



BANCA POPOLARE  
DI MILANO

Il futuro è di chi fa.

# Credit Risk Management & Data Integrity

Challenges through modern risk management

ABI - Unione Bancaria e Basilea 3 - Risk & Supervision 2016  
June 2016

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Responsabile Credit Risk

# Agenda

- BCBS 239 – relevant issues and Credit Risk data needs
- Strengthening Risk Data Management
  - Data Quality Framework
  - Controls execution and Reconciliation framework
  - Controls output and reporting
- Looking ahead ... Credit Information Framework



# BCBS 239 – Risk data aggregation (RDA)

## Reading between the lines

### Principle 3

**Accuracy and Integrity** – A bank should be able to generate **accurate and reliable risk data to meet normal and stress/crisis reporting accuracy requirements**. Data should be aggregated on a largely automated basis so as to minimize the probability of errors.

### Principle 4

**Completeness** – A bank should be able to capture and **aggregate all material risk data across the banking group**. Data should be available by business line, **legal entity**, asset type, industry, region and other groupings, as relevant for the risk in question, that permit identifying and reporting risk exposures, concentrations and emerging risks.

### Principle 5

**Timeliness** – A bank should be able to generate aggregate and **up-to-date risk data in a timely manner** while also meeting the principles relating to **accuracy and integrity, completeness and adaptability**. The precise timing will depend upon the nature and potential volatility of the risk being measured as well as its criticality to the overall risk profile of the bank. The precise timing will also depend on the bank-specific frequency requirements for risk management reporting, under both normal and stress/crisis situations, set based on the characteristics and overall risk profile of the bank.

### Principle 6

**Adaptability** – A bank should be able to generate aggregate risk data to meet a broad range of on-demand, **ad hoc risk management reporting** requests, including requests during stress/crisis situations, requests due to **changing internal needs** and requests to **meet supervisory queries**.

# BCBS 239 – Risk reporting practices

## Reading between the lines

### Principle 7

**Accuracy** - Risk management reports should accurately and precisely convey aggregated risk data and reflect risk in an exact manner. **Reports should be reconciled and validated.**

### Principle 8

**Comprehensiveness** - Risk management reports should **COVER all material risk areas within the organisation**. The depth and scope of these reports should be consistent with the size and complexity of the bank's operations and risk profile, as well as the requirements of the recipients.

### Principle 9

**Clarity and usefulness** - Risk management reports should communicate information in a clear and concise manner. Reports should be **easy to understand yet comprehensive enough to facilitate informed decision-making**. Reports should include an appropriate balance between risk data, analysis and interpretation, and qualitative explanations. Reports should include meaningful information tailored to the needs of the recipients.

### Principle 10

**Frequency** - The board and senior management should set the frequency of risk management report production and distribution. Frequency requirements should reflect the **needs of the recipients, the nature of the risk reported, and the speed at which the risk can change**, as well as the importance of reports in contributing to sound risk management and effective and efficient decision-making across the bank. The frequency of reports should be increased during times of stress/crisis.

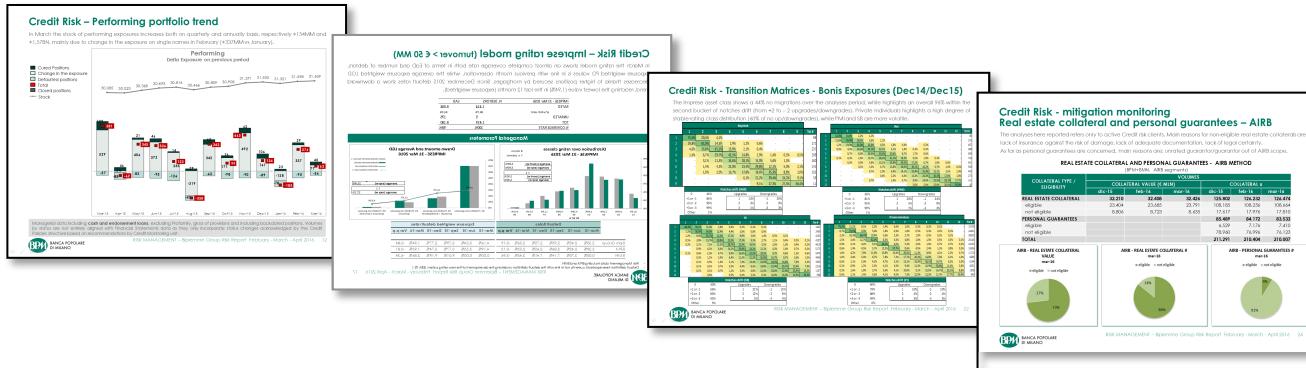
# Main Credit risk «data intensive» activities

## MODELING RELATED ACTIVITIES

- Models development / maintenance
- Models running in production & models monitoring
- Models backtesting



## CREDIT RISK MONITORING & INTERNAL REPORTING



## REGULATORY REPORTING, EU WIDE EXERCISES, EBA/ECB/BANKIT DATA REQUESTS

- ASSET QUALITY REVIEW / ON-SITE INSPECTIONS
- SHORT TERM EXERCISE (STE)
- STRESS TESTING EXERCISE
- QUANTITATIVE IMPACT STUDIES (QIS)

### ➤ ANACREDIT

➤ ...

