2 Fast 2 Furious? Avoid Problems Caused by Rapid Energy Turnaround with Autodesk® GIS

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Key learning objectives

At the end of this class, you will know:

- How the ÜZ avoids problems caused by the rapid energy turnaround using AutoCAD Map 3D and other related applications
- How we use Web-GIS both online and offline for operational and breakdown services
- How the practical interaction between AutoCAD Map 3D and other systems such as grid calculation or planning systems can be realized
- How the ÜZ creates interfaces to other enterprise applications, such as SAP®, IBM® Informix® databases

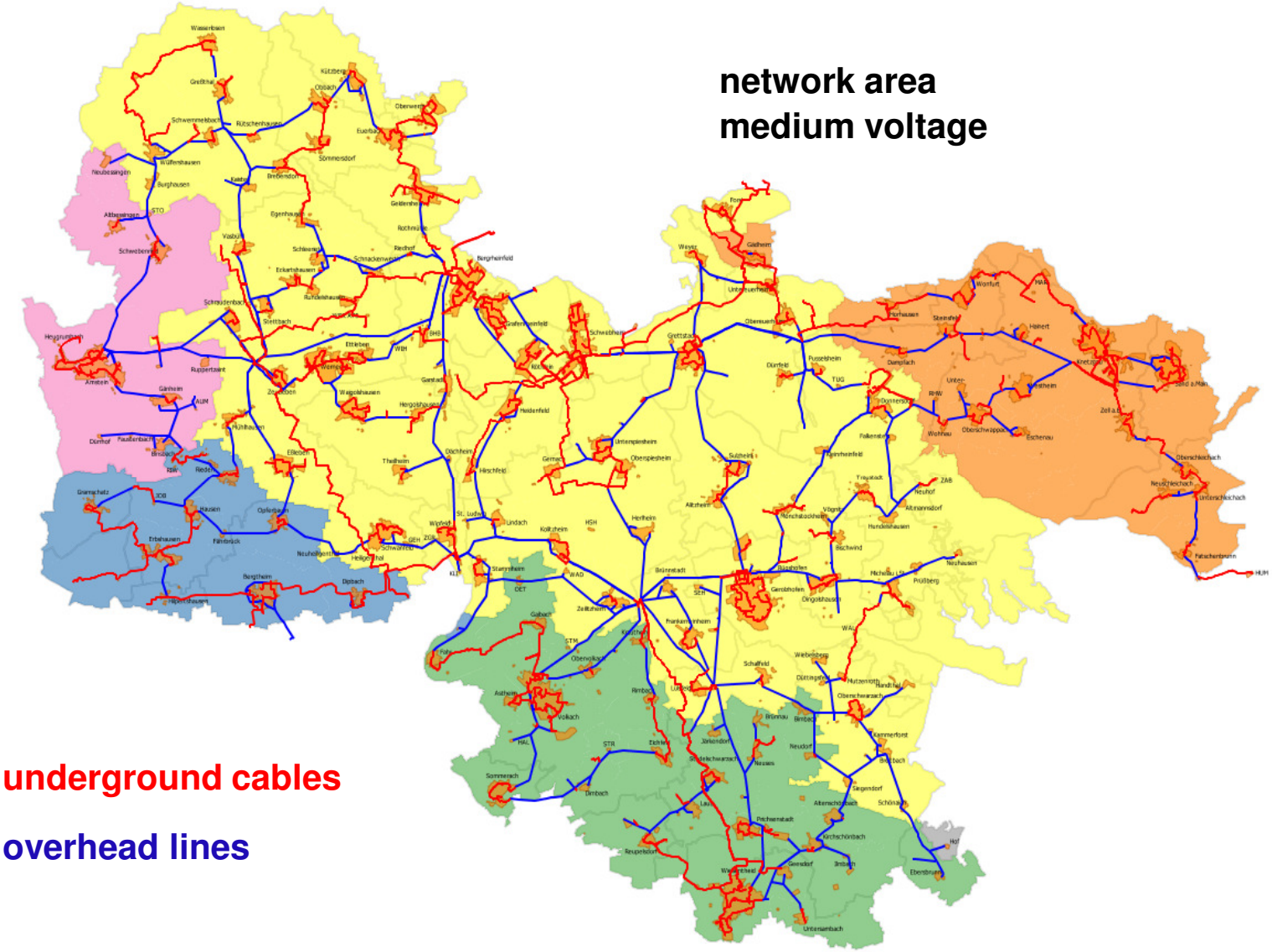


Avoid Problems Caused by the Rapid Energy Turnaround Using AutoCAD Map 3D and other related Applications




ÜZ – Unterfränkische Überlandzentrale eG
itannien
Hamburg
Amsterdam
Niederlande
Berlin
Posen
Polen
Warschau
London
Antwerpen
Cologne
Köln
Deutschland
Belgien
Breslau
Krakau
Frankfurt am Main
ÜZ Lülsfeld
Prag
Luxemburg
Tschechien
Paris
Slowakei
Stuttgart
Wien
Pressburg
München
Budapest
Österreich
Ungarn
Frankreich
Bern

