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SAP Integration with GIS at Vienna Networks

Esri European User Conference 2015, Salzburg, Austria

Eric Schmalen, AED-SICAD AG

Oct. 17th 2015

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Agenda

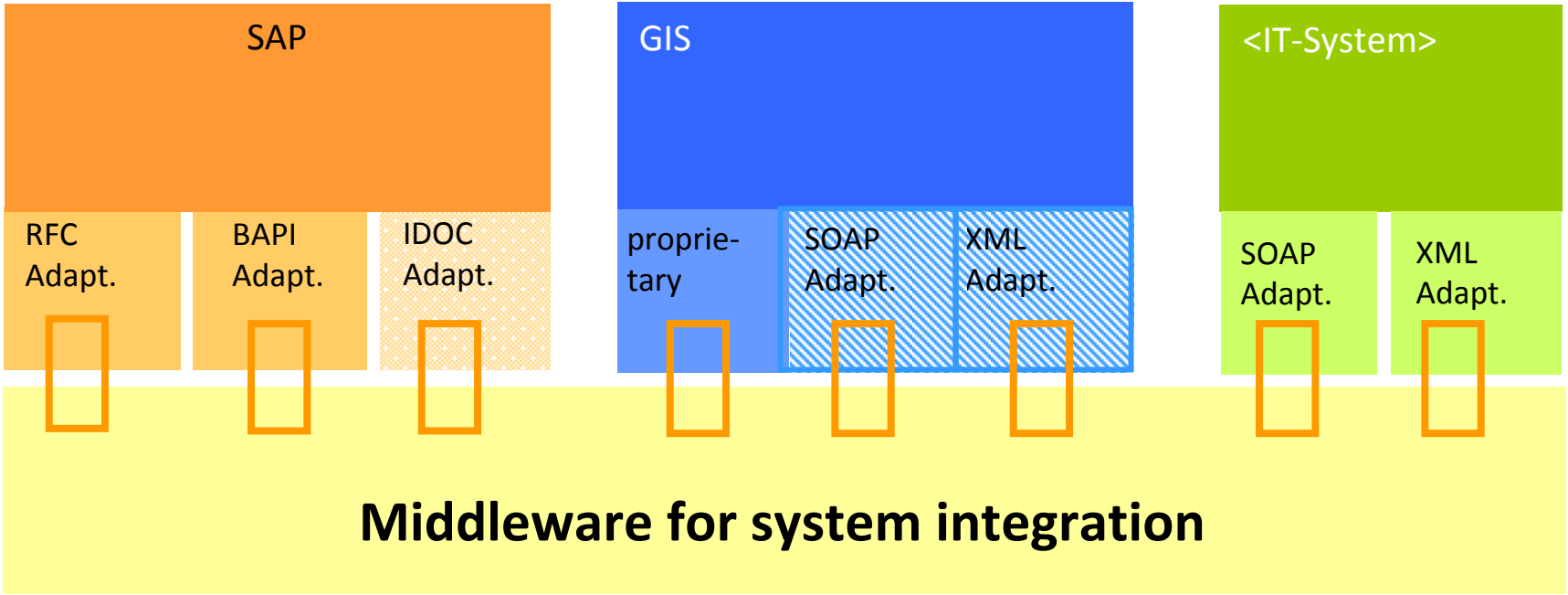
1. Facts about Vienna Networks
2. Business process support with SAP-GIS integration
3. Types of integration
4. Analyses & reports
5. Summary

Some facts about Vienna Networks

- **Responsible for the operation and maintenance of**
  - Electricity network
  - District heating network
  - Telecommunication network
  - Gas network
- **The largest gas distributor in Austria**
  - 683 059 customers
  - 122 473 service points
  - 678 323 gas meters
  - 4 599 km length

- **A multi-utility enterprise GIS from Desktop to Web and Mobile solutions**

Typical IT landscape of utility companies



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Business process support with SAP – GIS integration

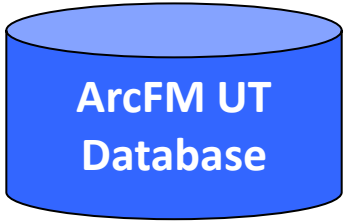
- **The chellange**

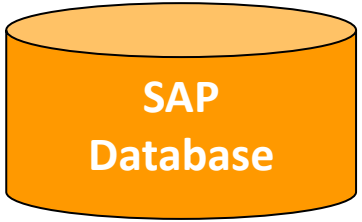
Technical asset data:

- Line type
- Material
- Dimension
- Length
- Creation date

Administrative asset data:

- Value
- Booking year
- Maintenance period/order
- Depreciation

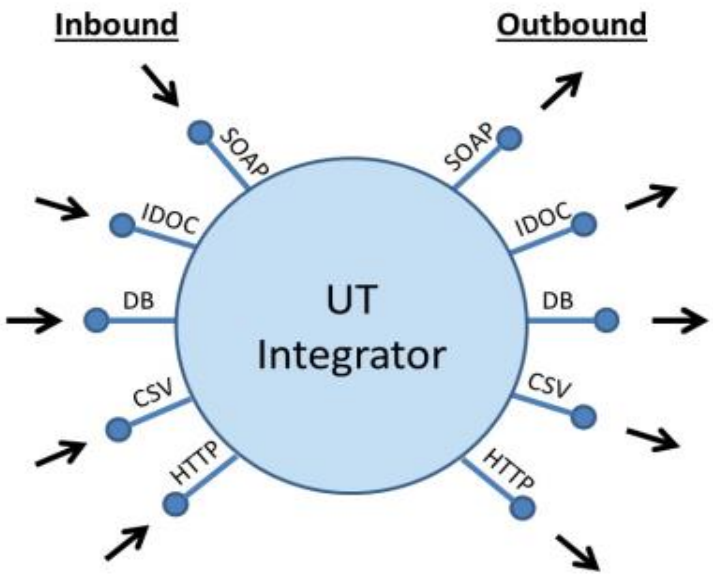




1 dataset from 2 datasources!
But 1 real world object!

Business process support with SAP – GIS integration

- **The middleware - UT Integrator**
  - Based on Esri ArcGIS for Server
  - Bi-directional
  - Close to real-time
  - Synchronous / asynchronous
  - Interfaces
    - SOAP / XML
    - IDoc
    - RFC
    - Table Reader
    - CSV files
  - Reliable and secured communication
    - Logging (Messages, Jobs, …)
    - Email notification



Business process support with SAP – GIS integration

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SAP - GIS interface improves three major processes

