The ORME Project

A NEW METHODOLOGY FOR INFORMATION QUALITY AND OPERATIONAL RISK

In the framework of the "New Basel Capital Agreement"

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The ORME Project

Overview

- ORME (***Operational Risk Management Environment***): research project, led by **PE Group Management Consulting** and financed by the Italian Ministery of Economic Development

- Business and scientific partners involved:
  - **Futurespace**, an ICT company specialised in DQ technologies & tools
  - **Augeos**, a company focused on banking software solutions
  - **Sequoias Lab**, a research group from the University of Milan - Bicocca, led by Prof. **Carlo Batini**

Main Goals

- develop a new methodology & tool to evaluate **low Quality Information as an operational risk factor** f**or Banks** according to the New Basel Capital Accord (Basel II)

- identify and assess **relations between sets of data affected by low quality and loss events** according to the Basel II classification

The Business Scenario: Basel II, operational risk and IQ

BASEL II ACT: Banks must take account of the Operational Risk Level when measuring minimum capital requirements

OPERATIONAL RISK

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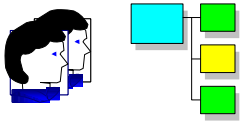
THE RISK OF DIRECT OR INDIRECT LOSS RESULTING FROM

INADEQUACY OR FAILURE

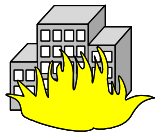
OR FROM

INTERNAL PROCESSES

SYSTEMS & TECHNOLOGIES



PEOPLE & ORGANIZATIONS



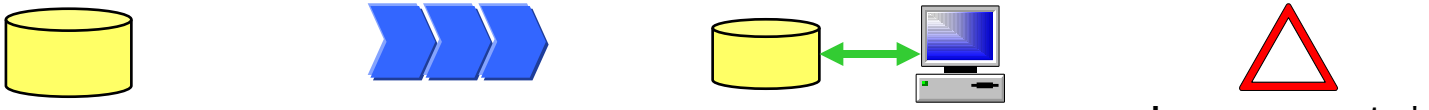
EXTERNAL EVENTS

LOW QUALITY INFORMATION

INCREASES OPERATIONAL RISK

The ORME-DQR Methodology – Overview

- Detailed analysis of the most important



*Which can be of different types (eg: monetary, process failure, etc)

- Establishing correlations matrixes between

New Basel Capital Agreement – Loss event type category (Level 1)*

⇒ Internal fraud

⇒ External fraud

⇒ Employment Practices and Workplace Safety

⇒ Clients, Products & Business Practices

⇒ Damage to Physical Assets

⇒ Business disruption and system failures

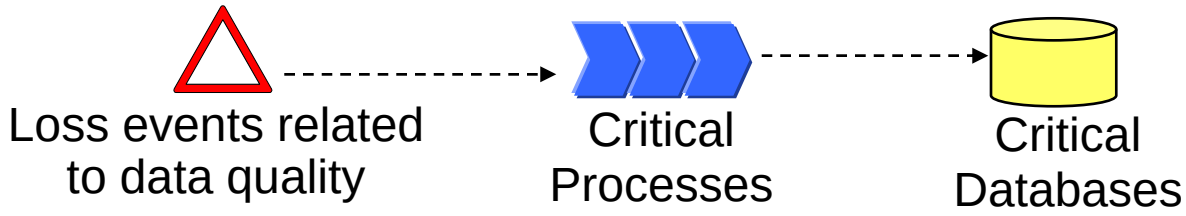
⇒ Execution, Delivery & Process Management

* International Convergence of Capital Measurement and Capital Standards, Annex n°9