... INTERNAL RISK DATA PROVIDING

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# Strengthening Risk Data Management

Data Quality evolutions within the BPM Group

Since 2007

BEFORE

**Data Quality function started within the Risk Management Department (Credit Risk):**

- **Data quality overview**, with particular reference to Credit DWH
- **Data policy** definition
- **Tools** definition to perform controls and monitoring
- **Reporting** to the Risk Management Function in each quarter

**Risk Management**

Since 2014

NOW

**In 2014, Data Quality stream started within AIRB Project in order to improve data quality related to IRB methods:**

- **Governance**, roles and responsibilities
- **Process**, controls definition/evolution, controls execution, remediation and reporting
- **Controls**, new controls inventory deeply related to IRB components
- **Architecture**, evolving tools

**AIRB Project**

Since 2014

**BPM DQM Model (Integrated DWH Project)**

**BPM Group defined the Data Quality Management (DQM) Model within Integrated DWH Projects:**

- Data Governance Policy
- Operational and Process Model
- Architectural Model



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# Strengthening Risk Data Management

## Data quality framework

As defined in the BPM Group Data Quality Framework, the Data Quality Management (DQM) is the set of **models, methodologies and tools** aimed at ensuring the reliability of the data and information stored and managed by the bank information system. The objectives and actions of the IRB Data quality stream are defined below

### Objectives and areas of intervention

#### GOVERNANCE

- Definition of roles and responsibilities within IRB methods
- Identifying appropriate mechanisms of governance in line with the commitment expressed by top management on the DQM
- Alignment with the Integrated DWH Project related to the Data Quality perimeter
- DQM framework is in line with the Data Governance Policy

#### PROCESS

- It was produced the Process DQM Regulation, which defines the process of introducing new controls, carrying out the controls, monitoring the results.
- The Regulation also refers to the evaluation of anomalies' impacting on core strategic processes of the Bank, and the process of activating and overseeing remedial actions
- It contains definition of the information management and the process of reporting to other business structures

#### CONTROLS

- To periodically evaluate the quality of information assets in AIRB scope it has been defined the new inventory of controls. More of 100 control areas implemented

#### ARCHITECTURE

- The new controls in AIRB scope have been implemented on SAS DataFlux (The reporting was contextual to the go live of controls)
- The Remediation process activated

# Strengthening Risk Data Management

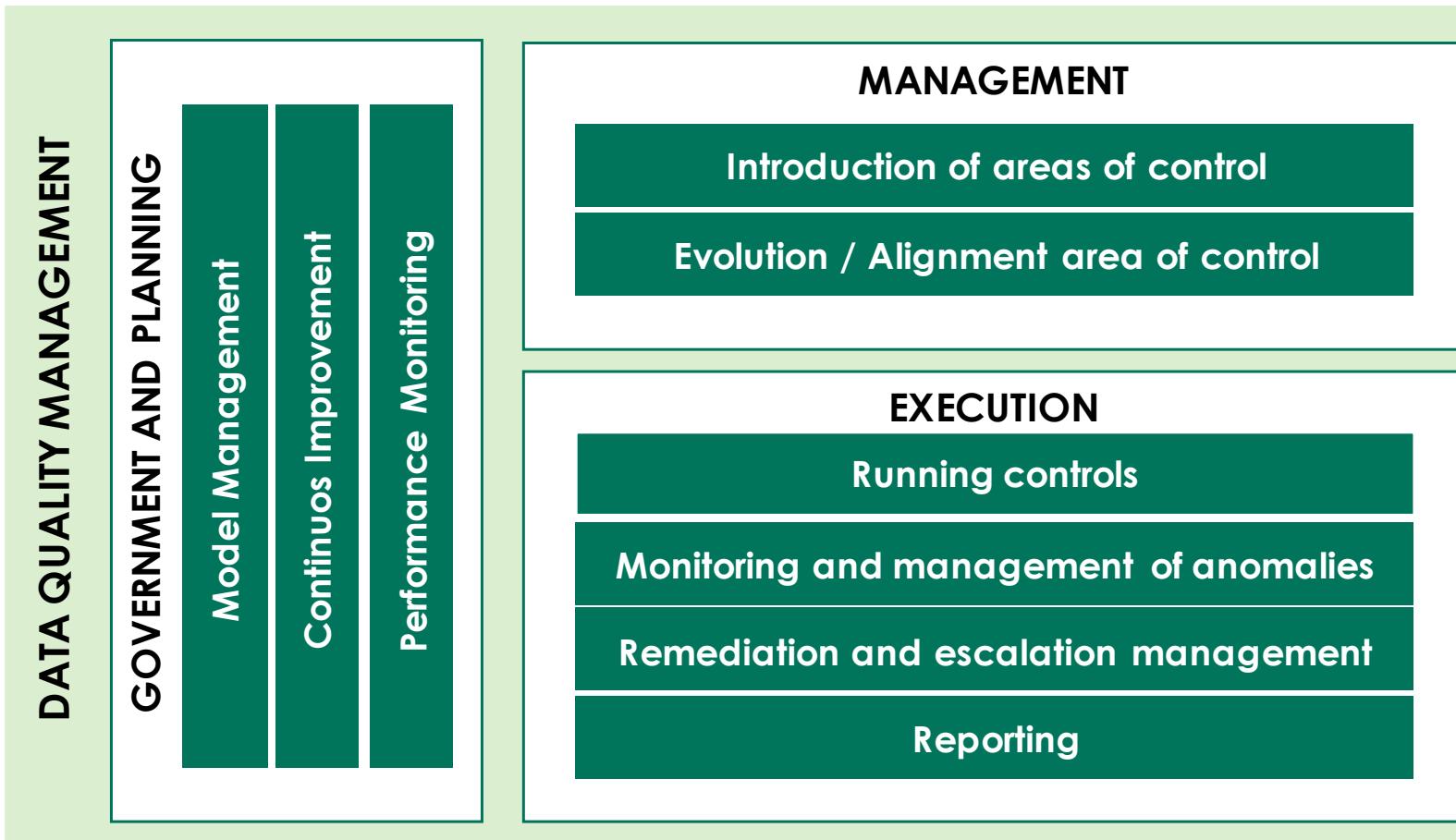
Governance referred to Risk Management Area

