Risk based supervision in BFSI space

Somdeb Sengupta

Partner, KPMG India

1. Introduction to risk-based supervision

Evolution of supervisory practices – An overview

Compliance-Based vs Risk-Based Supervision

Historically, regulators have adopted a compliance-based supervision approach. With continued growth in scale, complexity and number of regulated entities together with market failures have contributed towards a desire for sharper supervisory focus on areas of greatest risk necessitating a transition towards risk-based supervision.

A Risk-Based Supervision (RBS) approach is a comprehensive, formally structured way of assessing risks within the financial ecosystem, giving priority to the resolution of the most significant risks to regulatory objectives. RBS has an emphasis on "focusing on what matters", by combining both qualitative and quantitative approaches and involving judgment and forward-looking critical assessment. This ensures that supervisory resources are focused on the areas where they are likely to be most effective in enhancing financial stability and achievement of broader regulatory objectives.

In contrast, the traditional compliance-based supervision is a method which involves checking for, and enforcing, all compliance with the laws and regulations, or policies, that apply to an entity. While compliance-based supervision can help set a common base line but it doesn't identify and focus efforts on most critical risk elements.

RBS, thus allows supervision teams of central banks to:
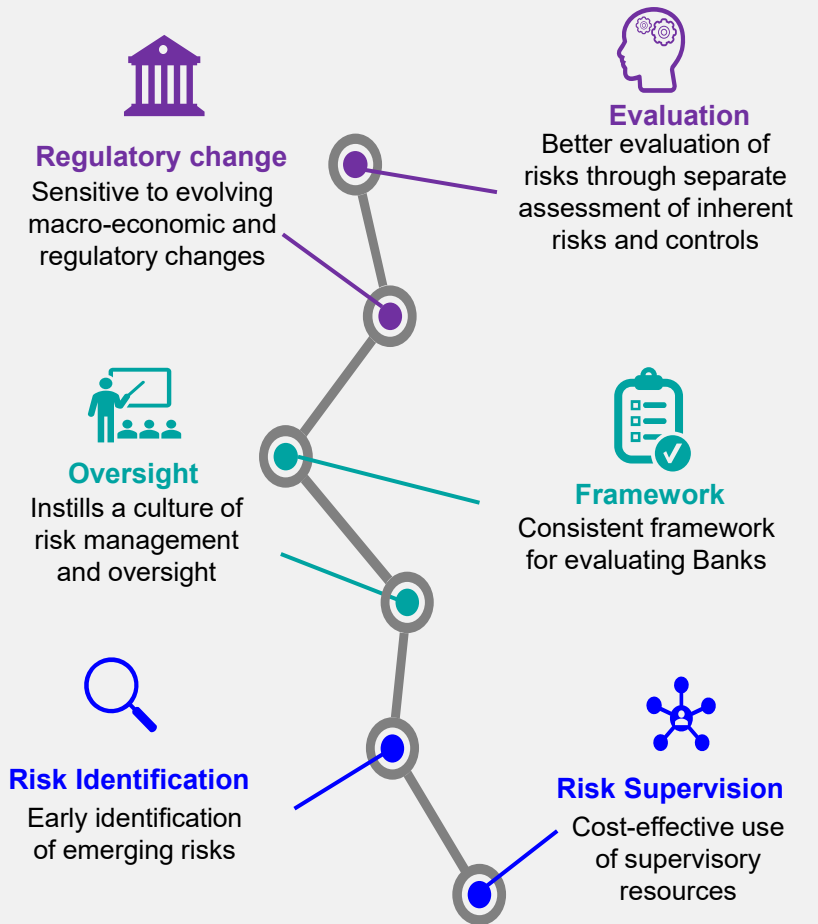
1 Focus on risks that matter

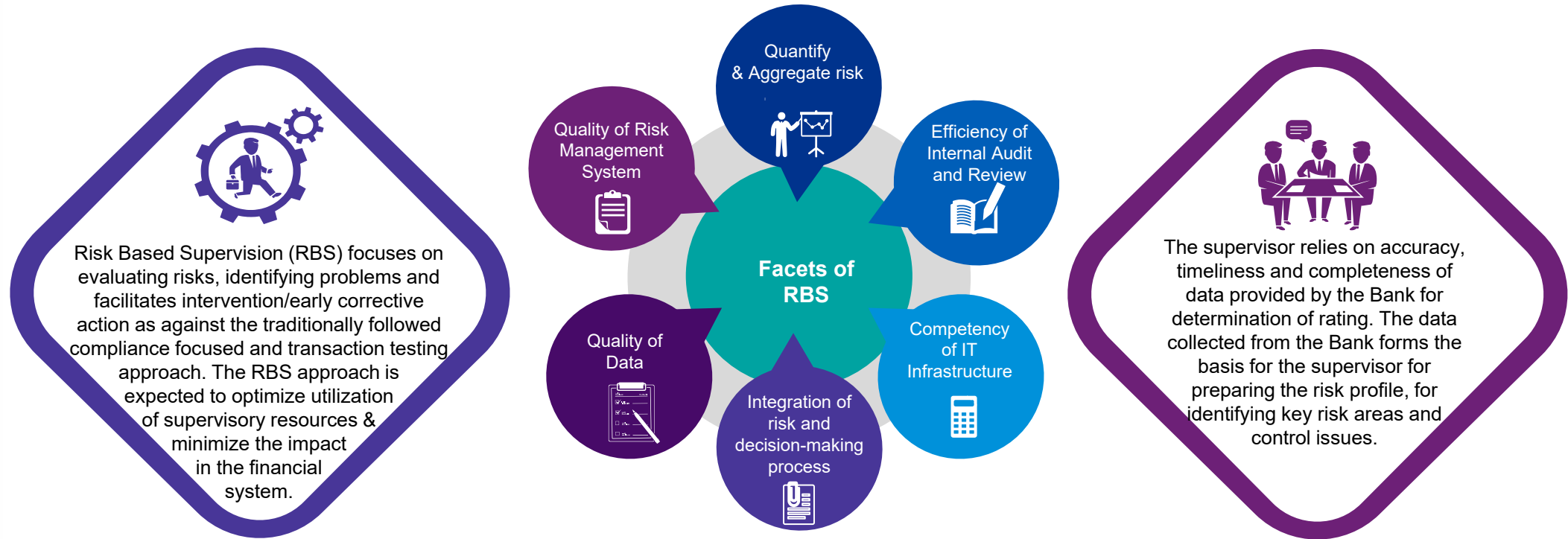**2** Optimal utilization of supervisory resources

