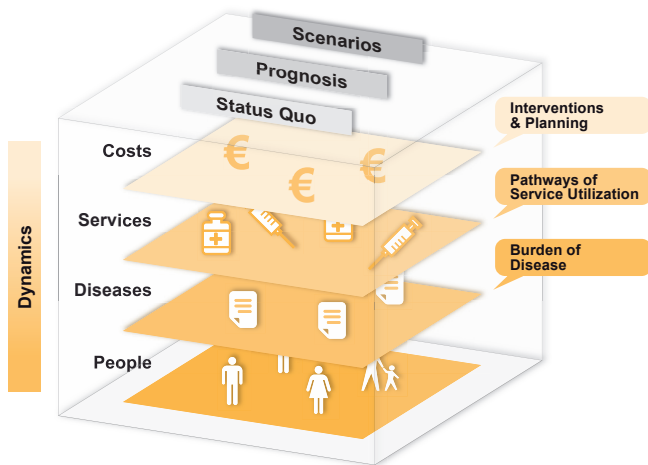


## Our products and services

Due to our pool of productive tools, experts and practical experience in various industrial areas, we are able to offer the following services:

- Data science experience
- Integration and pooling techniques for various data sets
- Guideline knowledge in real world application
- Model conception based on internal/external data
- Simulation model integration and scenario development
- Dissemination and interpretation



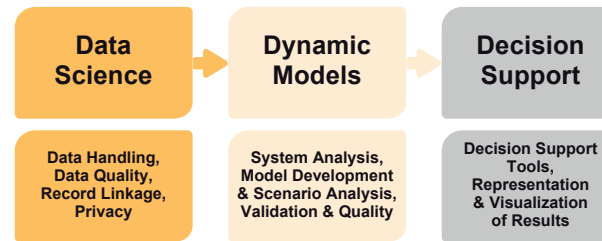
The dwh GmbH Team is a member of ISPOR, SMDM, EUROSIM and HTAi and directly connected to EUnetHTA and international healthcare institutions due to our work in European Union projects.

## Overview

The dwh GmbH, located in Vienna, Austria offers solutions and new methods in the field of system analysis, modelling and simulation. Furthermore we provide technical assistance in data analysis for parameterization and validation of decision-making processes for health economics and health care planning.

Based on more than 10 years experience dwh GmbH offers knowledge in the management of decision support issues especially in:

- Vaccination strategy evaluation
- Cost-effectiveness evaluation of drugs
- Health service research
- Chronic diseases
- Demography
- Demand planning of services and resources in healthcare



### Combining Methods, Models and Technologies

Documentation, Quality Assessment & Control, Reproducibility, National and International Transfer of Knowledge

## Contact

**dwh GmbH**  
dwh simulation services | technical solutions  
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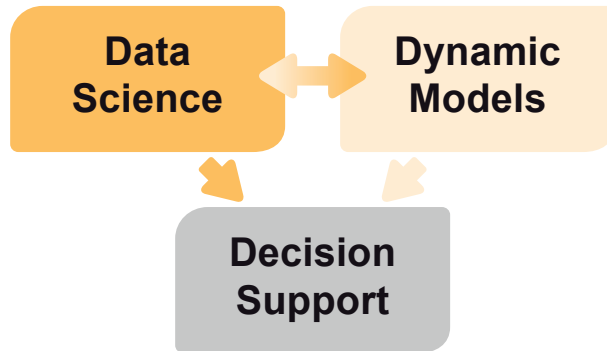
**dwh**  
simulation services  
technical solutions