	Roles/Responsibilities	Units
<b>AIRB Project</b>		
 <b>Data Owner</b>	<ul style="list-style-type: none"><li>Defines rules of data management and validate the thresholds of acceptability</li><li>Is involved by data user in escalation process for critical anomalies</li></ul>	
 <b>Data User</b>	<ul style="list-style-type: none"><li>Verifies the execution of controls</li><li>Participates during initialization phase, analysis and testing of the DQM model</li><li>Activate IT or escalation for remedial actions</li></ul>	
 <b>Data Quality Manager</b> <b>coo</b>	<ul style="list-style-type: none"><li>Defines/maintains the DQM model architecture</li><li>Ensures data quality monitoring</li><li>Defines/updates, with involved structures, the model related to policy and process</li></ul>	
 <b>Data Provider</b>	<ul style="list-style-type: none"><li>Implements the controls required by the DQM</li><li>Provides the controls' results to data user and data quality manager</li><li>Participates in the analysis and resolution of data anomalies within its competence</li></ul>	
 <b>IT</b>		
<b>Data Quality Committee</b>		
	<ul style="list-style-type: none"><li>Participants are <b>Data Owners, Data Quality Manager</b> and <b>Data Providers' responsible</b></li><li>Activates mechanisms of <b>escalation and reporting</b> to the Functions and Management Committees for cross-area anomalies</li><li>Activates mechanisms of <b>definition, sharing, coordination and implementation of operational actions</b></li></ul>	



