Smarter **Risk**

IBM

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From Risk Book to Risk Socialization
Smarter Risk meeting the needs of Regulators
IBM Risk Analytics

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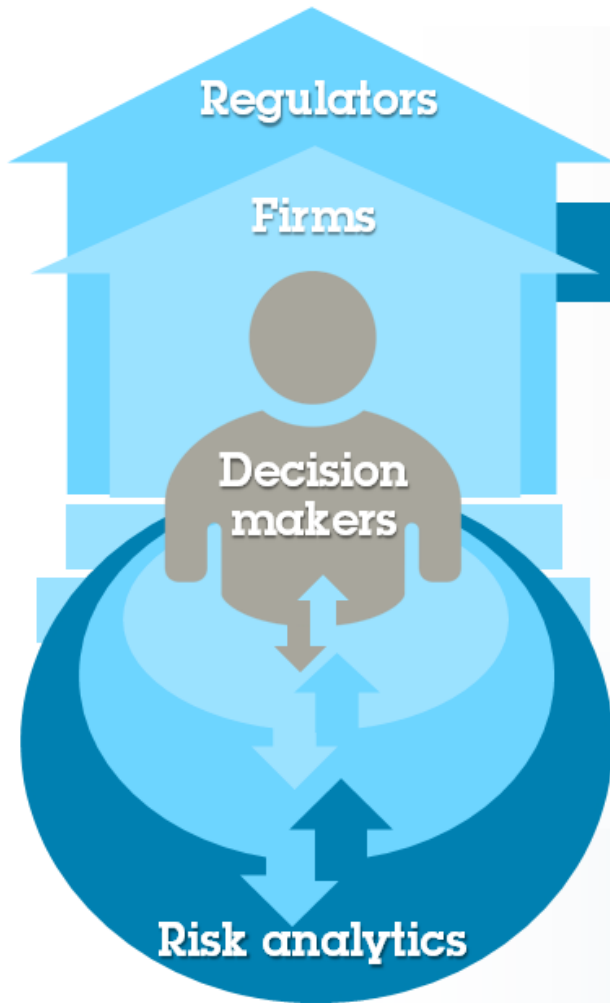
Regulation in abundance

- **Basel III,**

- **CRD IV,**

- **Solvency II,**

- **Dodd-Frank**

- **CCAR**

- **Fundamental Review of the Trading Book**

- **Risk Data Aggregation – RDA**

What are the key BCBS239/RDA Principles?

- **Governance of all risk-related data and processes**

- **Centralised Dashboard of Risk**

- **Aggregation of Risk Analytics**

- **Timeliness to complete by 1/Jan/2017 (Domestic SIFI)**

14 Principles of BCBS239

Regulatory Oversight	Are firms meeting the benchmarks set by the 14 principles?	• **Review** (12) • **Remedial actions and supervisory measures** (13) • **Home/host co-operations** (14)	

