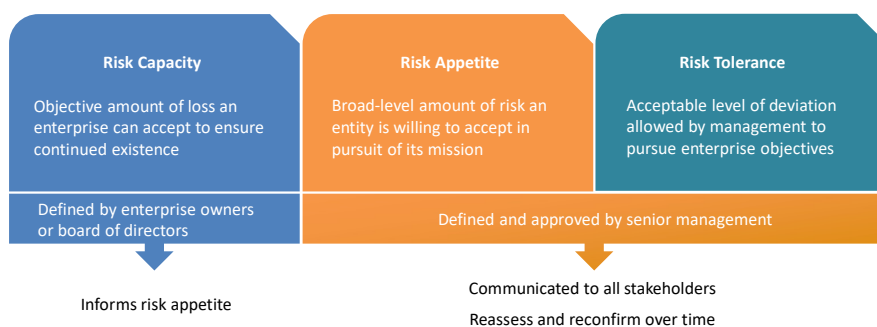
As the governance group communicates its intent to the RM framework development team, it also needs to communicate its general perspective on *what level of risk is acceptable and what risk must be reduced or resolved* in some fashion

The *amount of risk that remains after all current controls are implemented is residual risk*

The difficulty lies in the *process of formalizing exactly what the organization "can live with," which is its risk appetite*

29

Risk Capacity, Appetite and Tolerance



30

30

Regulatory Expectations

- Section 134(3) (n) of the Companies Act, 2013 provides that a statement indicating development and implementation of a risk management policy for the company including identification therein of elements of risk, if any, which in the opinion of the Board may threaten the existence of the company.
- SEBI (LODR) Regulations, 2015 also provides that company shall lay down procedures to inform Board members about the risk assessment and minimization procedures. The Board shall be responsible for framing, implementing and monitoring the risk management plan for the company.
- Regulation 21 of SEBI (LODR) Regulations, 2015, requires that every listed company should have a Risk Management Committee

31

Defining the Organization's Risk Tolerance and Risk Appetite

As the governance group communicates its intent to the RM framework development team, it also needs to communicate its general perspective on *what level of risk is acceptable and what risk must be reduced or resolved* in some fashion

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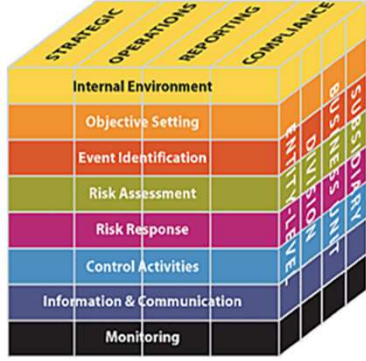
COSO framework's 17 principles of effective internal control

Internal Control Component	Principles
Control environment	1. Demonstrates commitment to integrity and ethical values
	2. Exercises oversight responsibility
	3. Establishes structure, authority, and responsibility
	4. Demonstrates commitment to competence
	5. Enforces accountability. Risk assessment
Risk assessment	6. Specifies suitable objectives
	7. Identifies and analyzes risk
	8. Assesses fraud risk
	9. Identifies and analyzes significant change Control activities
Control activities	10. Selects and develops control activities
	11. Selects and develops general controls over technology
	12. Deploys control activities through policies and procedures Information and communication
Information and communication	13. Uses relevant information
	14. Communicates internally
	15. Communicates externally Monitoring activities
Monitoring	16. Conducts ongoing and/or separate evaluations
	17. Evaluates and communicates deficiencies

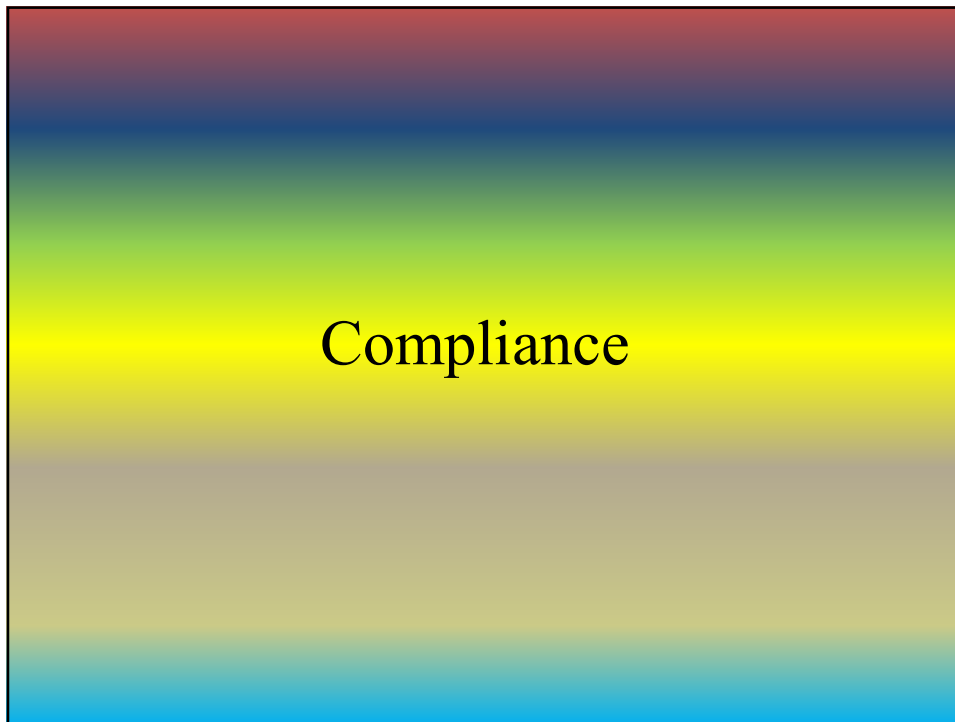
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ERM ENCOMPASSES



