KPMG

Data and IT systems Issues for Solvency II

ADVISORY INSURANCE

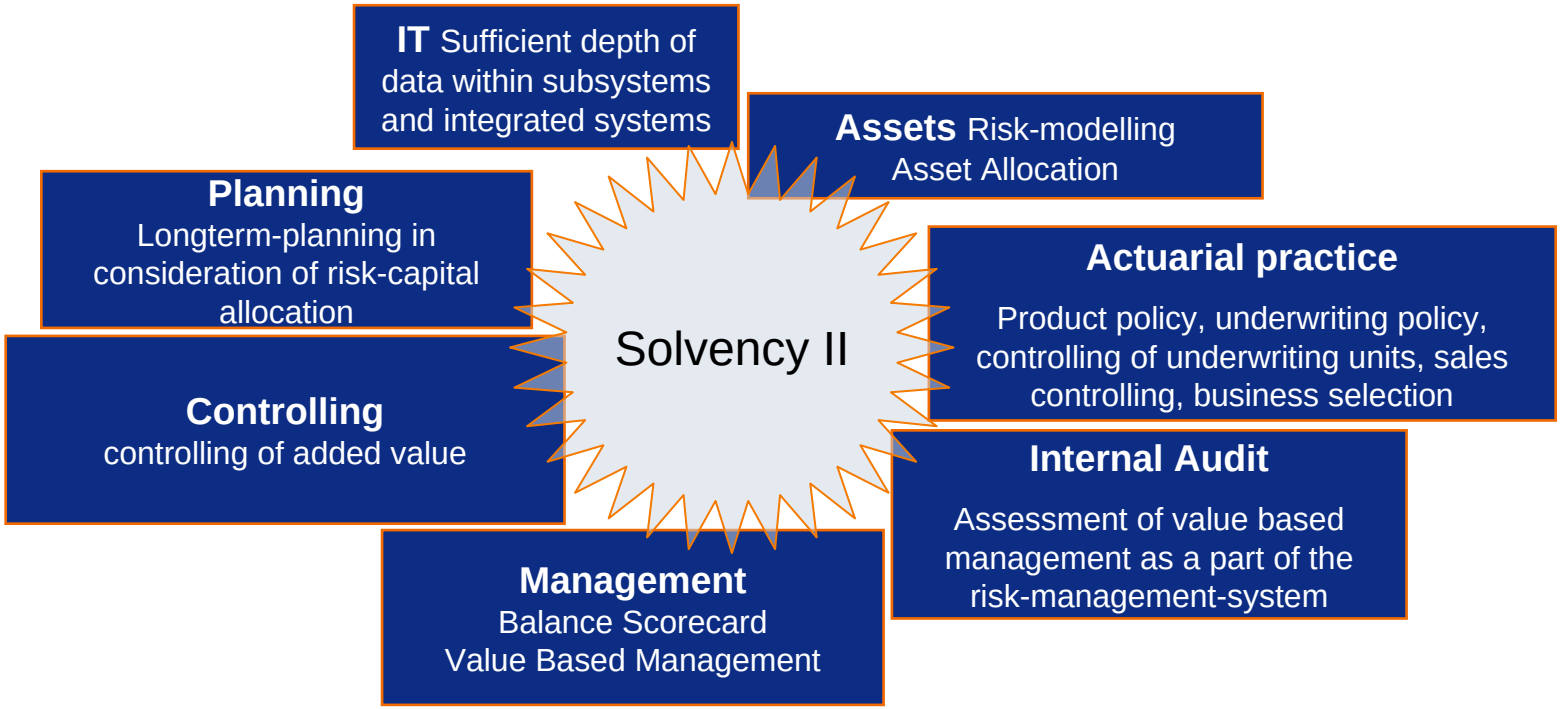
AUDIT ▪ TAX ▪ ADVISORY

Agenda

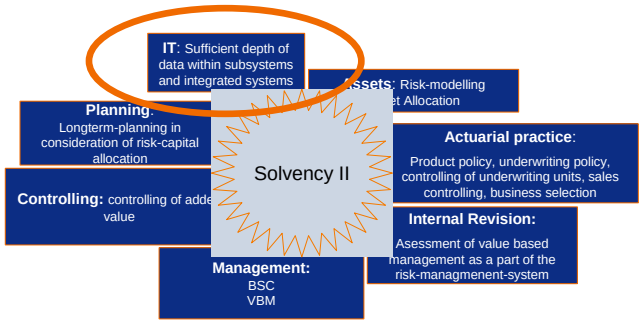
1. **Solvency II: Implications on the IT**
2. A possible approach
3. General issues

