Inside Plant Schema Field Data Capture with SWE.Inspection app

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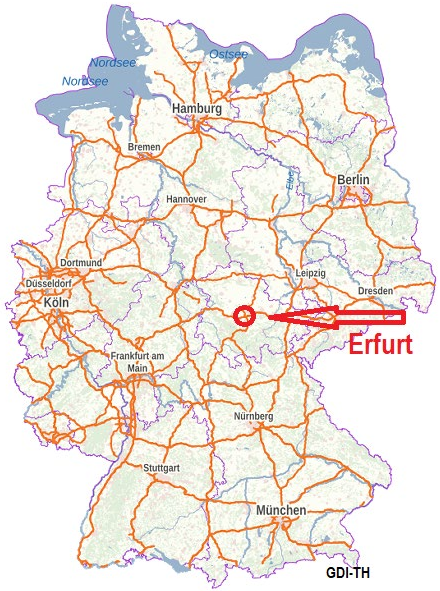
Introduction

- Erfurt is the German federal state capital of Thuringia:
  - 215.000 inhabitants
- SWE Netz GmbH is the electricity supplier for Erfurt.
- SWE Netz GmbH operates
  - 8 transformer stations (110 kV):
  - 1.050 substations
  - 4.500 cable distributors
  - 34.500 house connections



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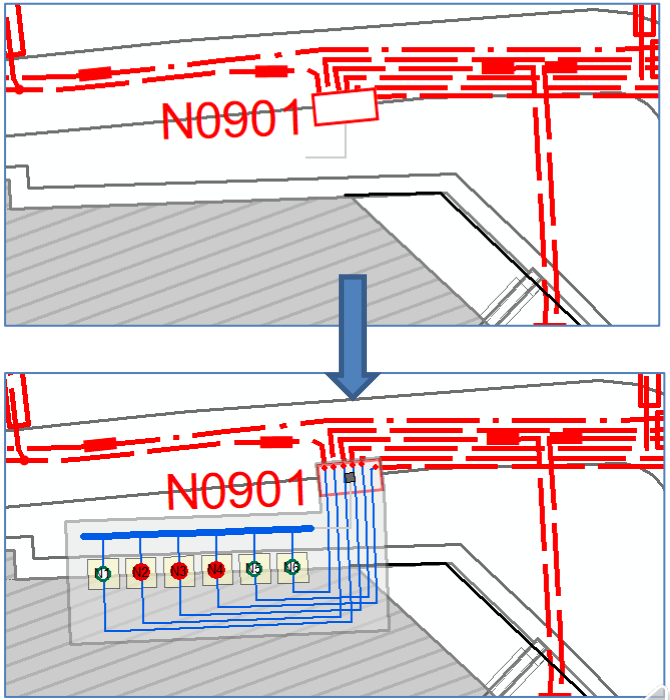
Introduction

- Accurate documentation of technical attribute and maintenance data of our network objects is becoming increasingly important.
- For analysis and simulation of the power grid, a topologically precise mapping in GIS is a prerequisite.
- Especially for E-Mobility and expansion of renewables



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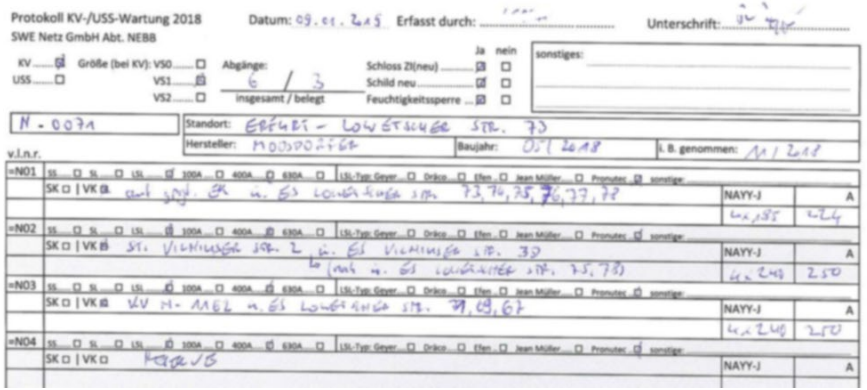
Introduction

- Data was previously recorded in paper form.
- Major drawbacks:
  - Inefficient and time consuming - data is captured twice.
  - Often hard do decipher by staff in the office.
  - Poor “usability” in cold and rainy weather conditions.
  - Prone to errors.