34



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“ Compliance is the act of adhering to, and the ability to demonstrate adherence to, mandated requirements defined by laws and regulations, as well as voluntary requirements resulting from contractual obligations and internal policies”.

~ OECG

36

36

Regulations and Compliance

37

Regulations ...

Regulation is central to governmental management of complex system,.

Primary objectives of Regulations include, *ensuring financial stability, prudential safety and soundness, protecting consumers, maintaining market integrity, and fostering market competition and development*

Strengthening the regulations of the complex financial system, and early warning and disposal of risks are the requirements for achieving financial stability (Battiston et al., 2016).

Governments routinely use regulation *to boost market efficiency, ensure accountability, support, coordination and minimize risks.*

38

38

Smart Regulations

Smart regulation delivers clearly defined, measurable policy objectives in the least burdensome way. It is achieved through a transparent, objective, and consultative process

Several governments and international organizations around the world have adopted “smarter” or “better” regulation initiatives in order to improve regulatory practice and support economic growth.

Examples include:

- a) the Council of Australian Governments’ best practice regulation guide, adopted in 2007;
- b) the OECD Council’s Recommendation on Regulatory Policy and Governance, adopted in 2012;
- c) Canada’s Red Tape Reduction Initiative, which began in 2012;
- d) Malaysia’s Best Practice Regulation Handbook, adopted in 2013; and
- e) the European Commission’s Better Regulation Initiative, announced in 2015.

39

39

Smart Regulation Methodology

- **Consistency and coherence** – Regulations should be consistent with existing (and planned) rules and practices that are applicable to regulated activities so that there are no overlaps and contradictions (nationally or internationally). They should also be predictable and applied with clear oversight responsibility and without discrimination against those being regulated.
- **Proportionality** – Regulations should be used only when their necessity is demonstrated and should be proportionate to the problems identified so that the costs of compliance are minimized by pursuing the most cost-effective solution.
- **Targeted at risk** – Regulations should have specific and well-defined objectives that respond directly to the problems identified. Whenever appropriate, flexibility should be given to those being regulated to meet defined objectives.
- **Fair and non-distortive** – Regulations should be applied fairly and not create discriminatory burdens on any group/s in particular.
- **Clarity and certainty** – Audiences subject to regulatory compliance need to clearly know the regulations that will apply, what is expected of them, and have sufficient time to be able to comply with new requirements.

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40

Process Principles

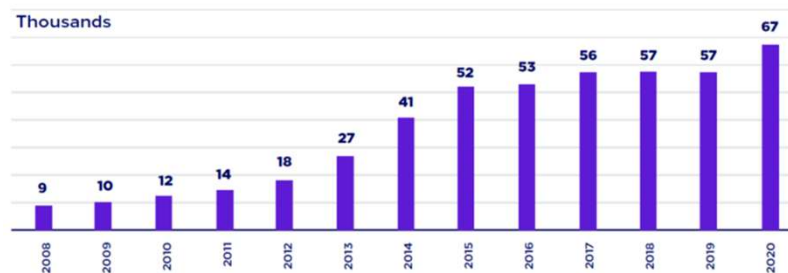
- The objective of the regulation should be identified based on sound evidence and available alternatives must be considered to select the most appropriate solution.
- There should be an assessment of the impacts from the regulation.
- The drafting of the regulation should involve those who are potentially affected; the decision-making process should be transparent and objective.
- The process of developing the regulation should focus on reducing the compliance burden and allow for regular and systematic review (and subsequent modification, if needed) to ensure that the regulation is still appropriate.
- There should be clear procedures to respond to adjudications and appeals and to revise the regulation if necessary

41

41

Regulatory Announcements

Regulatory Announcements, Publications
and Changes (2008-2020)



Source : Thomson Reuters , June 2021,

42

42

Regulations and Compliance

Explosive Growth in Regulations: a 2021 report estimated that institutions had 220 regulation revisions to keep track of daily on average

High Compliance Costs: from 2009 to 2021, regulatory fines exceeded \$ 345 billion globally. increasing financial burden substantially on companies.

Compliance Staff: About 10% to 15% of financial institutions staff worked on Governance, Risk and Compliance function .