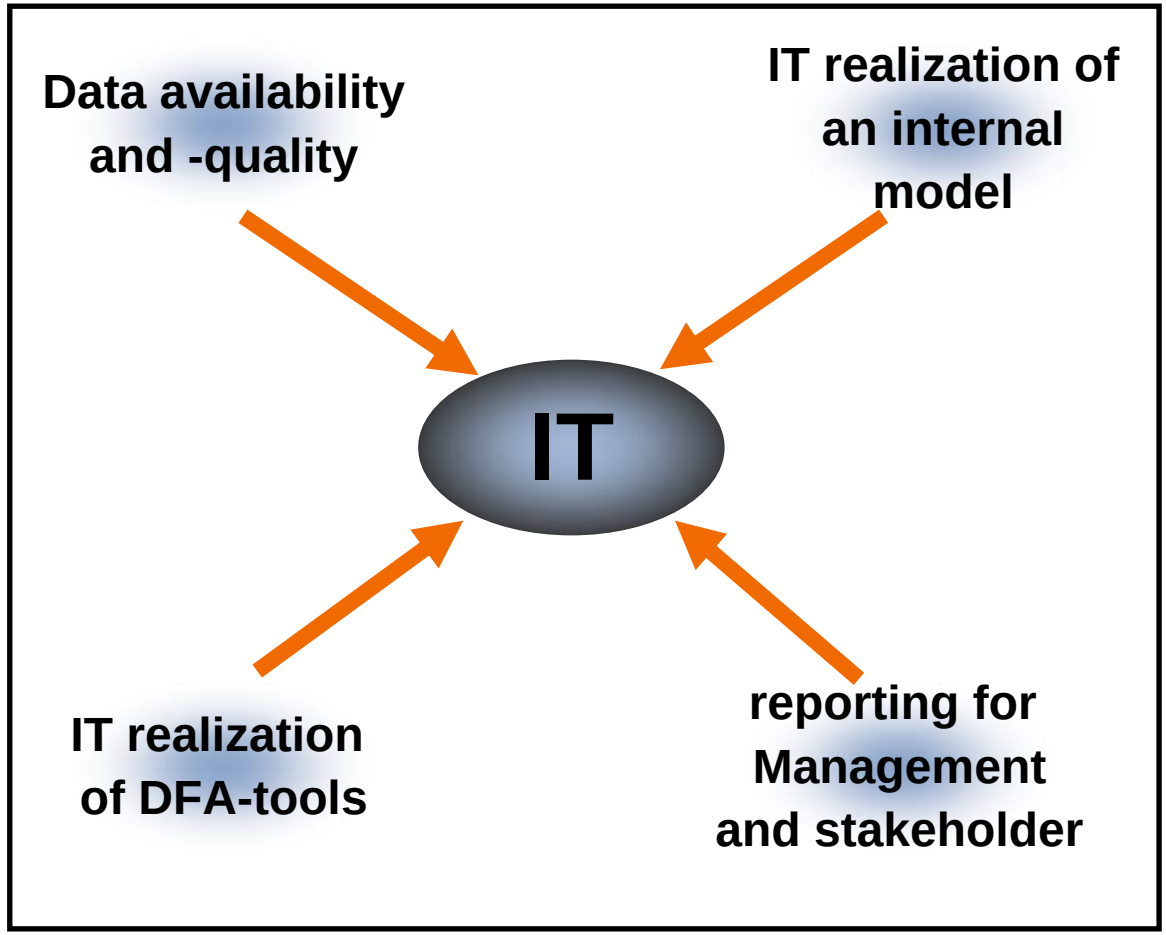
Solvency II: Implications on the IT
Dimensions

Solvency II will emanate to nearly all units of an insurance company:



Solvency II: Implications on the IT
Challenges





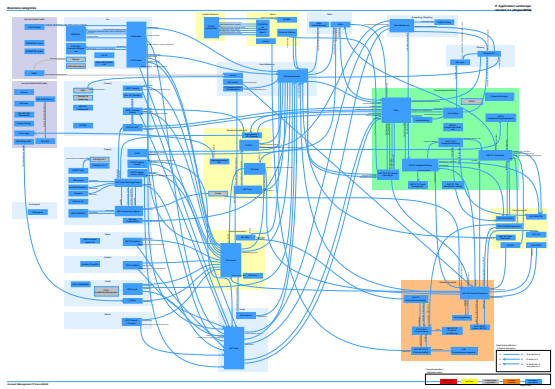
Solvency II: Implications on the IT
Internal and external needs to the IT

Internal and external needs are leading to higher requirements to the IT, processes, data storage and reporting

<u>Current situation in many insurance companies:</u>

Various IT systems for different branches and products

→ Heterogeneous IT system landscape



Challenges

- **Solvency II requires data to be analyzed**
- **Need for extensive data history**
- **Modelling of assets, claims and premiums on the basis of system data**
- **Performing of Stress tests and stochastic simulations**
- **Consideration of reinsurance**

Solvency II: Implications on the IT

Data Management

Basis to fulfill Solvency II requirements

Requirements

- **Uniform data format**
- **Updates of data should be performed within the original systems**
- **Data availability**
- **Consistent application of databases for calculation and reports**
- **Changes within the models do not have an impact on the database**

Result

- **Transparency of IT**
- **Preparation for implementation of a risk-modelling-tool**
- **Basis of a flexible and efficient reporting**
- **Useful for an efficient and value based management**

Agenda

1. Solvency II: Implications on the IT
2. **A possible approach**
3. General issues

A possible approach
Start: Definition of modules and scope (1/2)

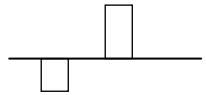
Workshop to identify company‘s options

Analyse

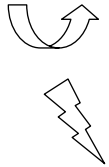
Inventory of minimum data requirements for Solvency II (realize an internal model)

Inventory of data for different business solutions (e.g. Management reporting or Data Warehouse)

Costs/Benefits



Chances/ Risks



- **Definition of company priorities regarding Solvency II**
- **Definition of target model**
- **Gap analysis**
- **Definition of common language**

A possible approach
Start: Definition of modules and scope (2/2)

Workshop to identify company‘s options

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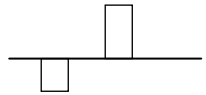
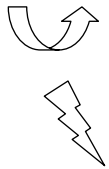


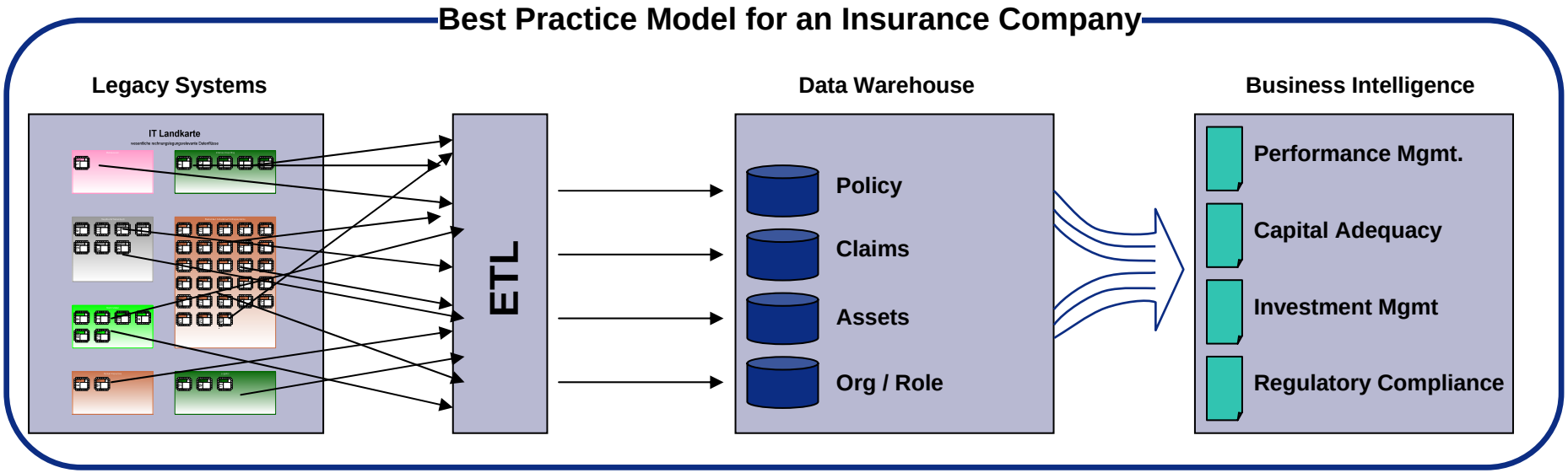
Chances/ Risks



- **Company model data**
- **Develop rough concept on application**
- **Integration possibilities for future improvements**
- **Specification of Road Map and Milestones**