Trust

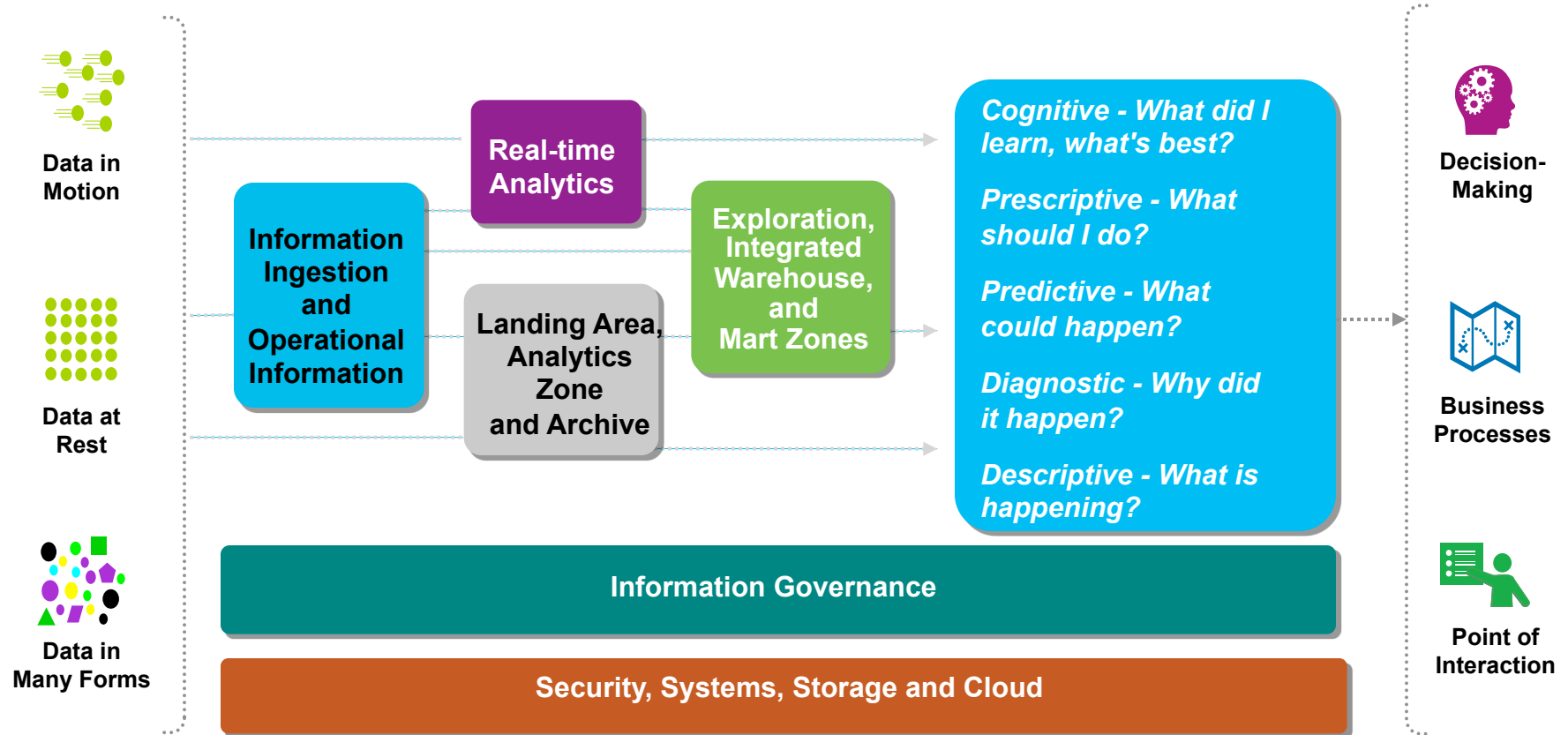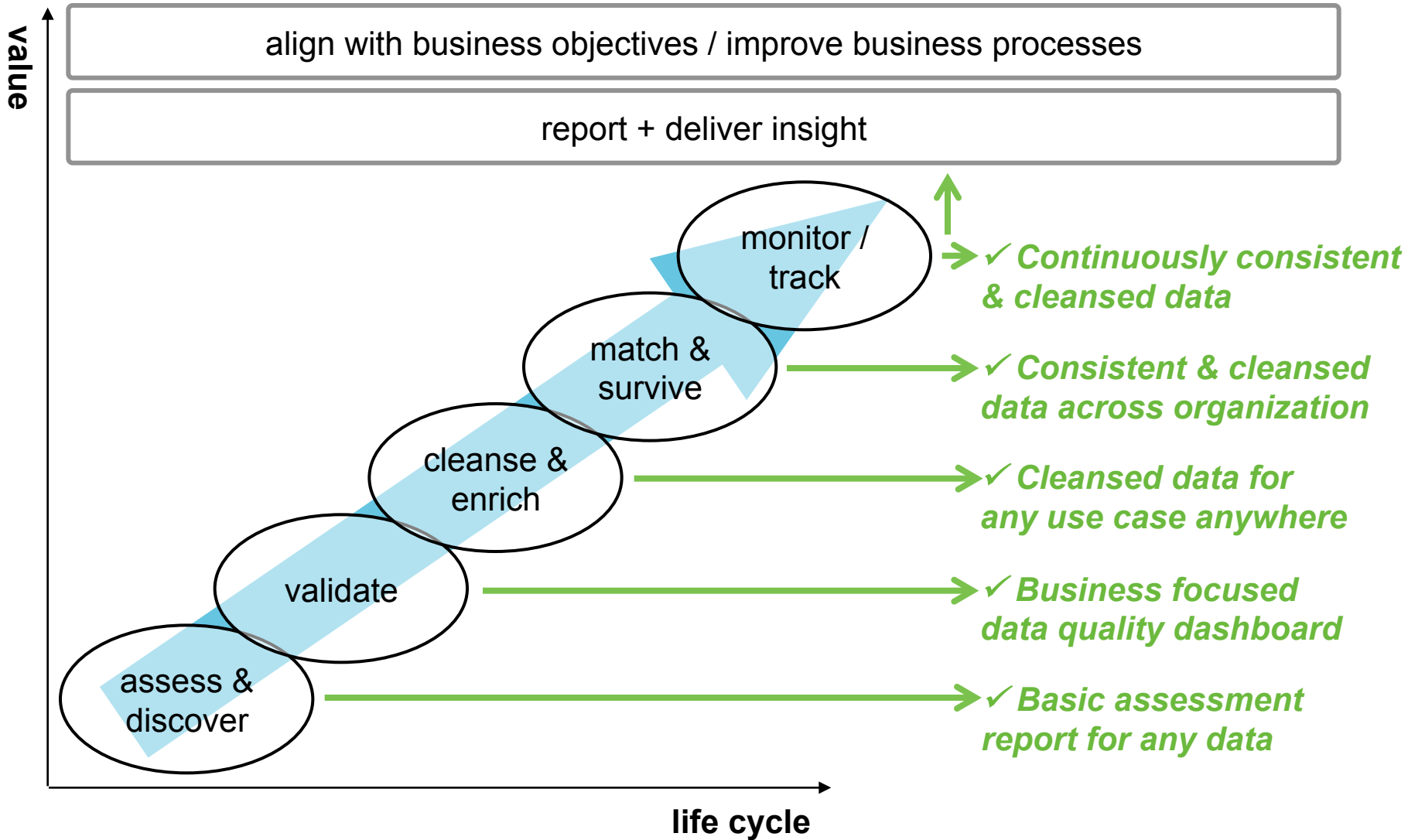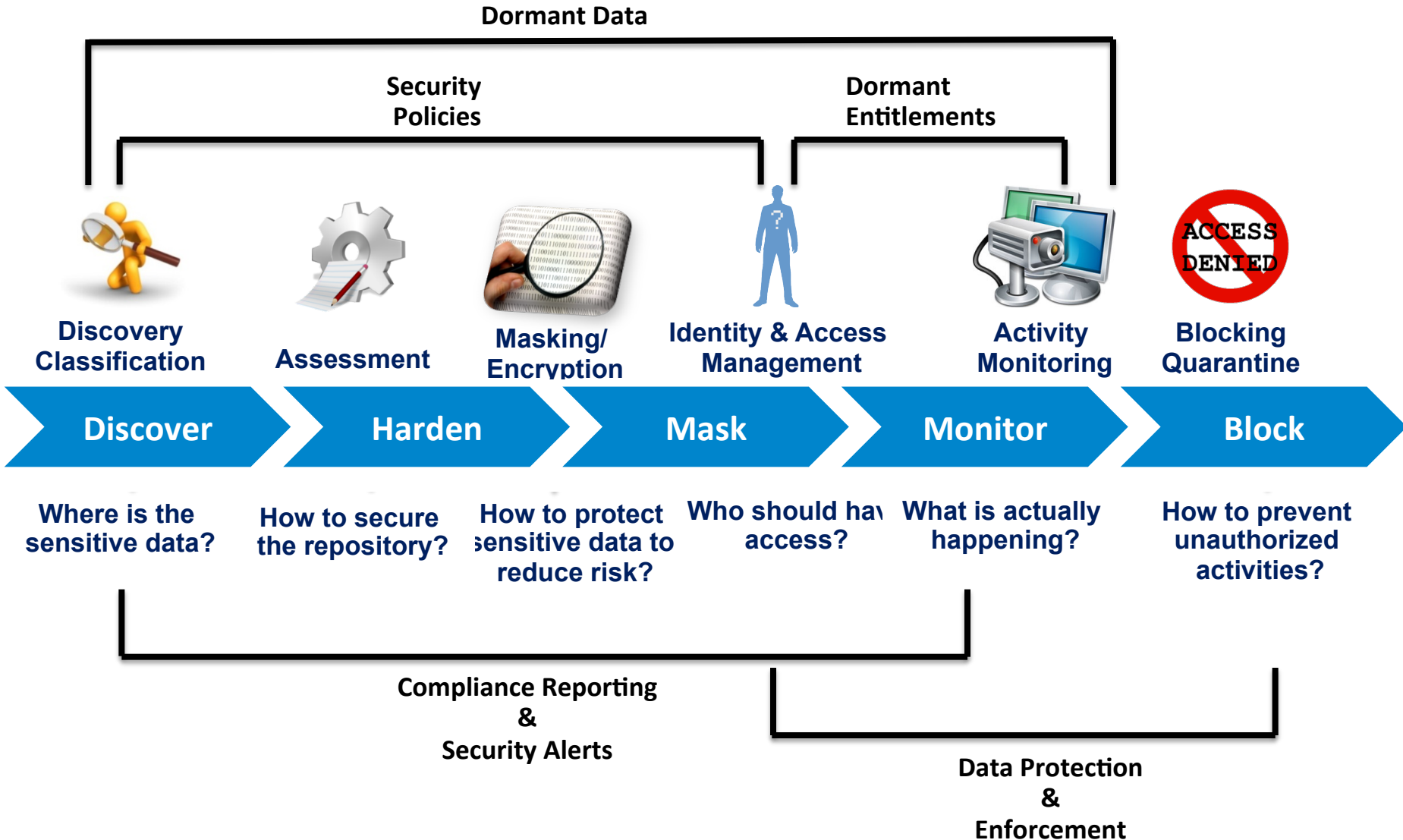|		
Self-Orientation	Does this value reflect my own context and use?	• **Clarity& Usefulness** (9)
Intimacy	Can I safely make a decision based on this?	• **Adaptability** (6) • **Frequency** (10) • **Distribution** (11)
Credibility	Is this result well constructed?	• **Accuracy & Integrity** (3, 7) • **Comprehensiveness** (8)
Reliability	Will this result be ready and up-to-date when I need it?	• **Completeness & Timeliness** (4, 5) • **Data architecture & IT infrastructure** (2) • **Governance** (1)