- Service Point Management
- Pipe Network surveillance
- Outage Management

ArcFM UT Integrator – interface from GIS to

- SAP PM
- SAP BI

Backend and Frontend integration

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Backend Integration

SAP Integration with GIS
at Vienna Networks

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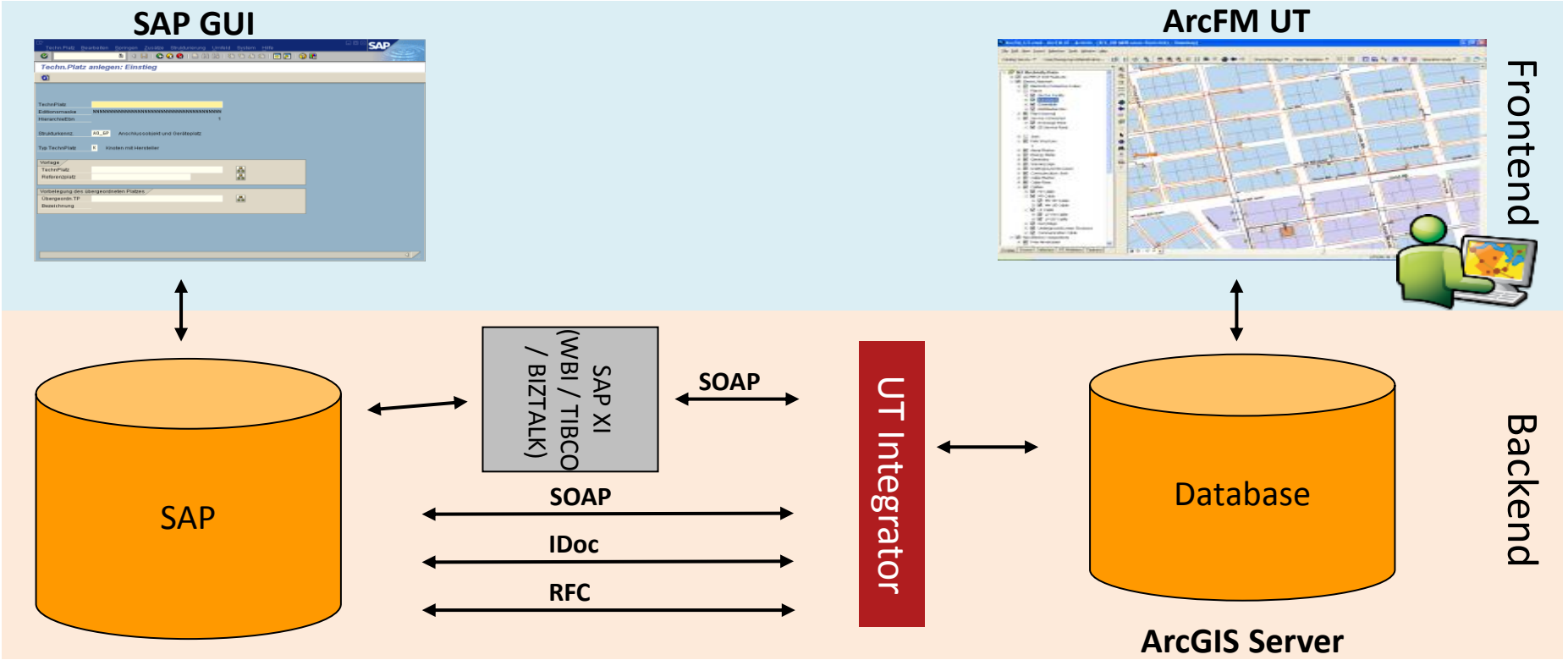
Types of integration: Backend integration

- **Transfer of data and function calls in the background**



Examples of Backend integration

- **Creation of a new service point line**

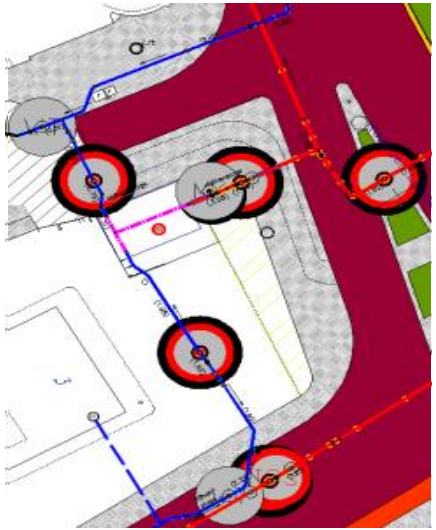
SAP PM	UT Integrator	ArcFM UT
Service center creates a new service point line in SAP PM including all technical attributes	Middleware automatically generates a new alpha-numerical record in GIS and transfers the technical SP attributes	GIS Engineer draws the SP line and connects the alpha-numerical record with the new graphics

Advantage: Continous workflow, no paperwork anymore, errors avoided

Examples of Backend integration

- **Pipe network surveillance and inspection**

ArcFM UT



- **Selection via spatial and attribute criteria**
- **Grouping**

Austrian Gas Norms

Leitungsmaterial	Betriebsdruck	Überprüfungsintervall
■ PE-Leitungen ■ kathodisch geschützte Stahlleitungen ■ nicht kathodisch geschützte Stahlrohrstücke bis zu einer Länge von 30 m	≤ 5 bar	6 Jahre[1], [2]
■ PVC-Leitungen	≤ 0,1 bar	4 Jahre[1]
■ Sphärogusslelungen ■ nicht kathodisch geschützte Stahlleitungen mit einer Länge über 30 m	≤ 1 bar > 1 bar ≤ 5 bar	4 Jahre[1] 2 Jahre[1]
■ Alle anderen Rohrmaterialien wie Grauguss, Faserzement u. dgl.	≤ 1 bar	1 Jahr

[1] Das Intervall muss auf die Hälfte des oben angeführten Wertes verkürzt werden, wenn mehr als 0,1 Undichtheiten (Leckstelle) je überprüften km festgestellt wurden.
[2] Die Überprüfung auf Dichtheit mittels Gasspüren kann bei Abschnitten > 1 km Länge alle 12 Jahre erfolgen, wenn der Leitungsabschnitt durchgehend im unverbauten Gelände (im Trassenbereich 10 m links und rechts keine Gebäude / Hohlräume gemäß ÖVGW-Richtlinie G 69, Tabelle 1) verlegt ist. Für diese Leitungsabschnitte ist zusätzlich eine Sichtkontrolle der Leitungstrasse gemäß 3.1.1 alle 3 Jahre durchzuführen.

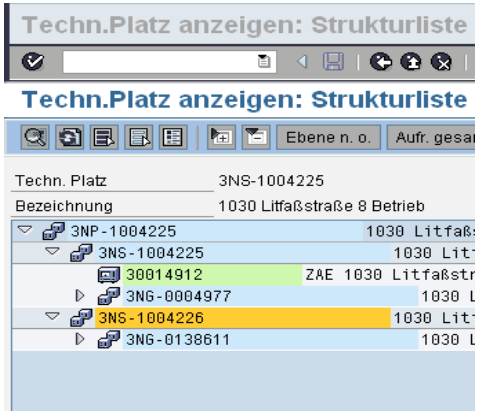
n - objects

regulations and laws

1 - object

UT Integrator

SAP PM



- **Import of group into a „free“ Functional Location (FL)**
- **Creation of maint. order**

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Frontend Integration

SAP Integration with GIS
at Vienna Networks

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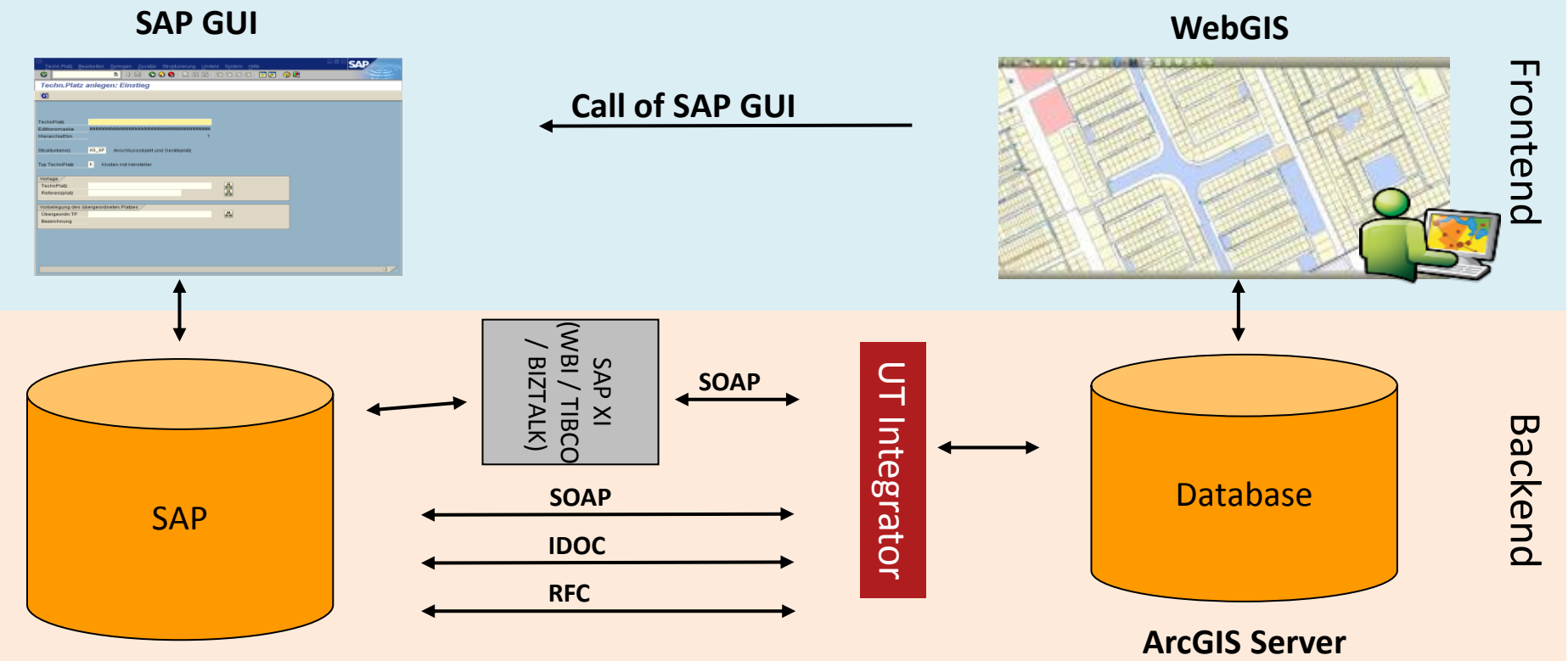
Types of integration: Frontend integration