The ORME-DQR Methodology – Overview

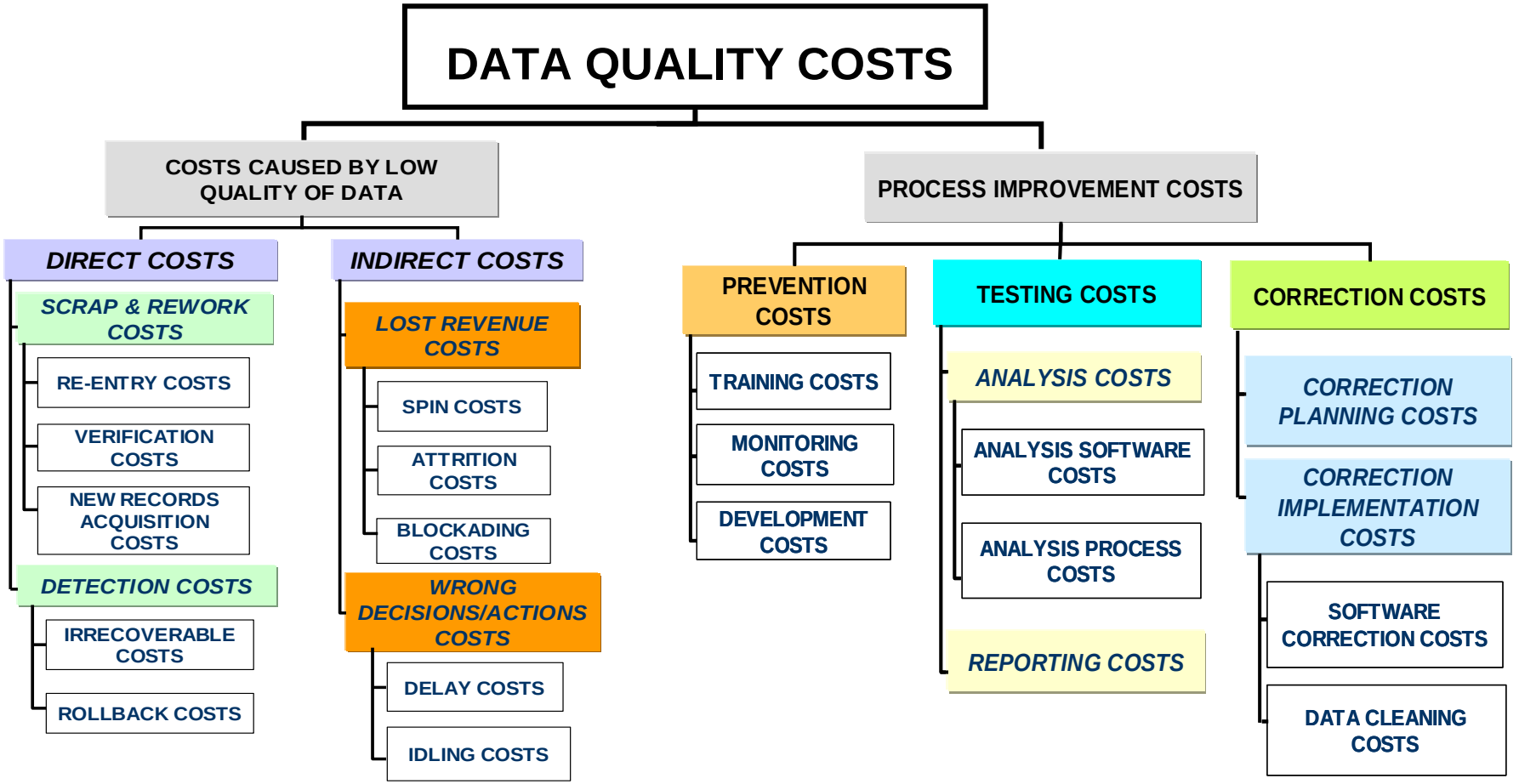
1 Risk Prioritization → 2 Risk Identification → 3 Risk Measurement → 4 Monitor & Mitigation

- Profiling each loss event (unit of measure,frequency, etc)
- Assessing the economic value (real or estimated) for each loss event
- Identifying relations between loss events and costs of low quality data →see next slide
- Selecting loss events related to data quality costs
- Identifying critical processes and databases using correlations matrixes



The ORME-DQM Methodology – Data quality costs

For each item, one ore more metrics are defined. Metrics can be explicitly defined (e.g. re-entry costs) or else taken from the literature (e.g. testing cost)



The ORME-DQR Methodology – Overview

- Performing a qualitative/quantitative assessment of data quality
- Correlating the frequency of each loss event whit the results of DQ dimensions quantitative assessment
- Using discriminant analysis to estimate:
  - ✓ the probability of loss events starting from the historical series of DQ dimensions quantitative assessments
  - ✓ threshold values of data quality under which a loss event can occur
- These thresholds represent the new data quality target for Mitigation