ÜZ


network area
medium voltage
underground cables
overhead lines

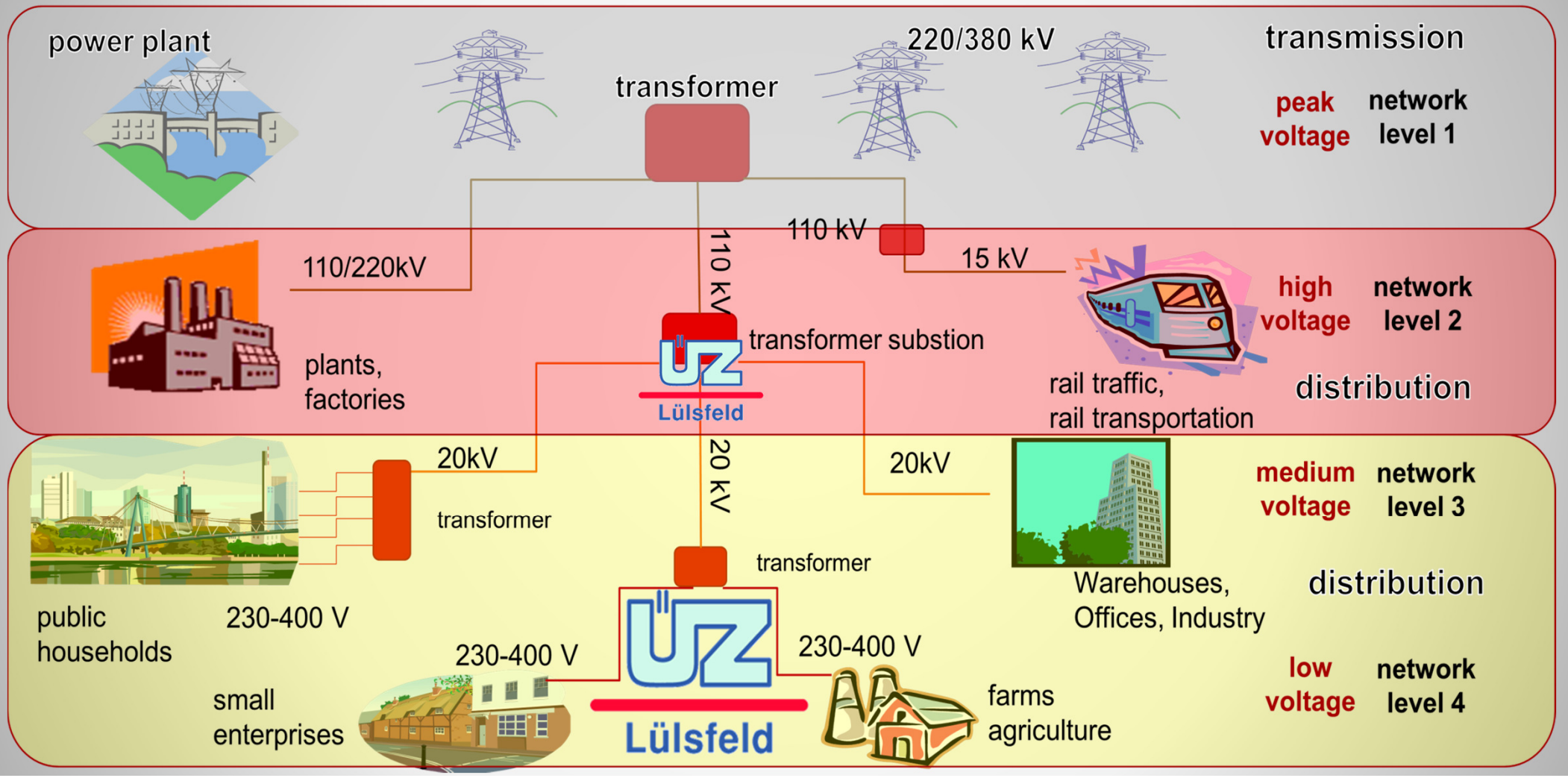
ÜZ – Unterfränkische Überlandzentrale eG

- cooperative society since 1910 with 3,325 members
- 146 employees, thereof 19 trainees
- 963 square kilometers service area
- more than 62,500 electrical meters at about 42,000 connecting points (regional supplier)

medium voltage:	overhead line - 230 miles	cabel 341 miles
low voltage:	only cabel – 2.355 miles	
telecommunication (optical fiber cable)	615 km	
substations	5 (2 in 2013)	
switching station	18	
transformer stations	962	



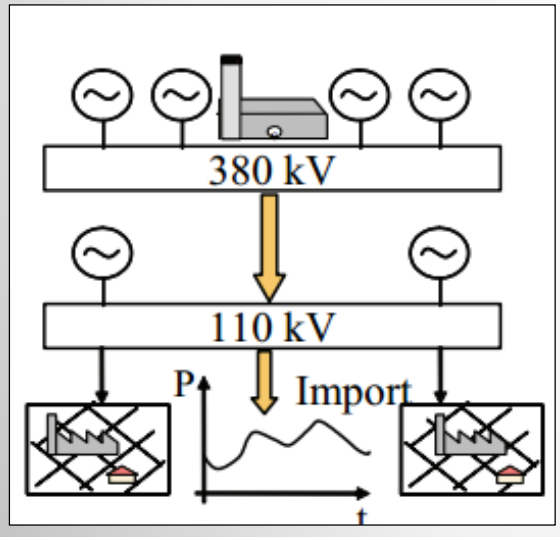
ÜZ in the Germany electrical Network



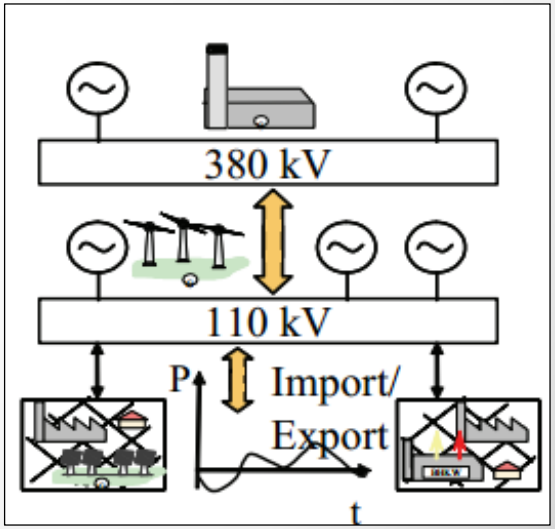
Keypoints of Germany's Energy Turnaround policy

- Fukushima in 2011 - rapid expansion of renewable energy
- **to integrate the renewables into the entire grid**
- **to develop a power feed-in grid (- operation system)**
- **to establish smart grid with virtual and physical storage devices**

