


veri.data2.0

***Empowering data-driven solutions
for large-scale regulatory project***

Team Project

HWS 2022



Overview - Scope

- Most large programs in the financial industry and related domains focus on IT solution delivery
 - Resources for clean data models that scales both for growth and compliance are not available
- This project evolutionary improves a generic approach, called veri.data, for modelling business domains and mapping them to simple but scaling data models
- The project is structured as proof of concept called “POC out of the box”, and will be implemented to covers strategy, transition, technology, operations and digitalization



Overview - Challenge

- The aim of this project is to set up an iterative process as GitLab.com project, where all contributions are managed by one of the students
 - contributions both conceptually and implementations, are iterative improvements on the veri.data approach
- A team of 6 Master Students has already created version 1 of the approach, so the current project is about improving the work done by the project, based on experience gained in applying the approach in a 60 m. project of one of the world leading banks
- Participants will learn to work in an agile team, and will fulfill various technical or a conceptual roles
 - participants will be expected to demonstrate a high level of self-organization and to fill roles typically taken by senior people
 - the senior people only do coaching



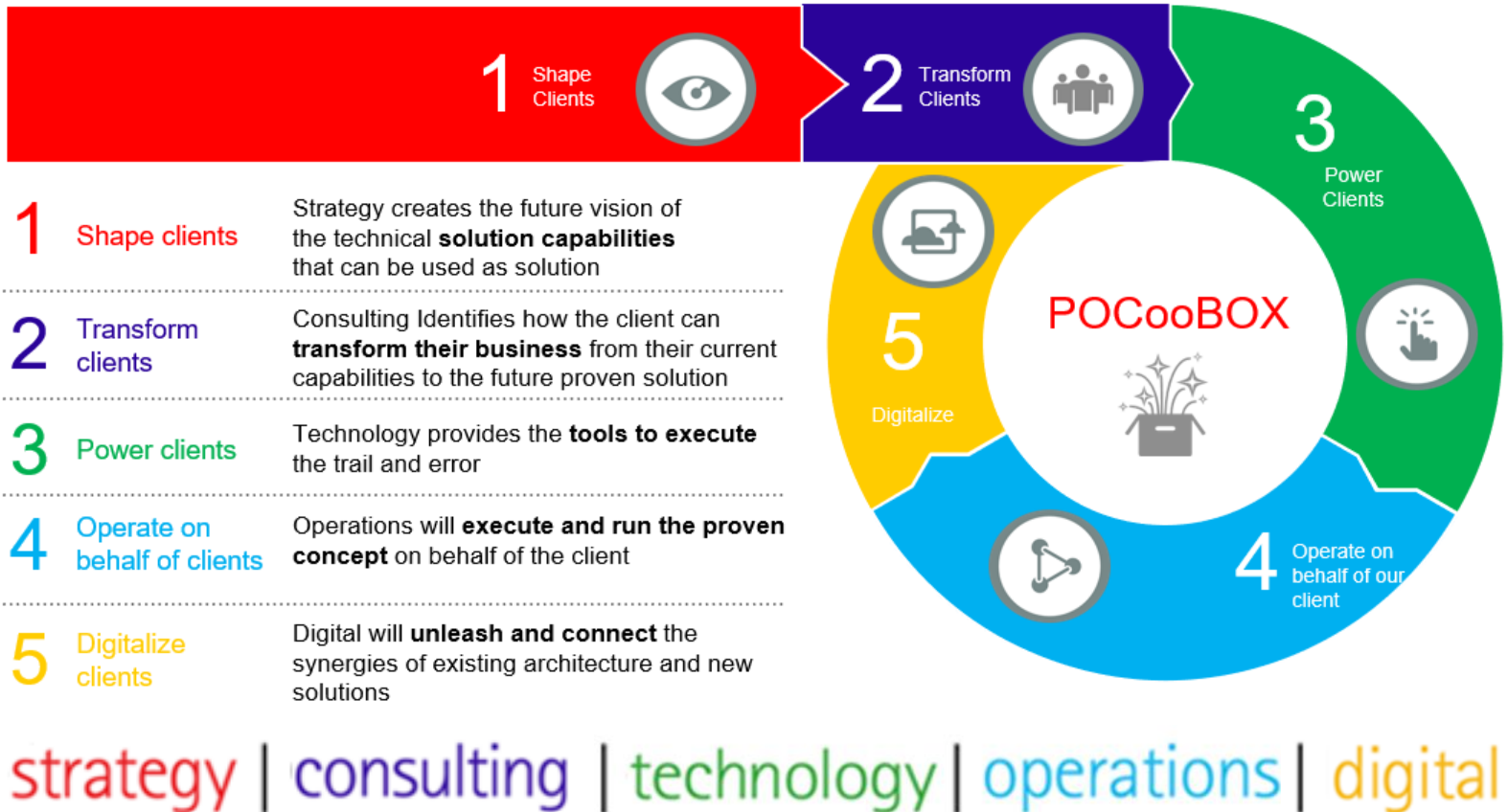
Key Topics

Besides the evolution of the existing approach, a number of key topics have emerged in recent industry applications:

- derivation of Object Models with Inheritance from very large (5k) attribute sets in legacy data in the financial domain
- Abstract Domain Model for Business Records in Accounting (General Ledger, Sub Ledger, Reconciliations), Payments, and Investment Portfolios and Strategies
- onboarding of FIBO (Financial Industry Business Objects), ISO20022, and related very large domain models into the veri.data approach



Chosen Methodology: POC out of box



1 Shape clients

Strategy creates the future vision of the technical **solution capabilities** that can be used as solution