- **Calling the GUI of the other system**



Types of integration: Frontend integration

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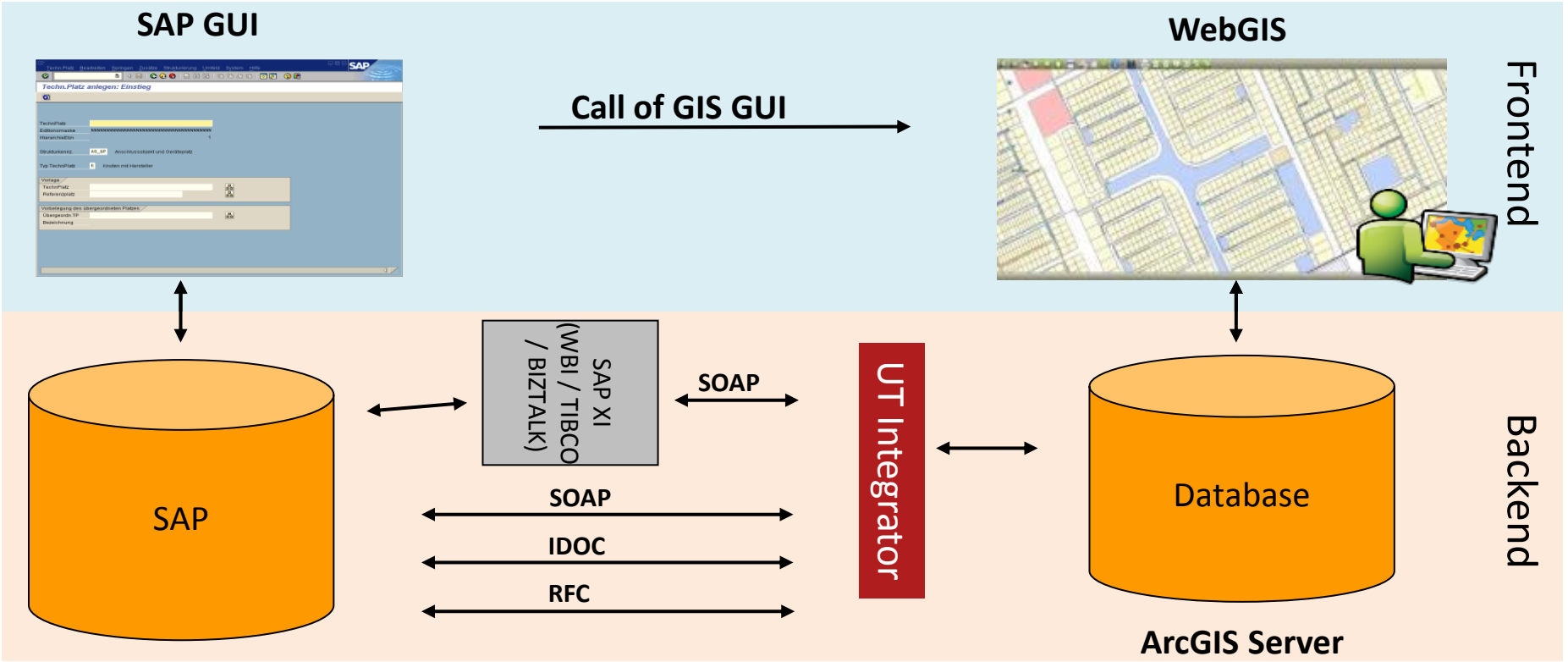
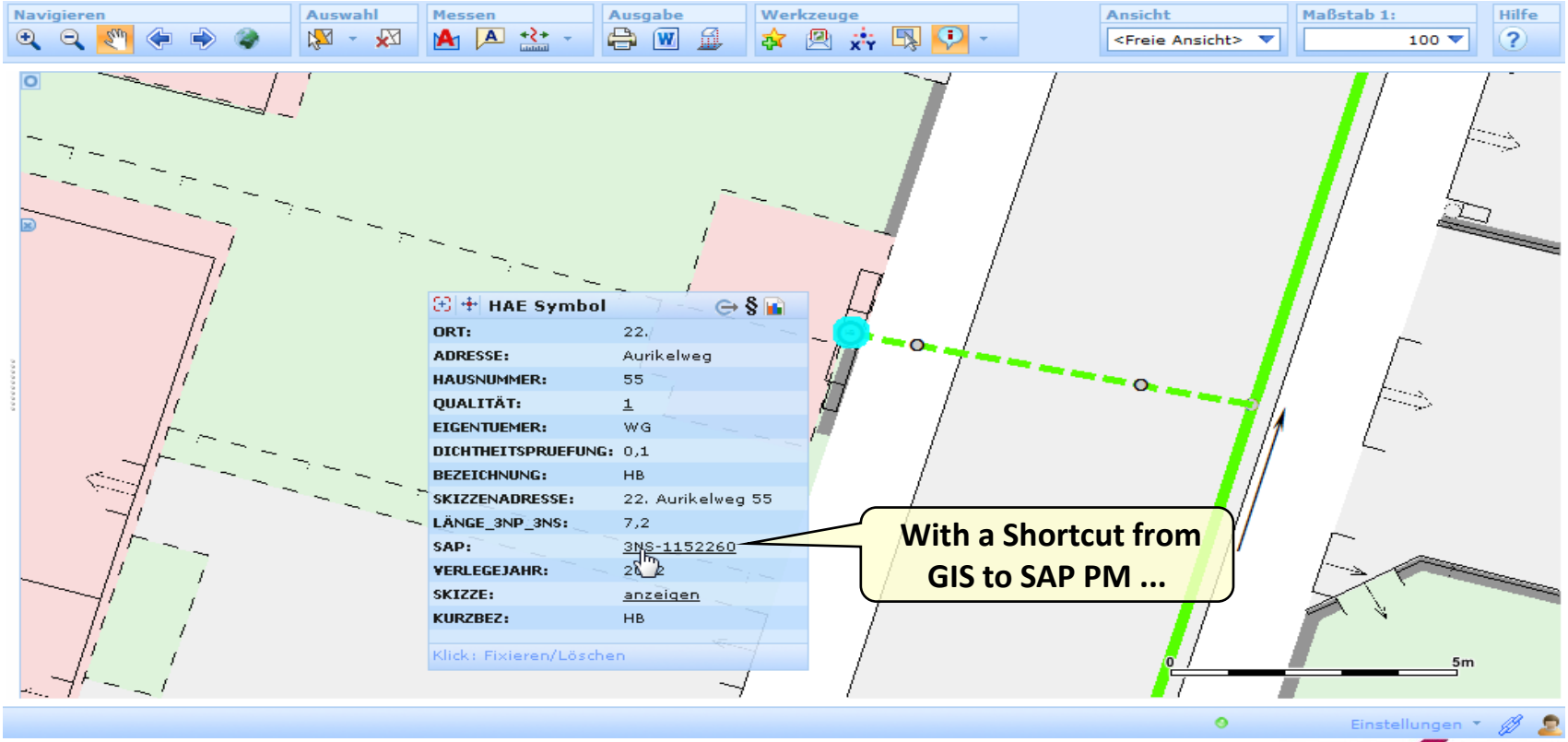


Examples of Frontend integration

- **Service point (SAP PM)**



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Examples of Frontend integration