yesterday

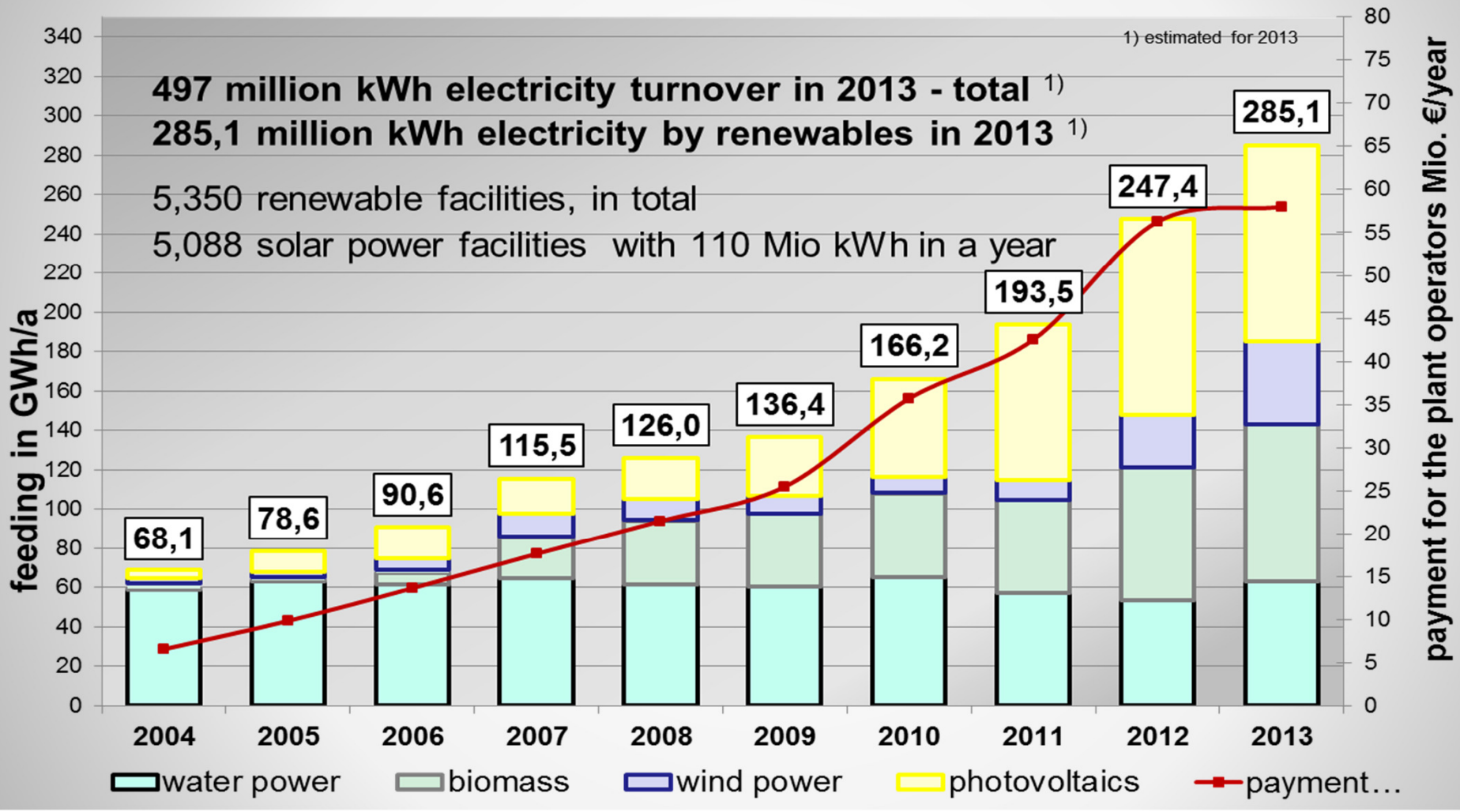


today
future



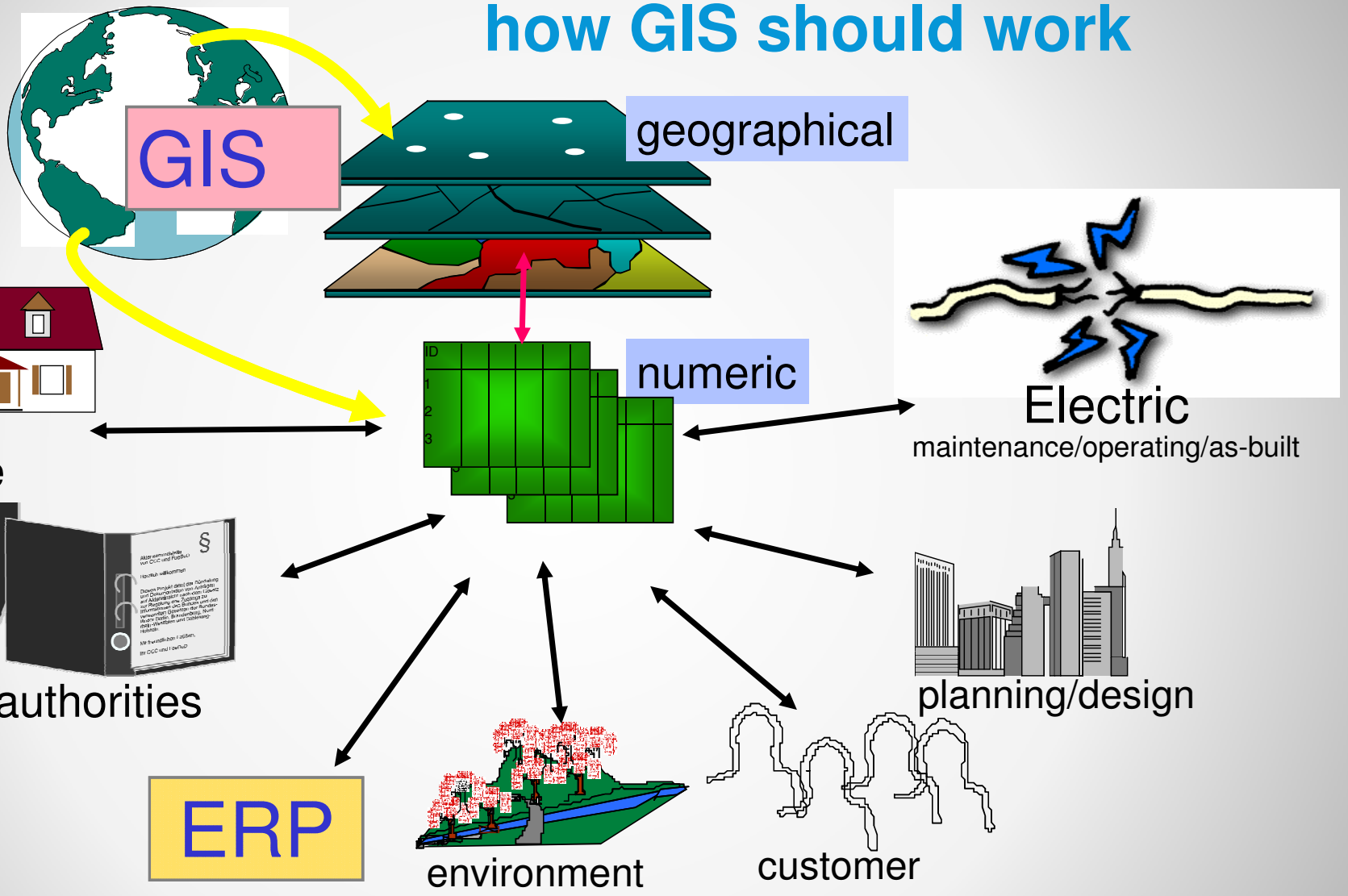
Source: Dezentrale Energieversorgung 2020 (VDE 2007)

