A Never-Ending Story: Improving Data Quality

BA4ALL Event 29 April 2014

Thibault Valentin – AXA
AXA Group – Positioning a global player

- Network of 30,000 distributors
- 160,000 employees
- 100 million clients
AXA Group – Positioning a global player

Activities

Geography

Figures 31/12/2012
AXA in Belgium

✓ Network of 5,000 distributors
✓ 4,500 employees
✓ 3 million clients
✓ AXA ranked top global insurance brand for 4th consecutive year by Interbrand
**AXA in Belgium**

- The business model based on Assurbanking allows AXA to provide its customers – both individuals and corporate – with flexible products matching their real needs while increasing its revenues.

- Despite the financial crisis, the operational result remains stable.

- Solvency I = 138%
Data is at the hearth of insurance business
Digital @ AXA

We start imagining a new future for health
- Self-quantified
- Remote Monitoring
- Augmented Body
- Prevention

We start imagining a new future for retirement
- Longer Life
- Lifestyle
- Dependency
- Robots

We start imagining a new future for cars
- Connected Self-Driving
- Clean
- Safe
- Shared

Deloitte
Digital @ AXA

We start imagining a new future for health

- Self-quantified
- Remote Monitoring
- Augmented Body
- Prevention

PVI
Paralyzed Voice Initiative
Call 1-857-284-8035

We start imagining a new future for retirement

- Longer Life
- Lifestyle
- Dependency
- Robots

... and IT needs to adapt

Technologies will enable us to operate the business in a disruptive world

<table>
<thead>
<tr>
<th>ILLIAC IV Super Computer 1975</th>
<th>iPad2 2010</th>
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<tr>
<td>150 MFLOPS</td>
<td>169 MFLOPS</td>
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<td>$31 Million</td>
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Data focus @ AXA
Data focus @ AXA
Moore’s law

NUMBER OF TRANSISTORS ON A CHIP

Dual-Core Intel 2 Processor

Pentium 4

4004

286

Years


SOURCE: Dataquest/Intel
A fool with a tool is still a fool
Solvency II lean on 3 pillars

- **Metrics**
  - Market Balance Sheet
  - Calculations of Technical Provisions

- **Processes / Organisation**
  - Own Risk & Solvency Assessment
  - Policies & Procedures

- **Transparency**
  - Regulatory Supervisor Report
  - Quantitative Reporting Templates
Solvency II Data Quality principles

“Implement processes, procedures and responsibilities to ensure the appropriateness, completeness and accuracy of data. This also applies to data used to set a particular assumption.”

“Meet quality requirements to any data used to operate, validate and develop the internal model.”

“Regularly assess the performance of IT systems and of the channels used to collect, store, transmit and process data.”
Maturity Levels

TML2
- Sharepoint
- Based on data quality engine framework (SAS)

TML3
- SAS Platform
- Database
- Strategic Sourcing
- Automated
- BI roadmap/strategy

TML 4
Enterprise Data Warehouse

TML2
Document Management Support
Solvency II Central Repository

TML1
Process Approach
Solution to enforce best practices

Framework key components

1. **Loader**: Loads all data sources in the Solvency II Repository

2. **Quality Engine**: Performs the majority of quality controls

3. **Storage Engine**: Persists the data into the storage area and clean the staging area
Solution – Focus on the Loader

Data Dictionary (business view)

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<th>Process name</th>
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</table>

Functionalities

Load any normalised file or triangle based on a data dictionary
Assign a unique identifier to the load and records
Feed the audit trail
Validate the structure of the input with the expected structure defined in the data dictionary
Validate the data type based on the data dictionary, reject and log records having attributes with incorrect data types
Solution – Focus on the Quality Engine

Data Dictionary

<table>
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<tr>
<th>Risk domain</th>
<th>Process name</th>
<th>File ID</th>
<th>Dset/Dbase anData table name/File name</th>
<th>Data attribute name</th>
<th>Data description</th>
<th>R  (R), Optional (O)?</th>
<th>Data attribute format</th>
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1. Mandatory (Lv 2) Check that mandatory fields are filled.

2. Format (Lv 3) Check that the data value is compatible with the format defined in the metadata.

3. List of value (Lv 3) Check that the field value is included in list of allowed values.

4. Interval of value (Lv 3) Check that the field value is included in an interval of values.

5. Uniqueness (Lv 4) Check that, based on a defined key, there are no duplicates.

6. Integrity (Lv 4) Check that all references from a record to other records are valid.

7. Consistency of value over time (Lv 4) Check that the values of an attribute are consistent over 2 consecutive periods of time.

8. Consistency of volume over time (Lv 4) Check that the number of records is consistent over 2 consecutive periods.

9. Consistency of amount over time (Lv 4) Check that the total amount of an attribute for all the records in a period is consistent over 2 consecutive periods.

Data Quality Dashboard

1. General Information

2. Normal Level Controls

3. Exceptional Level Controls

4. Corrections:

5. Recommendation Actions

Deloitte

Redefining Standards
Global deployment: phased and tailored

Legend:
- Ran in production
- Planned in production for July 2014
### Delivery under control

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<td>2016</td>
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Approach and Methodology

Skills and Capabilities
- Functional teams with deep functional and Solvency II knowledge
- Experienced SAS Developers

Accelerators
- Structured approach to testing ensuring non-regression and a minimum burden for the client
- Ensure alignment between the Enterprise Data Warehouse and the data sourcing choices

- Strong experience in Solvency II implementation resulting in numerous reusable accelerators and tools
- SAS Framework to accelerate development and ensure implementation of best practices

Challenges and lessons learnt
Next steps

- Further deploy Governance & Solution
  
  Capitalize on this existing asset and deploy in other areas in a structured way

- Continue to clean our data
  
  Use our solution to keep the pace, detect data quality issues, report on them and trigger data cleaning actions

- Enrich Enterprise Datawarehouse
  
  Solvency II clearly demonstrated the added value of Enterprise Datawarehouse.
  
  AXA recently invested in a brand new scalable Teradata datawarehouse platform.
« Agir à un jour, mais penser à 20 ans. »

Jean-François Zobrist
Thank you