Regulators

Firms

Decision makers

Risk analytics

New architecture emerging to leverage all data and analytics: information governance & security are critical success factors

Smarter **Risk**

IBM

Data in Motion

Data at Rest

Data in Many Forms

Information Ingestion and Operational Information

Real-time Analytics

Landing Area, Analytics Zone and Archive

Exploration, Integrated Warehouse, and Mart Zones

Cognitive - What did I learn, what's best?

Prescriptive - What should I do?

Predictive - What could happen?

Diagnostic - Why did it happen?

Descriptive - What is happening?

Decision-Making

Business Processes

Point of Interaction

Information Governance

Security, Systems, Storage and Cloud

Data Quality is a Continuous Improvement Process

value

align with business objectives / improve business processes

report + deliver insight

monitor / track

✓ **Continuously consistent & cleansed data**

match & survive

✓ **Consistent & cleansed data across organization**

cleanse & enrich

✓ **Cleansed data for any use case anywhere**

validate

✓ **Business focused data quality dashboard**

assess & discover

✓ **Basic assessment report for any data**

life cycle

Data Security and Compliance is an on-going process to develop and avolve over time

Dormant Data

Security Policies

Dormant Entitlements

Discovery Classification	Assessment	Masking/ Encryption	Identity & Access Management	Activity Monitoring	Blocking Quarantine
Discover	**Harden**	**Mask**	**Monitor**		**Block**
Where is the sensitive data?	How to secure the repository?	How to protect sensitive data to reduce risk?	Who should have access?	What is actually happening?	How to prevent unauthorized activities?

Compliance Reporting & Security Alerts

Data Protection & Enforcement

Basel BCBS 268 – Where are the Tier 1 banks?