development of the renewables in our network

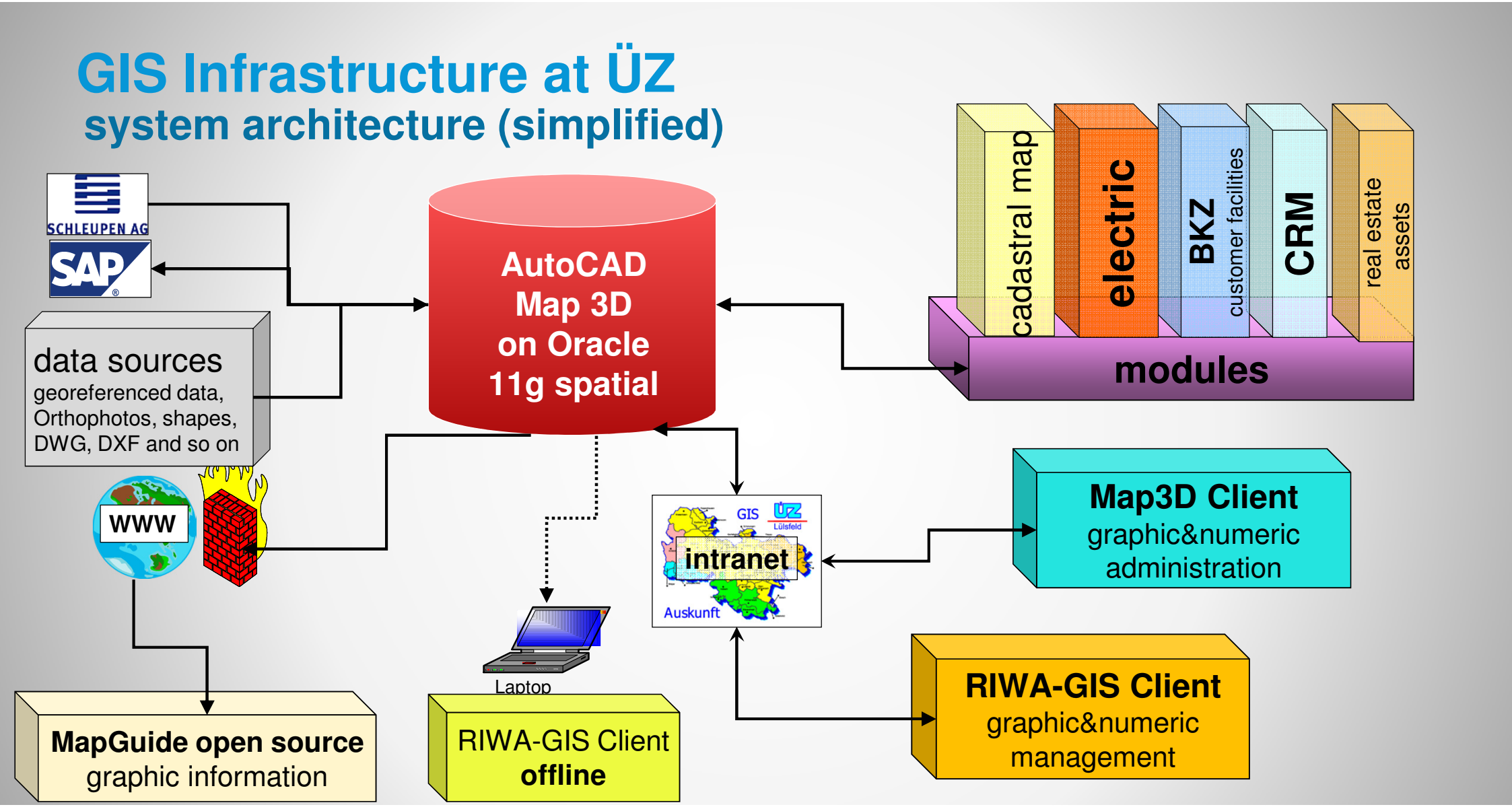


GIS Infrastructure at the ÜZ – Using all Data in one single Database

how GIS should work



GIS Infrastructure at ÜZ
system architecture (simplified)



Easier Management of Grid Data – Extending the Standard Functionality of AutoCAD Map 3D

TAB Pages

- Controls the look of our data dialogs based on different attributes
- Used to change the look of a dialog according to a specified attribute of the displayed object data

→ It is possible to display the same form with different form controls, different colors,different tabs and a different detail table according to a specified attribute

Example: Transformer Station with three distribution levels →

Extended Form Functionality: Segment Mapping Tool

- API Buttons in EL_SEGMENT data dialog
- Manage segment duct and/or segment conductors directly in the dialog
- Create new conductors for the chosen segment directly in the dialog
- Move conductors and ducts in a segment (and in the related crosssection) directly in the dialog without any graphical interaction

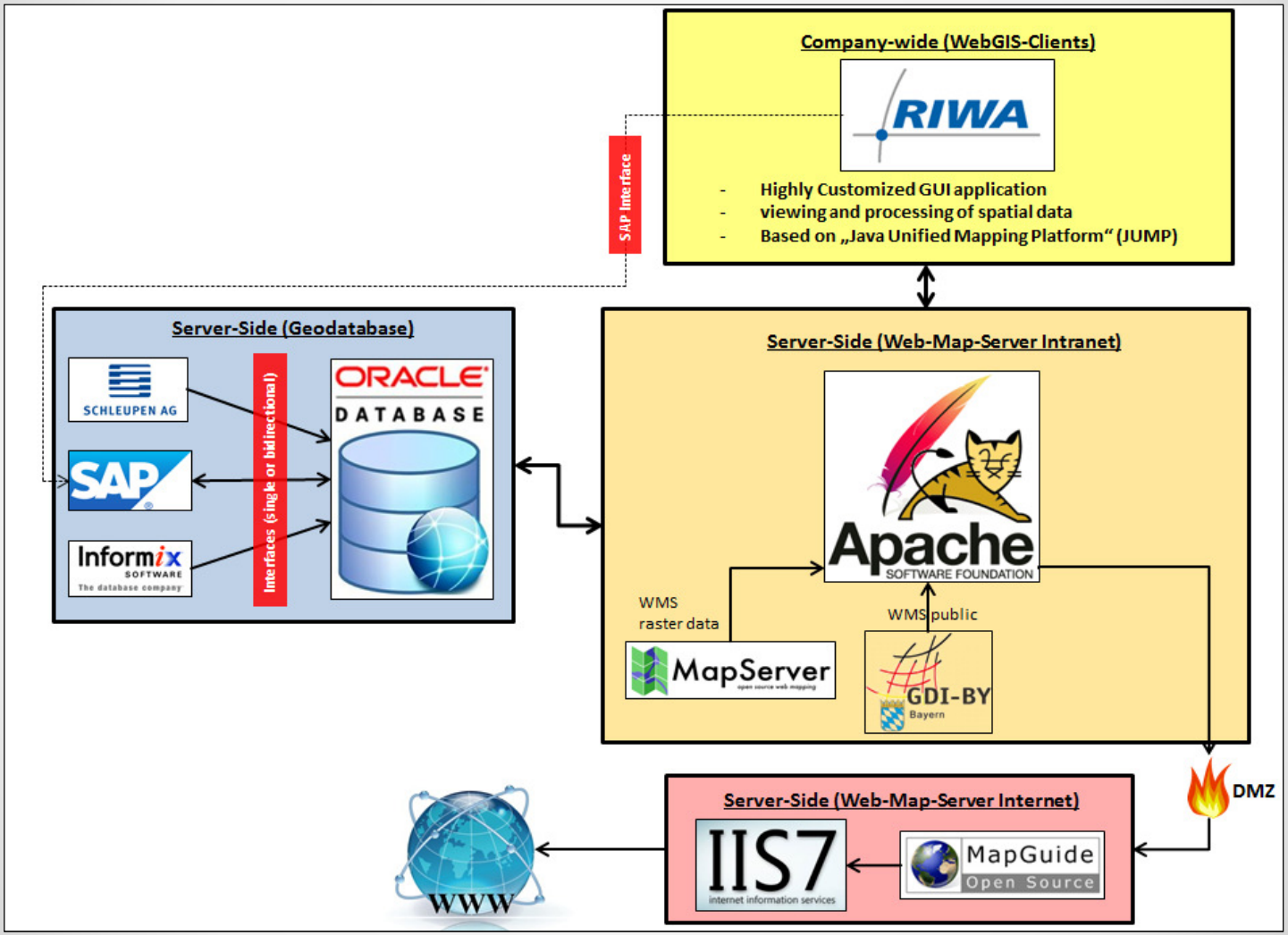
→ with the Segment Mapping Tool a lot of segment related topics can be managed directly in the data dialog; digitizing and data management gets much more efficient this way →