3 Consolidated view of systemic and sectorial risks

Drivers for movement to RBS Framework

Regulatory change
Sensitive to evolving macro-economic and regulatory changes

Evaluation
Better evaluation of risks through separate assessment of inherent risks and controls

Oversight
Instills a culture of risk management and oversight

Framework
Consistent framework for evaluating Banks

Risk Identification
Early identification of emerging risks

Risk Supervision
Cost-effective use of supervisory resources

Institute of Actuaries of India

What is risk-based supervision?

Risk Based Supervision (RBS) focuses on evaluating risks, identifying problems and facilitates intervention/early corrective action as against the traditionally followed compliance focused and transaction testing approach. The RBS approach is expected to optimize utilization of supervisory resources & minimize the impact in the financial system.

Facets of RBS

- Quantify & Aggregate risk
- Quality of Risk Management System
- Efficiency of Internal Audit and Review
- Quality of Data
- Competency of IT Infrastructure
- Integration of risk and decision-making process

The supervisor relies on accuracy, timeliness and completeness of data provided by the Bank for determination of rating. The data collected from the Bank forms the basis for the supervisor for preparing the risk profile, for identifying key risk areas and control issues.

For prompt intervention and continuous supervision, the RBS process focuses on the following elements:

Off-Site Supervision	*On-site Examination*	*Thematic Reviews*	*Interactions of supervisor with top management of the financial organizations*

Institute of Actuaries of India

RBS framework – Guiding principles

Accountable supervision

- Single point of accountability for each entity to ensure efficient and effective communication
- Maintain up-to-date risk assessment for a supervised entity.

Forward-looking risk assessment

- Support early identification of issues by integrating forward-looking views into the assessment

Risk-based intervention

- The level and frequency of supervisory scrutiny depends on the qualitative and quantitative risk assessment as summarized in the final risk score.
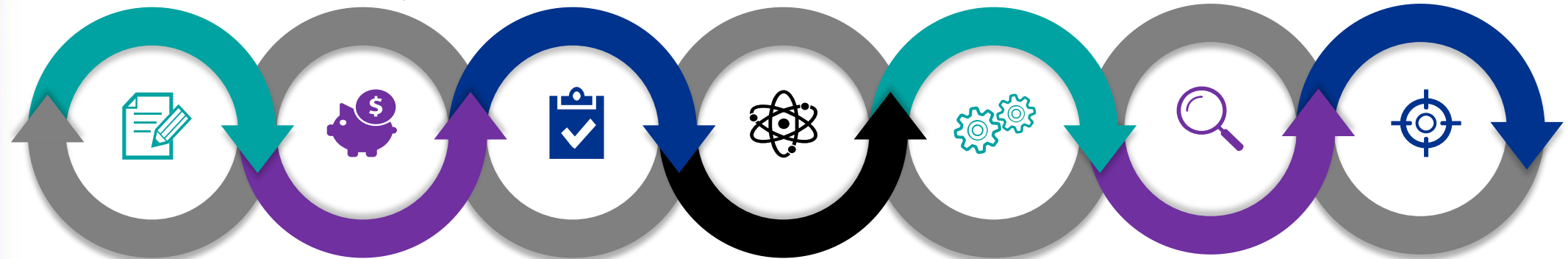
Continuous & dynamic monitoring

- Risk assessment is continuous and dynamic to ensure that changes in risk, both macro and micro, are identified early.
- Flexible supervisory process: changes in risk profiles result in updated supervision priorities

Consistent view of risk assessments

- Concerted effort to derive consistent view the entities
- Ensure views in all relevant departments are synthesized, integrated and aligned into supervisory actions.

Deep knowledge of risk drivers

- Drivers and indicators of inherent risks are clearly understood taking into account the entity business model, major activities and strategic direction.