- December 2013, G-SIFI's performed a 'stock-take' of their progress on the BCBS 239 paper

Selected results:

Self assessment ratings by Principles

No. of banks	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11
■ Fully compliant	0	0	0	0	2	1	0	8	3	2	7
■ Largely compliant	25	14	18	22	17	15	21	20	26	21	23
■ Materially non-compliant	5	16	12	8	11	14	9	2	1	7	0
■ Non-compliant	0	0	0	0	0	0	0	0	0	0	0
Average rating	2.8	2.5	2.6	2.7	2.7	2.6	2.7	3.2	3.1	2.8	3.2
	Governance/ infrastructure		Risk data aggregation capabilities				Risk reporting practices				
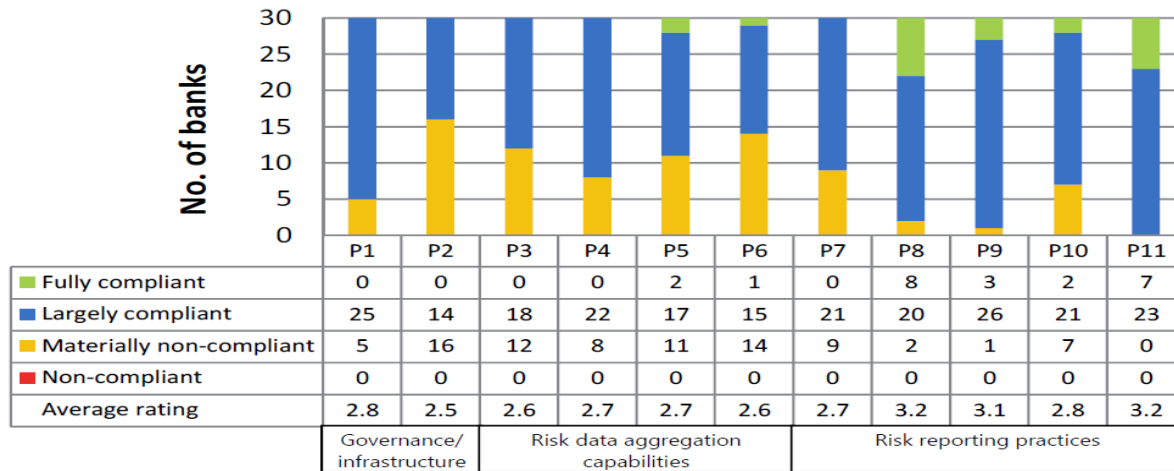
- **Inventory of overarching weaknesses from Basel 268 review:**

  - **Governance and infrastructure**

  - **Risk data aggregation capabilities**

  - **Risk reporting practices**

  - **Interactions between the above**

Source: Progress in adopting principles for effective risk data aggregation and risk reporting issued - Basel Committee. December 2013

Sample of Current Projects

Automated Risk Reports & Dashboards
- Interactive Risk Reports
  - Overall risk reporting & dashboards
  - Enterprise-wide Assessment Tools (stress/simulation & planning)
  - Forward-looking analysis

- Risk Data Management
  - Single version of Truth

  Automated risk reports & dashboards

  - Foundation for Enterprise Data Integration Mechanism
    - Quick Enterprise-wide Aggregation
    - Tracking history of measures
  - Data warehousing
  - Dictionaries
  - Reconciliation of risk & finance
  - Documentation

Model Risk Management
- Model risk assessment / control

  Model risk governance

- Model lineage
- Documentation

Data Governance
- Quality & Accuracy requirements (materiality-based)

  Risk data governance

- Stewardship
- Metadata management
- Data model development / consolidation
- Data lineage & provenance

Governed Risk Measurement Processes
- BCP / Mitigants

  Governed, auditable risk processes

- Weekly / increased frequency of reporting (key to many "new" GSIBs & DSIBs)
- Common risk measurement platform
- Reference Data Management
- IT Infrastructure

Policy, Compliance and Control

  Policies, compliance and business controls

- Supervisory Review Process Support
- Corporate Governance procedures & organization

The Vision for a Smarter Risk Enterprise
IBM Risk Analytics
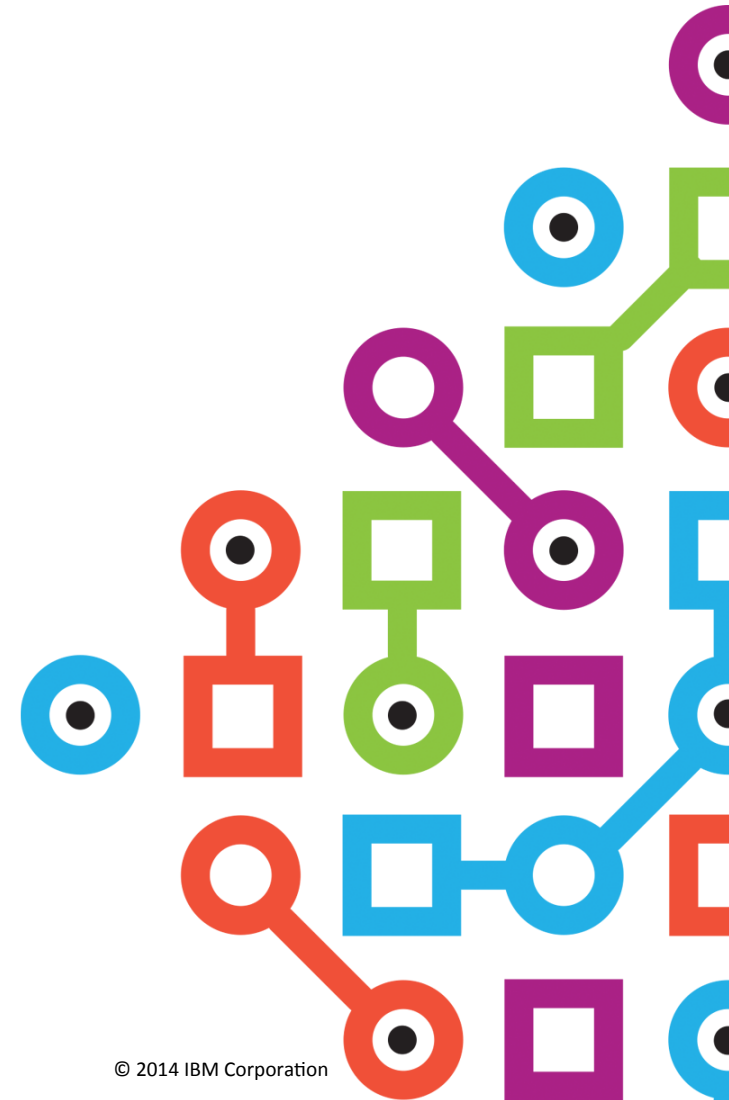
Maturity road map of risk reporting