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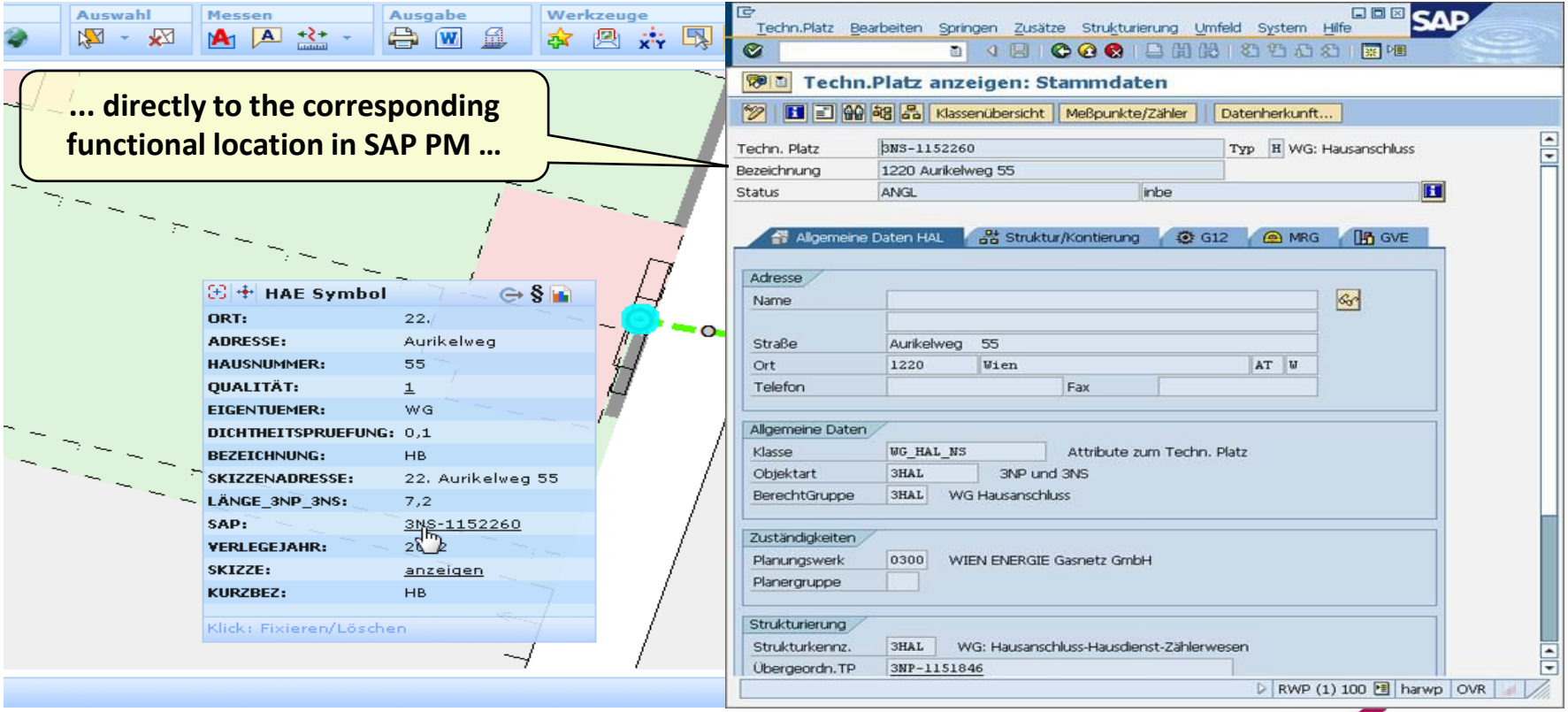

Examples of Frontend integration

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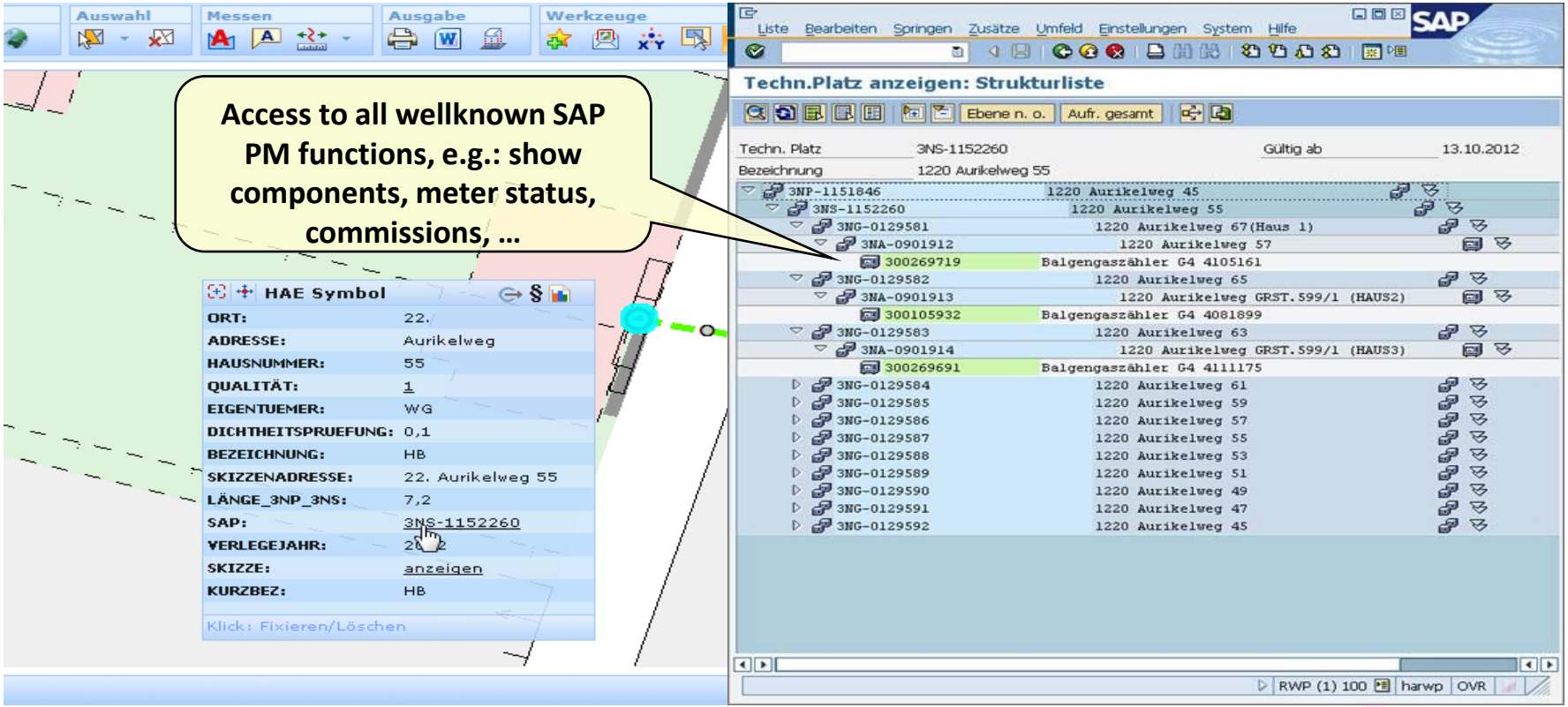
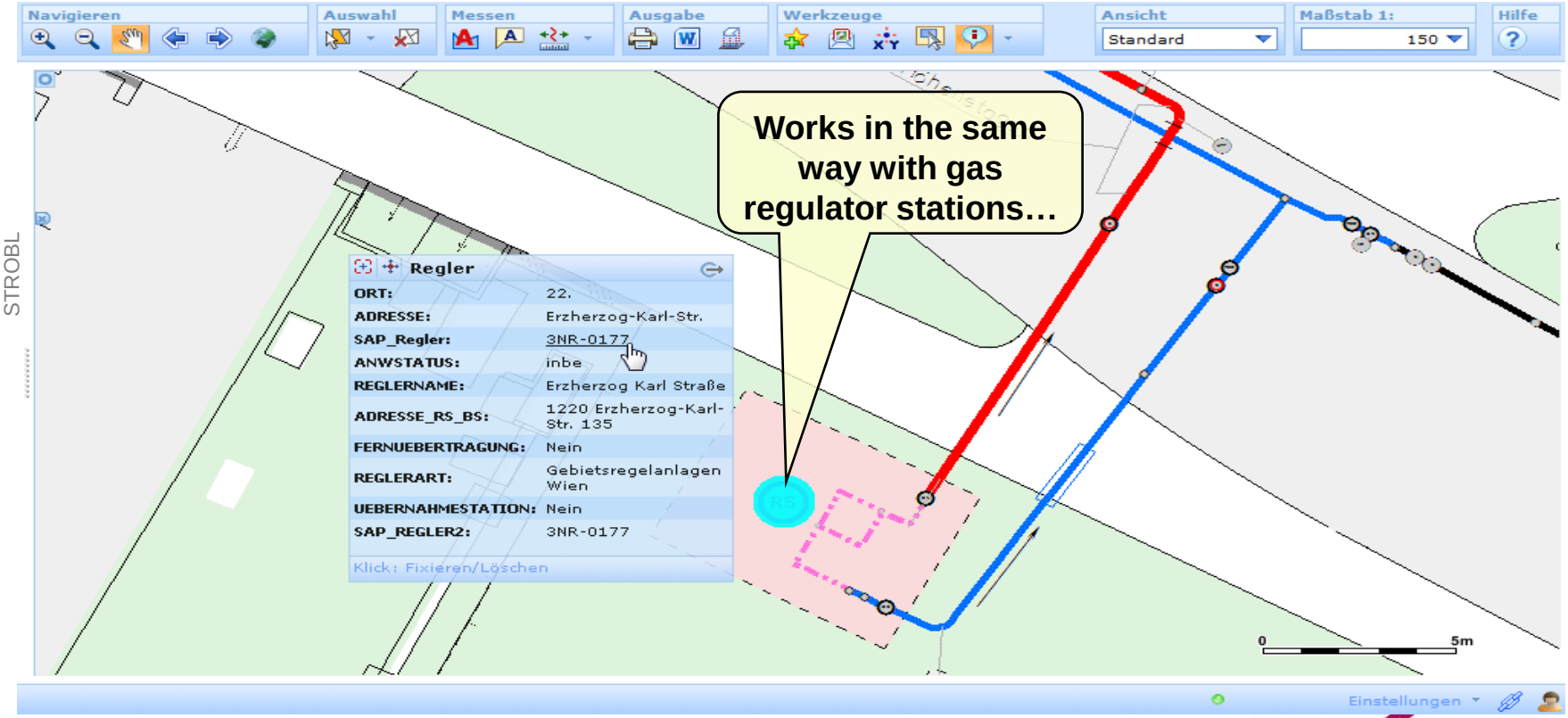


