IDM@EnBW
Identity- and Organizational-Data-Management

Industry/Experience report on Recent Trends in Cyber Economy and the Impact on OT

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Preface

About speaker and content

Industry/Experience report on
Recent Trends in Cyber Economy and the Impact on OT

Who am I?
Name: Eleni Richter
Education: Wirtschaftsingenieur
(University of Karlsruhe TH)

More than 18 years in different positions at
EnBW: IT-security-manager, IT-consultant, IT-
system designer, project-manager and architect

What am I doing right now?
IDM = Identity and Organizational Data Management

* Collection of various data in the company
* Processing, aggregation, transformation, interlinking data
* Giving the data to Office IT and Operational IT for usage
  in on premise and in cloud scenarios

Contains eight sketches, models and examples on recent trends in IT and OT
SKETCH No 1
Typical functioning of an Energy Supplier

* Number three in German Energy Market.
* Five main business parts: widely different characteristics
  - Critical infrastructure
  - Grid, more decentralized
  - Depending on data and IT
  - Trading regulation
  - Distributed character, close to customer

... need to work together
Many fundamental changes

* Liberalization of the energy market => unbundling
* End of nuclear power usage => renewable energies => decentralization
* Energy production on consumer side => more distributed micro-scenarios
* Low market prices for energy => need for new business opportunities => aggressive competitors
**SKETCH No 3**

**Some Impacts of Digital Transformation at EnBW**

**How-to-Cloud (short version)**
- a. Rent or build a cloud-service
- b. Configure or implement the solution
- c. Manage customers, partners...
  => identities and relations

**Need for data and interaction**

**How-to-IoT (very short version)**
- a. Get interoperable IT-gadgets
- b. Implement the solution, adapt OT
- c. Manage identities and relations

**New business opportunity involving some cloud-service**

**New business opportunity involving some IoT, OT services or other smart technologies**

**Data**
- source
- usage

**OT** = operational technology

**IoT** = internet of things
SKETCH № 4

Compliance for cloud applications

For each cloud service you have to...

- Check contract with cloud provider, online terms, ...
- Review data protection
  * New GDPR
  * Privacy by design, by default
  => Breach will be expensive
- Check other compliance
  * Sector specific compliance
  * ...
- New business opportunity involving some cloud- or IoT-service

Organize usage and administration

Not much difference to compliance for on premise applications.

Check with works council

Start-ups usually do not run the full compliance programm

Check IT-security
Check OT
Check information-security

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SKETCH № 5
Is there any relevance for OT?

(a) Yesterday
Locally check & maintenance
Operational IT and office IT clearly separated.

(b) Today
Remote check & maintenance, some additional office IT
Office IT technologies get partly mixed into operational IT.

(c) Tomorrow
Automatically check OT
“A lot of calculation power is needed so we rent it in the cloud”
Automatically manage maintenance
“Mobile staff should use smart gadgets via internet so we rent a cloud-service”
Remote call for maintenance
Maintenance and change IT/OT-data

Big Data Analytics
Data
source
usage
SKETCH № 6
Some thoughts on future prospects and widely divergent aims

Pulling and pushing factors

production on demand, agility, flexibility

Operational IT

**isolation**
**specialized hardware and software**

remote maintenance
reduce cost

Office IT

* LAN, internet
* multi-purpose standard hardware and software
* good quality and features

reduce cost

Cloud IT

* internet, cloud
* even more standard
* fitted quality and features

Over all standardized technology allows
* interfaces, exchange
* cooperation, mixed areas
* integrated areas

Multiple reduction of costs => too much reduction of quality for OT

What about the risks?

IT quality is sufficient!

Even less is sufficient!
SKETCH No 7 Comparison of on-premise and cloud-systems: a risk based approach

Top five differences

(1) Location
* in-place, private
* less distribution possible
* far away, through public space
* more distributed

(2) Changes
* fully under your control
* cloud-provider driven

(3) Environment
* reliability up to you
* not completely reliable ex definition (internet)

(4) More possibilities to do things wrong

Risk = Damage \times Probability

Probability = \frac{\text{favourable cases}}{\text{whole number of cases possible}}

(5) More publicity if you do things wrong

=> More measurements concerning security, robustness & resilience are necessary
=> Demand for different skills for your operating staff
SKETCH № 8 Finding a suitable risk-model for your cloud-business

(1) **Determine system boundary**

Application:
Technical and organizational determined system

(2) **Interaction**

- *local effect* stay local
- *limited effect* cooperation with partner
- *general effect* general rules apply

(3) **Responsibility**

- *Knows his system and the boundary*
- *Knows interaction*
- *Organizes jobs and tasks*

(4) **Rules for important general domains**

*Some criteria for importance:*
- *compliance*
- *expensive*
- *critical process*

Organize some governance for really important domains which have general effects
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* Cloud-services are important enablers for your business. We consider this to be unstoppable and irreversible. We need to arrange us in a multi-cloud situation.

* The internet environment is quite unsuitable for OT: unpredictable changes, distributed, including failure, errors and security issues as frauds and attacks.

* A lot of measurement and engineering is necessary to run a stable and secure business.

* A risk based model is the right way to identify the important parts. A possible result of a risk analysis could be that you don’t want to run something as a cloud service any more.