1

Controlled book of risk

Start with today's manually compiled book of risk and control its construction

Make approval processes and documentation consistent over time

2

Dashboard of risks

Create a common repository to share and collect key results, federate others, and keep content open and accessible

3

Enterprise risk governance

Aggregate data lineage, glossaries, policies and confidence indices, including enterprise model governance

4

Risk socialization

Socialize around the dashboard, move from email to social media, and open a conversation, using it to create both trust and confidence

A centralised, holistic view of Risk

Stress testing

Risk & Return Projections Table

Analysis Group: Division	**Cycle Years Factor:** 7	**z-value Current State:** 1	**Growth Factors:** -0.2, 0.4, 0.065, 0.27, -0.6, 999
LGD Factor: 999	**Credit Quality Factor:** 999	**Inc. Revenue Disc. Factor:** 1	**Projection Years:** 1

Select Stress Scenario:	Select Stress Factor 1:	Select Stress Factor 2:	Select Stress Factor 3:	Select Capital Action:
Scenario 2	All Stress Factor1 Unstressed	All Stress Factor2 Unstressed	All Stress Factor3 Unstressed	No

Compare different stress-test scenarios, macro-economic forecasts and additional stress factors

See the impact on values and observe any alerts at different time steps/forward periods

Projected EC Ratio	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Projected Net Income%	6.39%	6.72%	7.21%	7.71%	8.20%	8.67%	9.13%	9.56%	9.95%	10.25%	10.42%	10.42%	10.22%	9.86%	9.40%	8.98%	8.76%	8.89%	9.41%	10.34%	11.59%
Projected Return on RWA	2.72%	2.84%	3.01%	3.19%	3.36%	3.53%	3.68%	3.83%	3.95%	4.04%	4.08%	4.05%	3.95%	3.79%	3.59%	3.42%	3.32%	3.35%	3.54%	3.87%	4.32%
Projected Tier 1 / RWA Ratio	0.03	0.04	0.04	0.05	0.06	0.06	0.07	0.08	0.08	0.09	0.10	0.10	0.11	0.11	0.11	0.12	0.12	0.12	0.12	0.13	0.13
Projected Total Reg Cap%	18.82%	18.94%	19.13%	19.32%	19.51%	19.68%	19.84%	20.00%	20.16%	20.30%	20.44%	20.57%	20.70%	20.81%	20.92%	21.03%	21.13%	21.22%	21.30%	21.38%	21.46%
Projected EC Var-Covar (Analytic) %	18.77%	18.49%	18.70%	18.92%	19.16%	19.41%	19.67%	19.94%	20.23%	20.52%	20.81%	21.12%	21.43%	21.74%	22.05%	22.36%	22.68%	22.99%	23.30%	23.62%	23.93%
Projected RAROC (Analytic)	33.80%	36.32%	38.57%	40.73%	42.80%	44.68%	46.41%	47.95%	49.19%	49.94%	50.05%	49.34%	47.68%	45.37%	42.63%	40.15%	38.63%	38.66%	40.39%	43.78%	48.41%
Projected RAROC (Reg)	33.98%	35.46%	37.69%	39.88%	42.04%	44.07%	46.00%	47.81%	49.37%	50.47%	50.97%	50.65%	49.38%	47.38%	44.93%	42.70%	41.48%	41.90%	44.19%	48.36%	53.99%
Projected Herfindahl	2.41%	2.42%	2.46%	2.50%	2.57%	2.64%	2.73%	2.83%	2.95%	3.07%	3.21%	3.35%	3.50%	3.66%	3.82%	3.99%	4.17%	4.34%	4.52%	4.71%	4.90%
Projected LCR	3.05	3.42	4.02	4.66	5.32	5.98	6.65	7.33	8.03	8.68	9.31	9.92	10.47	10.92	11.30	11.61	11.86	12.10	12.35	12.67	13.07
Projected NSFR	0.98	1.09	1.29	1.51	1.74	1.99	2.26	2.55	2.88	3.20	3.55	3.92	4.30	4.66	5.02	5.38	5.75	6.13	6.57	7.08	7.71
Projected Equivalent Rating	B	BB	BB	BB	BBB	A	AAA/AA	AAA/AA	AAA/AA	AAA/AA	AAA/AA	AAA/AA	AAA/AA	AAA/AA	AAA/AA	AAA/AA	AAA/AA	AAA/AA	AAA/AA	AAA/AA	AAA/AA

