

## Global Impact of Value and Quality for Data Center Infrastructure Designs – EN 50600 & ISO 22237

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# Introduction TÜViT (TÜV NORD GROUP)

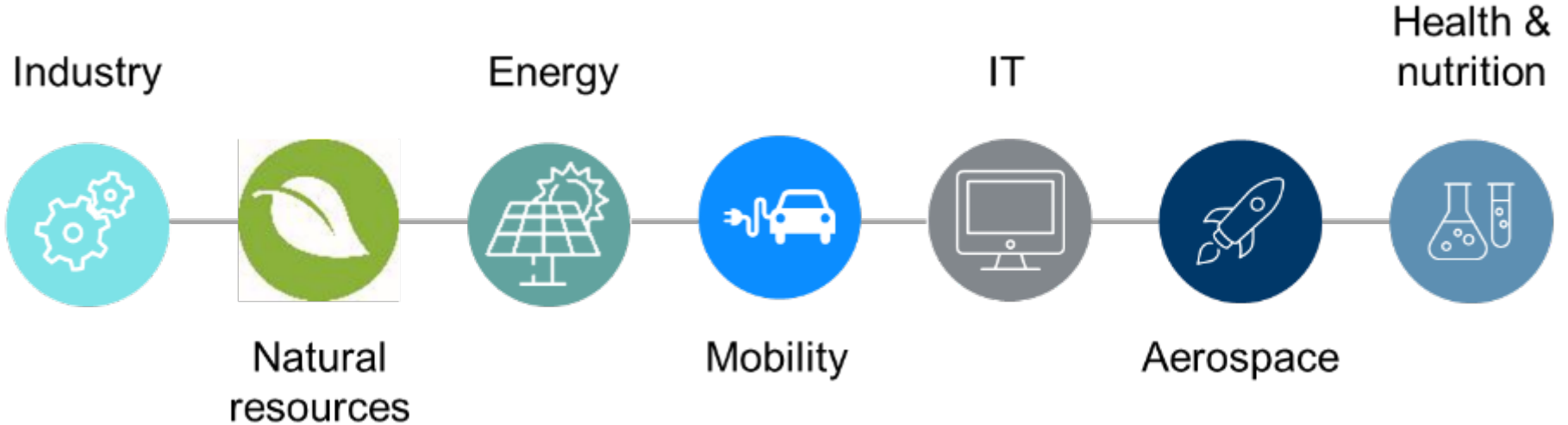


# TÜV NORD GROUP

“THE TÜV NORD GROUP IS A GLOBAL LEADER IN TECHNOLOGY SERVICES WITH THE CLEAR AIM OF ACCOMPANYING ITS CLIENTS WITH PRUDENCE AND FORESIGHT INTO THE FUTURE.”



# TÜV NORD GROUP MAIN FIELDS



# TÜV NORD GROUP AT A GLANCE



# TÜV INFORMATIONSTECHNIK GMBH (1/2)



- HQ in Essen, Germany
- Global Activities
- National und international accreditations
- Business areas: IT-Infrastructure, IT-Security und IT-Quality
- Consulting, evaluation, testing & certification of:
  - Data Center
  - IT Products
  - IT Systems
  - IT Processes

# TÜV INFORMATIONSTECHNIK GMBH (2/2)



- German Banking Industry Committee
  - Listed Testing Body for Electronic Payment Transactions
- Europay, MasterCard and Visa, USA/UK/Japan
  - Full Service Laboratory for evaluations of ICs and IC cards according to EMVCo Security Guidelines
- Visa, USA
  - Test House for performing Visa Chip Product evaluations
- Betaalvereniging Nederland, The Netherlands
  - Evaluation Laboratory

