

# Cyber Security for E-Mobility

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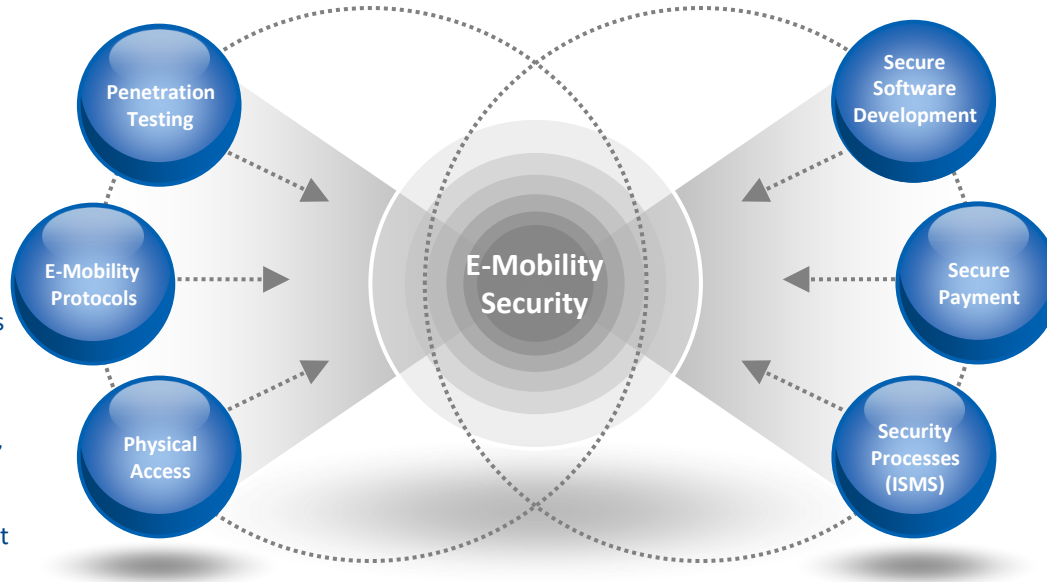
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## E-Mobility Security Portfolio for EVs and EVSEs

- Exposed network services
- Authentication & user management
- Web application / API tests

- OCPP (JSON; SOAP)
- V2G (PLC; XML/EXI)
- Standards & Security Levels

- Data exfiltration (USB,  $\mu$ SD, RS232, RS458, ...)
- Passive and active (MitM) attacks on internal Ethernet (controller, screen, router)



- Code reviews
  - Training
- Security in Agile and Waterfall processes

- VDE-AR-E 2523-100 (Secure RFID)
- TLS PKI (Plug&Charge)

- Product Security (IEC 62443)
- Vulnerability Management (ISO 3011+29147)

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## E-Mobility Security Consulting Portfolio

### Penetration Testing

- ▶ Analysis of exposed network services
- ▶ Authentication & user management
- ▶ In-depth web application / API tests
- ▶ OCPP protocol & security levels

### Physical Access

- ▶ Data ports (USB, µSD, RS232, RS458, ...)
- ▶ Passive and active attacks on internal Ethernet (controller, screen, router)

### Secure Software Development (IEC 62443)

- ▶ Code reviews & training
- ▶ Security as part of agile and waterfall processes

### Secure Payment

- ▶ VDE-AR-E 2523-100 (Secure RFID)
- ▶ TLS PKI (Plug&Charge)

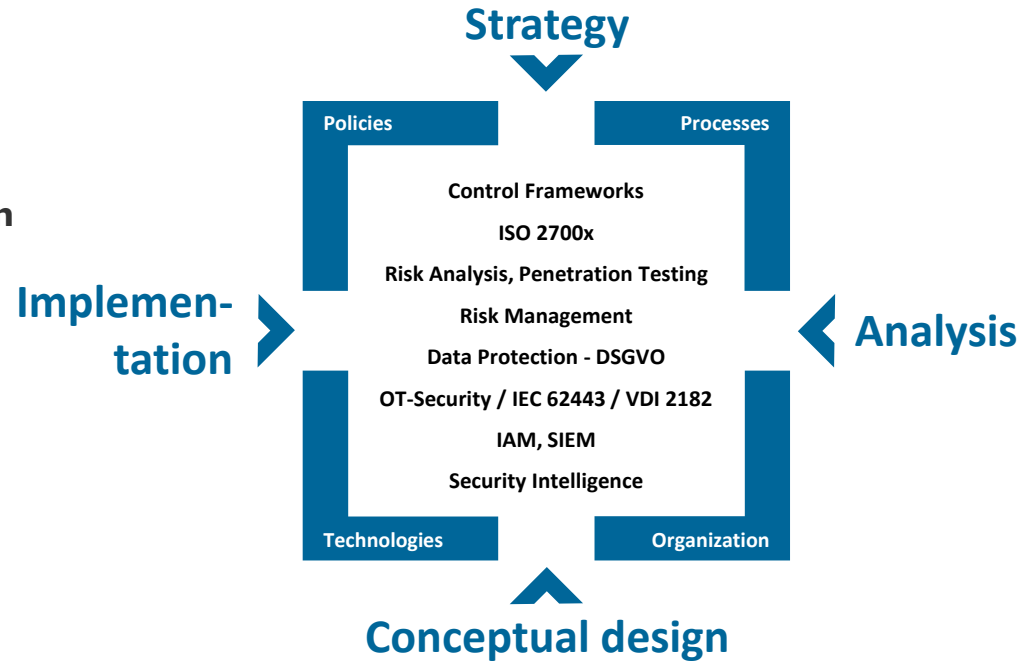
### Security Processes (ISMS)

- ▶ e.g. establishing a Vulnerability Management process (ISO 3011+29147)

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## Facts and Success Factors

- ▶ **Founded in 2000**
- ▶ **40 Employees**
- ▶ **Scientifically based and field proven**
- ▶ **vendor independence**
- ▶ **Information and operational technology**
- ▶ **Experience with corporate structures and SMEs**
- ▶ **Research projects in operational technology:  
CampusOS, GLACIER, IC4F and FIND**



# | Academic Basis

- ▶ **Prof. Dr. Martin Gergeleit**  
*Hochschule RheinMain: for telecommunications and security architecture*
- ▶ **Prof. Dr. Edgar Nett**  
*Universität Magdeburg: realtime systems and communications*
- ▶ **Prof. Dr. Henning Trsek**  
*Technische Hochschule OWL: networked automation systems*
- ▶ **Prof. Dr. Ralf Schumann**  
*FHDW Bergisch-Gladbach: Competence Center for Information Security*



Leading Edge  
Know-how



Highly qualified  
employees

# | Selected References

Wide range of industries – commerce, finance, production, e-mobility ...

- AXA
- ABIS
- ARZ Haan
- BaFin
- BASF
- CharIN
- CSSA
- DLR
- ebee smart technologies
- Generali
- Henkel
- Hermes Arzneimittel
- ITERGO
- KEB
- Kendrion
- McKinsey
- PAYBACK
- Phoenix Contact
- Rentenbank
- Rhenus
- REWE
- Siemens
- Skoda
- Telefonica

# | Contact



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