43

43



Compliance Risk

44

Compliance Risks

- *Compliance with law and regulation need to be managed as an integral part of corporate strategy.*
- *The board of directors and management must recognize the scope and implications of laws and regulations that apply to the company.*
- *Regulatory enforcement risks are increasingly crossing jurisdictional boundaries, leading to fines imposed by regulators from multiple jurisdictions.*
- *Compliance risks have evolved beyond mere regulatory concerns; they now encompass reputational, strategic, and financial risks.*
- *Understanding these interconnections is vital for enhancing risk maturity and effectively managing compliance challenges.*
- *Organizations need to establish a compliance management system as a supporting system of risk management system as it reduces compliance risk to a great extent.*

45

Governance

- *Corporations and government agencies face increasing regulatory obligations and penalties.*
- *The financial services sector, for instance, must adhere to numerous regulations such as prudential regulations, RBI laws, AML compliances, and consumer credit and protection laws.*
- *Integrating governance, compliance, and risk elements is essential for advancing risk maturity.*
- *Compliance with laws and regulations should be integral to corporate strategy.*
- *Establishing a compliance management system reduces compliance risk significantly.*
- *Senior management involvement is crucial in developing and maintaining an effective compliance program, which should be regularly reviewed to remain updated with regulatory changes and business environment.*

46



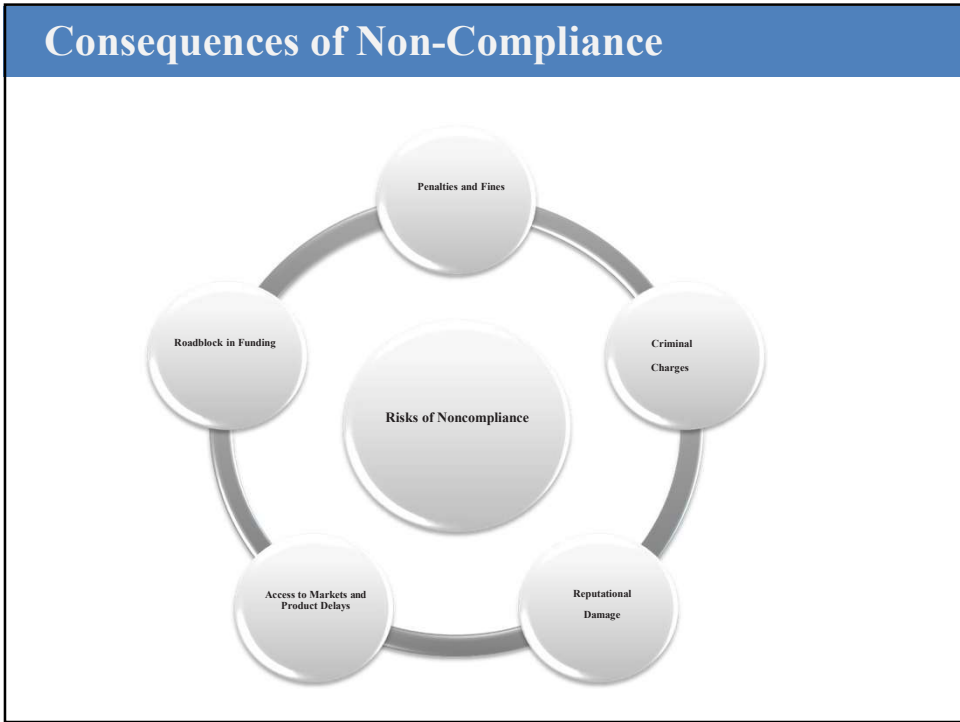
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Challenges to Compliance

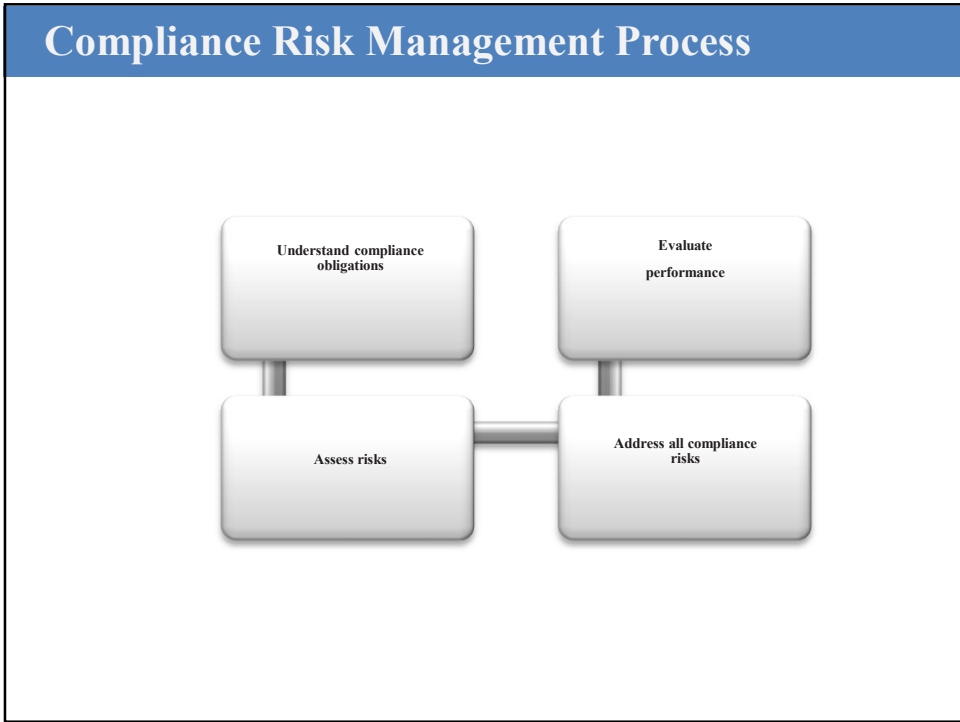
1. Large number of legislations and multiple regulators
2. Multiple business locations attracting state legislations
3. lack of ownership /awareness of functional staff about compliance requirements
4. Segmented compliance initiatives
5. Time-consuming and unreliable manual reporting
6. Dynamic legal environment, lack of a robust updation process, frequent changes in process owners and internal processes.