# Introduction

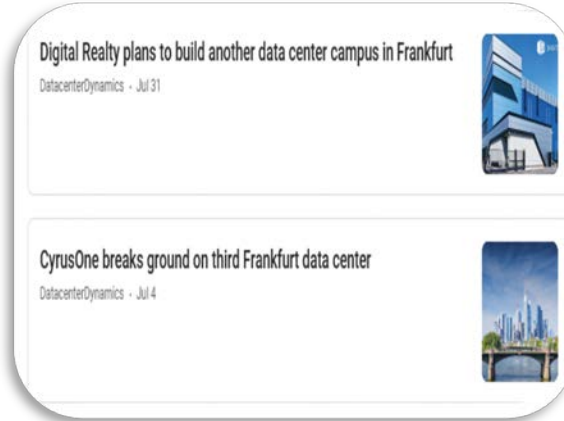




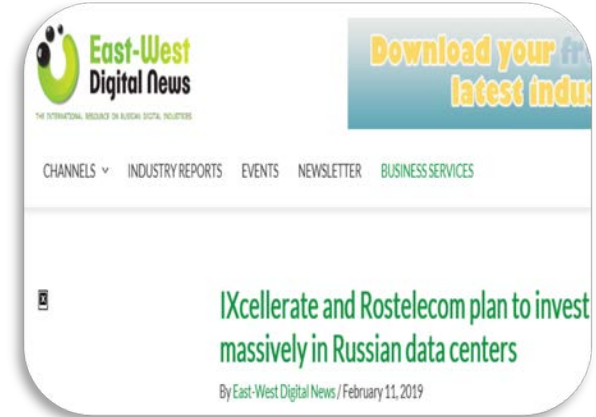
# RAPID GROWTH- DATA CENTER INDUSTRY



Source: <https://www.dutchdatacenters.nl/en/>

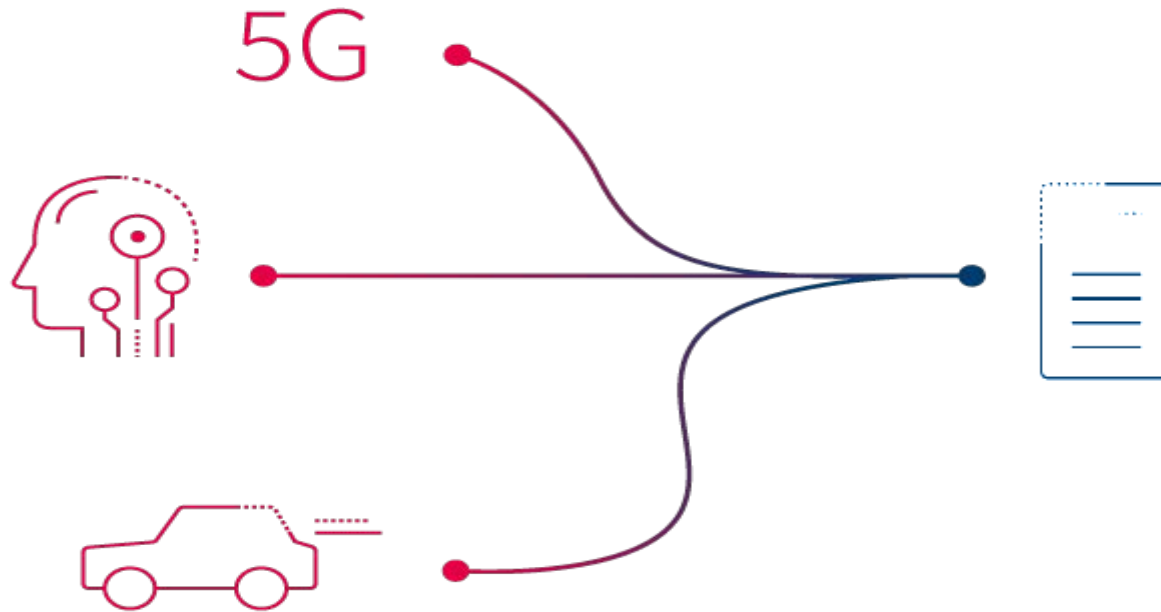


Source: [Google News](#)