Protokoll KV-/USS-Wartung 2018 Datum: 09.01.2019 Erfasst durch: Unterschrift:
SWE Netz GmbH Abt. NEBB
KV ☑ Größe (bei KV): VS0 ☐ Abgänge: Schloss ZI(neu) ☑ Ja ☐ nein
USS ☐ VS1 ☑ 6 / 3 Schild neu ☑ ☐
VS2 ☐ insgesamt / belegt Feuchtigkeitssperre ☑ ☐
sonstiges:
N - 0071 Standort: ERFURT - LOWETSCHER STR. 73
v.i.n.r. Hersteller: MOSDORFER Baujahr: 05 / 2018 i. B. genommen: 11 / 2018
=NO1 SS ☐ SL ☐ LSL ☑ 100A ☐ 400A ☐ 630A ☐ LSL-Typ: Geyer ☐ Dräco ☐ Elten ☐ Jean Müller ☐ Pronutec ☑ sonstige:
SK ☐ | VK ☑ NAYY-J A
=NO2 SS ☐ SL ☐ LSL ☑ 100A ☐ 400A ☐ 630A ☐ LSL-Typ: Geyer ☐ Dräco ☐ Elten ☐ Jean Müller ☐ Pronutec ☑ sonstige:
SK ☐ | VK ☑ NAYY-J A
=NO3 SS ☐ SL ☐ LSL ☑ 100A ☐ 400A ☐ 630A ☐ LSL-Typ: Geyer ☐ Dräco ☐ Elten ☐ Jean Müller ☐ Pronutec ☑ sonstige:
SK ☐ | VK ☑ NAYY-J A
=NO4 SS ☐ SL ☐ LSL ☑ 100A ☐ 400A ☐ 630A ☐ LSL-Typ: Geyer ☐ Dräco ☐ Elten ☐ Jean Müller ☐ Pronutec ☑ sonstige:
SK ☐ | VK ☐ NAYY-J A

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The Challenge - Digitization of the Process!

- Digital in-field recording of maintenance data, technical attribute data and switching status by our field staff.
- Data capture must be possible offline.
- Synchronization of data should take place when there is a connection to the secure company LAN.
- Esri's standard features for replication and synchronization should be used.
  - No (!) custom data interfaces needed.

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The Solution

- Geocortex Mobile:
  - App customized with Geocortex Mobile Designer
  - Processes designed with Geocortex Workflow
  - End-user app based on Windows 10®

- Data synchronization with Portal for ArcGIS in a separate geodatabase
- Replication with a specific Esri version for data captured in the field:
  - Using Esri's standard replication features
  - Posting to default (production database) with possible check

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Our Partner

VertiGIS™

VertiGIS GmbH (Germany)

www.vertigis.com

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Demo

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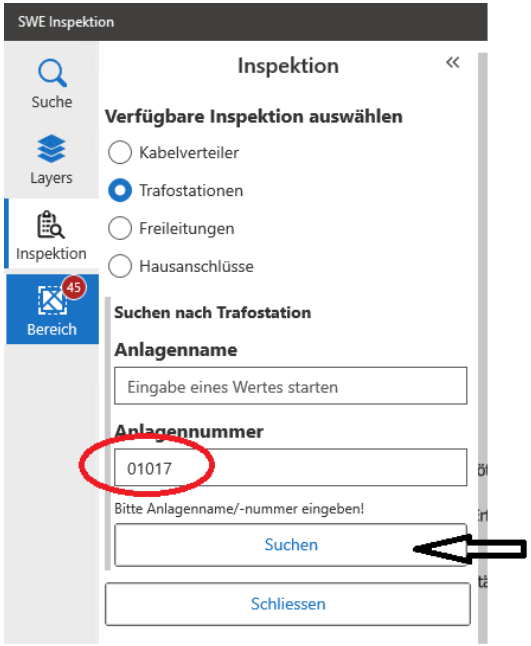
What have we seen?

- Various objects of the power supply can be selected by choosing in the map or by searching using its designation.