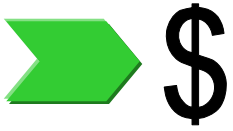
The ORME-DQR Methodology – Overview

1. Risk Prioritization
2. Risk Identification
3. Risk Measurement
4. Monitor & Mitigation

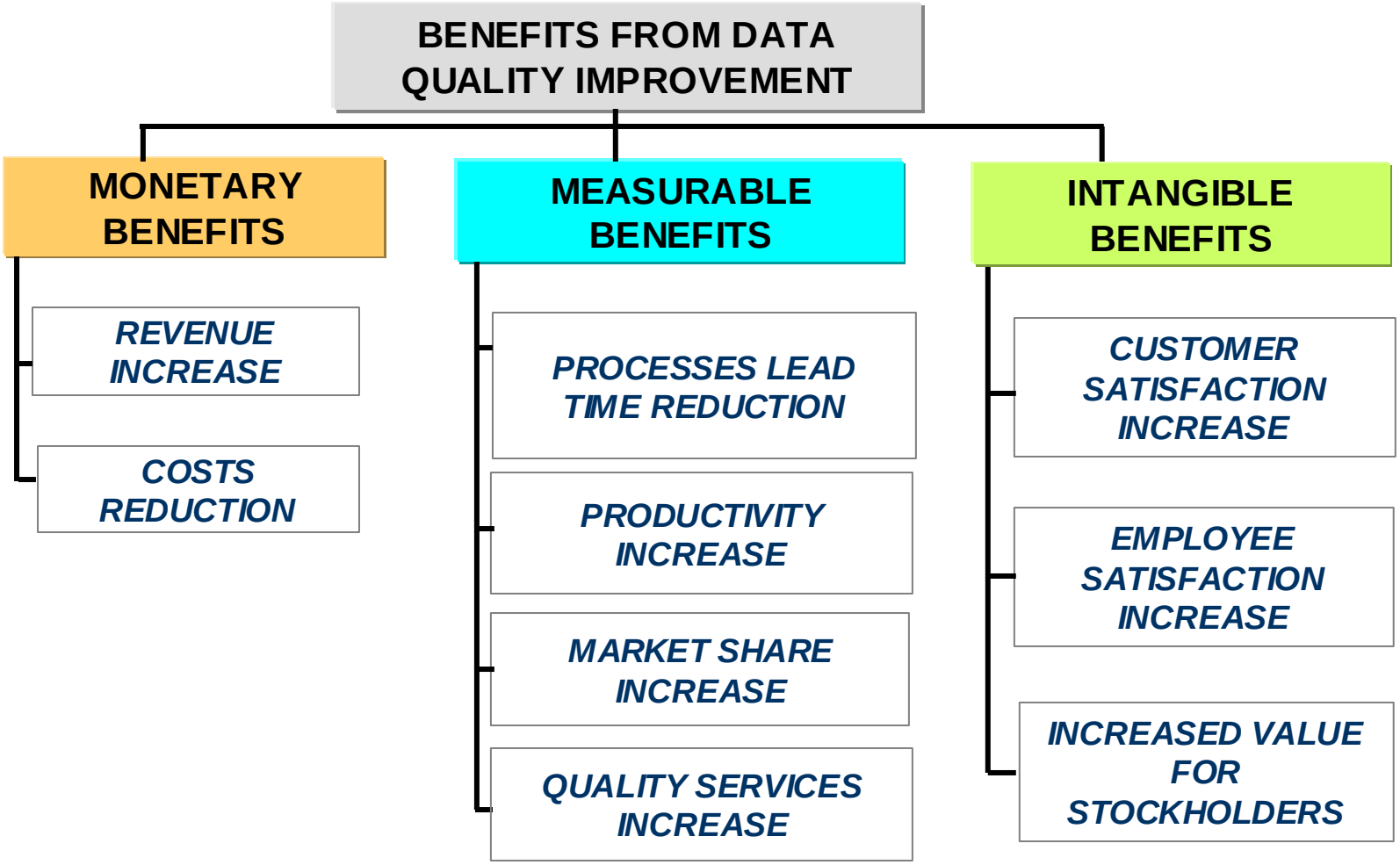
- Identifying <u>new targets for data quality</u>

- Identifying the <u>most appropriate improvement processes</u> to achieve them
  - ✓ Quality dimension dependencies are also considered

- Selecting the <u>best improvement process</u> by performing a cost/benefit analysis using the cost classification and the related metrics



The ORME-DQM Methodology – Data quality benefits



The ORME Methodology – Innovative aspects

- Measurement and mitigation decisions **take account of many different aspects and topics,such as organizational units, processes, rules and regulations, and so on**
- Risk measurement is performed through a **mix of qualitative and quantitative assessment**
- The quantitative assessment is focused on the most relevant quality dimensions, the 4DQ dimensions: **accuracy, completeness, currency and consistency**
- Considering **dependencies between quality dimensions**
- New DQ targets are set in the Mitigation Phase on the basis of **reduced losses in banking processes**
- May be **applied also to public and private organizations** using the costs/benefits framework

Business benefits for Banking industry

Improving data quality allows banks to reduce operational risks

- Increase compliance with Basel II requirements
- Reduce the total amount of idle capital
- Improve internal audit processes and procedures
- Identify and improve processes and data related to major loss events
- Reduce the probability of economic loss
- Increase the whole efficiency of the Bank's risk management processes & systems

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