48

48



49



50

Consequences of Non-Compliance

Compliance area (illustrative)	Possible risk of Non-compliance
Direct tax compliance	<ul style="list-style-type: none"> • Imposition of penalty Prosecution of directors • Loss of reputation
Indirect tax compliance	<ul style="list-style-type: none"> • Cancellation of licences Withdrawal of tax benefits • Stoppage of operations • Loss of reputation
Labour law compliance	<ul style="list-style-type: none"> • Imposition of penalty • Prosecution of directors / occupier Loss of reputation • Employee dissatisfaction
Environment, health & safety laws	<ul style="list-style-type: none"> • Stoppage of operations • Loss of reputation • Imposition of penalty
Corporate law compliance	<ul style="list-style-type: none"> • Imposition of penalty • Vacation / prosecution of directors or management • Loss of reputation
IT Act ad Data Protection Acts	<ul style="list-style-type: none"> • Imposition of penalty • Civil and Criminal liability

51

Compliance Risk Mitigation

Management Assurance	<ul style="list-style-type: none"> • Assists in setting and executing strategies. • Provides direction, guidance and oversight • Promotes a strong risk culture & sustainable risk return thinking • Promotes a strong compliance culture and management of risk exposure. • Ongoing monitoring and management of risks.
Risk Management, Legal & Compliance	<ul style="list-style-type: none"> • Formal, robust and effective risk management within which the organisation's policies and minimum standards are set. • Objective oversight and the ongoing challenge of risk mitigation, management and performance while reporting is achieved across the business units. • Overarching risk oversight across all risk types. • Compile and maintain a legislative universe for the organization. • Facilitate the risk prioritization of all pieces of legislation in the regulatory universe. • Initiate new legislative requirements within the organization • Analyze and send out alerts on the new law to inform the organization of the new requirements. • Facilitate an executive review of the legislation by Legal analysts. • Facilitate the completion of the Compliance Risk Management Plan ("CRMP") • Update compliance monitoring plans on the CRMP. • Escalate compliance matters to management. • Undertake quarterly compliance reporting.
Internal Audit & other Independent Assurance Providers	<ul style="list-style-type: none"> • Independent and objective assurance of overall adequacy and effectiveness of governance, risk management and internal controls within the organization • Ability to link business risks with established processes and provide assurance on the effectiveness of mitigation plans to effectively manage organizational risks.

52

Essentials of Compliance Risk Management Program

Active board and senior management oversight	<ul style="list-style-type: none"> An effective board and senior management oversight is the cornerstone of an effective compliance risk management process.
Effective policies and procedures	<ul style="list-style-type: none"> Compliance risk management policies and procedures should be clearly defined and consistent with the nature and complexity of an institution's activities.
Compliance risk analysis and comprehensive controls	<ul style="list-style-type: none"> Organizations should use appropriate tools in compliance risk analysis like self-assessment, risk maps, process flows, key indicators and audit reports; which enables establishing an effective system of internal controls.
Effective compliance monitoring and reporting	<ul style="list-style-type: none"> Organizations should ensure that they have adequate management information systems that provide management with timely reports on compliance like training, effective complaint system and certifications.
Testing	<ul style="list-style-type: none"> Independent testing should be conducted to verify that compliance-risk mitigation activities are in place and functioning as intended throughout the organization.

53

53

Developments in GRC

- Governance, risk management, and compliance (GRC) have evolved to overlap significantly, integrating activities like internal audits, incident management, regulatory compliance, and vendor compliance.*
- Many companies now adopt an integrated GRC approach to achieve objectives reliably, manage uncertainty, uphold integrity, and ensure compliance with regulatory and vendor requirements.*
- GRC encompasses governance, enterprise risk management, regulatory compliance, vendor compliance, assurance, performance management, information security, quality management, ethics, values, and business continuity.*
- Effective GRC implementation enhances risk reduction, control effectiveness, security, and compliance by integrating processes and eliminating organizational silos.*
- GRC professionals play a strategic role, providing insights on risk profiles, data interpretation, revenue generation, and sales strategies.*
- The future focus will be on aligning GRC initiatives with business performance objectives to drive organizational success and resilience while fostering collaboration within a comprehensive GRC community.*

54

FinTech, Reg Tech & Sup Tech

55

Fin Tech

“Technology-enabled innovation in financial services that could result in new business models, applications, processes or products with an associated material effect on the provision of financial services” (FSB, 2017)

Fintech activities: Crowdfunding, digital currencies, mobile banks, robo-advice, high-frequency trading, and algorithmic trading

The biggest FinTech activities are in the areas of payments, clearing and settlement services with a 41 % share (BIS, 2018).