A possible approach

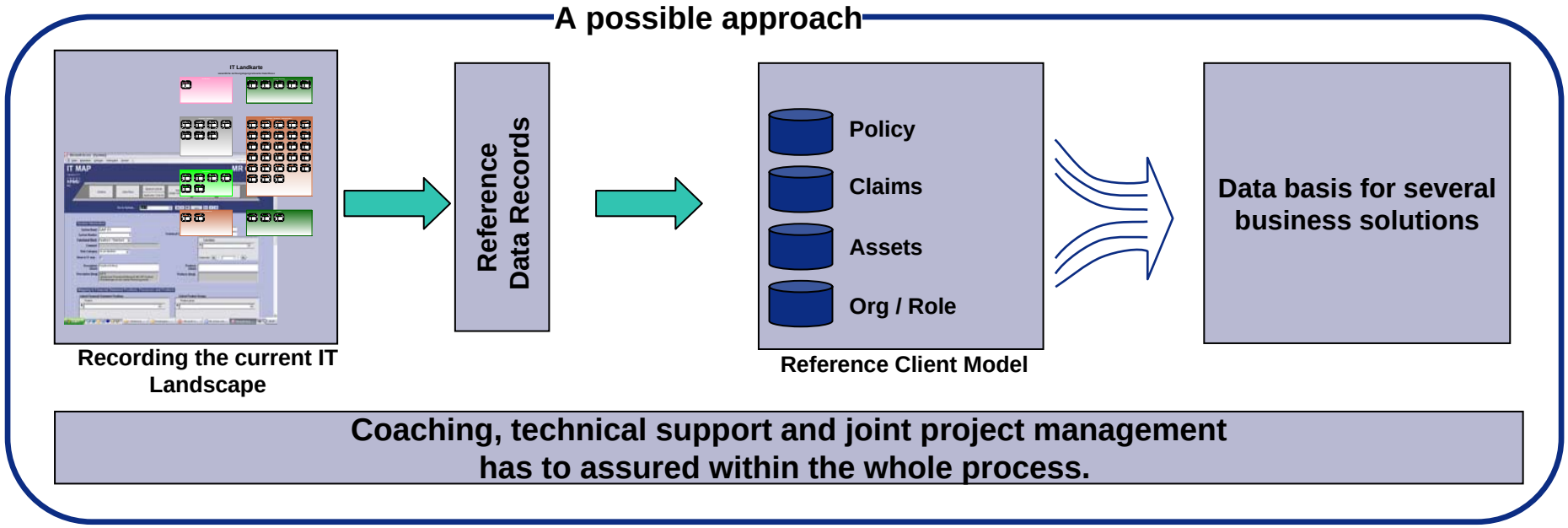
Meeting Solvency II requirements on data availability (1/2)



- Extracting data from the legacy systems by an ETL (Extract Transform Load)* allows collecting data within so called data cubes.
- Data cubes are collectors for data of a specific class i.e. claims.
- This is the basis for several business solutions and an effective Business Intelligence System

* An ETL extracts data from the legacy systems, transforms them into an uniform format and loads the data into the data cubes.

A possible approach
Meeting Solvency II requirements on data availability (2/2)

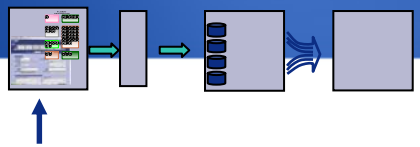


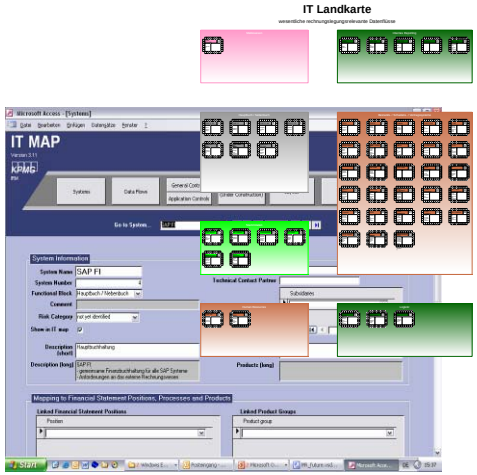
This approach includes:

- Recording the current IT Landscape
- Providing data cubes
- Definition of a client model
- Supporting the realization of an effective Business Intelligence System

A possible approach

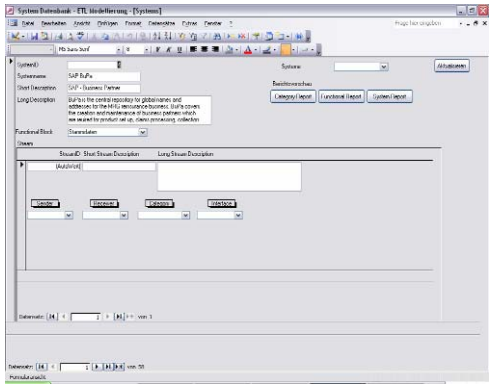
… to collect company's data inventory (1/2)





Company's profit:

- **<u>The IT – Map</u>**
- Creating an Inventory of all Solvency II relevant Systems
- Clustering of Systems by a functional view
- Definition of interfaces
- Identification of redundant Interfaces
- Identification of inconsistency

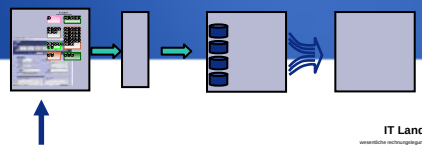


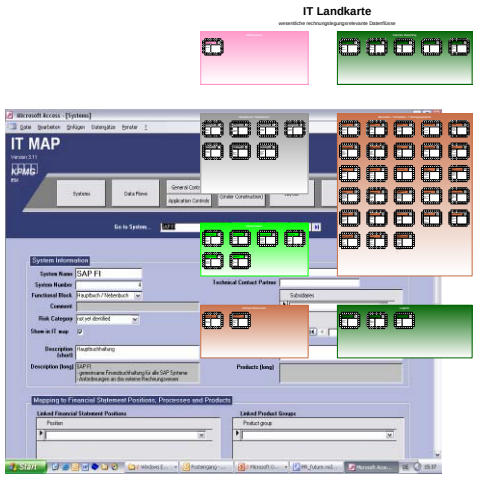
<u>Inventory of Datastreams</u>

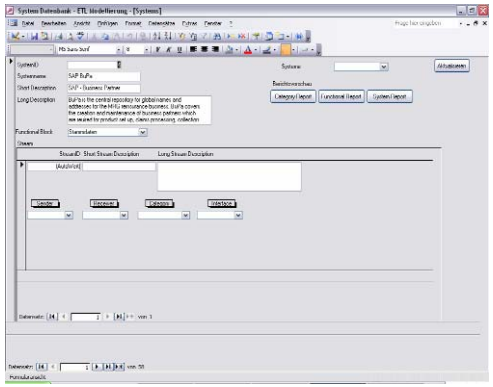
- Creating an Inventory of all Solvency II relevant Data Streams between the Systems
- Clustering of Data Streams to ‚Cubes'
- Inventory of Datastream and Cubes as a basis for a ETL
- Identification of redundant Data handling

A possible approach

… to collect company's data inventory (2/2)



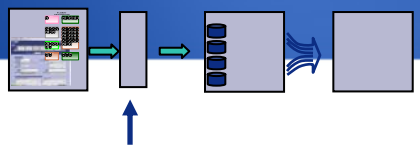


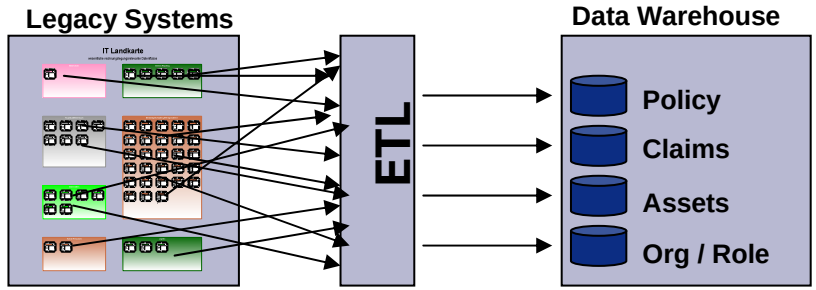


- **What has to be done:**
- Review of IT systems and data with assessment on
- IT systems architecture
- Interfaces
- Business data