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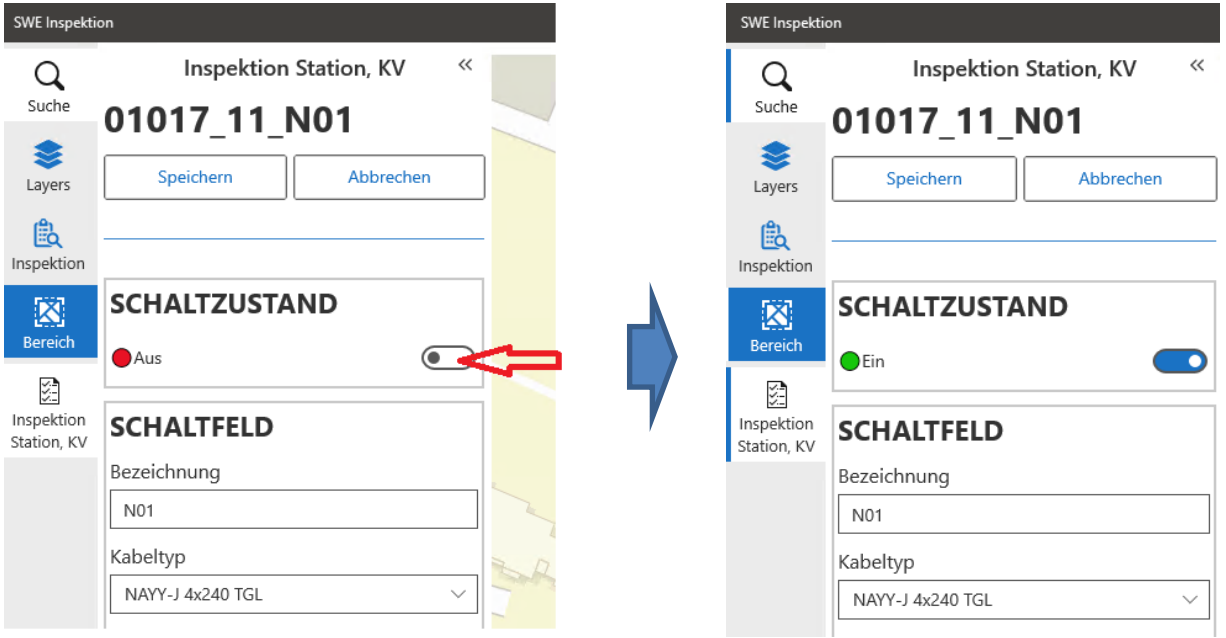
What have we seen?

- A simple click changes the switching state of fuses and switches.
- Update of network topological properties.



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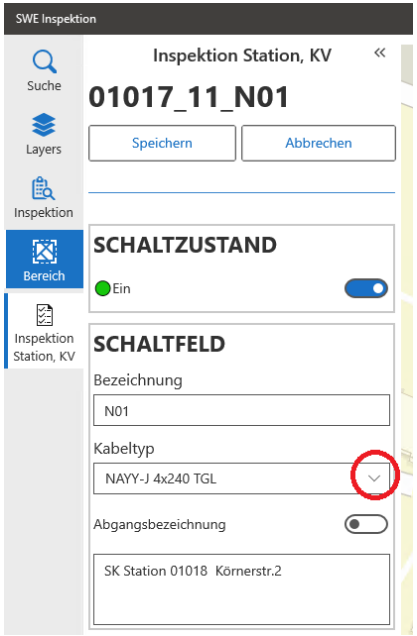
What have we seen?

- Technical attribute data of panels and fuses entered with catalog support.