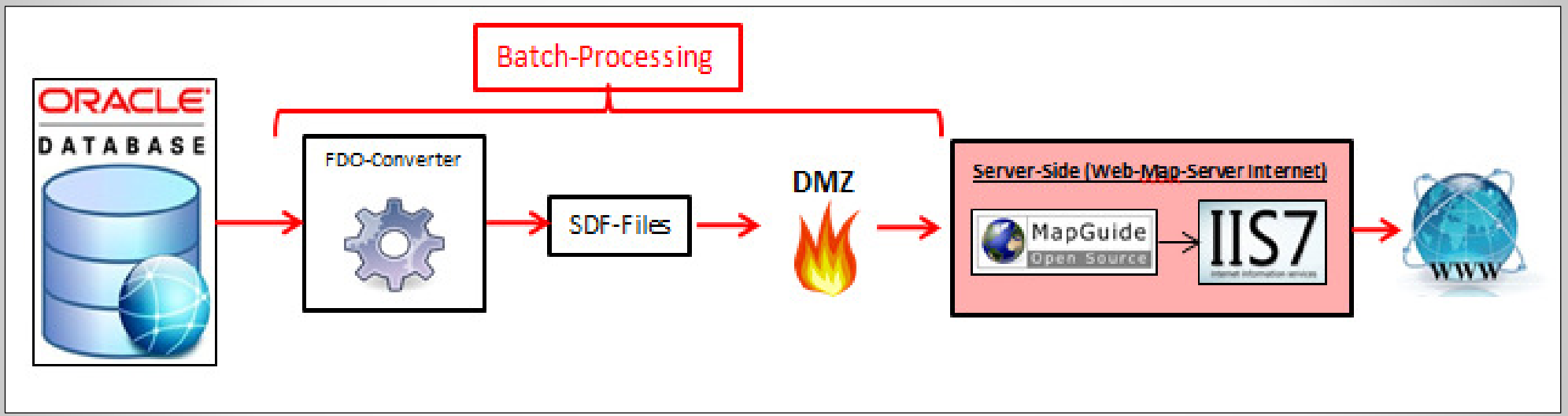
Use Web-GIS both online and offline for operational and breakdown services of the ÜZ and for third party users



ÜZ Web-GIS Infrastructure



Processing of SDF-Files for the Internet-GIS of the ÜZ



Live – Demo ÜZ Internet GIS



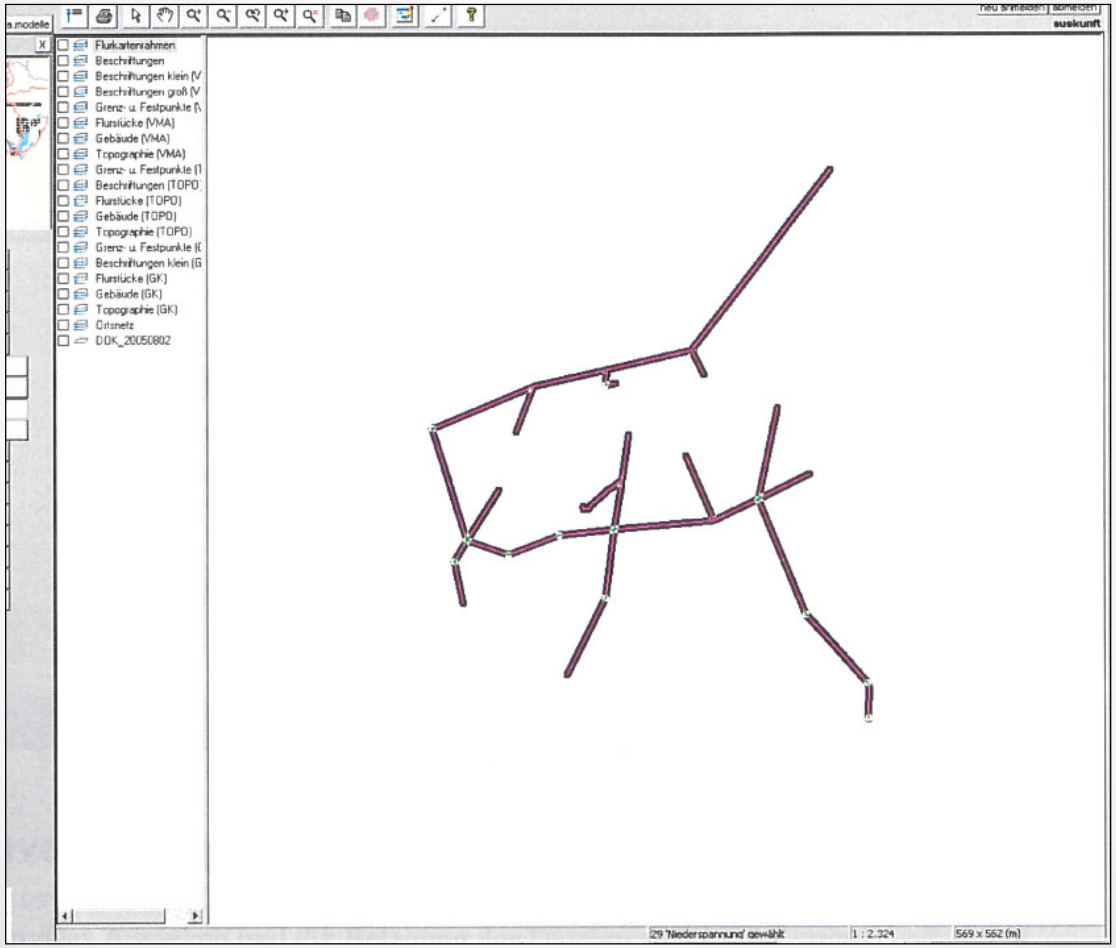
Getting AutoCAD Map 3D based data into other systems such as grid calculation or planning systems