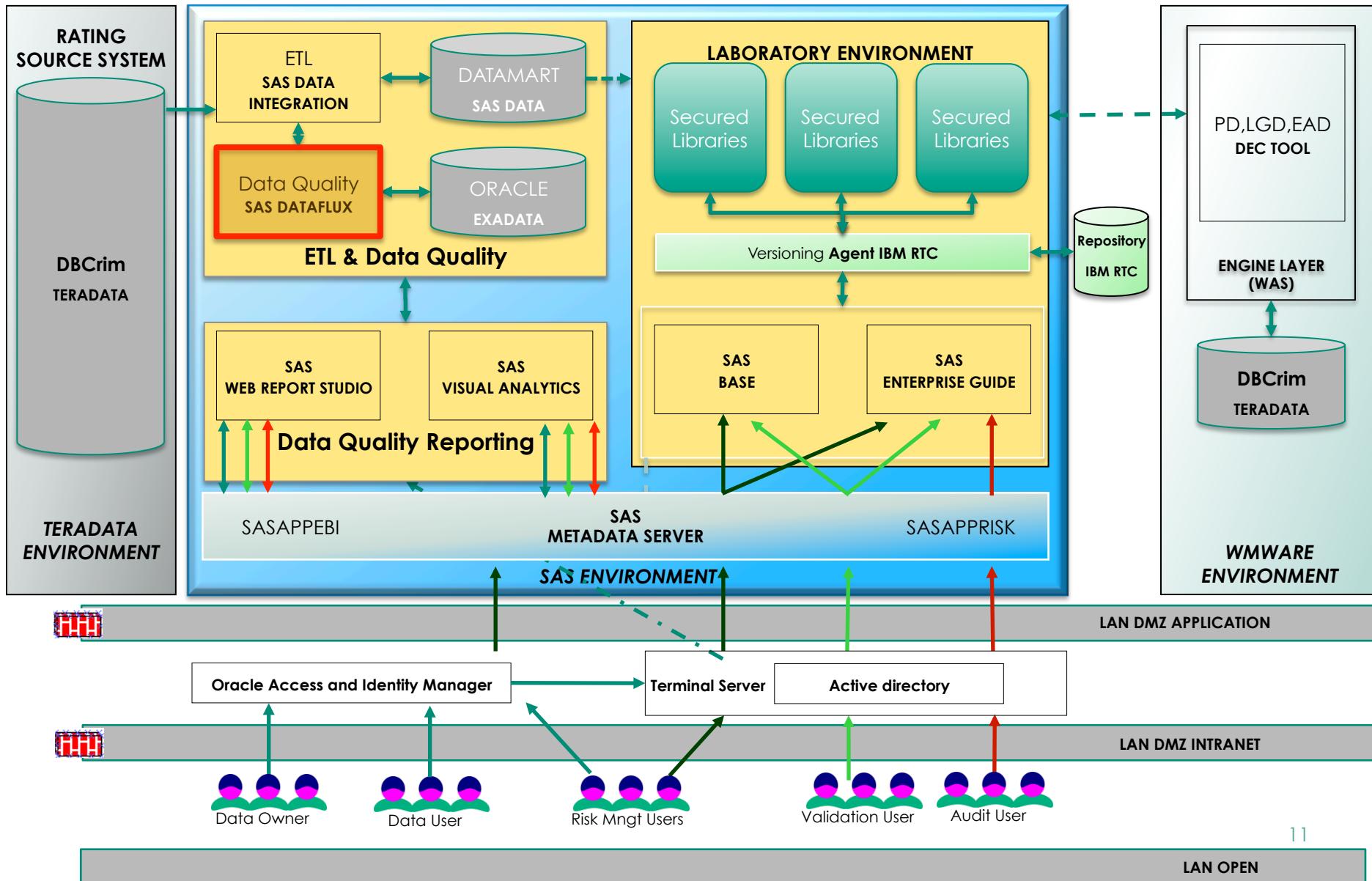
# Strengthening Risk Data Management

Processes implemented by means of the management system



# Strengthening Risk Data Management

## Focus on Data Quality Architecture and Laboratory



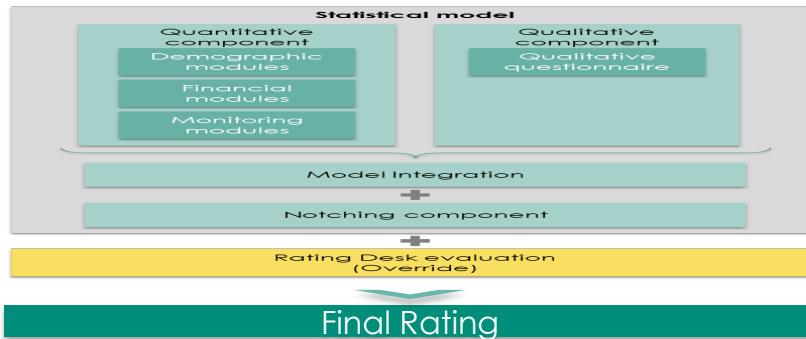
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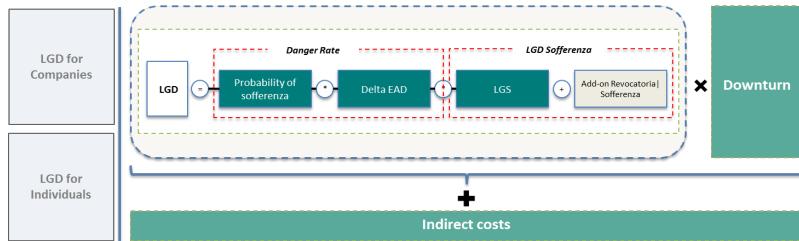
# Strengthening Risk Data Management