Consolidated supervision

All risk exposures of an entity or of an entity belonging to a financial group, are taken into account, whether the risks arise in the entity itself, or in related entity.
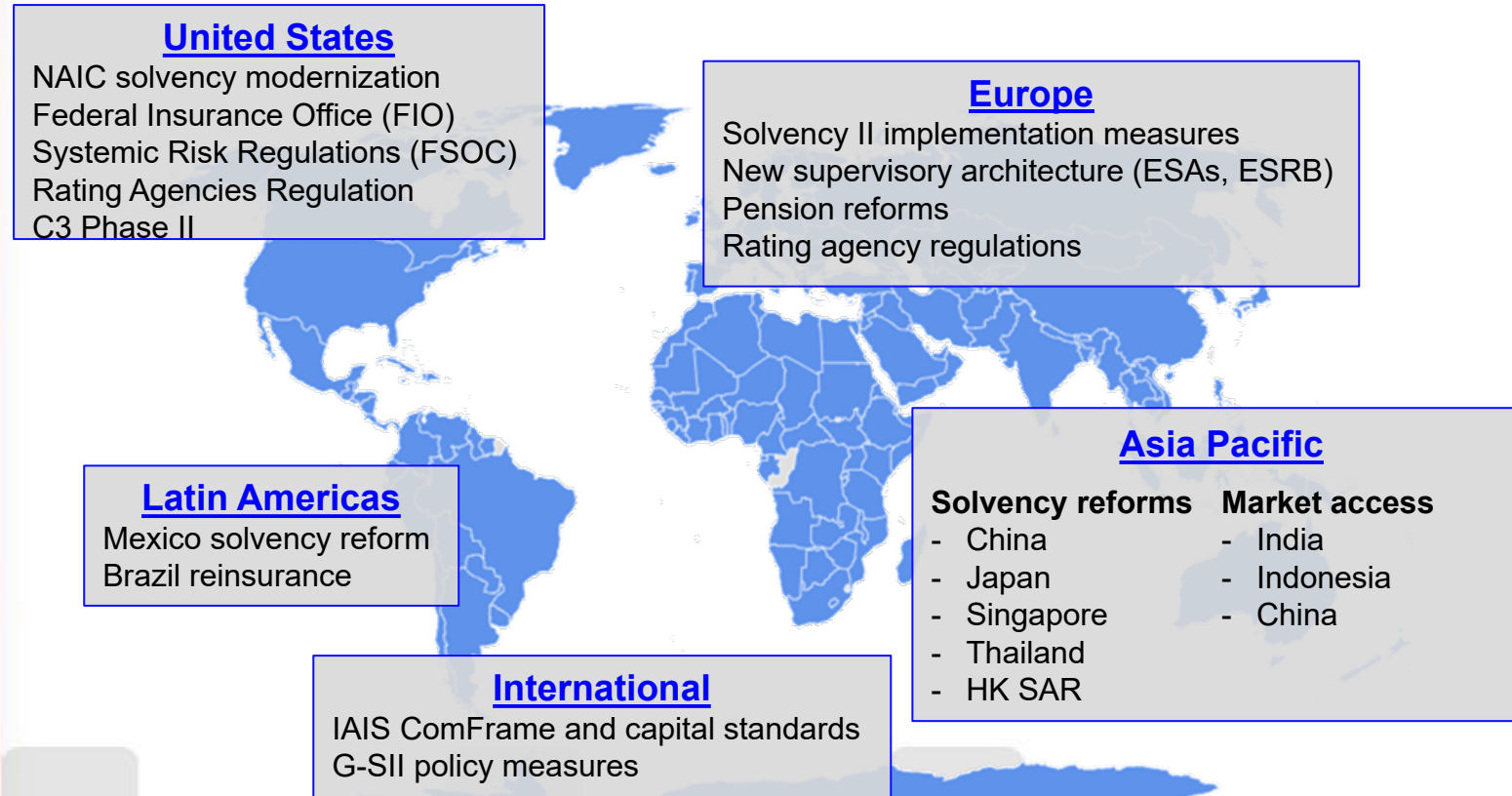
Global supervision trends - Banking

Banking sector's progressive evolution combined with recent pandemic has elicited responses from supervisory authorities across the following areas

Adoption of Technological Advancements
- Management of supervisory data using AI/ML/NLP techniques and for systems such as IDPMS, CRILC, CIMS, AnaCredit
- US SEC, MAS, BoI, UK FCA use SupTech for collection and analysis of RBS data

Stress Testing
- Greater focus on integrated stress testing by regulators under Covid-19
- BaFin, ECB, and EBA conduct supervisory stress tests at national level; testing by BoE & ECB under Covid-19

Credit Risk
- Automation of credit risk assessment of banks based on:
  - Historical credit portfolio indicators
  - Macroeconomic forecasts of growth in economic activity
- US Fed & BoI use AI/ML/big data to analyze credit risk under SE's CCAR

Misconduct Risk
- SEC & MAS use AI/ML/cloud computing for detecting misconduct risks

Liquidity Assessment
- Automated data analysis on interbank transfers, repo operations and cash sector needs of the corporate sector
- Netherlands' regulator investigates method of neural networks to detect abnormal liquidity flows in economy

Greater interconnected-ness
- Increasing systemic risk due to consolidation amongst financial entities
- Bank of Italy (BoI) and US SEC, use AI/ML/NLP techniques to measure interconnectedness and to perform sentiment analysis via social media

Corporate Governance
- England's PRA and Hong Kong's HKMA supervise SEs based on their governance & internal oversight mechanisms

Climate and Sustainability-related Disclosures
- France's ACPR, BoE, and PRA ensure that SEs embed climate change into financial decisions and macroeconomic analysis.
- Flagship programs such as PRI, EP, UNEP and G20's agenda have encouraged SEs to adopt green finance

Macro-prudential Supervision
- Aggregates all data of the financial and real sectors in a single system to assess macro risks
- FED, ECB and BoE build heat maps to identify problem areas in economy based on market/prudential info.