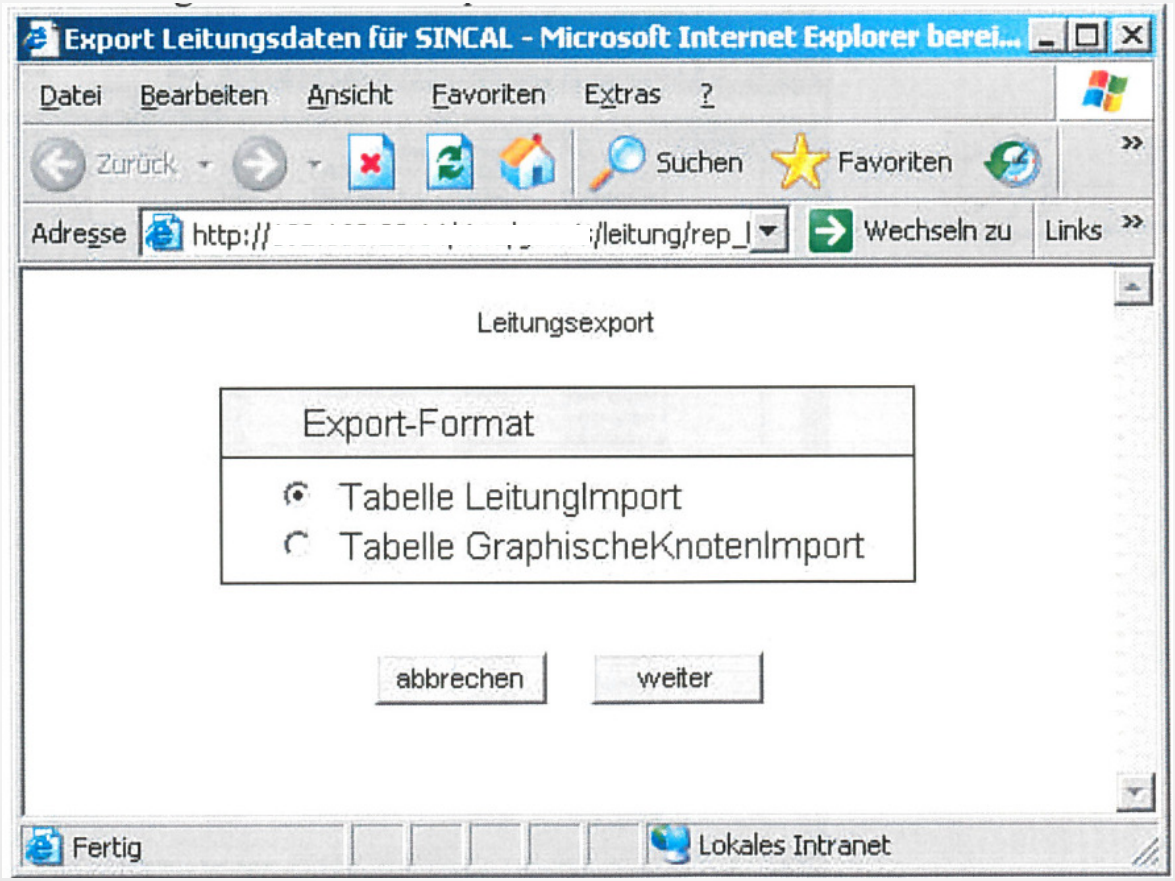
Getting AutoCAD Map 3D based data into our grid calculation system

- “normal” users need to get Map3D (Oracle) data into PSS®SINCAL database (MS Access Database)
- Since every PSS®SINCAL user has access to the WebGIS-Client and both applications offer functions to work with MS Excel data we decided to use Excel as exchange platform
- Tasks we had to do to realize the data exchange:
  - adjust the Excel Export of our WebGIS-Client
  - Create Mapping file (XML-file) in PSS®SINCAL to configure the import

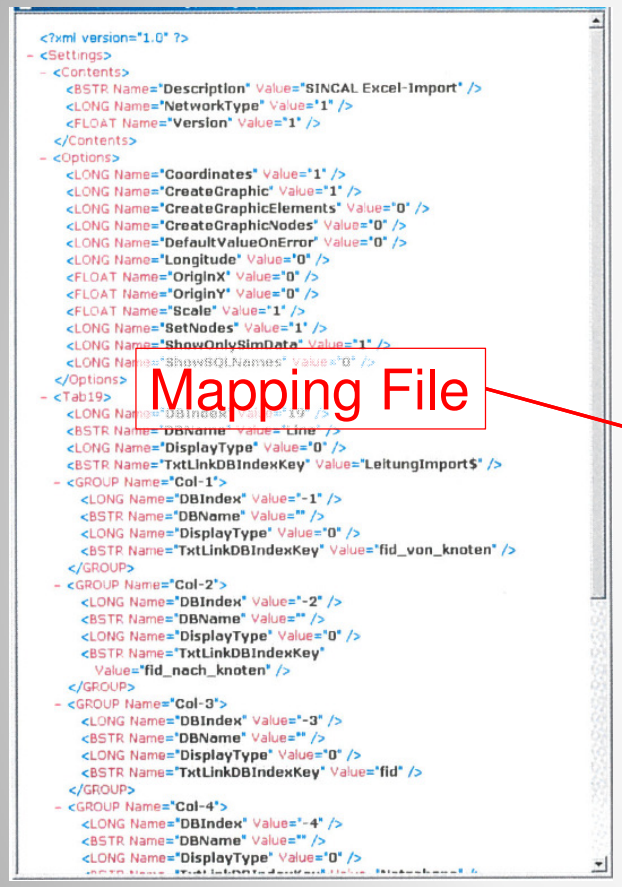
Display area and objects that have to be exported to PSS®SINCAL in the WebGIS client