56

56

Emergence of Fin Tech

The emergence of FinTech is attributable to:

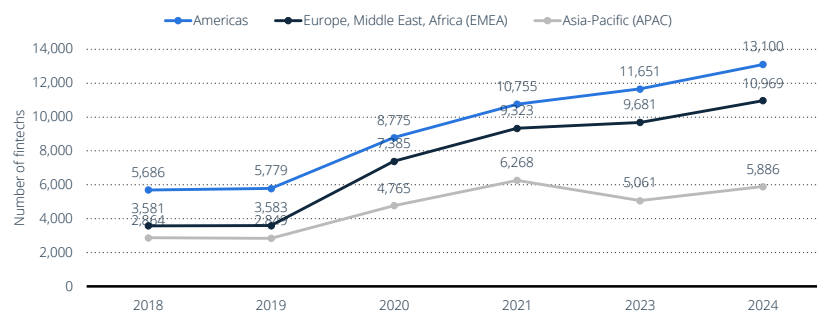
1. financial market deficiencies caused by the GFC and the regulatory response to it;
2. public distrust in the financial services industry, particularly in the United States and EU;
3. political pressure for alternative sources of finance for small and medium enterprises;
4. unemployed financial professionals looking to apply their talents; and
5. the commoditization of technology and the market penetration of the internet and mobile phones, particularly smart phones.

57

57

Number of fintechs worldwide from 2018 to 2024, by region

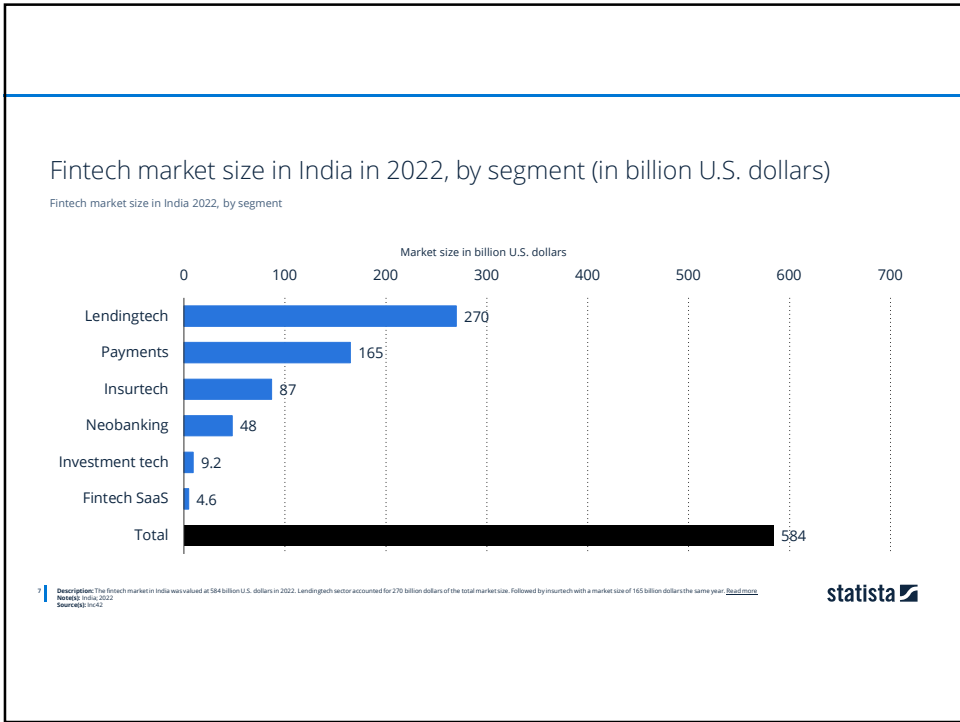
Number of fintechs worldwide 2018-2024, by region



Notes: 2018 to 2024
Further information regarding this statistic can be found on [page 8](#).
Source(s): BCG, Crunchbase, Statista. [ID: 893954](#)

statista

58



59

Fin tech focus Areas

Banking Sector	Capital Markets and Fund Management	Insurance sector
Remittance and payments	Crowd funding	Insur Tech
Digital lending	Personal finance	Innovative technologies for insurance life cycle
Buy Now Pay Later	Wealth Tech	Digital innovation for global health insurance cover
Crowd Lending	Robo Advisory	Innovation in commercial insurance
Digital Bank (Neo Banking/ Challenger bank)	Sustainable Finance products	Digital platform for settlement of balances between insurance companies
Open banking	Alternate trading platforms	Open insurance
Bank		Embedded insurance
		Cyber insurance

60

Benefits and Risks ...

FSB study highlighted benefits like:

- *Efficiency improvements, risk reduction and greater financial inclusion.*

And challenges like :

- *Difficulty of regulating an evolving technology with different use cases, monitoring activity outside the regulated sector, identifying and monitoring new risks arising from the technology.*

61

61

Reg Tech

FSB (2017) defines Reg Tech as “*any range of applications of FinTech for regulatory and compliance requirements and reporting by regulated financial institutions.*”

FCA (2017) defines “Reg Tech is a sub - set of FinTech that focuses on technologies that may facilitate the delivery of regulatory requirements more efficiently and effectively than existing capabilities

Reg Tech describes the *use of technology in the context of regulatory monitoring, reporting, and compliance* (Arner, P.Buckley, & Barberis, 2019).

