Decentral or Central Power Generation: Quo Vadis?

utility perspective
St.Galler Stadtwerke
Multi-utility: Electricity, gas, heat, water, telecom
Customers (meters): 56’000
Revenue: CHF 200 Mio
Employees: 260
Owner: Town of St.Gallen

Sankt Gallen
Population: 79'724
(15. Bez. Vienna, ca. 10% San Francisco, ca. 1% Shanghai)
Area: 39.41 km²
674 m ü.M.
Source: https://www.stadt.sg.ch/home/verwaltung-politik/stadt-zahlen.html
https://de.wikipedia.org/wiki/St._Gallen

1% of Switzerland from an energy perspective!
Energiekonzept 2050 – EnK³2050

renewables

ERNEUERBARE PRIMÄRENERGIE 200 GWH

wood/biomass

ABFALL/WM waste

solar

ERDGAS natural gas

geothermal

ERDÖLPRODUKTE

oil

waste incineration

district heating

WÄRME

KHK

FW

WP

housing

WOHNEN

industry

INDUSTRIE

services

DIENSTLEISTUNG

transport

VERKEHR

NUTZENERGIEBEDARF 1400 GWH

combined heat and power

BH

KWK

WKK

STROM electricity

solar

hydro

WE

fossil

NICHT-ERNEUERBARE PRIMÄRENERGIE 2900 GWH

Source: http://www.stadt.sg.ch/home/raum-umwelt/energie/energiekonzept-2050.html
Backed by popular vote = "implicit shared vision"
'Energiewende' = transformation process

Similar pattern

- reliability / availability
- system stability
- operational complexity
- changing customer need
- new competition
- changes in the markets
- legal restrictions
- etc.

Growing complexity

3D digital twin = data + context + algorithms

Modern Energy System

IEA, 2014

Energiewende = transformation process

'doing it the old way' will not work anymore – holistic view and out-of-the-box are thinking mission critical

know-how transfer between research institutions and industry is essential

energy transition and digital transformation is also a culture and HR challenge
"Energiewende" = culture and skillset challenge

Typical utility workforce

- Safety-centered
- Innovation-averse
- Long investment cycles

High-Tech Startup

- Fail often
- Fail early
- Fail cheap

Digital natives vs. digital immigrants

Age vs. Seniority

Typical utility workforce:
- Digital natives
- Digital immigrants

High-Tech Startup:
- Innovation-oriented
- Fast-paced
- Short investment cycles

Digital natives:
- Younger
- More tech-savvy

Digital immigrants:
- Older
- More experienced in traditional utilities

Challenges:
- Change management
- Integration of new technologies
- Adapting to new markets
Challenges and changes ahead

- Market liberalization in Switzerland
- Smart meter rollout
- Profit erosion
- Cyber-Security
- General Data Protection Regulation
- War on talents