- **Results:**
- Compliance Review for your IT system architecture on Solvency II
- Specification of potential future measurements

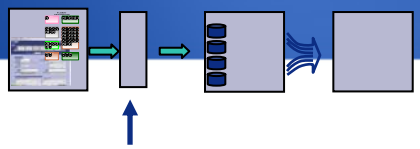
A possible approach
Modelling the ETL (1/2)

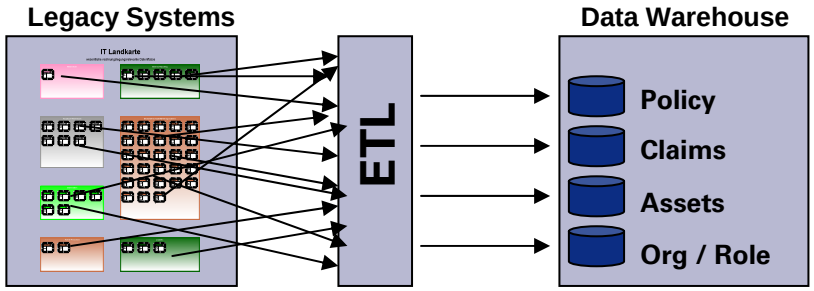




- Re-design of Interfaces between the systems to minimize complexity of the IT infrastructure
- Modelling an ETL by:
  - Categorization of data
  - Defining the ETL cubes
  - Linking the data categories with the ETL cubes
- Update interface and data documentation
- **Advantages of a standardized ETL:**
- Traceable data sources
- One single interface for data extraction
- Allows mapping of business processes to data
- ETL as a prerequisite for a Data Warehouse
- Prevention of redundancy

A possible approach
Modelling the ETL (2/2)

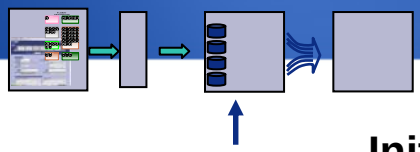




- **What has to be done:**
- Collecting and Analyzing of business data
- Definition of business data container

- **Results:**
- Blueprint for an ETL interface

A possible approach
A reference model



Initial situation

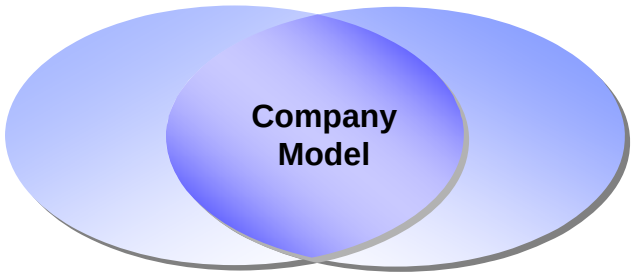
Data are often modelled branch specific

Approach

- Consolidation of overall data
- Unification of common data
- Creation of a basic model

