



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 Ministry 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 for 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

=

THE RISK OF DIRECT OR INDIRECT LOSS RESULTING FROM

INADEQUACY OR FAILURE

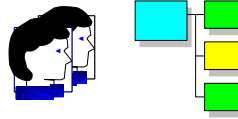
OR FROM



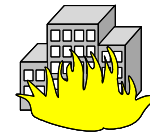
INTERNAL PROCESSES



SYSTEMS & TECHNOLOGIES



PEOPLE & ORGANIZATIONS



EXTERNAL EVENTS

LOW QUALITY INFORMATION

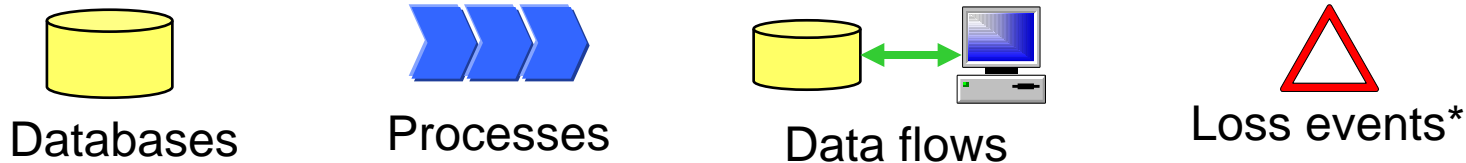
INCREASES OPERATIONAL RISK



The ORME-DQR Methodology – Overview

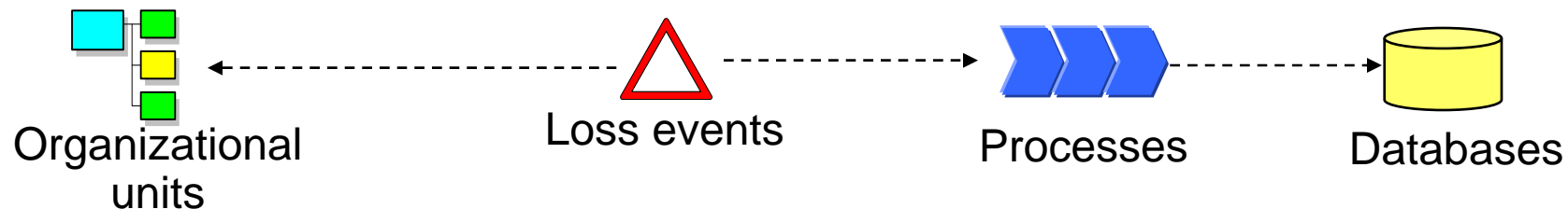


➤ Detailed analysis of the most important



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

➤ Establishing correlations matrixes between

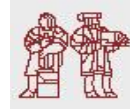




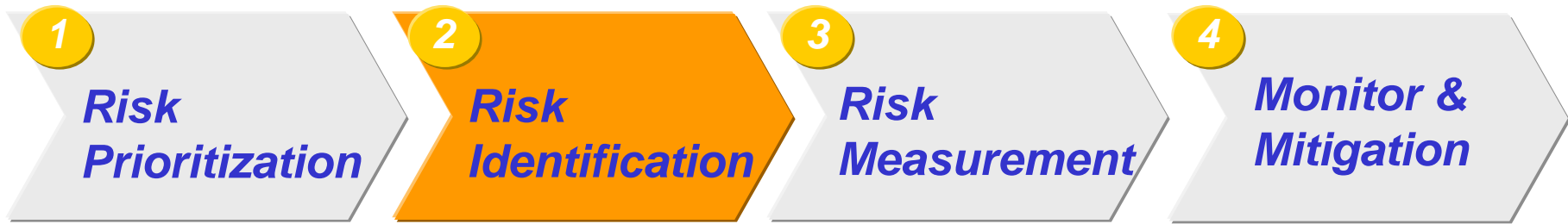
New Basel Capital Agreement – Loss event type category (Level 1)*

- ⇒ 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**

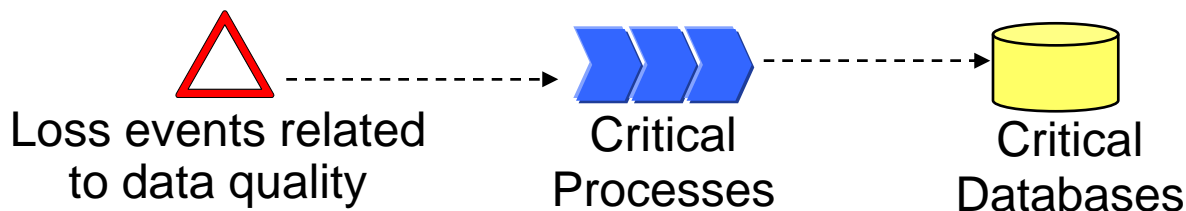
* International Convergence of Capital Measurement and Capital Standards, Annex n°9