Examples of Frontend integration

- **Regulator stations (SAP PM)**



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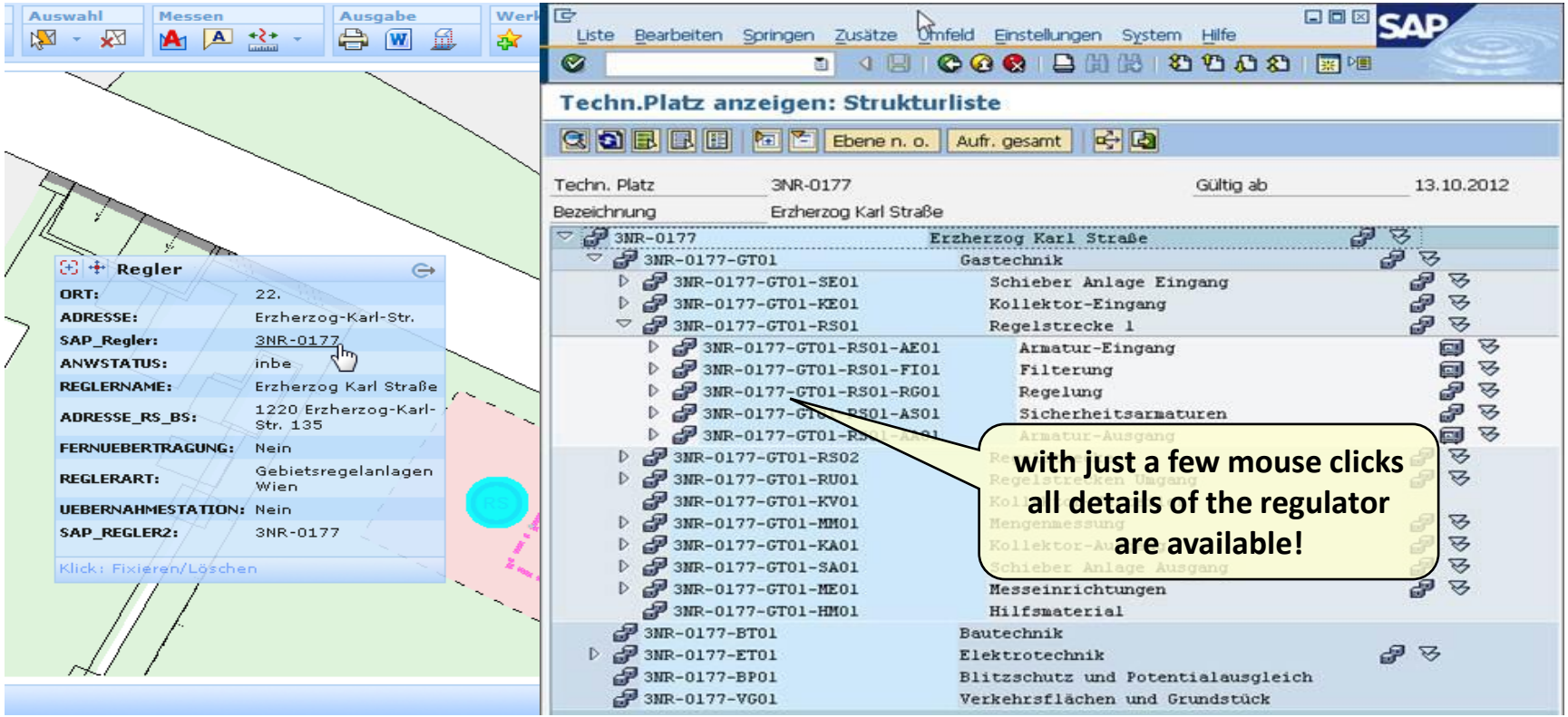
Examples of Frontend integration

- **Regulator stations (SAP PM)**



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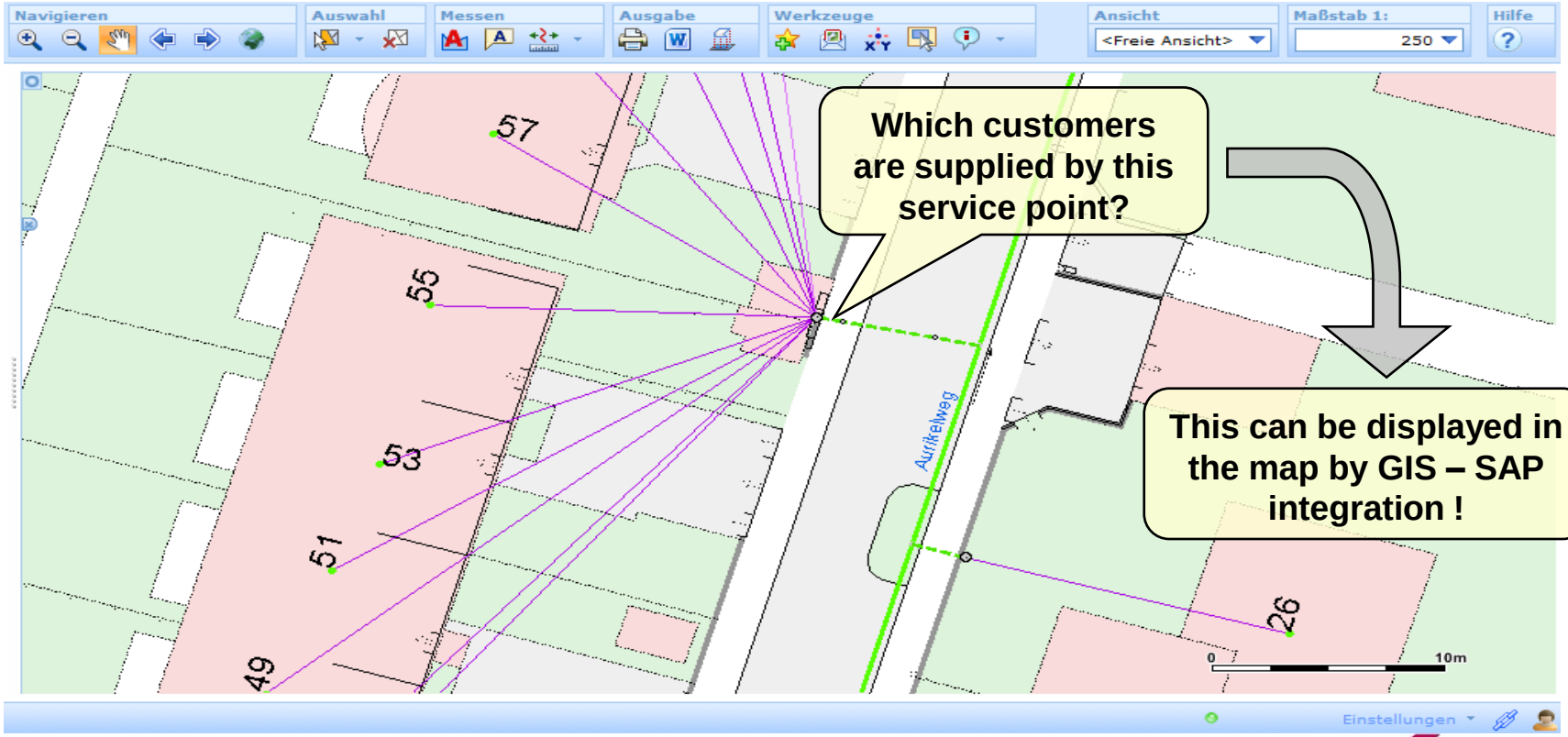
Examples of Frontend integration