Track capital ratio evolution

Project when company target rating is under threat

Ensure target return on capital is achieved for protecting dividends

Imagine if you could display trust in the results…

IBM Integrated Risk Platform - Workspace   Welcome Michael ▾   ⚙▾ ⓘ▾   IBM

≡ ▾   🏠 Home   Capital   ✓ Credit ✕   Market   Ops   Liquidity   Strategic   Compliance   🔍 Inspect
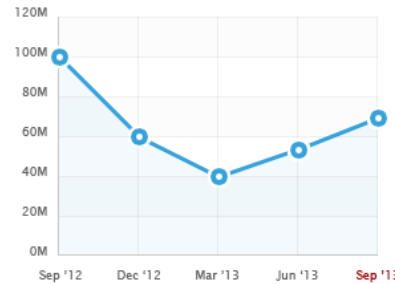
Credit Risk at a Glance Static ▾

	Sept 2013	Jun 2013 ▾	Variance	Variance %	Trend
Credit Exposure	108,662,109	111,921,973	-3,259,863	-2.9%	
Risk Weighted Assets	86,929,686	89,537,578	-2,607,891	-2.9%	
Exposure at Default	66,74,232	68,571,459	-1,997,227	-2.9%	
Delinquent Amount	1,938,425	1,996,578	-58,153	-2.9%	

Credit Exposure at a Glance Static ▾

	Sept 2013	Jun 2013 ▾	Variance	Variance %
Outstanding Blanace	58,152,744	59,897,326	-1,744,582	-2.9%
Undrawn Commitment	25,845,664	26,621,034	-775,370	-2.9%
Total Credit Exposure	83,998,408	86,518,360	-2,519,952	-2.9%
Credit Mitigation	17,424,176	17,946,902	-522,725	-2.9%
Exposure at Default	66,574,232	68,571,459	-1,997,227	-2.9%
Write Offs	3,497,854	3,770,223	-272,370	-7.2%
	6.0%	6.3%	0%	-4.4%
Recover Amount	581,527	598,973	-17.446	-2.9%
	1.0%	1.0%	0%	0%
Gross Impaired Loan	19,384,248	19,965,775	-581,527	-2.9%
	33.3%	33.3%	0%	0%
Deliquent	1,996,578	1,996,578	-193,842	-2.9%
	3.3%	3.3%	0%	0%
Gross Pase Due Loan	6,655,258	6,655,258	-196,592	-2.9%
	11.1%	11.2%	0%	0%

Risk Weighted Assets ▾

Expsoure at Default Trend ▾

Write Offs Trend ▾

Loan Impairments   Sept 2013 ▾

56% Loan Allowance   32% Impaired Loan   18% Past Due Loans

Sep 1   Sep7   Sep14   Sep21   Sep28   Sep30

In the Labs

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We could look behind the glass screen ...

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We could measure …

We could trace back and access rich context...

How would our decision making change if we knew?

IBM Integrated Risk Platform - Workspace — Welcome Michael

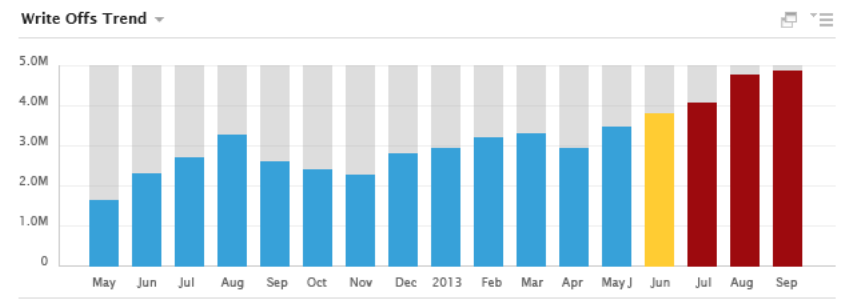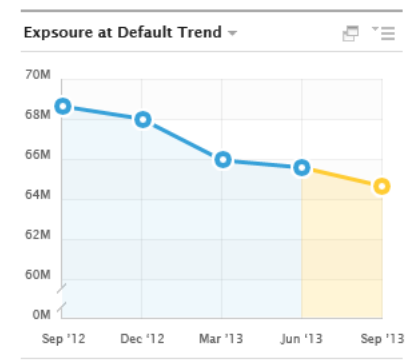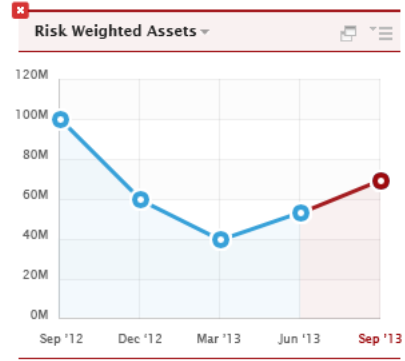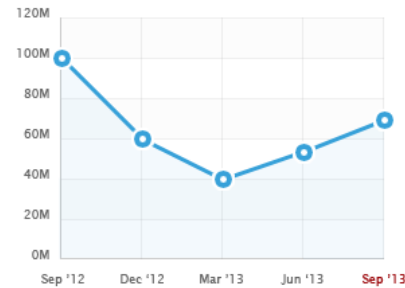Home | Capital | Credit ✕ | Market | Ops | Liquidity | Strategic | Compliance — Inspect

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Risk Weighted Assets

Expsoure at Default Trend

Write Offs Trend

Loan Impairments — Sept 2013

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Sep 1 | Sep7 | Sep14 | Sep21 | Sep28 | Sep