## Data sciences & healthcare modelling for decision support



## Competences

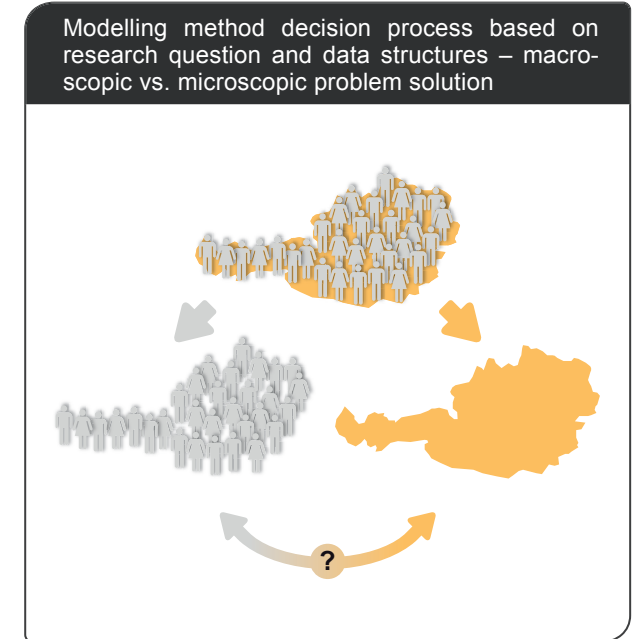
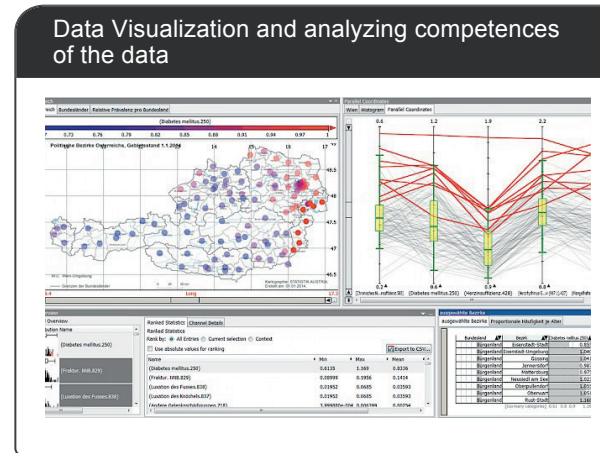
The dwh team competences are modularly based on **data science experience** and **modelling technique user/developer skills**.



**The data science process can be divided into the following steps:**

1. Data import from different data sources:
  - a) Databases: SQL, noSQL
  - b) flat files: txt, csv, xlsx, xml, etc.
  - c) scraping from different sources: web (html), PDF-Files
  - d) complex sources: images, speech, etc.
2. Pre-processing:
  - a) Filtering: Outlier Detection, Denoising
  - b) Feature selection: removing non relevant data
  - c) dimension reduction: PCA Analysis
  - d) representation generation: e.g. convert image to a feature vector
3. Analysis & data modelling
  - a) Classic statistical analysis: descriptive statistics
  - b) Supervised Learning: Support Vector Machines, Decision Trees, etc.
  - c) Unsupervised Learning: Clustering, etc.
  - d) Deep Learning: Deep Neural Networks
  - e) Explorative Analysis: Association Rule Mining

4. Deployment, Prediction & Visualization
  - a) Data representation on different media
  - b) interactive web visualizations
  - c) animations
  - d) Software Tools



We can place each step as an all-in-one solution at according to the customer's requirements.

### Modelling and Simulation:

1. International method concepts:
  - a) Systematic access (PICO) to research questions
  - b) knowledge on international processes (NICE, EUnetHTA Core Models, AMNOG, ISPOR-SMDM Good Practice...)
  - c) detailed overview and experience on national and international claims data
2. Modelling methods:
  - a) Method development within research projects
  - b) Exploitation rights of DEXHELPP developments
  - c) Method/tool pool experience by “best method” decision process
3. Simulation and Scenario calculation:
  - a) Software implementation at secure mainframe
  - b) Interdisciplinary scenario conception
  - c) Processing results for decision maker usability

Due to collaboration of different teams in the dwh GmbH we can implement a highly effective interface between modelling and high dimensional data analysis up to visualization.

The dwh GmbH is partner in DEXHELPP (Decision Support for Health Policy and Planning: Methods, Models and Technologies based on Existing Health Care Data), a project involving data security scientists, health care decision makers, Ministry of Health, modelling method development universities and visualization experts. It is sponsored by BMVIT, BMWFV and the city of Vienna.