- **Supply situation - integrated data query with GIS & SAP PM**



Which customers are supplied by this service point?

This can be displayed in the map by GIS – SAP integration !

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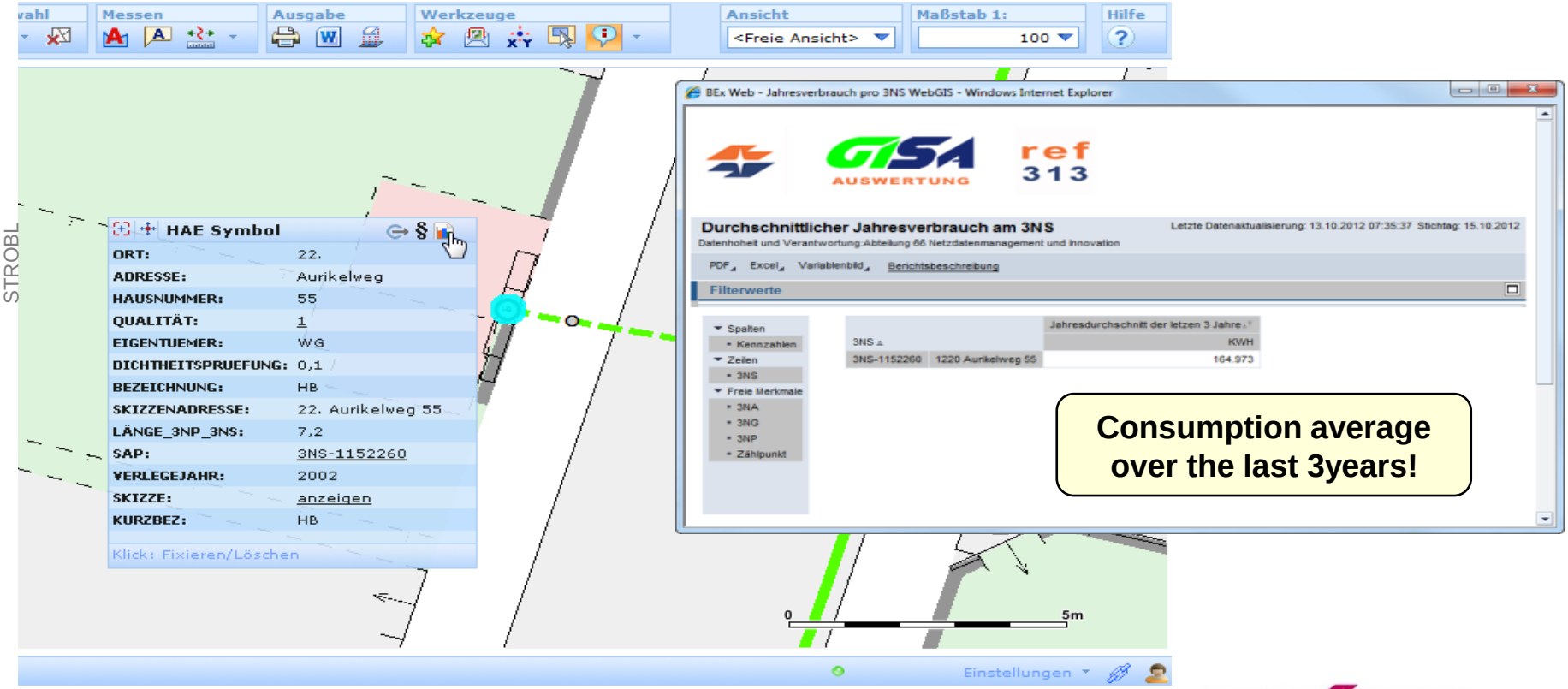
Examples of Frontend integration