62

62

Emergence of Reg Tech

The emergence of Reg Tech is attributable to:

1. postcrisis regulatory changes requiring additional data disclosure from regulated entities;
2. developments in data science (for instance AI and deep learning);
3. Economic incentives for participants to minimize rapidly rising compliance costs; and
4. regulators' efforts to enhance the efficiency of supervisory tools to foster competition and uphold their mandates of financial stability and market integrity

63

63

Compliance Challenges ...

The top 5 themes for Compliance Officers	The top five themes for the Board
• Volume and implementation of regulatory changes	• Balancing cost pressures
• Balancing budgets and resources	• Keeping up with regulatory change
• Retaining skilled resources	• Increased regulatory scrutiny
• Growing regulatory expectations	• Cyber risk
• Availability of skilled resources	• Retaining skilled resources

Source: Thomson Reuters, 2023

64

64

Sup Tech

- “Sup Tech (supervisory technology) is the use of technologically enabled innovation by supervisory authorities” (BIS, 2017)
- “Sup Tech is the use of Data Analytics, AI & ML by public sector regulators and supervisors.”

65

65

SupTech Definition	Reference
<i>“...harness technology to enhance the efficiency and effectiveness of supervision and surveillance.”</i>	Menon, Financial Regulation -the Forward Agenda (March 2017)
<i>“...the use of new technologies for internal supervisory purposes.”</i>	BIS, Basel Committee on Banking Supervision (August 2017)
<i>“...the use of technologically enabled innovation by supervisory authorities.”</i>	BIS, Basel Committee on Banking Supervision (February, 2018)
<i>“Applications of FinTech by supervisory authorities.”</i>	Financial Stability Board (November 2017)
<i>“...the use of these technologies (AI/ML) by public sector regulators and supervisors.”</i>	
<i>“Technological solutions focused on improving the processes and effectiveness of financial supervision and regulation.”</i>	Dias & Staschen (CGAP, December 2017)
<i>“...the use of technology to facilitate and enhance supervisory processes from the perspective of supervisory authorities.”</i>	Boeddu, Brix, Kachingwe, Lopes, & Randall (World Bank Group, June 2018)
<i>“...the use of innovative technology by supervisory agencies to support supervision.”</i>	Dirk Broeders and Jermy Prenio (July 2018)
<i>“...the use of innovative technology by financial authorities to support their work.”</i>	Castri, Hohl, Kulenkampff, & Prenio (October 2019)
<i>“...the use of technology to carry out supervisory responsibilities.”</i>	Zeranski, S., & Sancak, I. E. (2020).

66

66

Objectives of Sup Tech

The objectives of Sup Tech are *seamless and straight-through data collection / reporting, data analysis and decision making, streamlined licensing, market monitoring and surveillance, KYC / AML / CFT, cybersecurity data or evidence-based policy making* (RBI, Keynote address by Governor, May 2019)

RBI Sup Tech Systems : Import Data Processing and Monitoring System (IDPMS), Export Data Processing and Monitoring System (EDPMS) and Central Repository of Information on Large Credits (CRILC)

67

67



Technologies deployed ...

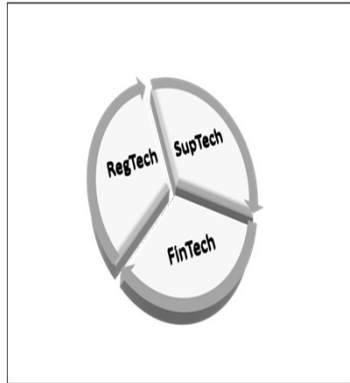
The technologies deployed in RegTech and SupTech include:

- Big data analytics,
- Artificial intelligence, Machine learning,
- Cloud computing,
- Geographic information system (GIS)
- API and data transfer protocols,
- Biometrics, etc.

68

68

Fin Tech, Reg Tech and Sup Tech - Conceptual Framework



- They have close connections, but each one needs different perspectives and approaches to produce sound policies.
- They all share “technology”, but technological tools are used for various purposes in each area

Source: Zeranski, S., & Sancak, I. E. (2020). Digitalisation of financial supervision with supervisory technology (SupTech). *Journal of International Banking Law & Regulation*.

69

Reg Tech: As a tool to Manage
Risks

70

Reg Tech

Reg Tech 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 Reg Tech is to prioritize and improve the effectiveness of regulations and governance while reducing the risk and cost of compliance through modern technology.

~ WEF

71

71

Why Reg Tech ?