Control scope of application

- **PD Rating Models**

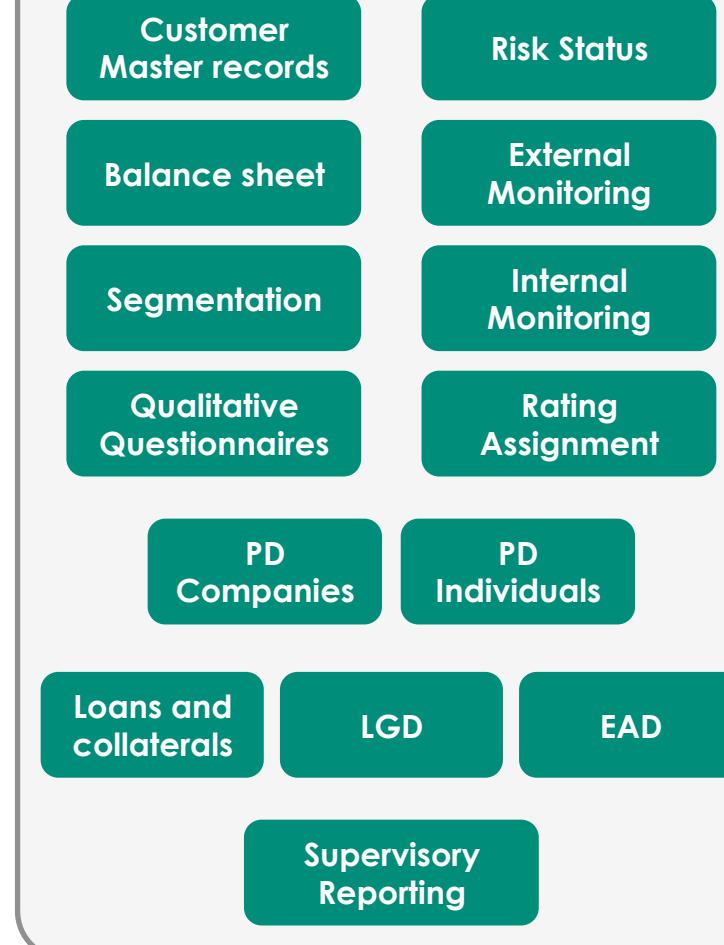


- **LGD/EAD Models**



- **Regulatory Reporting**

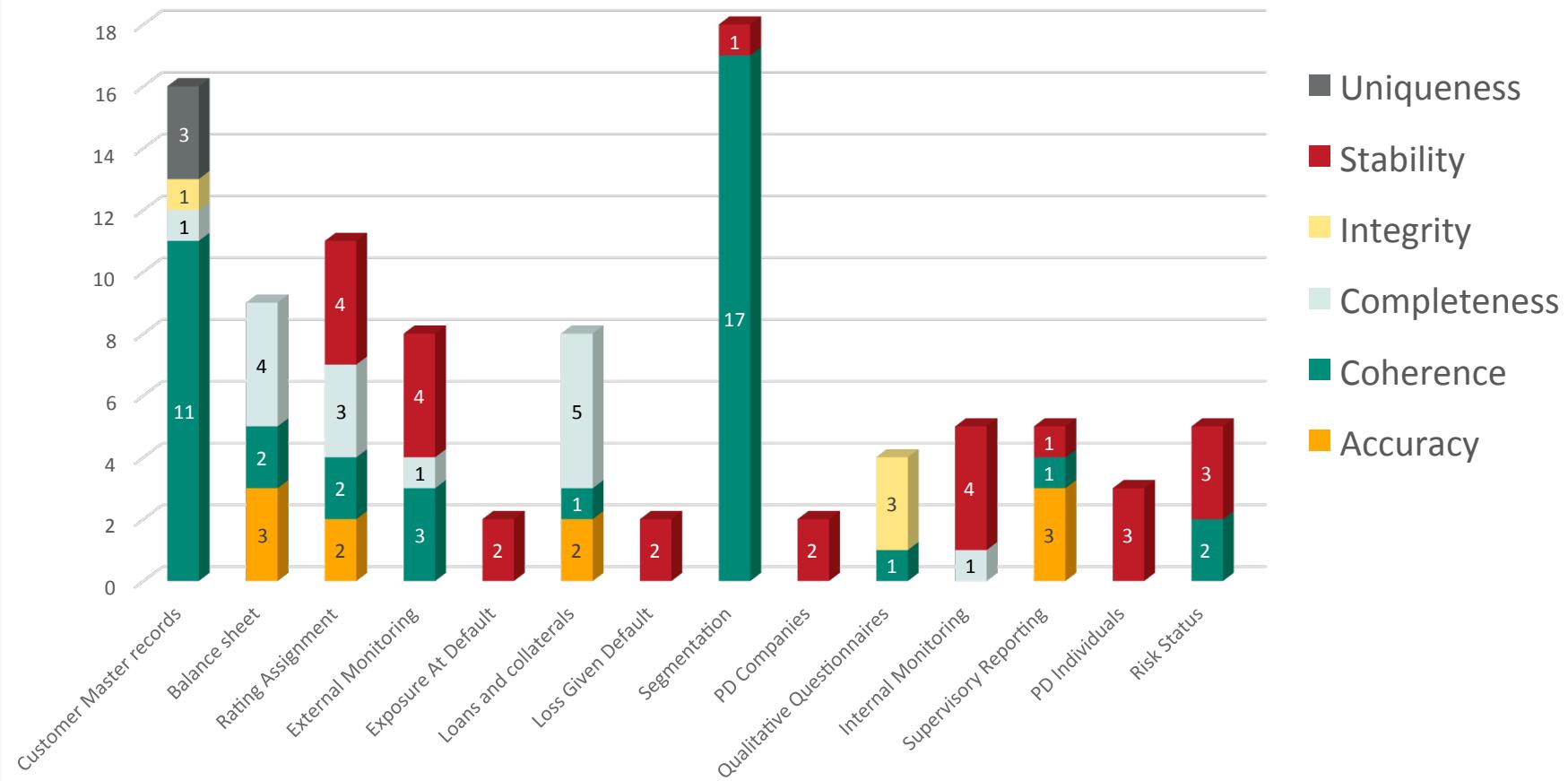
- **Data Quality Controls Area**



# Strengthening Risk Data Management

Controls scope of application

## Breakdown of controls by quality dimension



# Strengthening Risk Data Management

## Reconciliation Connection points

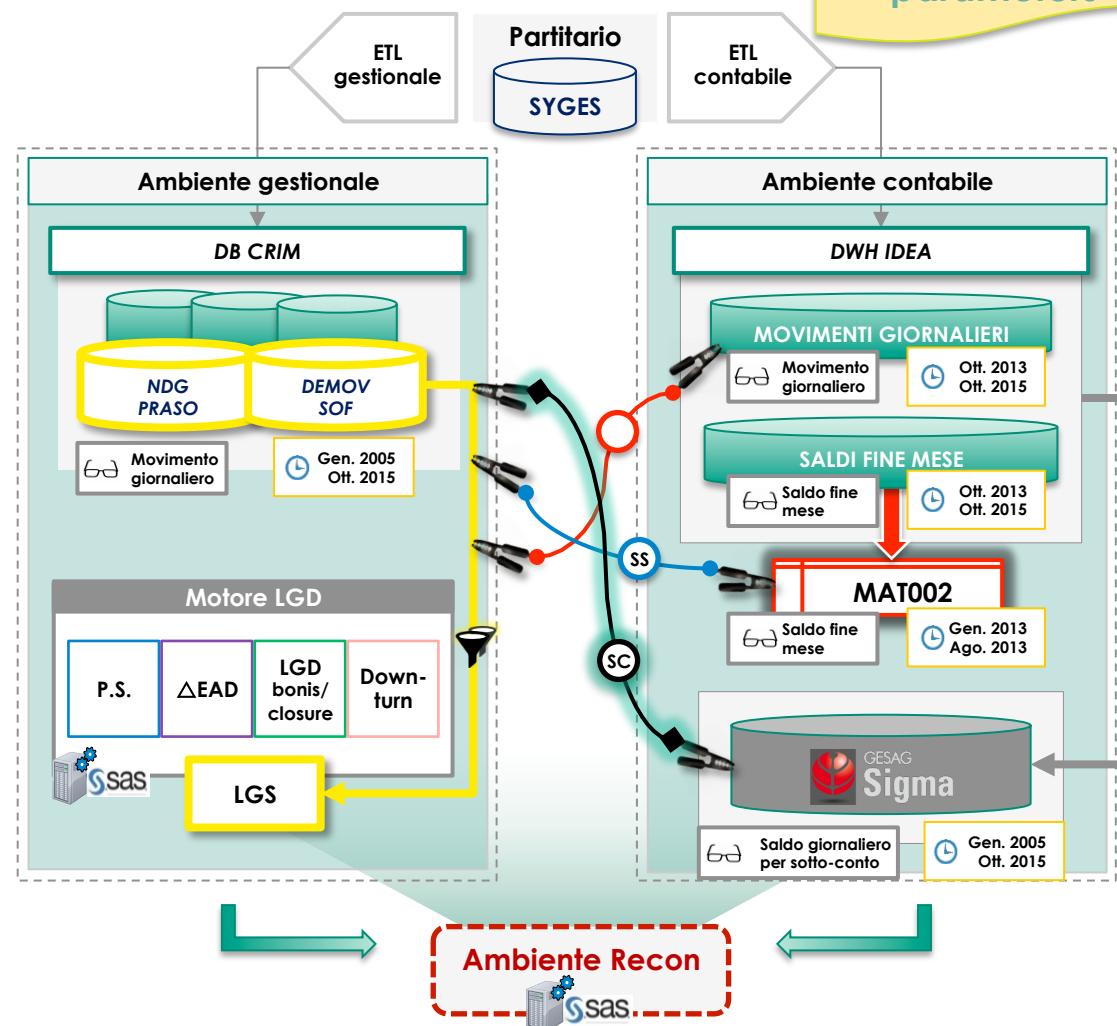
Within the AIRB project it has been highlighted the need of a specific reconciliation of the LGD input data.