Solution

Created basic model as a template for a company specific data model

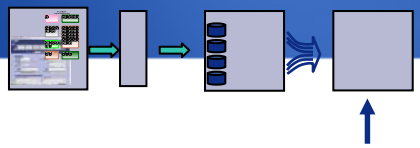


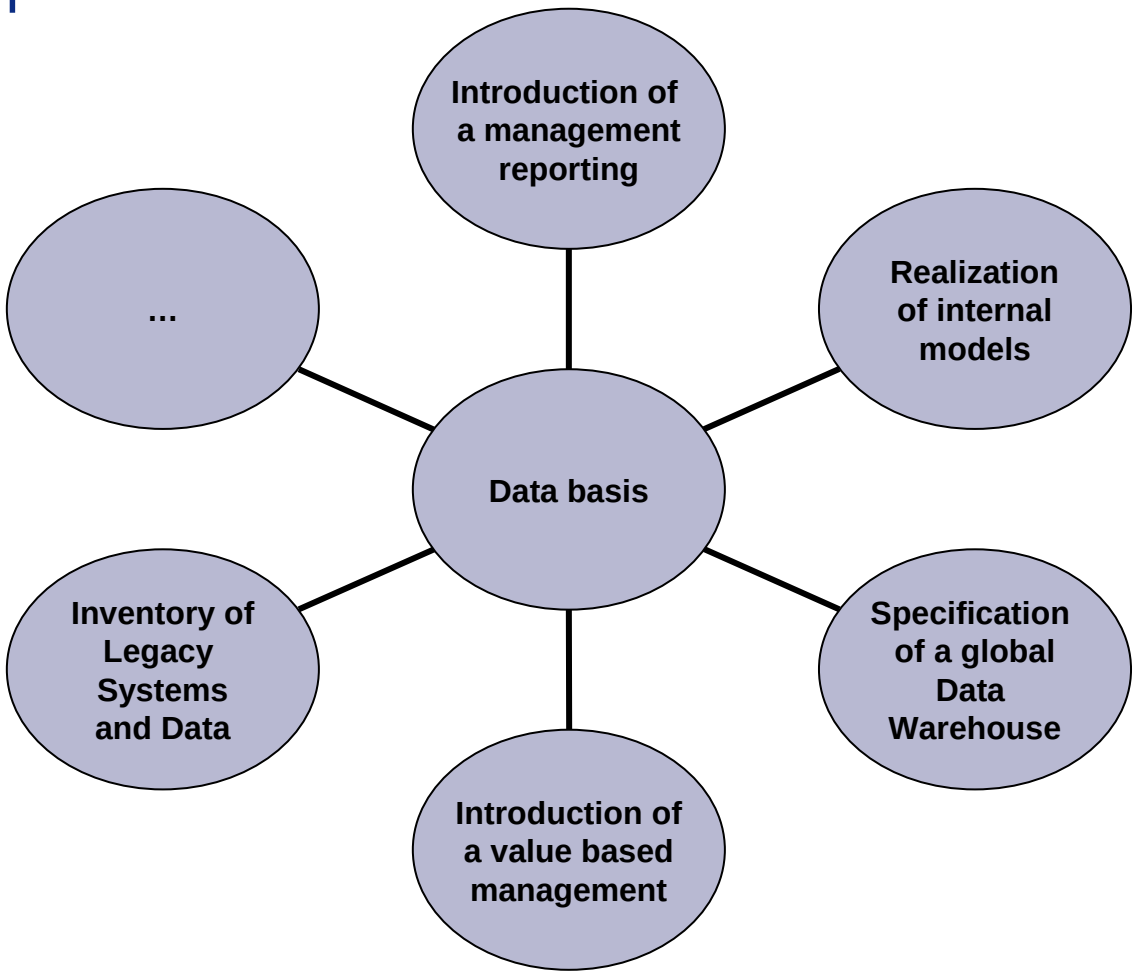
The Basic Model:

- provides basic concept solutions
- accelerates data modelling through pre-set attributes, entities and relations
- provides a „benchmark“ for the completeness of a company model
- should cover at least 70% of the company data