2 Transform clients

Consulting Identifies how the client can **transform their business** from their current capabilities to the future proven solution

3 Power clients

Technology provides the **tools to execute** the trail and error

4 Operate on behalf of clients

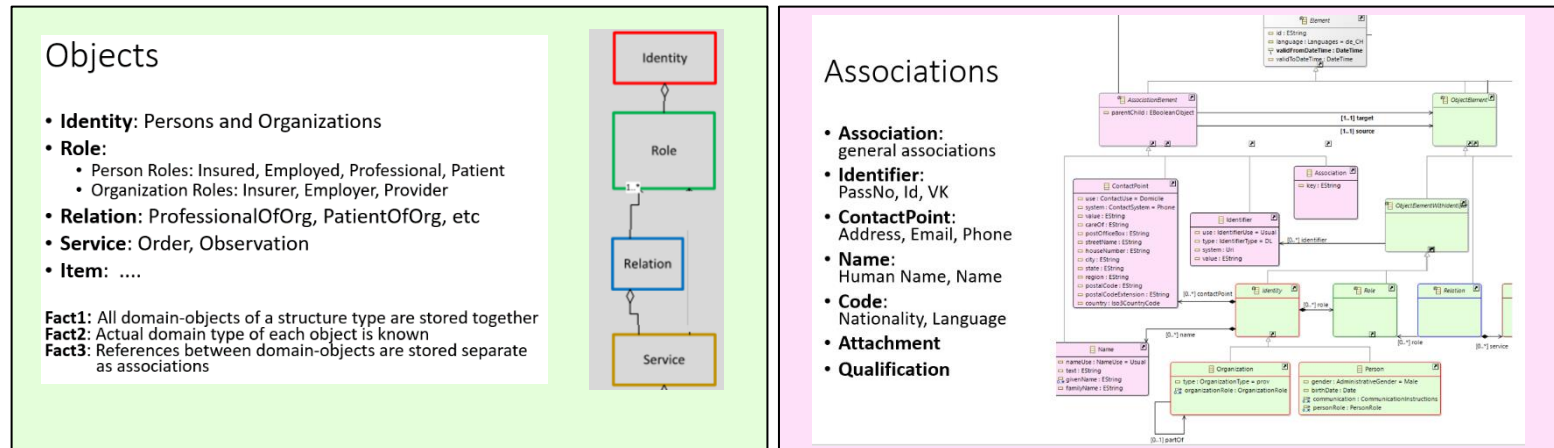
Operations will **execute and run the proven concept** on behalf of the client

5 Digitalize clients

Digital will **unleash and connect** the synergies of existing architecture and new solutions

veri.data Technical Overview

- Health domain, covering 300 classes, 800 properties and 2000+ reference data and example transaction records
- Defined data model consisting of around 10 tables with real objects and around 15 tables with associations



- Generated AZURE SQL database from Excel, generates both tables and initial data
- Backend translates objects/associations in DB into JSON messages

Technical Components of the Project

The following components may be improved/created in the project:

- Refine **conceptual model of veri.data** methodology and generated prototype in Java (based on EMF, OCL, MCore)
- Improvement of **veri.data implementation as Excel**, improve of VBA based generic Excel to CVS exporter/importer
- Extension of Excel implementation by automatic synchronization between model definition, and structure of Excel tables.
- Porting of a business rule-oriented programming language from UML+OCL to Excel
- Creation of UML+OCL from the Excel models
- Improvement and **completion of existing health-care domain model** and example data
- Import of full ISO20022 repository, and XML Schemata in existing tool.

Not all topics will be covered in this project, but 2-4 students will focus on one component each. The other students will address overall organization and strategy.

Each student can work relatively independent but is integrated in an agile team!



The Environment

GitLab project

- The GitLab open source project veri.data records the achievements of the last team
- The new team will be the next generation of “committers” who profit thus not only from their outcomes, but also from the feedback to the current project

Programming Languages/Tools

- Excel, Data Modeling, Business Rules, Data Management
- VBA, GitLab CI/CD, OCL

Message/Data formats

- JSON
- CSV
- Eclipse Modeling Framework/UML

Conditions

Participants (5 to 7)

- 1 responsible for **strategy** definition and presentation. Product owner role (together with supervisors)
- 1 responsible for **transition**: setup of overall agile devops setup, task management, scrum master role
- 2-4 responsible for improvement of **technical** components or **digitalization** example (see slides on technical components)
- 1 responsible for hosting, **operation**, automation of development and run of components, using GitLab CI/CD

Length

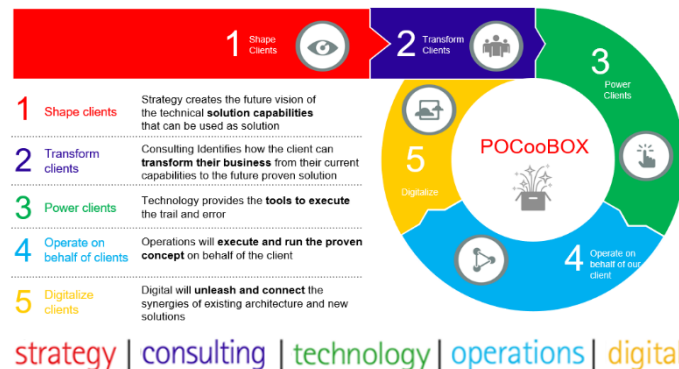
- 12 months

Language

- English

Environment

- Goals and timetable defined by agreement with the supervisors



Supervisors

- Dr. Colin Atkinson
Chair of Software Engineering
- Dr. Philipp W. Kutter
veri.data open source project