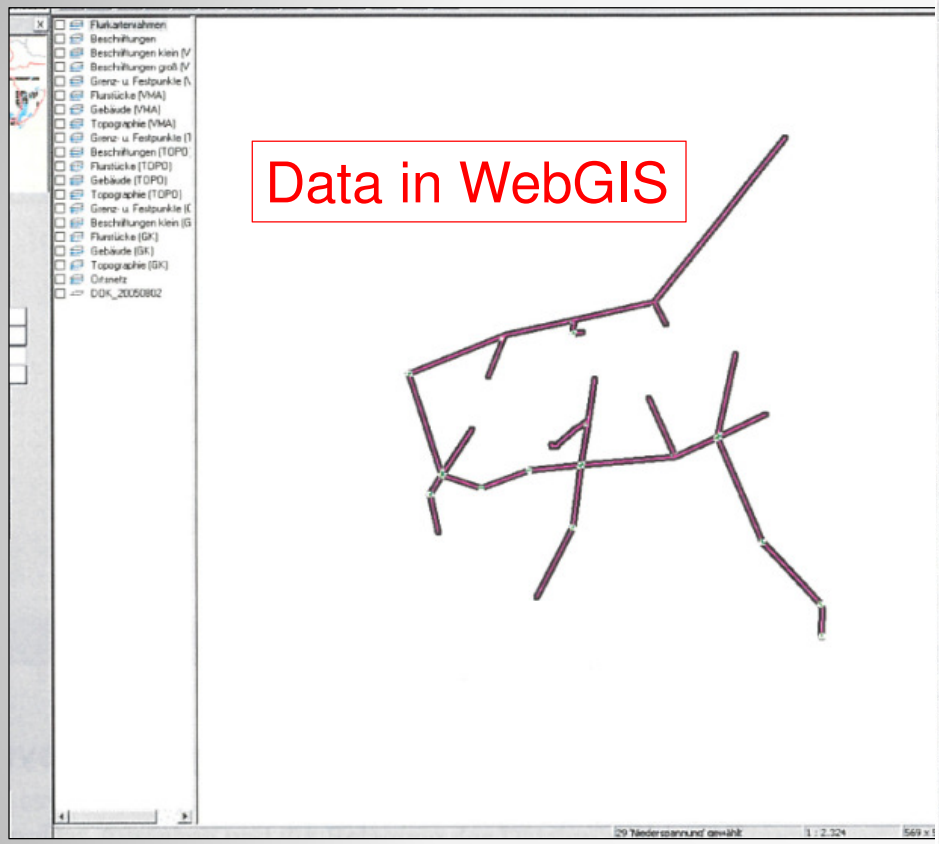
Execute SINCAL export and choose one of two export options

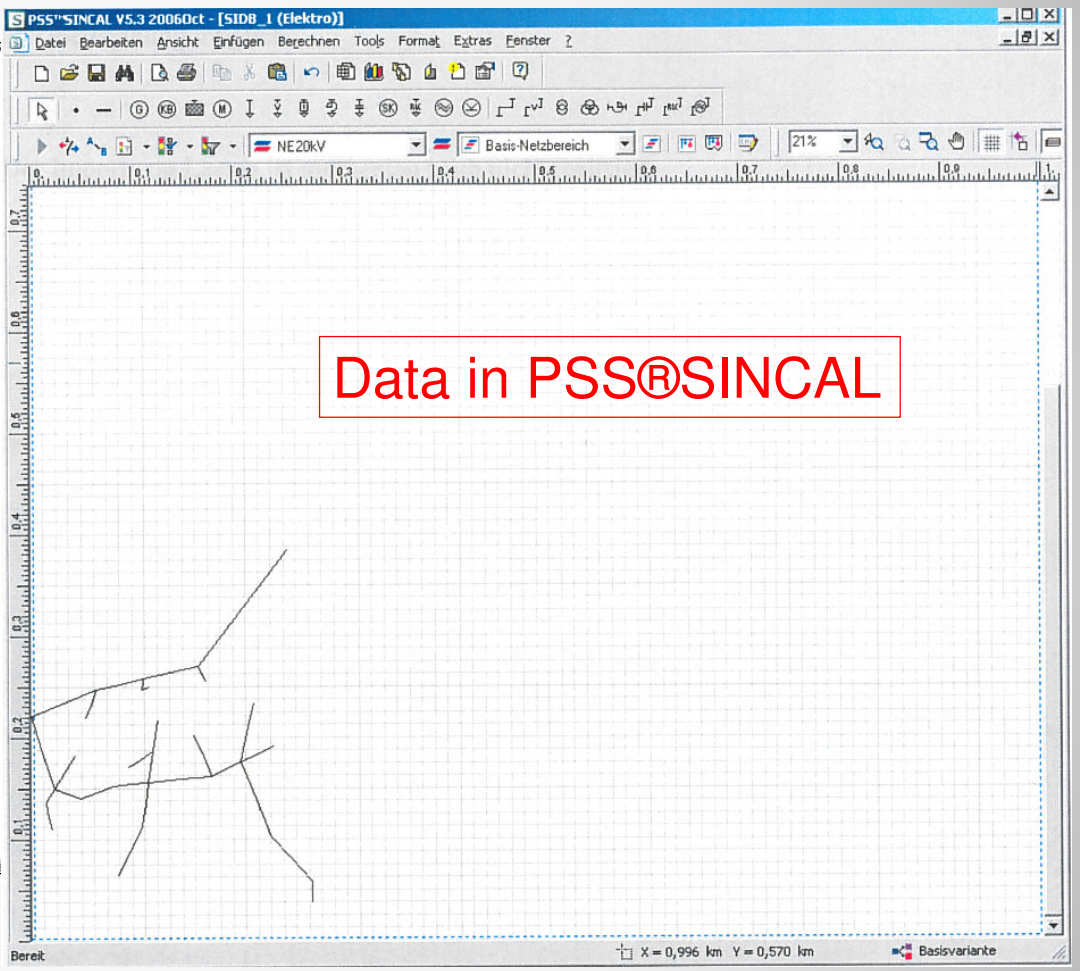


Import Tool of PSS®SINCAL



GIS data in SINCAL after successful import





Edit AutoCAD Map3D (Oracle) data for the Planning department of the ÜZ

The main steps of the workflow are:

- DXF-Export from the WebGIS client
- Open DXF-file in Standard AutoCAD Map 3D 2008
- Edit the data in the DXF file with some LISP routines