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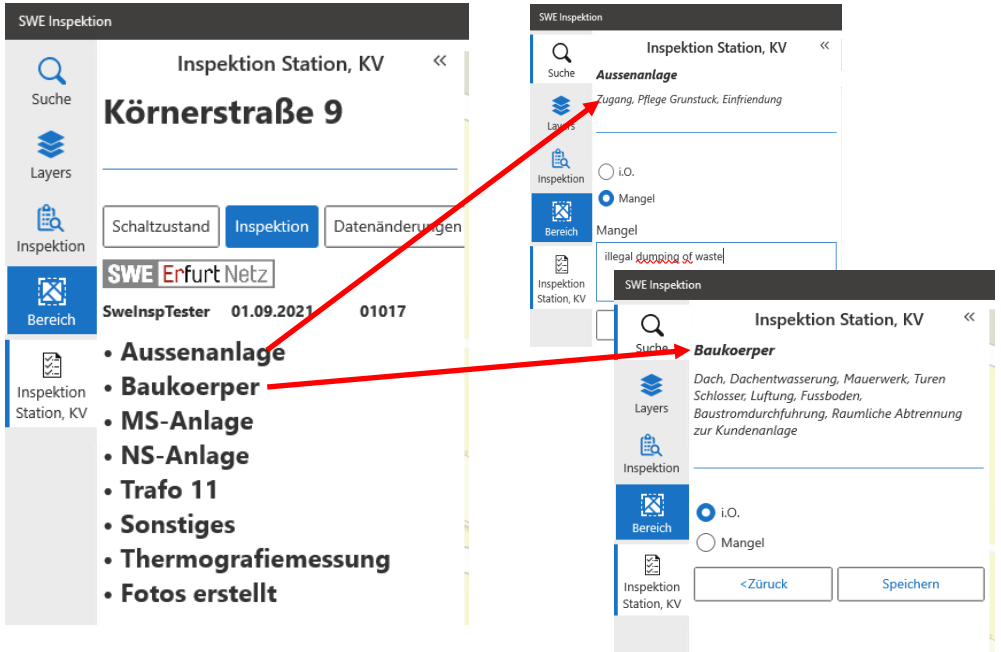
What have we seen?

- Inspection is documented with a few clicks.
- Defects are entered directly and emailed later to the responsible engineer in an automatic post-process.



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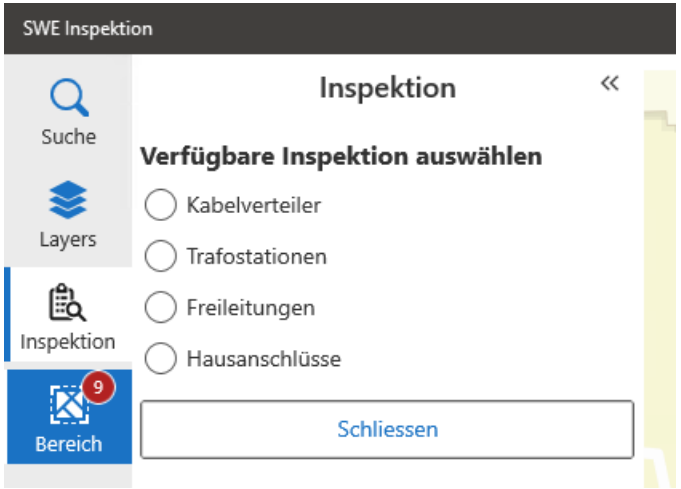
What have we seen?

- Similar processes were realized for:
  - Cable distributors;
  - Substations;
  - Overhead cables; and
  - House connections.



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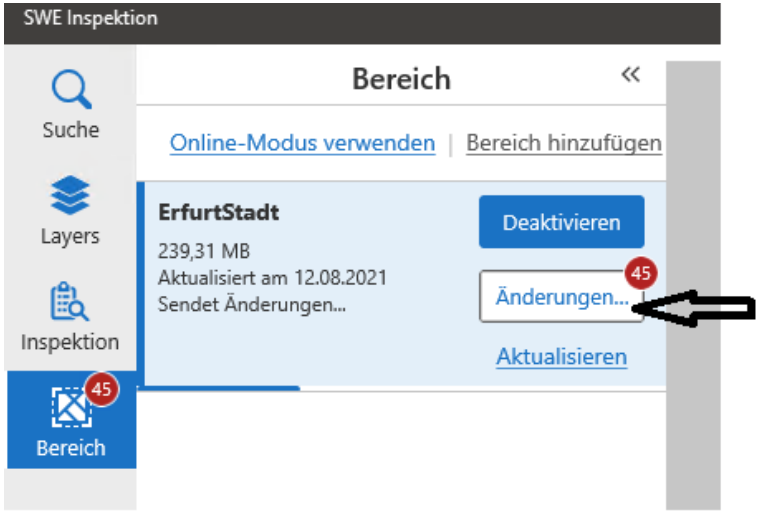
What have we seen?

- Easy synchronization of changes with source geodatabase via Portal for ArcGIS and ArcGIS Server.



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Key Benefits for SWE

- No subsequent data capture in the office and up-to-date information.
- Low time delay between change of switching state in reality and documentation in GIS.
- Secure and automated data synchronization by using Esri's standard features.
- Increasing data quality by using catalogs and mandatory fields.