- **Display of consumption situation (SAP PM)**



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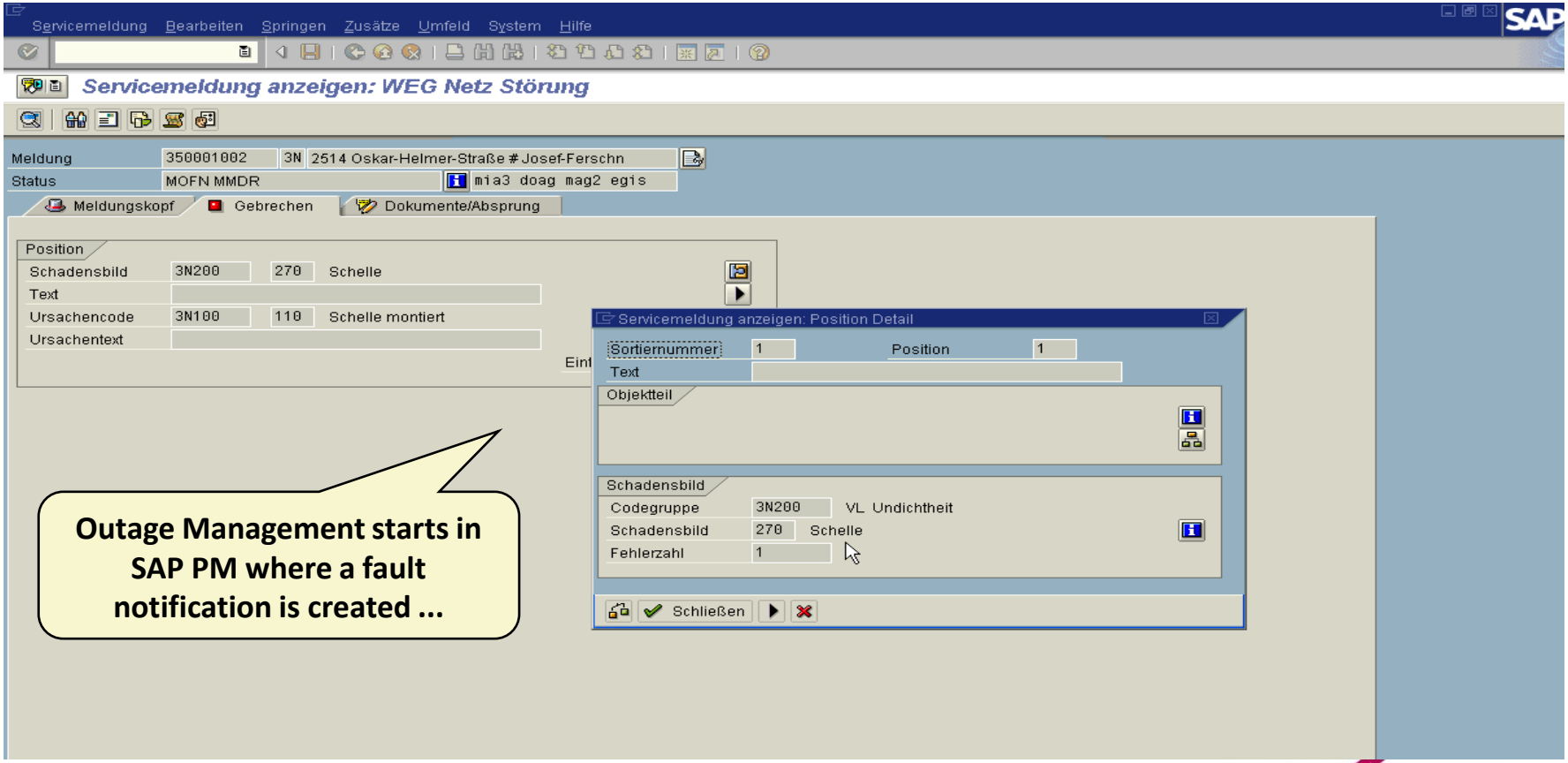
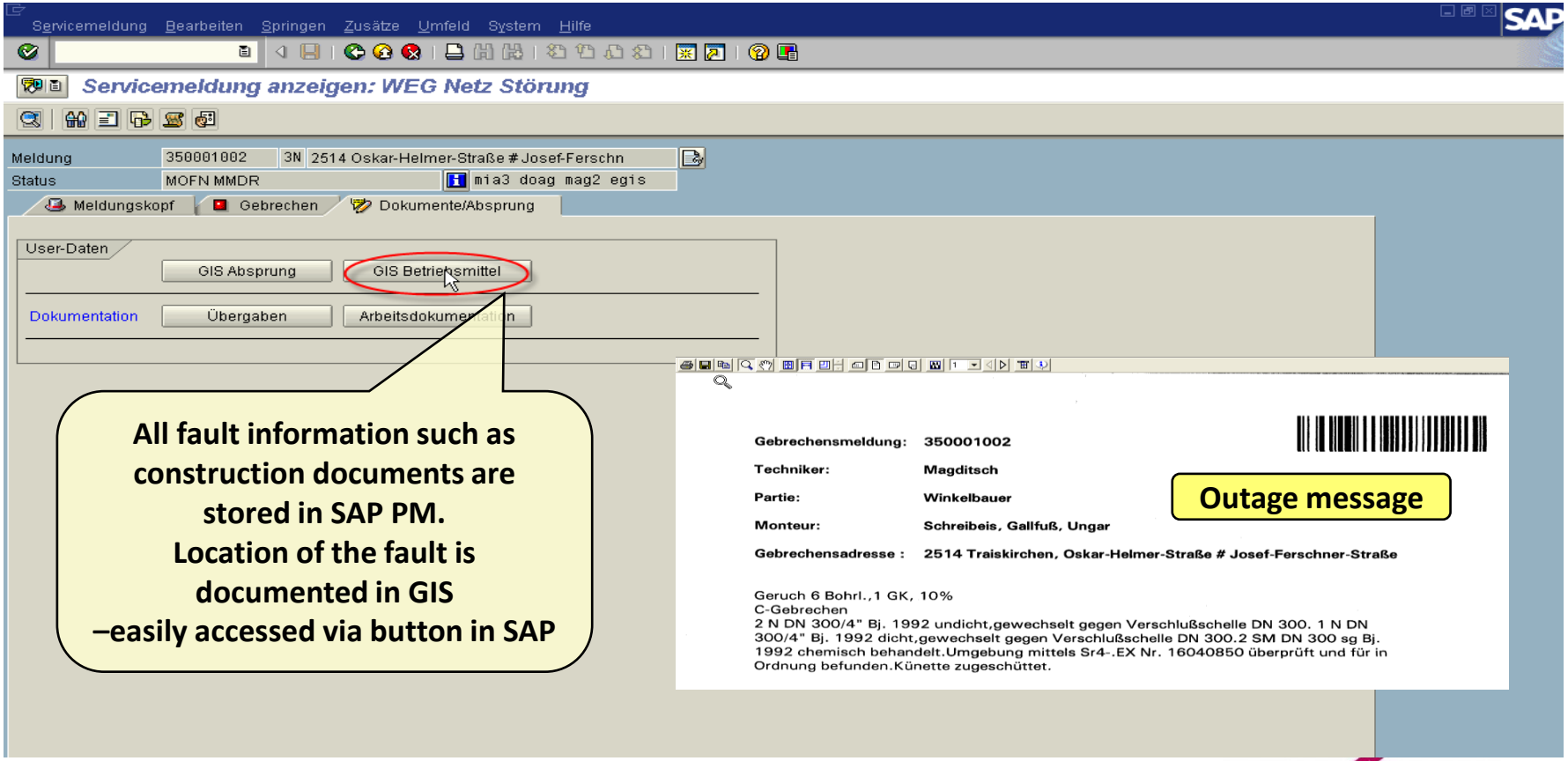
Outage Management with GIS and SAP



Outage Management starts in SAP PM where a fault notification is created ...

Outage Management with GIS and SAP



All fault information such as construction documents are stored in SAP PM.
Location of the fault is documented in GIS
–easily accessed via button in SAP

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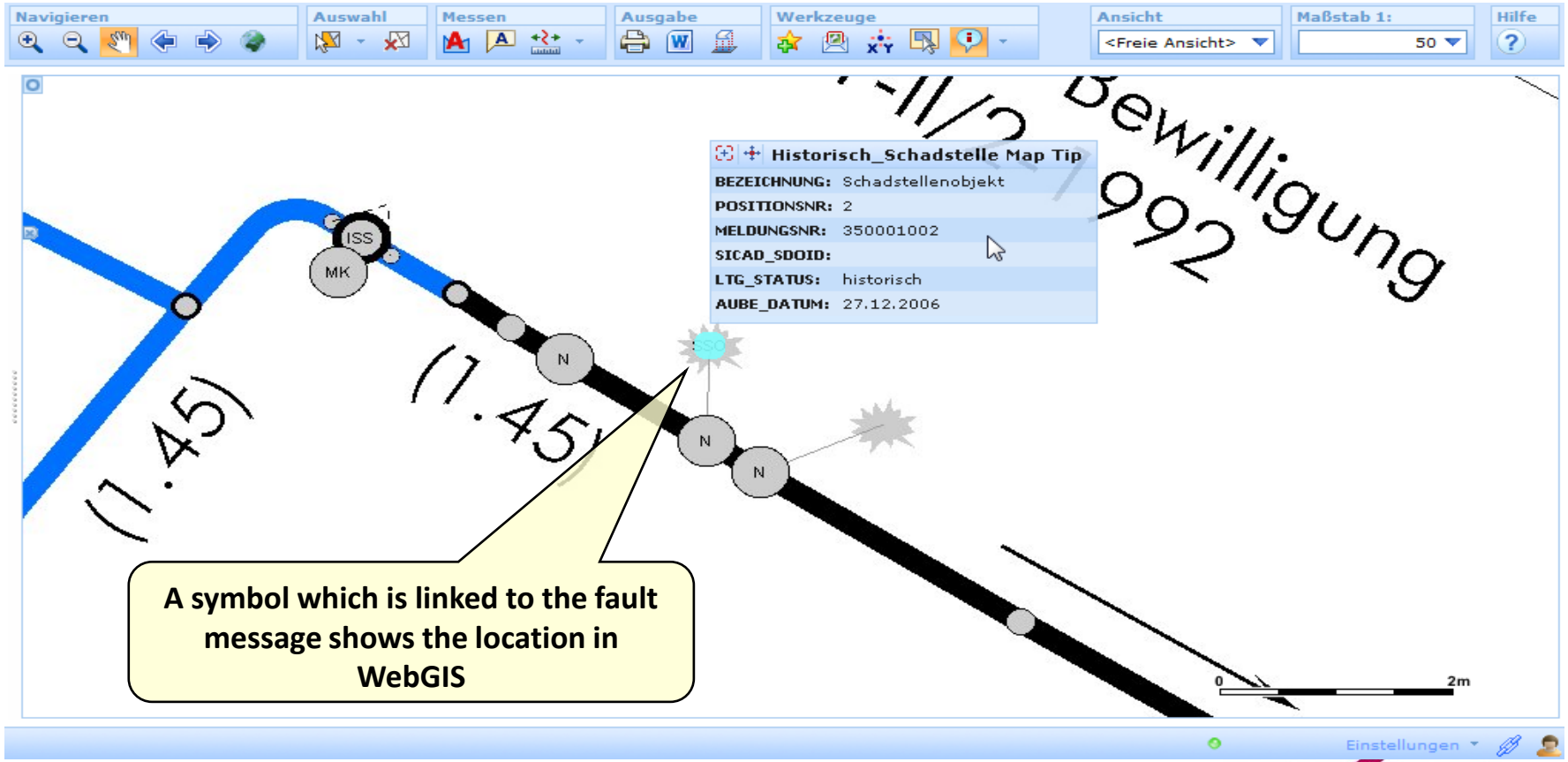
Outage Management with GIS and SAP