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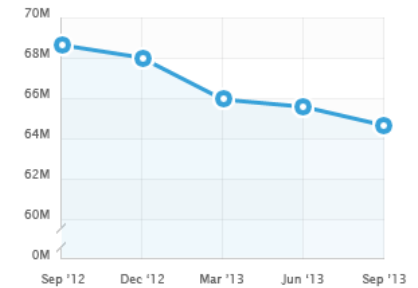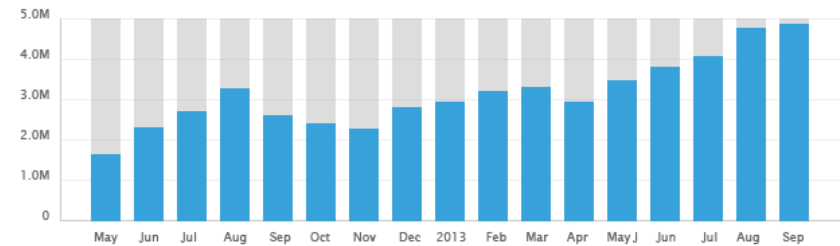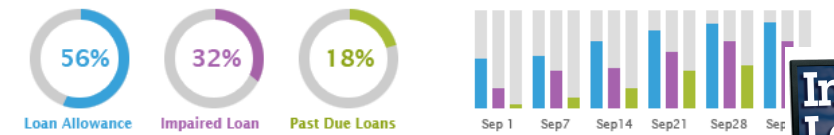
Summary

- Banks must meet the needs of regulation, as well as shareholder demands and display trust in their risk data

- IBM Offers solutions for Smarter Risk across Software, Consulting and Risk Knowledge

- There are many ways to approach these Regulations – speak to us about them

- The future of a Risk Enabled Enterprise – how could it help your bank?

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Luisella Brambilla

Questions?