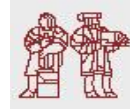


The ORME-DQR Methodology – Overview



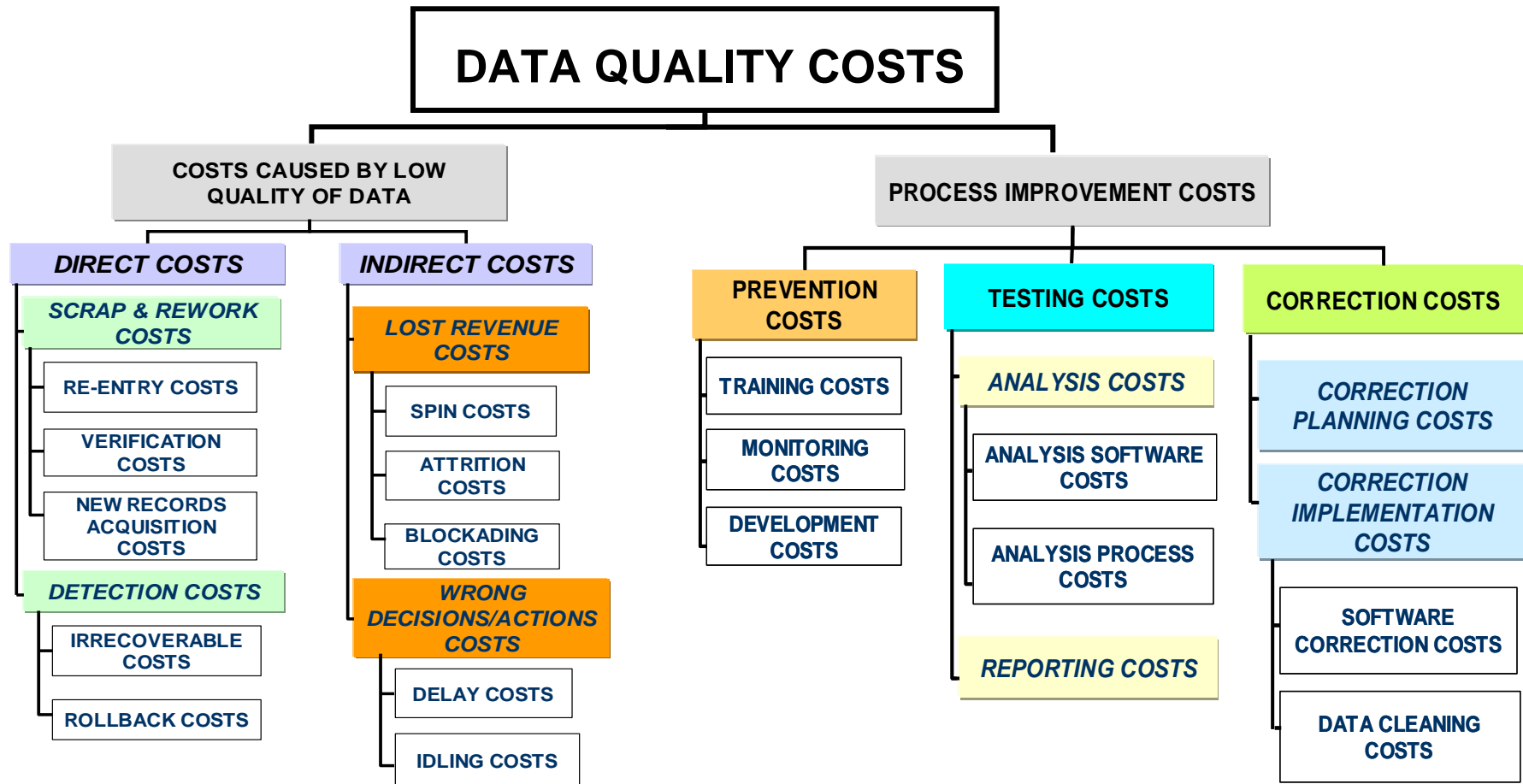
- Profiling each loss event (unit of measure, frequency, etc)
- Assessing the economic value (real or estimated) for each loss event
- Identifying relations between loss events and costs of low quality data
→ see next slide
- Selecting loss events related to data quality costs
- Identifying critical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