A possible approach

Different solutions for different business issues

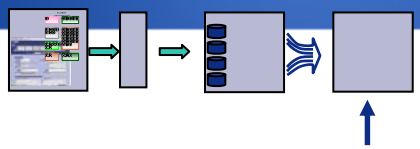




A possible approach

Modelling business processes and a global Data Warehouse

The way to meet Management Reporting needs

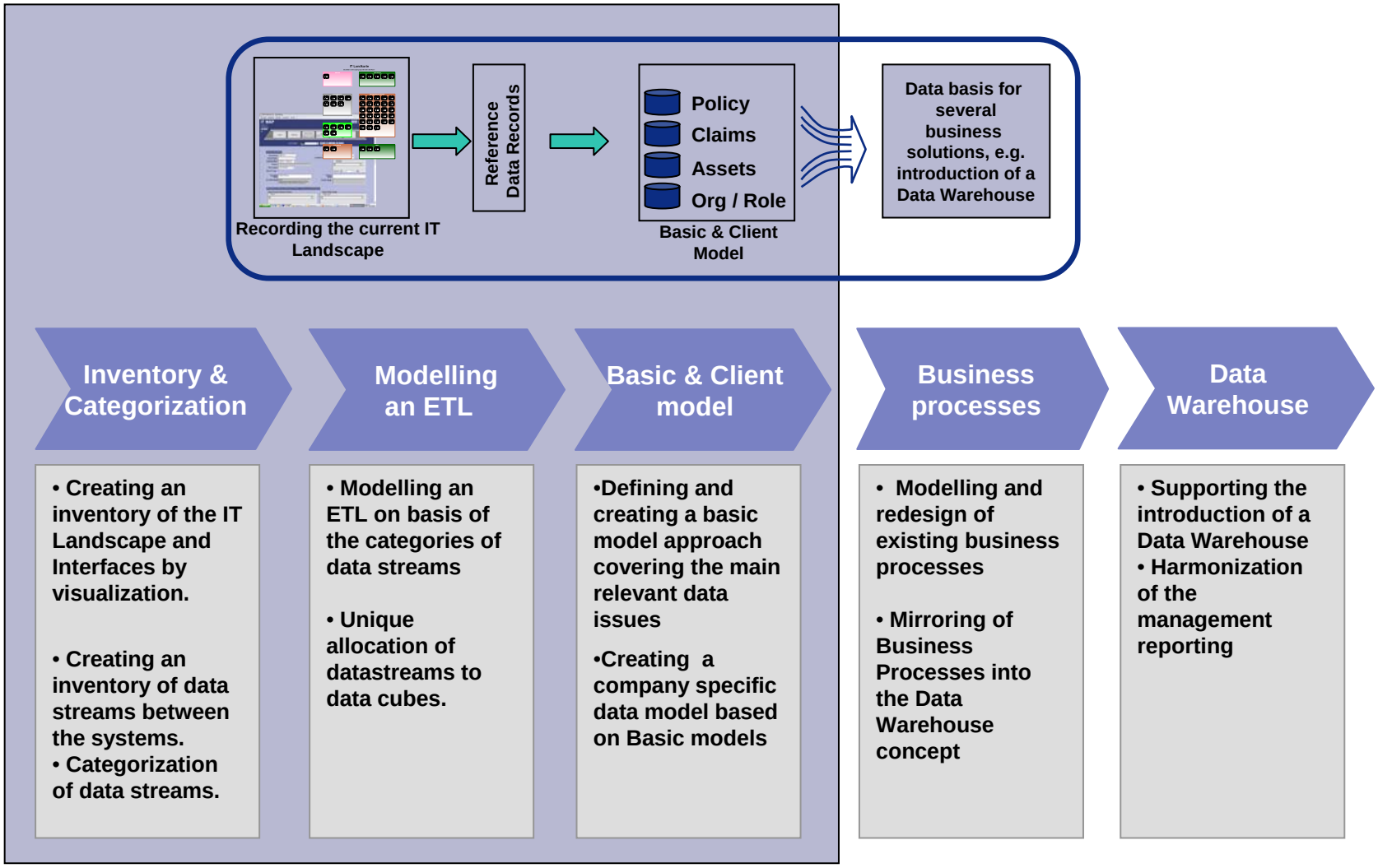


- **Introducing a global Data Warehouse on basis of the prior steps can allow:**

- Reports for every possible dimension of the cubes
- Mapping of the business processes within the Data Warehouse
- Flexible reports
- Precise and timely Management Reporting
- Development of Solvency II internal model
- Reduces Solvency II required reserves
- Execution of Stress Tests
- Risk Assessment on contract and branch level
- Value Based Management through risk assessment of every particular business and business unit
- Restructuring of the business by concentrating on profitable business

A possible approach

One possible solution: Introduction of a Data Warehouse



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General Issues
Requirements on data

- **Independent of the system structure, the following necessities are relevant:**
  - Availability: Are data available for all relevant purposes and relevant people at any time / specific points of time?
  - Accessibility: Who is allowed to access data at which point of time?
  - Integrity: Are data sufficiently integer? Who is responsible for the integrity of data?
  - Consistency: Are data consistent across different applications? E.g. internal reporting versus external reporting; statutory premiums versus premiums for Solvency, etc…
- **Development of an efficient control mechanism**
  - Validation of models
  - Auditability of systems and IT-infrastructure
  - Compliance with other internal or external audit requirements

General Issues
Further development

- **Alignment of internal management reporting with external reporting**
  - Risk management reflecting solvency requirements
  - Solvency data for external reporting
  - Planning including better understanding of risk inherent in the business
- **Guidance and the future**
  - Concept of shared learning, especially on models and other IT-systems
  - Definition of an application guidance
  - Training on new IT-infrastructure to embed the IT into the business
  - Continuous improvements on tools, models, training: How to deal with changes?