Worth mentioning that this is, among others AIRB ones, the most data quality impacted models

- MANAGERIAL DATA / LGS MODEL INPUT
- ACCOUNTING DATA ON RECOVERY AMOUNTS

### Data flow di sintesi

To be extended to other risk parameters



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Riconciliazione dati ai fini della stima della LGD – Approccio di Riconciliazione

15

Legenda

Storicità  
dei dati

Granularità  
dati di input

Trattamenti  
preventivi

Punto di  
RECON

Approccio  
Analitico

Approccio  
Sintetico per saldi

SS

Approccio per  
sotto-conti

SC

# Strengthening Risk Data Management

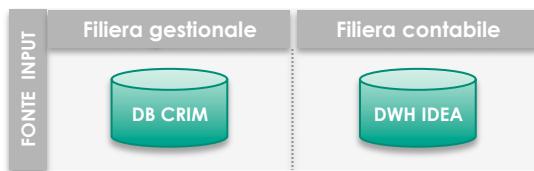
## Several Reconciliation Approaches



- Reconciliation approach customized on the basis of the historical details availability of the data link between managerial with accounting data

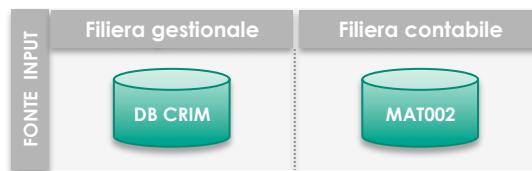
### A - ANALYTICAL ITEM APPROACH

- Single daily movement based reconciliation



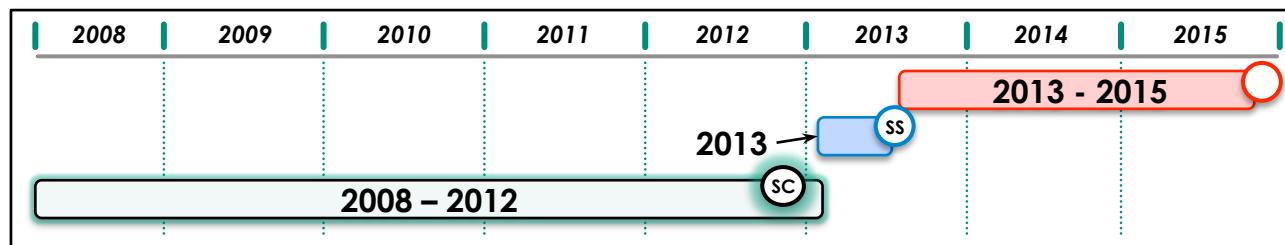