Smarter Risk meeting the needs of Regulators
IBM Risk Analytics

Thank you

Luisella Brambilla
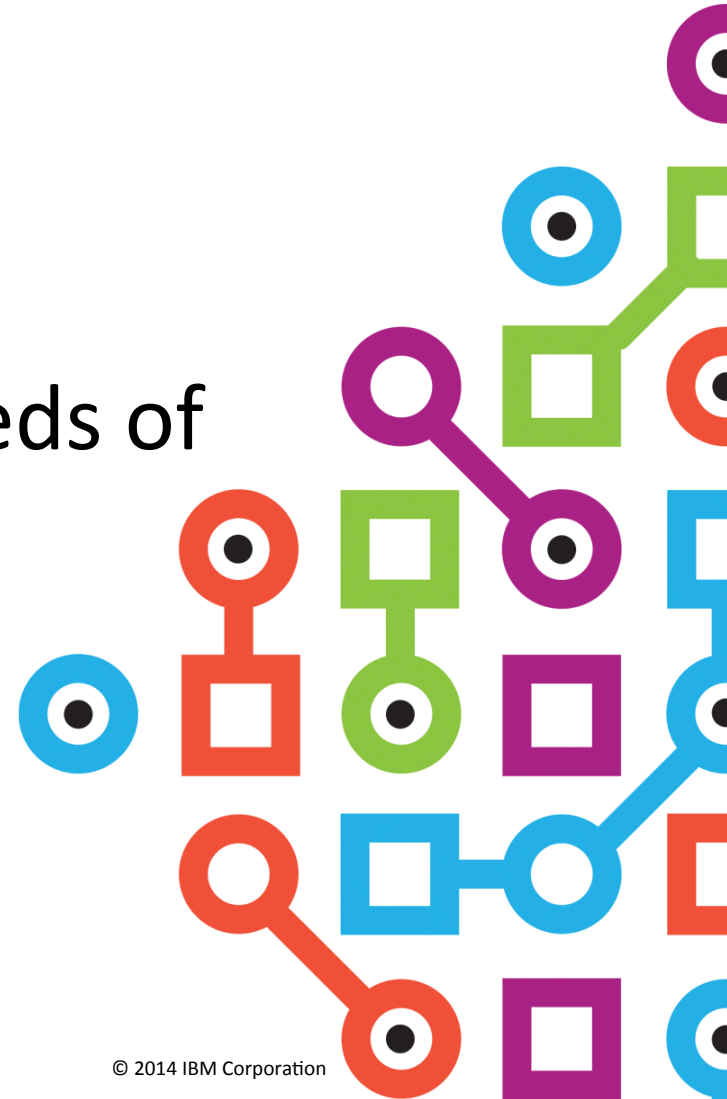
Back-up

Smarter Risk meeting the needs of Regulators
IBM Risk Analytics

Thank you
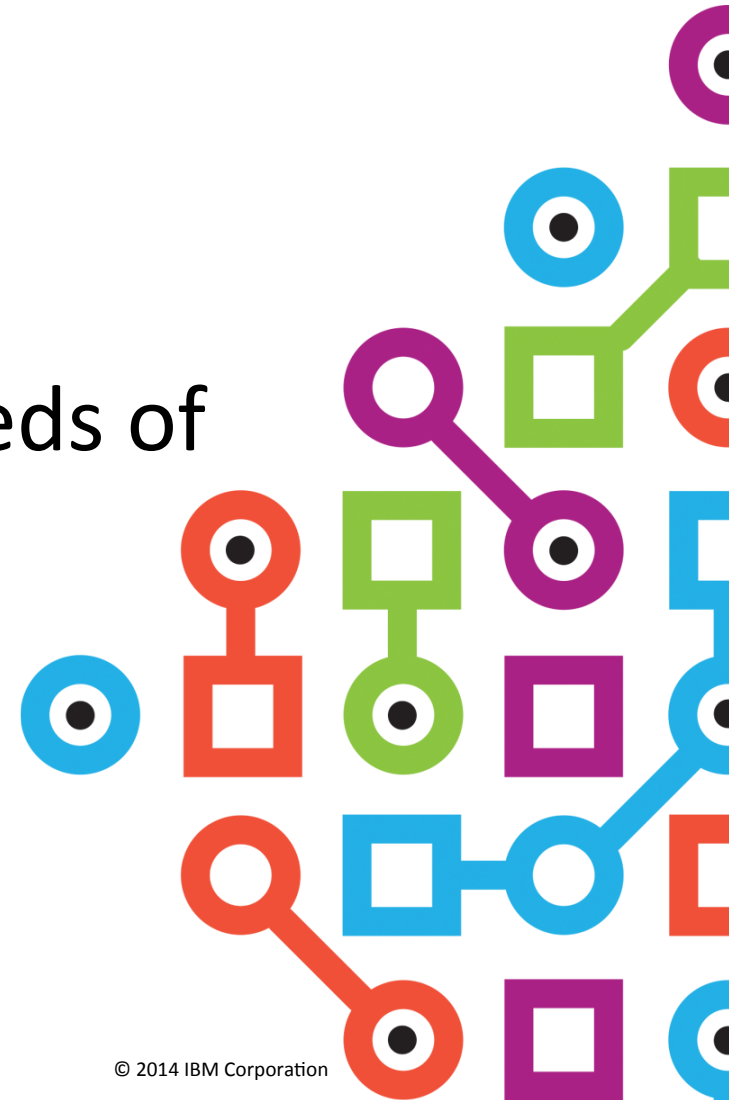
IBM has a family of Software solutions to help you today

Automated risk reports & dashboards

Model risk governance

Policies, compliance and business controls

Governed, auditable risk processes

Risk data governance

Social interactions with risk

NEW
IBM Algo Integrated Risk Platform

IBM Algo Strategic Business Planning

IBM OpenPages
• Policy & compliance management
• Operational risk management

IBM eMRG
• Model risk governance
• Model lifecycle management

IBM Algo One

IBM Algo Credit Manager

IBM InfoServer

IBM Connections

Supported by:

IBM Cognos

IBM BPM

IBM CDM & PM

At IBM, we believe a level of trust and confidence is essential to achieving Smarter Risk

At the strategic level

At the operational level

At the point of impact

IBM's approach is tailored to our clients capabilities, designing and implementing solutions that meet long-term needs

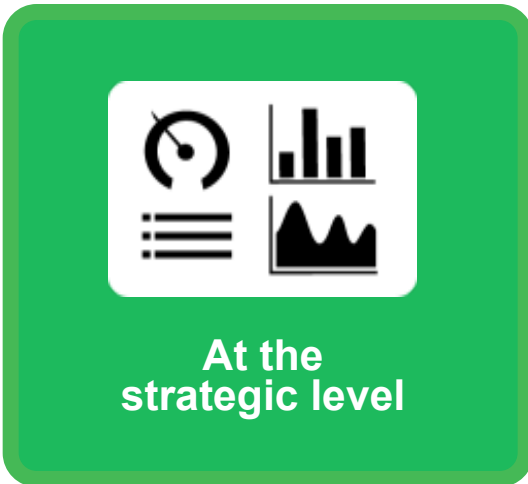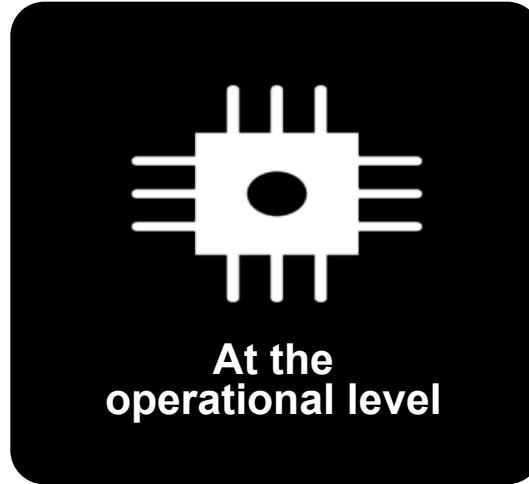| Phase I: Risk Management Review & BVA Creation	Phase II: BCBS Maturity Level Assessment	Phase III: Risk Data Aggregation & Reporting Design	Phase IV: Implementation Monitoring & Evolution

Leading Practices Analysis

Project Initiation & Assessment

| Initiate Project |
| Review Approach and Plan to BCBS 239 |

Where is the Client?

RDA Capability Assessment

| Review Risk Framework and Key Risks |
| Review Governance, Data Aggregation & Reporting Capabilities |
| Review Current BCBS Plan and Initial Self-Assessment Results |
| Identify Known Issues and/or Constraints |
| Complete Business Value Assessment & High-Level Roadmap |

Complete Maturity Assessment

| Assess Governance |
| Assess Business Coverage, Operations and Support |
| Assess Data Aggregation and Support Capabilities |
| Assess Reporting Capabilities & Processes |
| Assess Measurement & Evolution Process |
| Refine Shared Services / Support Model |

Develop Roadmap

| Identify Gaps & Refine High-Level Roadmap |

BCBS Governance, Process, & Technology Enhancements Design

| Define System and Infrastructure Enhancements |
| Define Governance and Process Enhancements |
| Define Ongoing Monitoring Process |
| Define Independent Review Process |

Refine Roadmap

| Create Detailed Implementation Plan |

Critical implementation phases

Implementation

| Implement Governance and Process Enhancements |
| Implement Systems and Infrastructure Enhancements |
| Implement Managed Service / Support Organization |
| Execute Training and Communication Strategy |

Monitoring & Evolution

| Ongoing Monitoring & Evolution Process |
| Implement Independent Review Process |

Improvement Opportunities

Identify Quick Hits

Knowledge Transfer