→ Now the data is ready for further processing of the planning department

Live – Demo
Edit AutoCAD Map3D (Oracle) data for the Planning Department



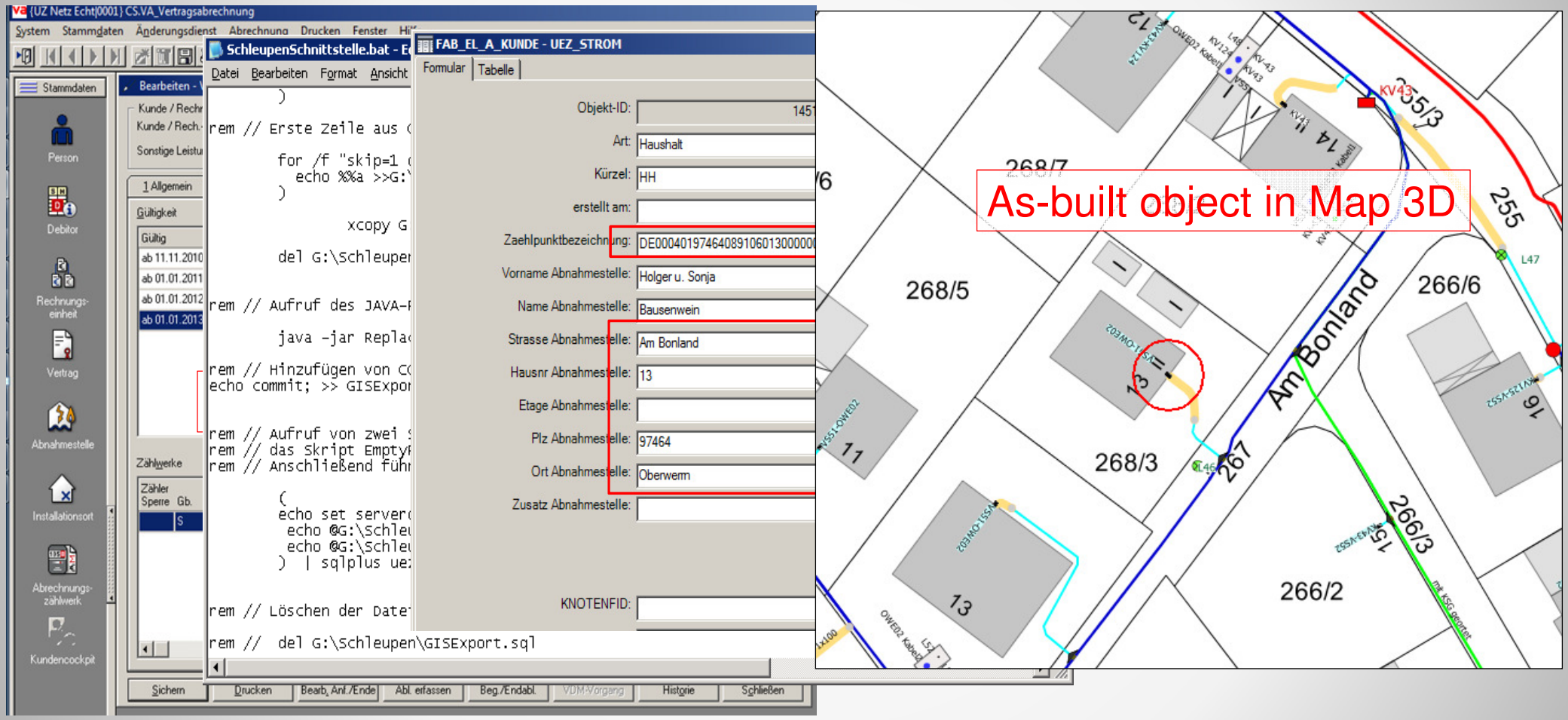
How the ÜZ realizes interfaces to other enterprise applications such as SAP® and IBM® Informix®



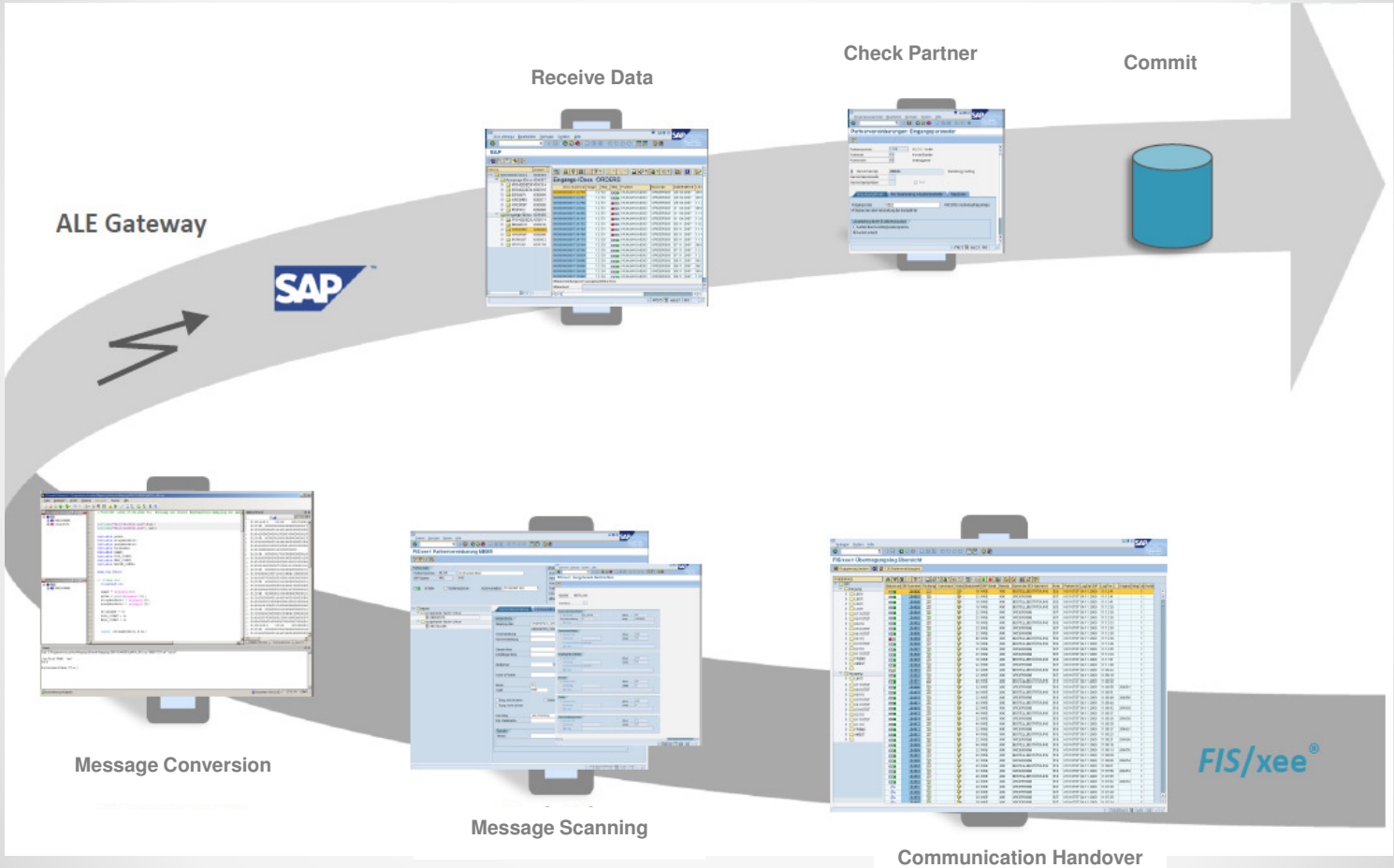
Connection between IBM® Informix® and AutoCAD Map3D

- Workflow for getting Informix data into AutoCAD Map3D (on Oracle):
  - Export the data out of the Informix database into a CSV-File
  - Edit CSV file to contain Oracle-conform Insert-Statements (Java program)
  - Insert data from CSV file
  - Connect the inserted datasets to the as-built datasets

Connection between IBM® Informix® and Map3D



Connection between SAP® and AutoCAD Map3D



Connection between SAP® and AutoCAD Map3D

- Example: Jumping from AutoCAD Map3D dialog into SAP®
  - VB Scripting Button which
    - Reads connection key for the link to the SAP object from the active dataset of the dialog
    - Gets the required transaction code for SAP (depends on the button which is being clicked)
    - Gets the SAP-Client ID
    - Writes data to a SAP-file together with other parameters
    - Calls SAP-file via another Batch file →



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