The ORME-DQM Methodology – Data quality costs

For each item, one or 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 with 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



➤ Identifying new targets for data quality

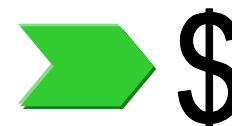


➤ Identifying the most appropriate improvement processes to achieve them



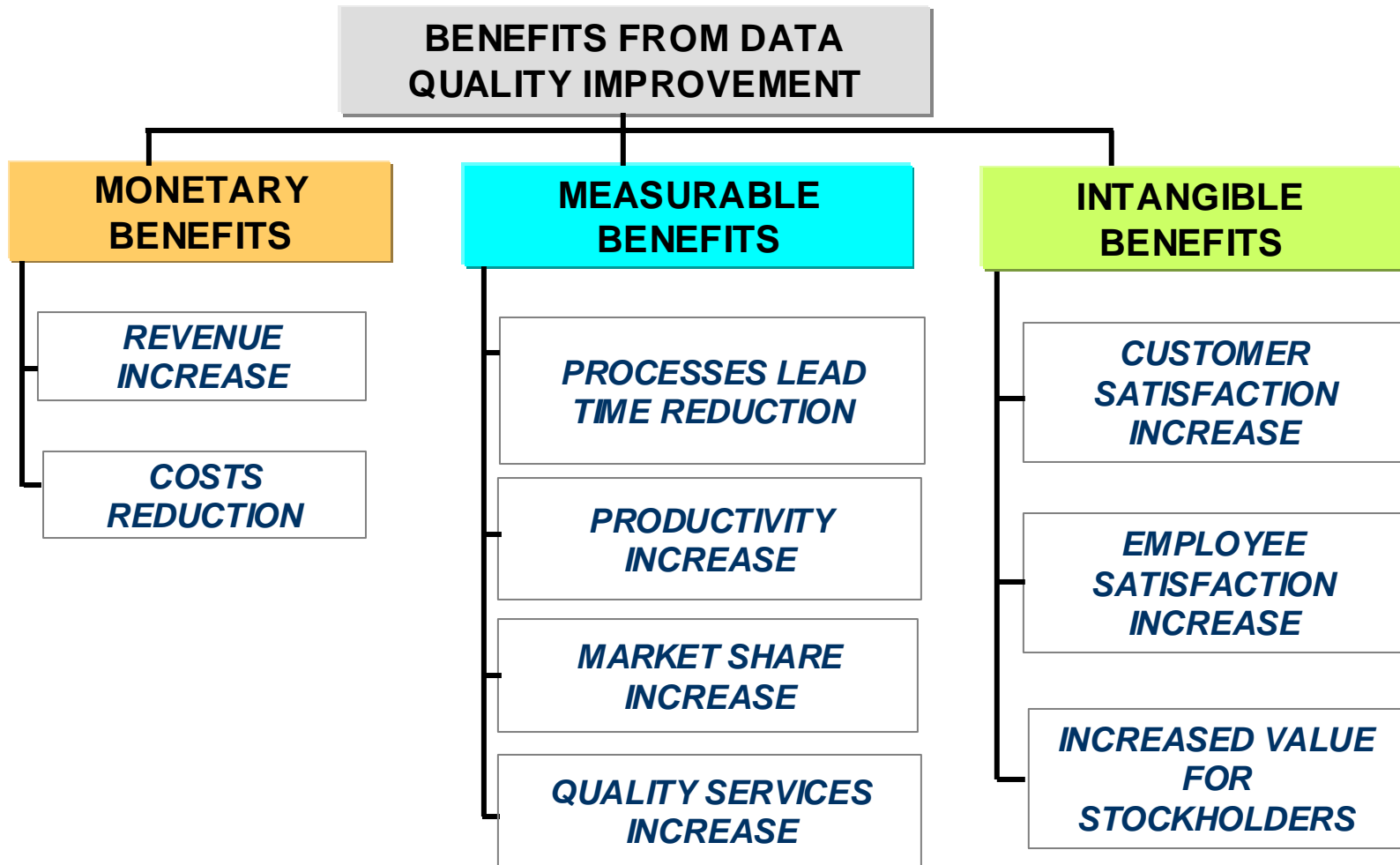
✓ Quality dimension dependencies are also considered

➤ Selecting the best improvement process by performing a cost/benefit analysis using the cost classification and the related metrics





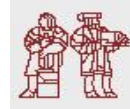
The ORME-DQM Methodology – Data quality benefits





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

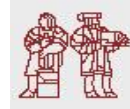


Business benefits for Banking industry

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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