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Key Benefits for SWE

- Data captured in the field is available for analysis, planning and reporting in the office GIS (a VertiGIS Utilities application).

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Upcoming Project

- Inspection data capture for transformer stations (110kV) with our app.

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Thank you for choosing our presentation!

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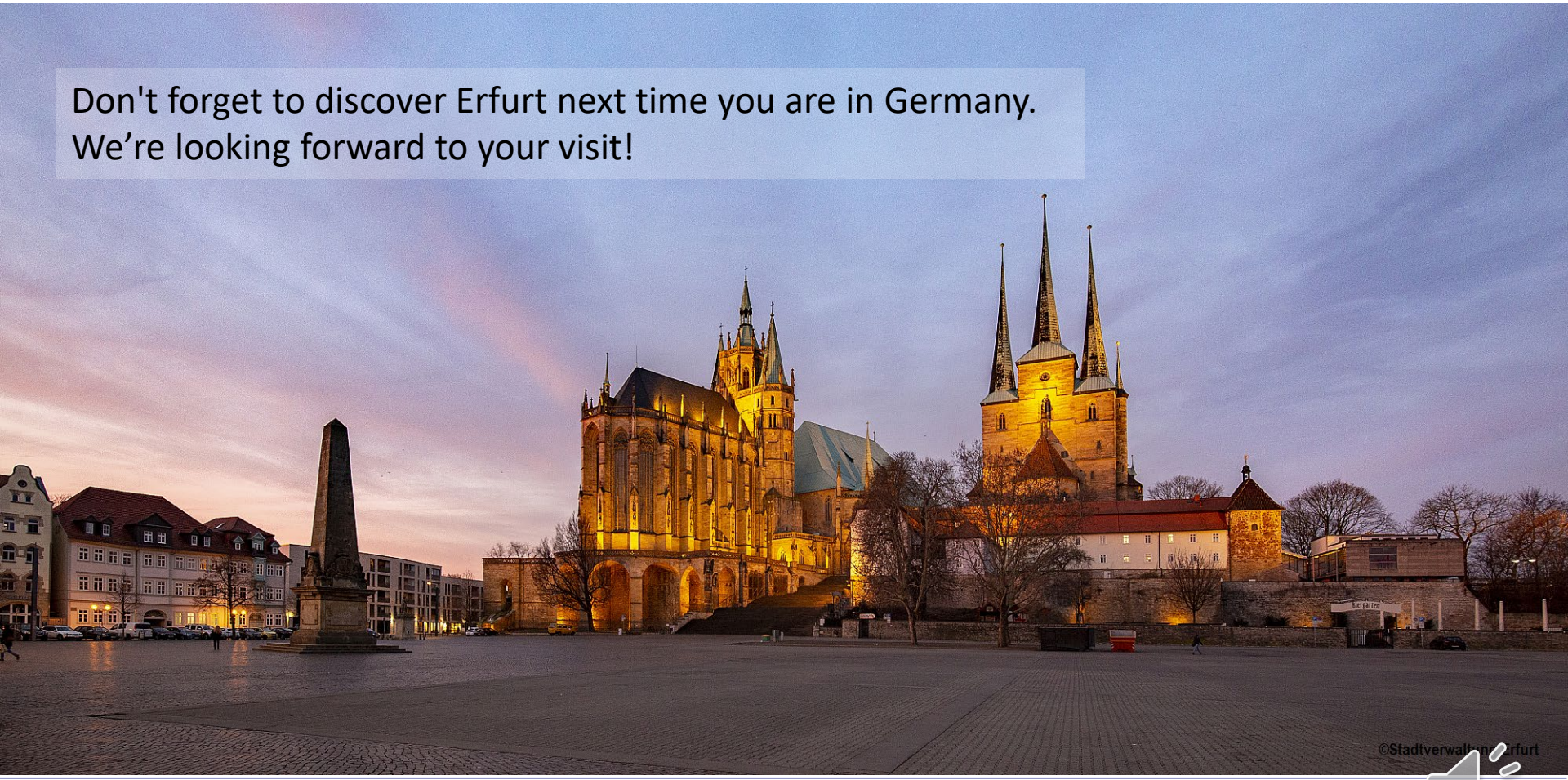
- Eric Schmalen
  eric.schmalen@vertigis.com

Don't forget to discover Erfurt next time you are in Germany.
We’re looking forward to your visit!