Strengthening Cyber Resilience
- Digitization of financial services warrant a secure cyber infrastructure
- Hong Kong SAR, Singapore, Brazil, Australia, and Germany have issued cyber risk management guidance

Global supervision trends - Insurance

Institute of Actuaries of India

United States
NAIC solvency modernization
Federal Insurance Office (FIO)
Systemic Risk Regulations (FSOC)
Rating Agencies Regulation
C3 Phase II

Europe
Solvency II implementation measures
New supervisory architecture (ESAs, ESRB)
Pension reforms
Rating agency regulations

Latin Americas
Mexico solvency reform
Brazil reinsurance

Asia Pacific
Solvency reforms
- China
- Japan
- Singapore
- Thailand
- HK SAR

Market access
- India
- Indonesia
- China

International
IAIS ComFrame and capital standards
G-SII policy measures

Key risks considered under RBS for insurers
- ESG Risk
- Insurance / Underwriting Risk
- Market Risk
- Solvency Risk
- Operational and Distribution Risk
- Regulatory and Compliance Risk
- Reputational Risk
- Reinsurance Risk
- Credit Risk
- Conduct Risk
- Systemic Risk

The Insurance Regulatory and Development Authority of India (IRDAI) has also released a technical guidance in respect of the Quantitative Impact Study-1 for the Indian Risk Based Capital (RBC) Framework. This is a part of the initiatives taken by IRDAI towards their "Insurance for All by 2047" vision.

Risk Based Capital (RBC) Framework from IRDAI

Nov 2023 – Submission of QIS1 results by insurers

IRDAI has mandated the insurers to submit the results of QIS1 using 31st March 2023 actuarial valuations on or before the 30th of November 2023.

Aug 2023 – IRDAI released technical guidance on RBC

On 10th August 2023, IRDAI released technical guidance on the RBC for the initiation of the Quantitative Impact Study 1 for implementation of Indian RBC Frameworks.

Oct 2018 – IRDAI announces move towards 'Risk Based Supervision'

On 4th October 2018, IRDAI released a circular stating that they are in the process of adopting 'Risk based supervision' for more holistic supervision of the insurance sector in India.

2017 - Recommendation from IMF and World Bank

In the Financial Sector Assessment Program report of 2017, the IMF and World Bank recommended IRDAI to move towards a risk-based supervisory approach.

RBC Framework by NAIC

The purpose of RBC requirements is to identify weakly capitalized companies, which facilitates regulatory actions to ensure policyholders will receive the benefits promised without relying on a guaranty association or taxpayer funds. The RBC framework enables timely intervention by regulatory authorities.

The guideline prescribes distinguished components across lines of business (e.g. Life Insurance, Health Insurance, etc.). The NAIC RBC formula works by:
- Adding up the main risks insurance companies commonly face.
- Considering potential dependencies among these risks.
- Allowing for the benefits of diversification.

Broad risks considered for Life Insurance:
- Asset Risk
- Insurance (Underwriting Risk)
- Interest Rate Risk
- Business Risk
- Insurance affiliates risk and Misc. Other

The other business lines like heath insurance, property and casualty insurance consider similar types of risks. However, the risk components may vary slightly between the formulas for different business lines.

Under the RBC framework, regulators have the legal authority to take preventative and corrective measures. These measures may differ depending on the capital adequacy of the insurance company.

Institute of Actuaries of India

Key thematic areas for RBS

Harmonized Approach to Risk Assessment

- **Holistic assessment** of SE's risks, internal controls & oversight mechanism, and impact of net risks on the financial sector to determine the risk profile rating.
- Two factor **Business Model Assessment**: internal factors (parameters indigenous to the entity) & external factors (performance rated on responsiveness towards macroeconomic changes)
- Deploying **harmonized rating scale** via an automated risk-scoring engine consolidating SE's performance across assessment parameters.

Stress Testing, ICAAP & ORSA

- Stress Testing: A step-wise approach to highlight the **vulnerabilities in SE's portfolio** and to enable design of alternate plans to ensure funding stability
- ICAAP: ensures availability of adequate capital to sustain business in risk; encourages SEs to leverage **better risk management techniques** for monitoring & managing their risks.
- ORSA: Requires insurers to analyze all reasonably foreseeable and relevant material risks that could have an impact on an **insurer's ability** to meet its **policyholder obligations**.

Liquidity Activity Monitoring (LAM)

- **Evaluates point-in-time balances** to assess the risk of unexpected deposit draws in relation to SE's liquid assets & cash surpluses held at other FIs.
- Leverages **intraday liquidity monitoring tools** in alignment with recommendations of BIS.

Corrective Action Plan

- Reflects SE's **directionality of risk**, alignment with updated business profile assessment and risk assessment methodology, and readiness to adapt to rapidly changing financial landscape
- Must ensure **seamless transfer of information** between the off-site and on-site supervision teams, like Prompt Corrective Action (PCA) framework