### SS - INTERMEDIATE APPROACH

- Counterparty / facility monthly based reconciliation



### SC - AGGREGATED ITEM APPROACH

- Aggregated daily balance based reconciliation

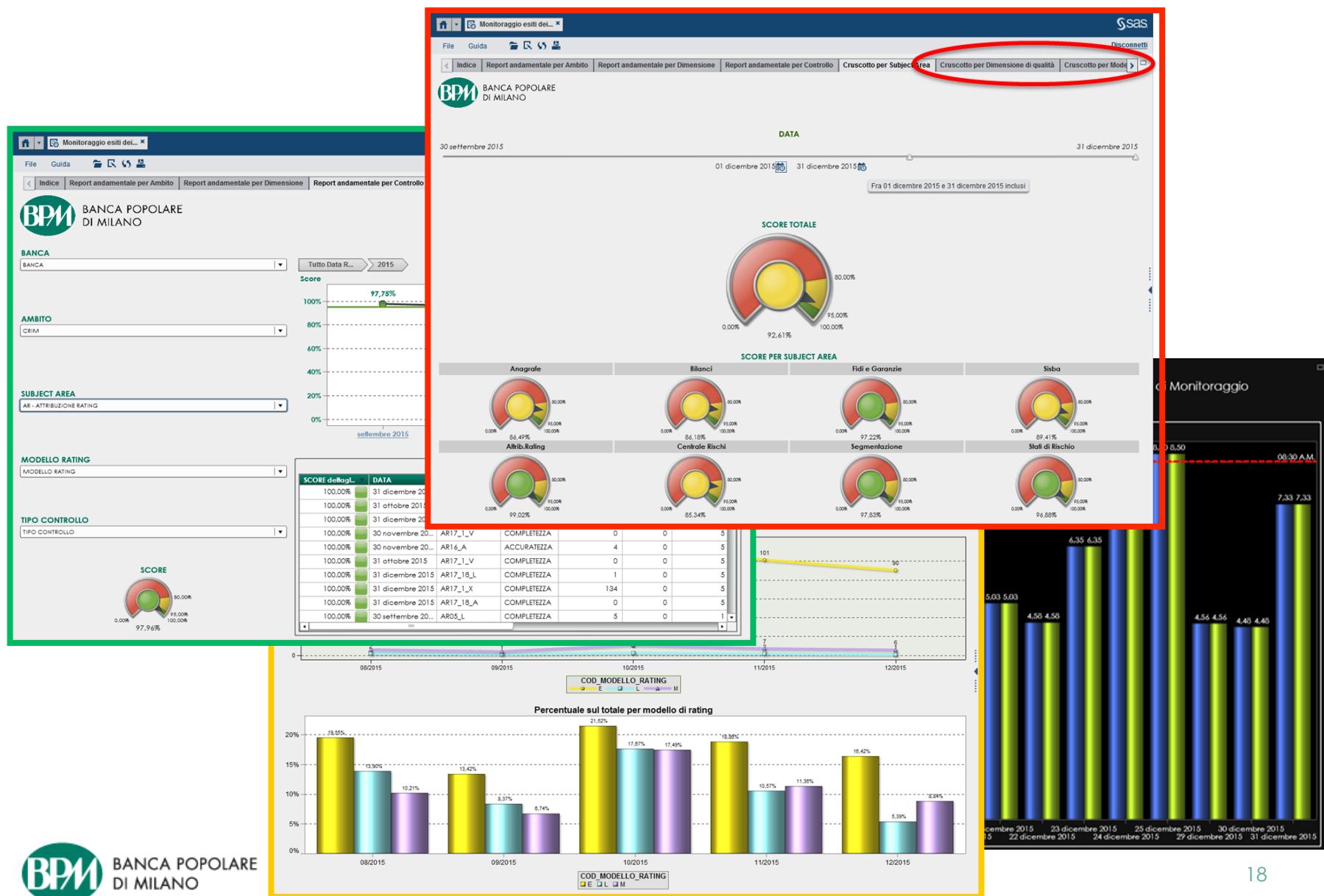


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# Strengthening Risk Data Management

## Output Examples of web-based cockpit



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**AMBITO**

**SUBJECT AREA**

**TIPO CONTROLLO**

**MODELLO RATING**

**TIPO CONTROLLO**

**SCORE**

**DATA**

DATA	AR17_1_V	AR16_A	AR17_1_X	AR17_1_A	AR05_L
30 novembre 2015	COMPLETEZZA	0	0	5	0
30 novembre 2015	ACCURATEZZA	4	0	5	0
31 ottobre 2015	COMPLETEZZA	0	0	5	0
31 dicembre 2015	COMPLETEZZA	1	0	5	0
31 dicembre 2015	COMPLETEZZA	134	0	5	0
31 dicembre 2015	COMPLETEZZA	0	0	5	0
30 settembre 2015	COMPLETEZZA	5	0	1	0

**COD\_MODELLO\_RATING**

**Percentuale sul totale per modello di rating**

**COD\_MODELLO\_RATING**

**Monitoraggio**

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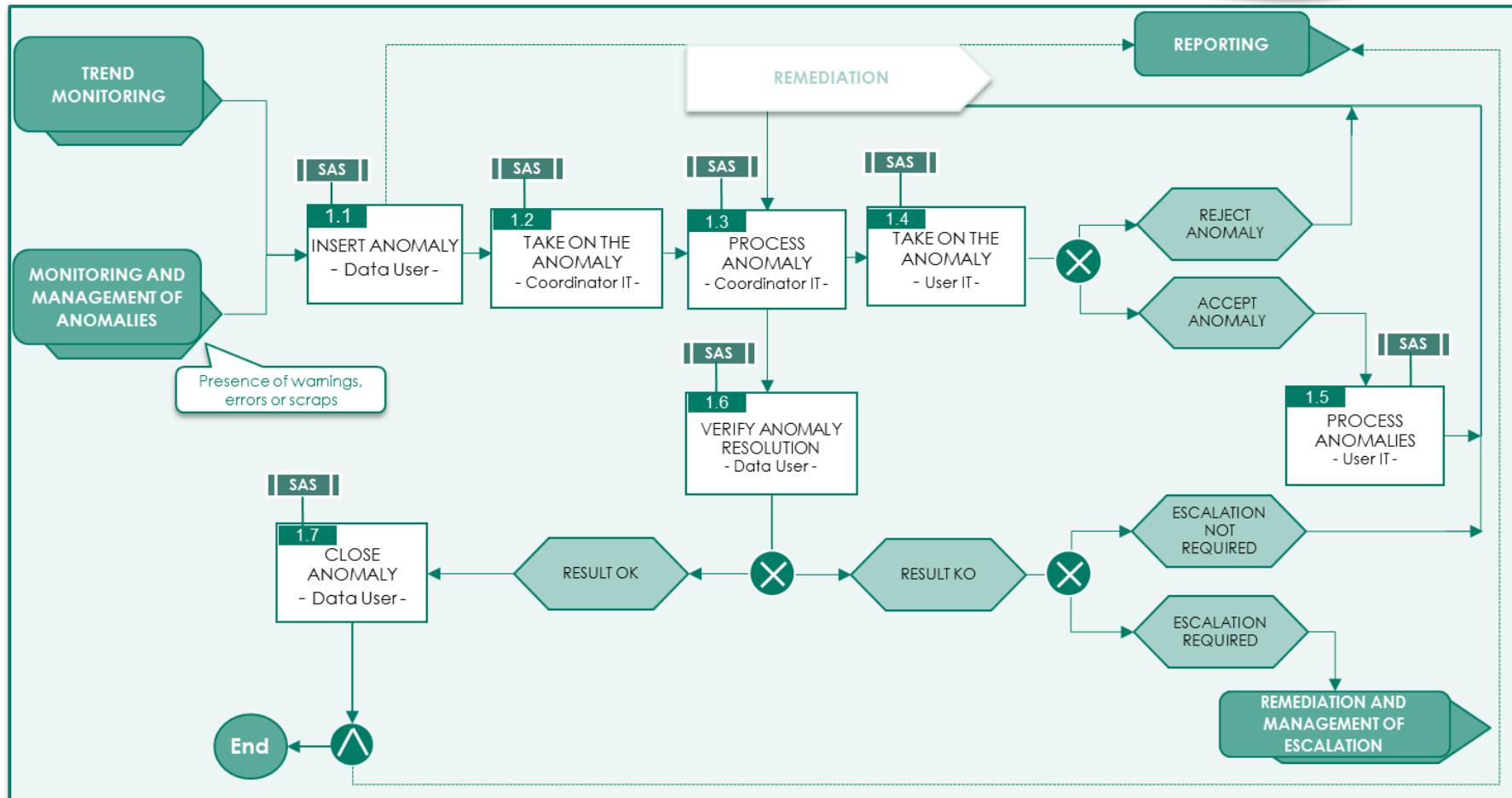
# Strengthening Risk Data Management