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

72

72

Benefits of Reg Tech

- The global Reg Tech market stands at \$ 8.7 billion in 2021, and it is forecasted to grow at a CAGR of 23% to reach USD 29.2 billion by 2027.
- Reg Tech use could provide upwards of 600% returns on investment with a payback horizon of fewer than three years.
- TRRI survey states that prominent Reg tech use cases are:
 - Cyber resilience (20%),
 - Compliance monitoring (16%),
 - Financial crime/anti-money laundering/sanctions (14%), and
 - Customer onboarding (14%)
 - Others

73

73

Reg Tech - Success factors

Engagement with stakeholders

- PPP Model
- Champion led

Design

- Radical user centricity : transition from “regulate and forget” to “adapt and learn” era
- Dynamic : nurture experimentation, iteration and prototyping via regulatory sand boxes.

Applications

- Human and Machine intelligence : Investment in AI, analytics and digitization

74

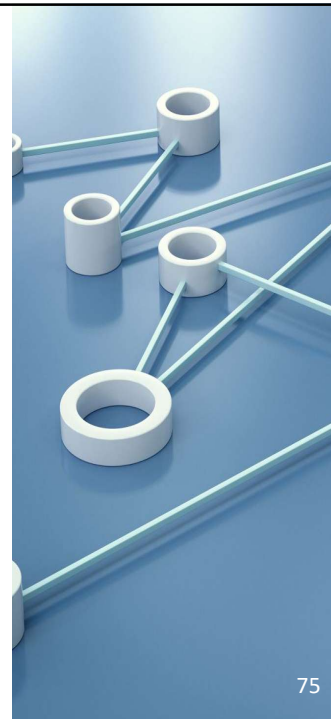
74

Reg Tech Categories

Reg Tech is still in a developing phase

Deloitte grouped Reg Tech into five sub categories

1. Regulatory Reporting
2. Risk Management
3. Identity Management and Control
4. Compliance
5. Transaction Monitoring



75

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Reg Tech Focus Areas...

Consumer protection and market conduct

Data-driven financial system stability

Data collection and management

Detection and prevention of financial crimes

Remote supervision and reporting

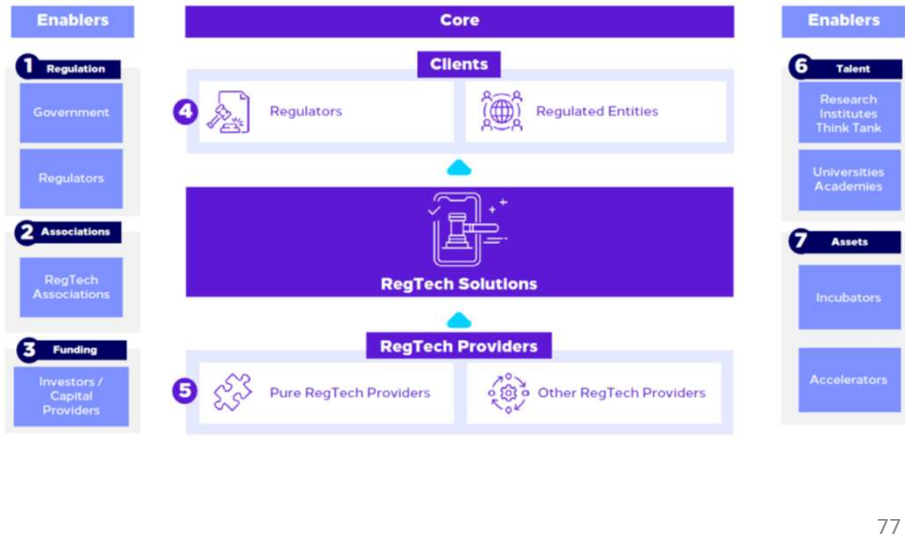
Financial inclusion for disadvantaged groups and women

Reg-Tech's concept has been expanded to *financial stability monitoring, including financial market risk early warning, digital financial risk identification, abnormal cross-border capital monitoring, anti-money laundering, monitoring, and many other fields* (Kou, Chao, Peng, Alsaadi, & Herrera- Viedma, 2019; Souza, 2016; Zhou, 2013).

76

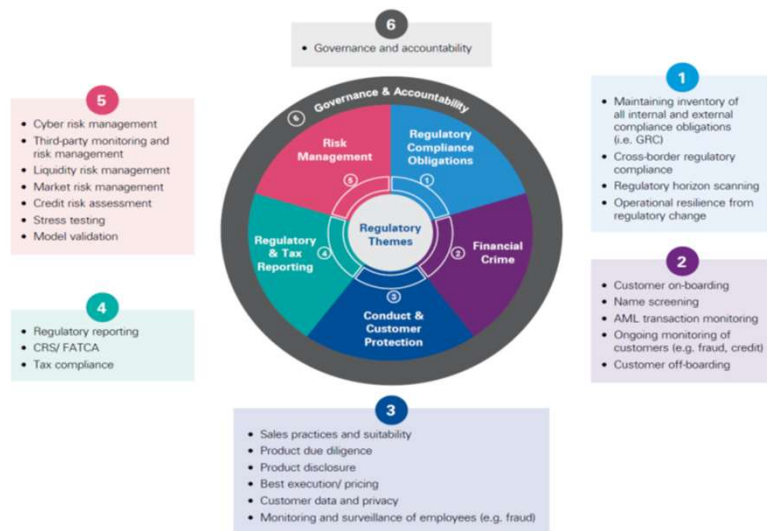
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Reg Tech eco system