Strengthening Cyber Security

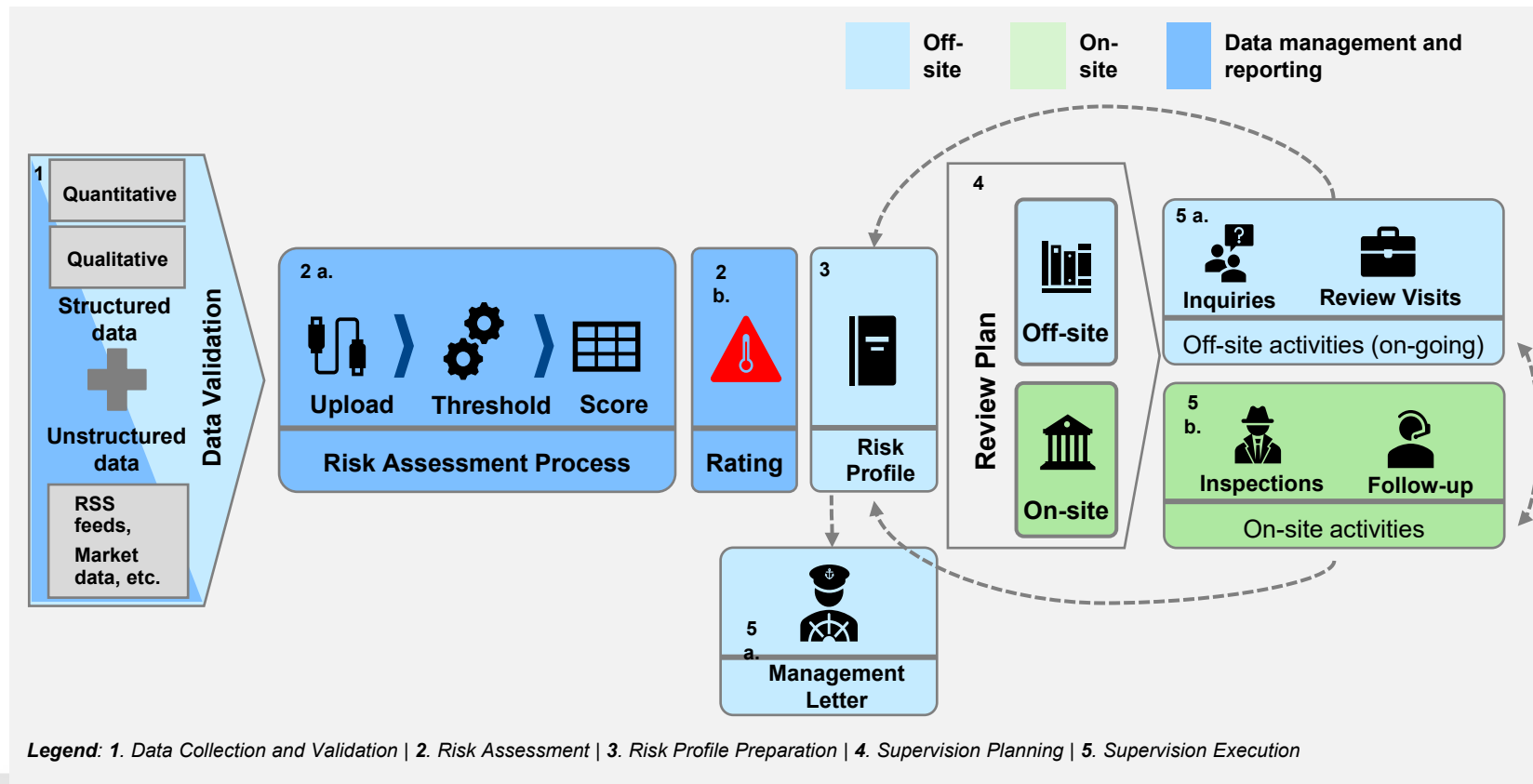- Detailed **cyber security assessment** of SEs through evaluation of assessment reports, digital infrastructure, and security testing on digital assets.

RBS Model Validation & Enhancements

- Three-step approach for **model risk management framework** for RBS process: pre-approval validation, post-implementation review, and annual monitoring and validation

Institute of Actuaries of India

2. Risk-based supervision process

Ideal supervision process

Legend: **1**. Data Collection and Validation | **2**. Risk Assessment | **3**. Risk Profile Preparation | **4**. Supervision Planning | **5**. Supervision Execution

Key imperatives of an ideal supervision process

- Efficient and real time data consumption and analytics (use of both structured and unstructured dada sources)
- Entity one-view across off-site and on-site supervision teams
- Dynamism in supervision process, ensuring trigger-based update of risk profile, off-site and on-site supervisory action plan
- Tight coupling of the process with macro-prudential supervision and determination of thematic review areas

The guiding principles enable effective supervision of the financial institutions thereby enabling regulators with better evaluation of risks, early identification and cost-effective use of supervisory resources. The following page represents the ideal risk monitoring and assessment framework using the guiding principles

Data collection and validation templates

Control questionnaire

- Qualitative evaluation mechanism to document and assess current state of governance and internal controls present in the FCs
- Designed for the following categories:

Governance	First line of defense	Second line of defense	Third line of defense
Board and Senior Mgmt.	Operational Mgmt.	Risk Management and Compliance	Internal Audit

Illustrative dimensions of Control Questionnaire

Introduction

This document contains questions for high-level qualitative assessment of risk and controls. The objective of this qualitative assessment template is to document and assess the current state of governance and internal controls system in finance companies.