A symbol which is linked to the fault message shows the location in WebGIS

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Analysis & Reports

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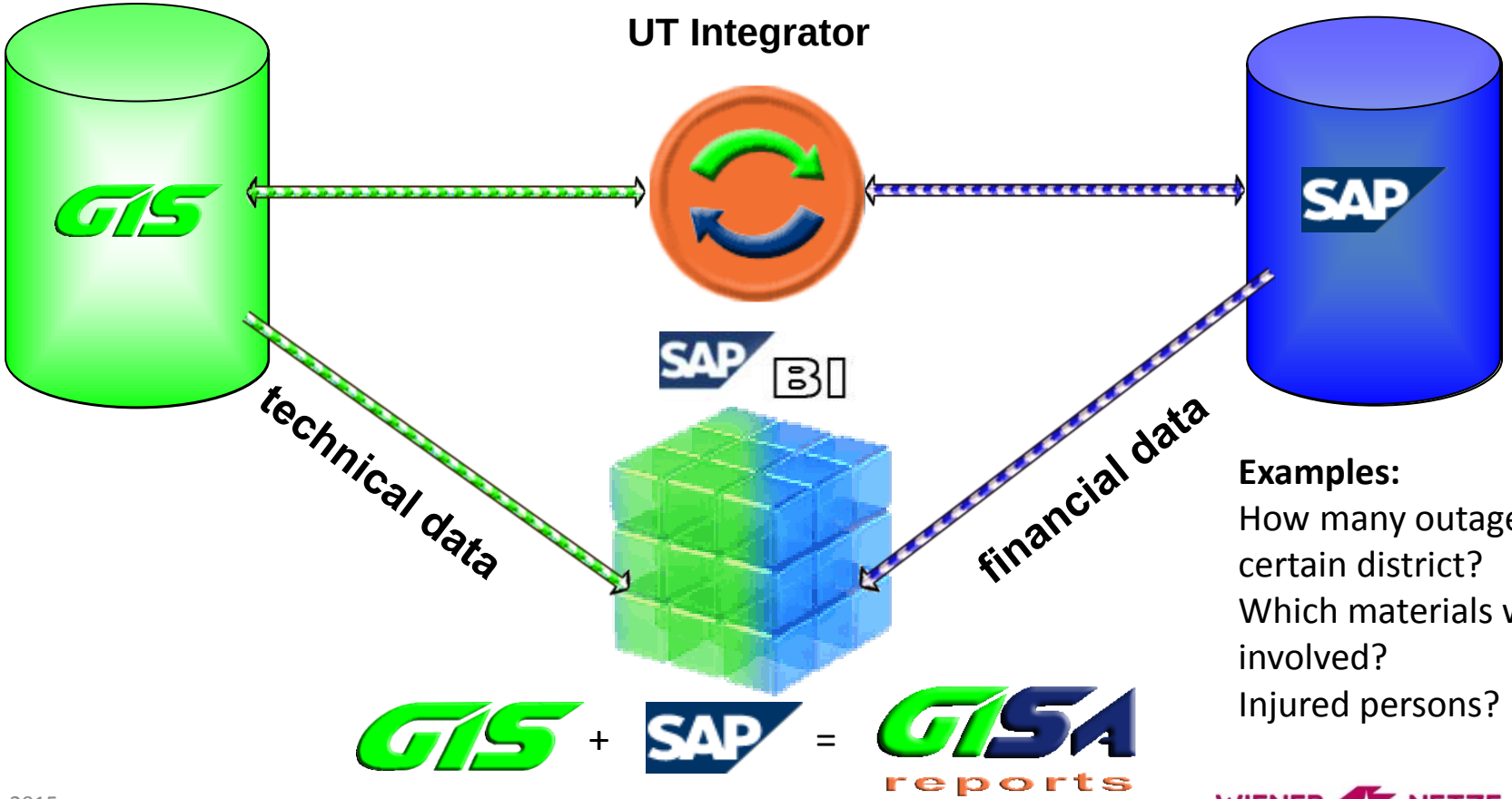
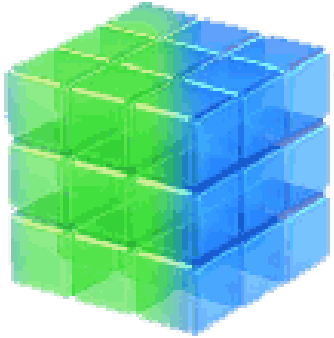
Analyses & Reports



Examples:
How many outages in a certain district?
Which materials were involved?
Injured persons?

Analysis & Reports

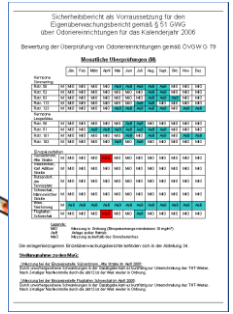
- **BI – Output**

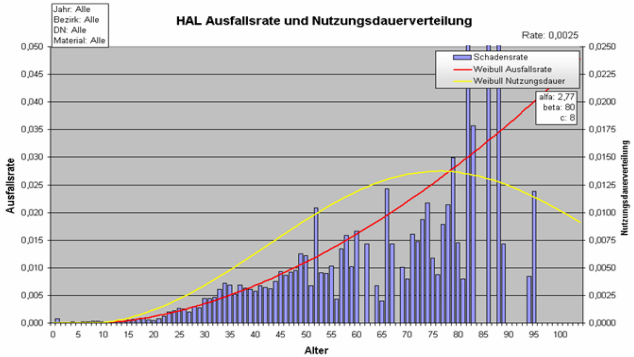


Reports for the management

Simulation calculator

Reports for E-Control

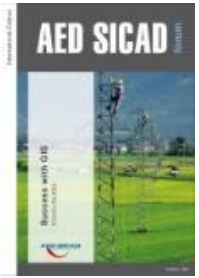




Trend analysis,
Fault propability,
Strategy for exchanging assets

Enterprise GIS integration with SAP

- **Benefits for Vienna Networks**
  - Business process support across established IT-Systems
  - GIS and SAP information synchronized and combined in one BI database for processing, analysis, reporting, asset management
  - Better documentation with GIS and SAP integration
  - Better visualization of asset information in the map
  - Better informed enterprise decisions
  - Reliability of processes and operations improved
  - Reduced costs through lean and efficient processes



More details: Please read AED-SICAD forum international 2014 p 10-12

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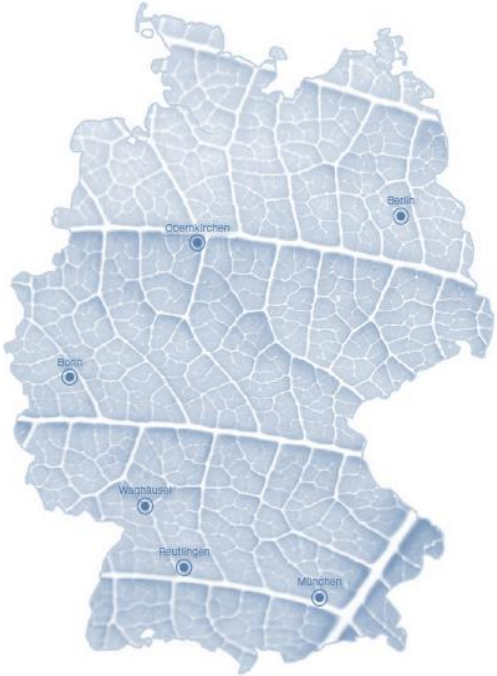
Thank you for your attention!



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