77

Reg Tech Application Areas



Source: KPMG

78

Reg Tech Implementation Approach



Foundations :

1. Leadership commitment and support
2. Governance
3. Capabilities and Skills

79

79

Adoption – Issues and Barriers (indicative)

1. Leadership Support
2. Budget or resource constraints
3. Unattractive business case
4. Lack of available solutions/Available solutions do not meet needs
5. Lack of suitably skilled/experienced talent to develop and/or implement successfully
6. Complex legacy infrastructure
7. Reluctance/challenges around aligning decisions globally or regionally rather than locally
8. Lack of awareness of potential value of Regtech solutions
9. Data is not in a form that can be easily digitized
10. Policy Restrictions /Risk appetite

80

80

Global Reg Tech Adoption

Australian Securities and Investments Commission (ASIC) has taken a leading role in driving Regtech development and adoption within the sector.

The Singapore government and the Monetary Authority of Singapore (MAS) are actively collaborating with Singapore FinTech Association (SFA) to promote the use of Regtech solutions in Singapore.

MAS and the Financial Stability Board (FSB) supported the Saudi G20 Presidency and the Bank for International Settlements (BIS) Innovation Hub Singapore Centre in conducting the inaugural G20 Global Tech Sprint in 2020 s in the areas of Sup tech and Reg tech.

The Financial Conduct Authority (FCA) was an early supporter of and facilitate opportunities for the private sector to convene and overcome challenges.

81

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Issues and Challenges

82

Regulatory landscape

- The Reserve Bank of India (RBI) is India's central bank. It manages credit supply, regulates bank operations, and helps maintain a healthy financial system.
- The Securities and Exchange Board of India (SEBI) is the regulatory authority responsible for overseeing the securities market in India.
- The Ministry of Corporate Affairs regulates the functioning of industrial and services sectors.
- National Housing Bank (NHB) is the apex regulatory body for the housing finance sector in India.
- Association of Mutual Funds in India (AMFI) is an industry association of mutual funds in India.
- IT Act
- Data Privacy Act

83

83

Reg Tech adoption in India

- The future of Reg Tech in India holds great promise.
- Indian banks operate in a regulatory environment characterized by a multitude of guidelines covering areas such as anti-money laundering (AML), know-your-customer (e- KYC), data privacy, and cybersecurity, IT Outsourcing, IT Governance, Compliance with these regulations is both a necessity and a challenge.
- Regulators are recognizing the potential of Reg Tech to enhance regulatory oversight.

84

84



Way forward...

1. **Investment in Reg Tech and Adoption** : Commitment to invest in and adopt Reg Tech solutions, Process Reengineering
2. **Encouraging the Growth of Reg Tech Startups** : Supporting startups with mentorship, funding, and regulatory assistance to foster a vibrant ecosystem.
3. **Investments and Funding for Startups** : Providing financial backing and resources to new Reg Tech ventures.
4. **Collaboration Between Regulators and Banks** : Promoting partnerships for seamless integration and innovation.
5. **Regulatory Recognition, Standardization, and Guidelines** : Establishing standards and guidelines to build confidence in adoption.
6. **Change Management Strategies** : Implementing effective change management to facilitate digital transformation and acceptance of automated compliance.
7. **Staff Education, Training, and Awareness** : Ensuring personnel are aware, trained and educated, about digital technologies and processes.
8. **Integrating with Legacy Technologies** :Addressing the challenges of integrating new solutions with existing legacy systems.

85

85



Regulatory Sandbox

86

Regulatory Sandbox

- To enable regulated and orderly growth of FinTech ecosystem in India, the Reserve Bank in August 2019 became one of the few countries that have their very own **Regulatory Sandbox** (RS) ecosystem.
- Regulatory Sandbox usually refers to live testing of new products or services in a controlled/test regulatory environment for which regulators may (or may not) permit certain regulatory relaxations for the limited purpose of the testing.
- The RS allows the regulator, the innovators, the financial service providers (as potential deployers of the technology) and the customers (as final users) to conduct field tests to collect evidence on the benefits and risks of new financial innovations, while carefully monitoring and containing their risks.
- It can provide a structured avenue for the regulator to engage with the ecosystem and to develop innovation-enabling or innovation-responsive regulations that facilitate delivery of relevant, low-cost financial products.
- Within the sandbox, **the eligible entities can live test their innovative products or services in a controlled environment.**
- The RS is an important tool which enables more dynamic, evidence-based regulatory environments which learn from, and evolve with, emerging technologies.

87

87

Regulatory Sandbox

- I. The RS is based on thematic cohorts. The themes of the various cohorts under RS are as given below:

I. Retail Payments

II. Cross Border Payments

III. MSME Lending

IV. Prevention and Mitigation of Financial Frauds

V. Theme Neutral – Here innovative products/ services/ technologies cutting across various functions in RBI's regulatory domain would be eligible to apply.

Further to ensure continuous innovation in the closed themes, the RS also accepts 'On Tap' applications for the closed themes.

At present, themes of first two cohorts (viz. Retail Payments and Cross Border Payments) are open for 'On Tap' applications.

88

88