The assessment template consists of a series of "yes" or "no" questions for each of the below categories. Questions relating to each category are listed in a separate sheet:
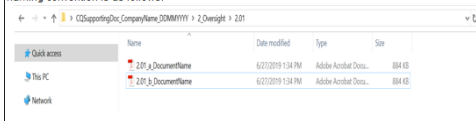
1. **Business** - Questions pertaining to business strategy of the company.
2. **Oversight** - Questions pertaining to governance and oversight.
3. **Conduct** - Questions pertaining to compliance, complain handling, financial crimes, money laundering and litigation.
4. **Credit** - Questions pertaining to credit quality, portfolio management and collections.
5. **Market** - Questions pertaining to management of risks arising from changes in market factors like price and interest rate.
6. **Operations** - Questions pertaining to management of operational risk.
7. **Liquidity** - Questions pertaining to funding and liquidity management of the company.
8. **Technology** - Questions pertaining to IT systems and processes.
9. **Capital** - Questions pertaining to capital position and capital structure of the company

Data Collection

1. All supporting documents submitted need to adhere to the following naming convention:
   --> **Parent Folder Name** - CQSupportingDoc_*CompanyName*_*DDMMYYYY*
      --> **Sub Folder Name** - 2_Oversight
         --> **Sub Folder Name** - 2.01
            --> **1st File Name** - 2.01_a_*DocumentName*
            --> **2nd File Name (if applicable)** - 2.01_b_*DocumentName* (same rule to be followed subsequently)

The name of the submitted file(s) to be an exact match to the name of document provided by the Finance Company in 'document reference' column of each worksheet. A screenshot of sample naming convention is as follows:

Help desk

Help Desk

1. In case of any query or clarification related to control questionnaires, Finance Companies can send an e-mail at xxx@yyy.com

2. All queries should be raised using standard query form which is provided in the data collection email. Proper reference should be provided for the data element for which clarification is required. All queries should be in English language.

Data collection form

- Used for quantitative assessment through KRIs
- Assessed across following risk categories:

  - Asset Quality
  - Claims
  - Earnings
  - Liquidity
  - Solvency
  - Compliance/Conduct

Illustrative dimensions of Data Collection form

Introduction

The objective of this Data collection form is to obtain quantitative data from finance companies. This data collection form has 17 Data Sheets in addition to Form B where any Explanation and Additional information can be provided by the Finance Companies.

The data sheets are as follows:
A1.1 Balance sheet related data
A1.2 Financing Portfolio - On Balance Sheet
A1.3.1 Provisioning Data - Retail
A1.3.2 Provisioning Data - Corp & SME's
A1.4 Source of funds
A1.5 Borrowing analysis
A1.6 Off-Balance Sheet Items
A2.1 Revenue analysis
A4.1 Loans Maturity - Retail
A4.2 Loans Maturity - Corp & SME's
A4.3 Assets& Liabilities maturity
A5.1 Portfolio concentration
A6.1 Data related to collaterals
A6.2 Human resources
A7.1 Other miscellaneous data
A7.2 IFRS 9 Staging criteria
A7.3 Customer Complaints Data
Form B - Supplementary notes and other details

Color schemes used in the forms:

Blue	Column header
Blank	Input cell (allows user input)
(Blocked)	Blocked cell (does not allow input)
Not Applicable	Information which is not Applicable to a Finance Company
Not Available	Information which is applicable but not available
Percentage	Information which is required in percentage
Number	Information which is required in numbers
Amount	Information which is required in SAR

Data Elements	2020				
	Q1	Q2	Q3	Q4	Annual
Marketable securities					
Outstanding balance of interest- bearing assets					
Outstanding balance of interest- bearing liabilities					
Litigations provision					
Weighted average interest rate for interest bearing assets					
Weighted average interest rate for interest bearing liabilities					

Data validation

Insights from data analytics
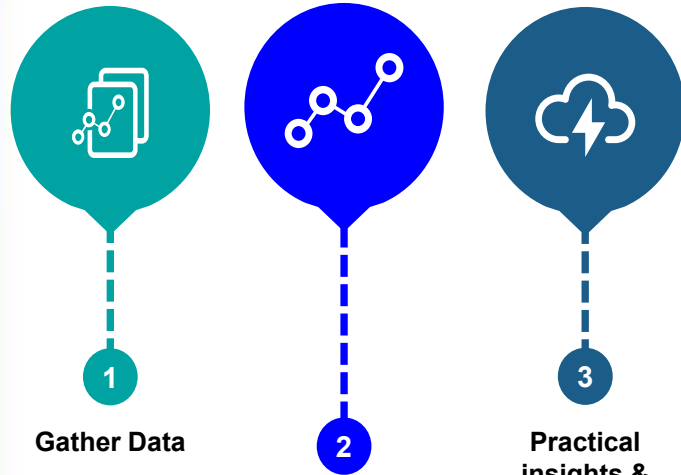
1. Gather Data
- Automating capture of qualitative and quantitative data

2. Evaluate and Inspect
- Automated rule-based evaluation of quantitative data
- Structured procedures for inspection of quantitative data

3. Practical insights & trends
- Analytics engine to highlight key insights at industry, sectoral and supervised entity level

Data Validation – Key Steps

Initial Submission

1. Ensuring data form readiness for validation

Review initial data forms received for consistency and completeness of information and share initial set of observations for re-submission.