## REMEDIATION AND MANAGEMENT OF ESCALATION

REMEDIATION

ESCALATION

Simplified /  
illustrative



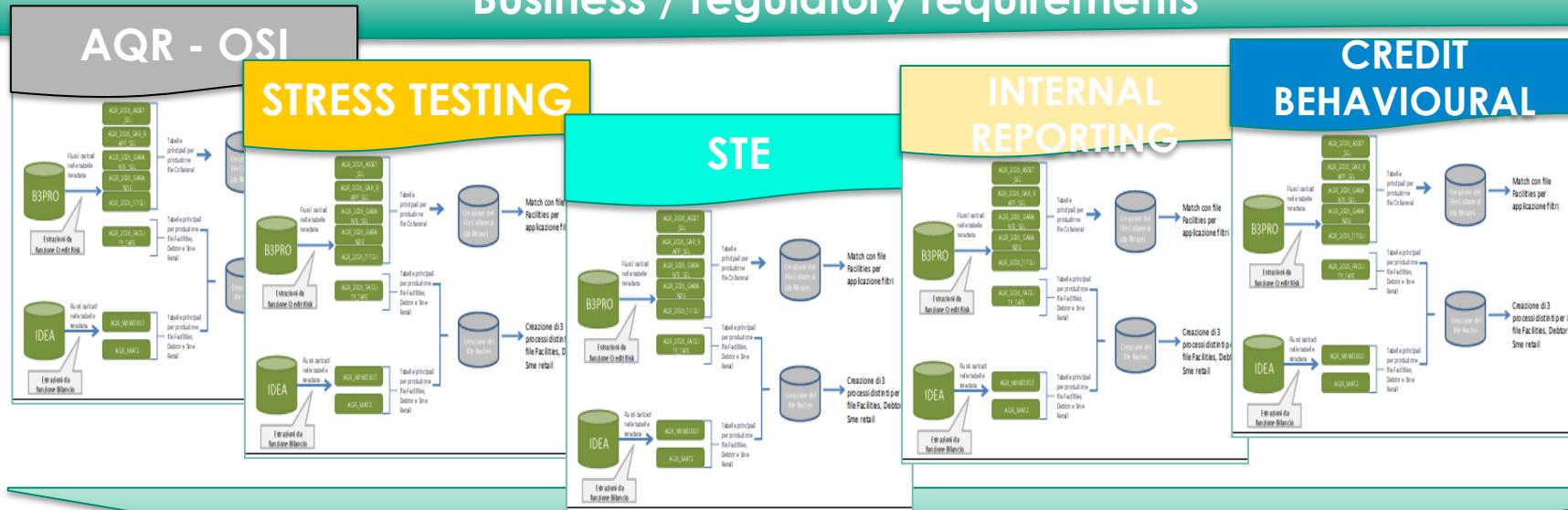
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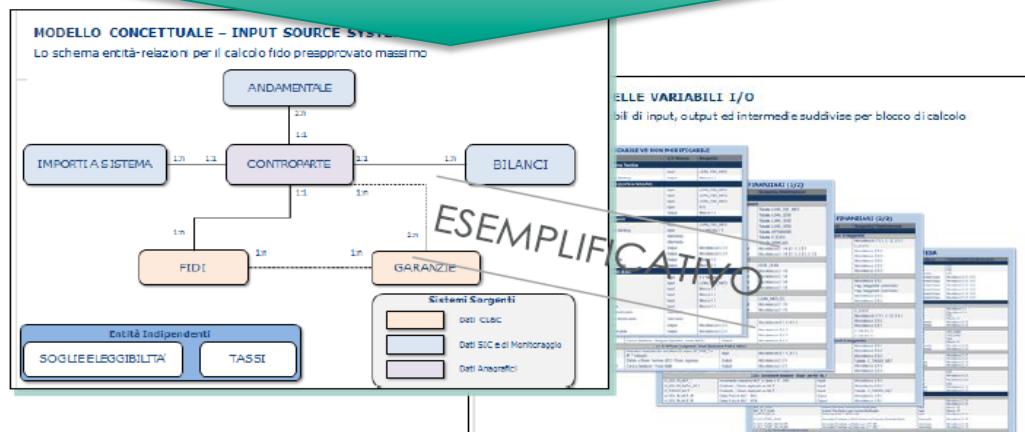
# Looking ahead ... Credit Information Framework

A structural way to face the increasing challenge on data

## Business / regulatory requirements



## MODELLO E-R



**ANACREDIT  
CONSISTENCY**



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# Thanks for your attention

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