First Resubmission

2. Sanity Checks and Basic Validation

Ensure all data points are appropriately filled; capture as observations in case of major discrepancies

3. Rule based validation

Detailed logical/ formulae-based checks for all applicable data points to ensure that they are correctly filled; capture observations in case of discrepancies

4. Final checks and observation compilation

Ensure that the comments are adequately reflecting the submissions; and data fields are in line with regulatory requirements; capture discrepancies if any

Final resubmission

Analysis for data quality and deficiencies

Risk assessment model development

Institute of Actuaries of India
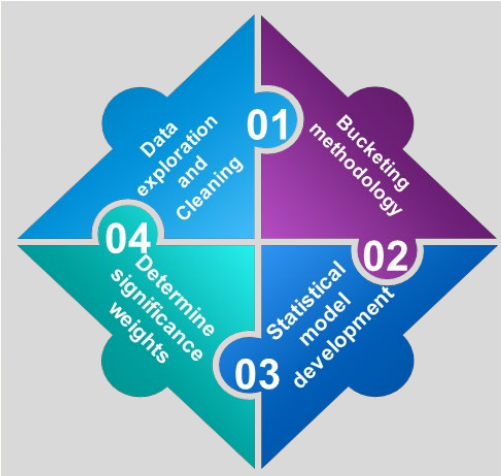
Data exploration & cleaning

Data cleaning and treatment of missing data and outliers through appropriate data partitions

Bucketing methodology

Bucketing all Input and Impact Variables

Statistical model development

Running the partial correlation weighing methodology to arrive at portfolio weights

Determine significance weights

Calibrating weights at segment and firm level

Risk assessment mechanism – key components

Assessment of business model and oversight		
Assessment of business model	**and**	Assessment of oversight

and

Inherent risk assessment	**and**	Assessment of risk mitigants

Combined risk assessment		

Entity rating

Impact rating

Direction of risk

Risk profile (Final Rating)

Supervisory response

Risk scoring model

Supervision plan development

Institute of Actuaries of India

Key Activities

- **Production of supervisory report providing narrative summary of the key risks, controls, and risk ratings on the analysis of qualitative and quantitative data**
- **Regular review cycle based on risk rating, with defined frequency for activities**
  - Quarterly
  - Annual and
  - Once in 3 years
- **Finalize the supervision plan and discuss and agree with the management**

Key considerations for developing a comprehensive supervision plan

- The overall plan should be drilled down into individual departments

- Time and resource mapping should be carried out on a periodic basis

- Looping back of learnings into the supervisory process and structured engagement between off-site and on-site activities

Key components of a Supervision Plan

On-going process

Time & Resource Allocation for off-site supervision

Time & Resource Allocation for on-site supervision

1. Purpose/ Objectives along with approach
2. Coverage Period
3. Risk Rating
4. Off-site key risks & supervisor responses
5. On-site key risks & supervisor responses
6. Annual Supervisory Visit Plan
7. Annual Inspection Plan
8. Annual Follow-up Field Visit Plan

Case study on RBS for a general insurance company

Institute of Actuaries of India

Risks assessed

| Insurance Risk | Credit Risk | Market Risk | Operational Risk | Liquidity Risk | Strategy Risk |

Other areas assessed

| Involvement of the Board | Management Competency | Risk Governance Practices |

Capturing details only for insurance risk

Risk Rating Assessment
- Insurance is the primary business of the company and hence has the highest weightage on the risk rating of the company.
- Traditionally conservative products such as residential property, Motor and commercial lines would normally mean a low-risk score.
- If the company has a history of being profitable, it indicates generally sound insurance underwriting and can be offered low risk score.
- Insurance risk is captured net of re-insurance.

Possible Supervisory Actions
- On-site:
  • On-site review of insurance operations, including substantive testing of claims and underwriting files, pricing methodologies and reinsurance.
- Off-site:
  • Review of company's liability valuation, provisioning policy, actuarial methodology and reinsurance strategy.
  • Meeting with actuary to discuss concerns from the review.

Possible supervisory plan

First 3 months
- Quarterly review of financial statements & capital adequacy returns
- On-site inspection - Board and Committee minutes and papers

Next 6 months
- On-site insurance risk inspection, focused on pricing and valuation.
- On-site meeting with the Board.
- On-site inspection for operational risk related issues.

Next 12 months
- On-site insurance risk inspection, focused on underwriting and claims management.
- Review of reinsurance strategy.
- Review of liquidity management.

Next 24 months
- Complete on-site inspection of implementation of risk management framework.
- Strategy review, focused on contagion and group risk.

3. SupTech for BFSI supervision

Supervisory technology and relationships

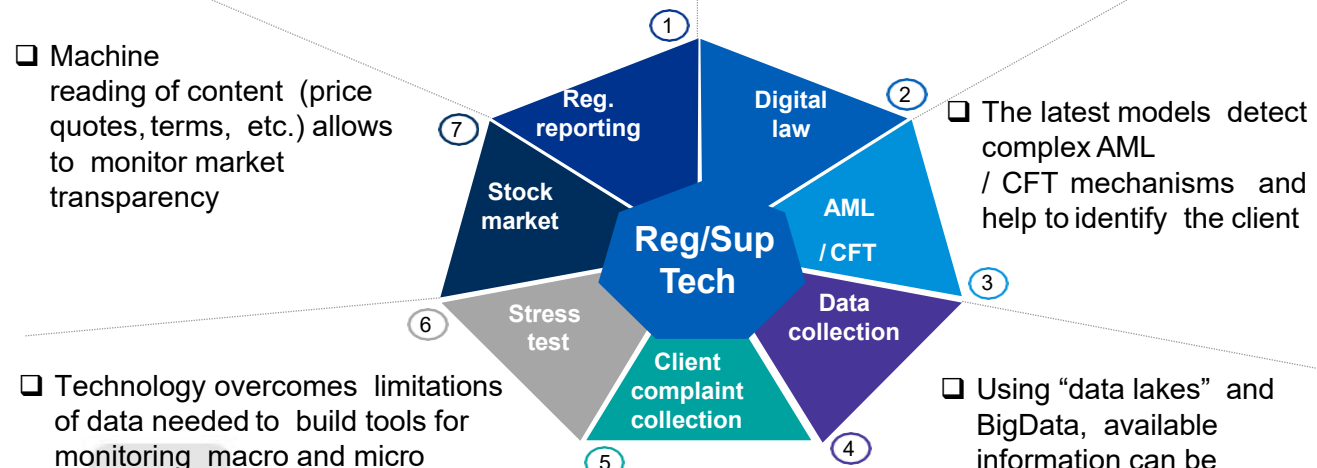**Financial Technology (FinTech)** — **Regulatory Technology (RegTech)** — **Supervision Technology (SupTech)**

The rapid growth and development of financial services (**FinTech**) widens the technological gap between innovative banks and their regulators.

Many institutions are turning to new regulatory technologies (**RegTech**) to ease the burden of banking regulation and reporting.

To keep pace with market development, regulators are turning to the same innovative technologies and supervisors seek to process more data and extract more results from the information available (**SupTech**) for supervising banking activities.
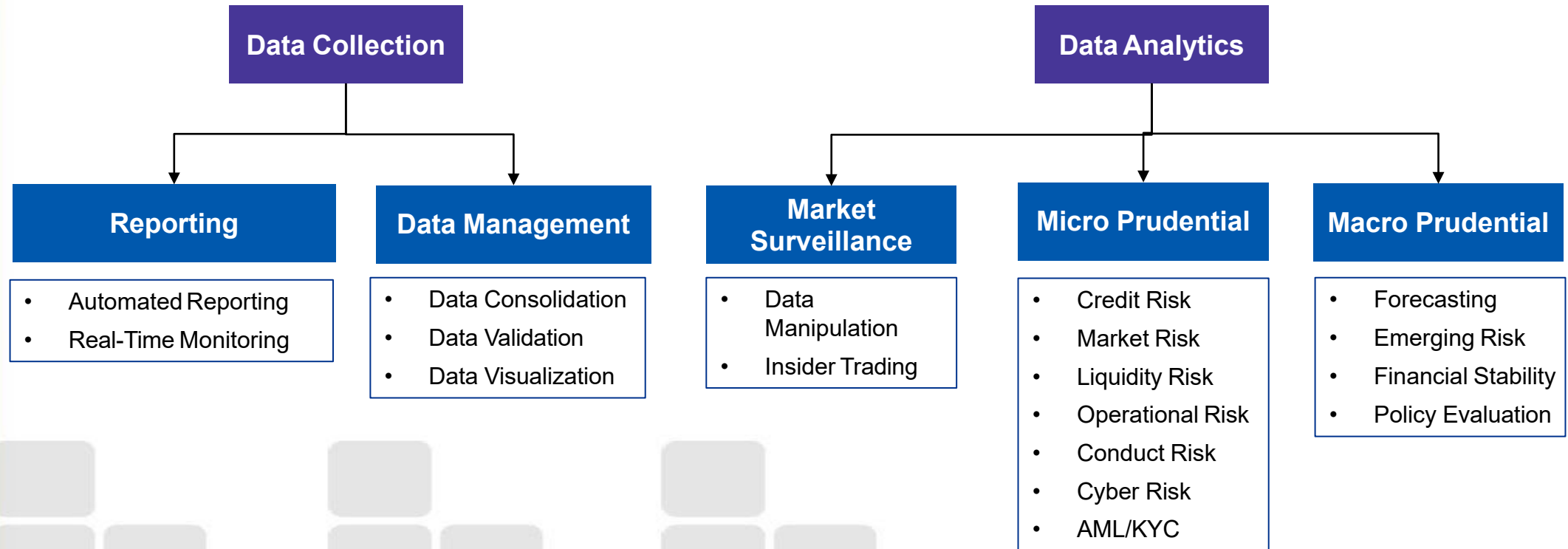
Reg / SupTech is used in various areas of banking supervision

❑ The current reporting model (XBRL) is labor intensive and exposed to operational risk and cyber attacks.
  ❑ Automation will allow reporting systems to exchange accurate data in real time.

❑ The bank should have a special team of lawyers to interpret and respond to regulatory changes.

❑ OCR technology will help to publish requirements in a computer readable format.

❑ Machine reading of content (price quotes, terms, etc.) allows to monitor market transparency

❑ The latest models detect complex AML / CFT mechanisms and help to identify the client

❑ Technology overcomes limitations of data needed to build tools for monitoring macro and micro indicators and detecting early signs of stress.

❑ Using "data lakes" and BigData, available information can be "aggregated" analytically to extract new results.

❑ Chatbots can register and classify a large volume of complaints.

Reg/Sup Tech

1. Reg. reporting
2. Digital law
3. AML / CFT
4. Data collection
5. Client complaint collection
6. Stress test
7. Stock market

Institute of Actuaries of India

Supervisory technology and relationships

- SupTech is the usage of innovative technologies by regulators to perform supervisory functions.
- It is currently used in four areas – data collection and data organization, micro- and macro prudential analysis
- SupTech enables to move from a retrospective method of regulation to a more proactive approach

Data Collection

Data Analytics

Reporting
- Automated Reporting
- Real-Time Monitoring

Data Management
- Data Consolidation
- Data Validation
- Data Visualization

Market Surveillance
- Data Manipulation
- Insider Trading

Micro Prudential
- Credit Risk
- Market Risk
- Liquidity Risk
- Operational Risk
- Conduct Risk
- Cyber Risk
- AML/KYC

Macro Prudential
- Forecasting
- Emerging Risk
- Financial Stability
- Policy Evaluation

Institute of Actuaries of India

Thank you