Source: <https://www.ewdn.com>

# WHAT DO THE CURRENT INNOVATIONS REQUIRE?



# DEPENDANCE ON DATA CENTERS



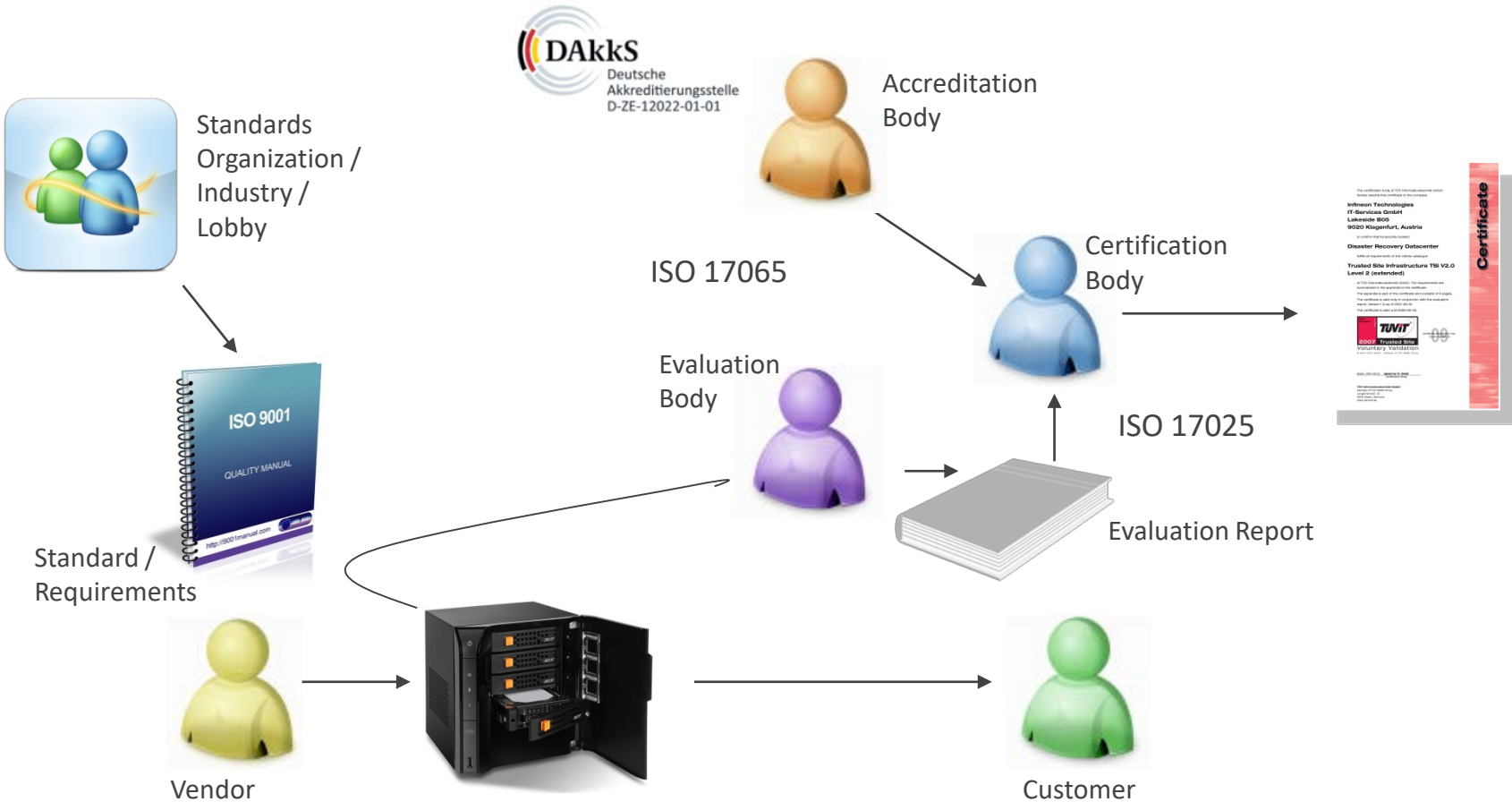
# DEFINITION OF CERTIFICATION

*Formal procedure by which an accredited or authorized person or agency assesses and verifies (and attests in writing by issuing a certificate) the attributes, characteristics, quality, qualification, or status of individuals or organizations, systems, goods or services, procedures or processes, or events or situations, in accordance with established requirements or standards.*

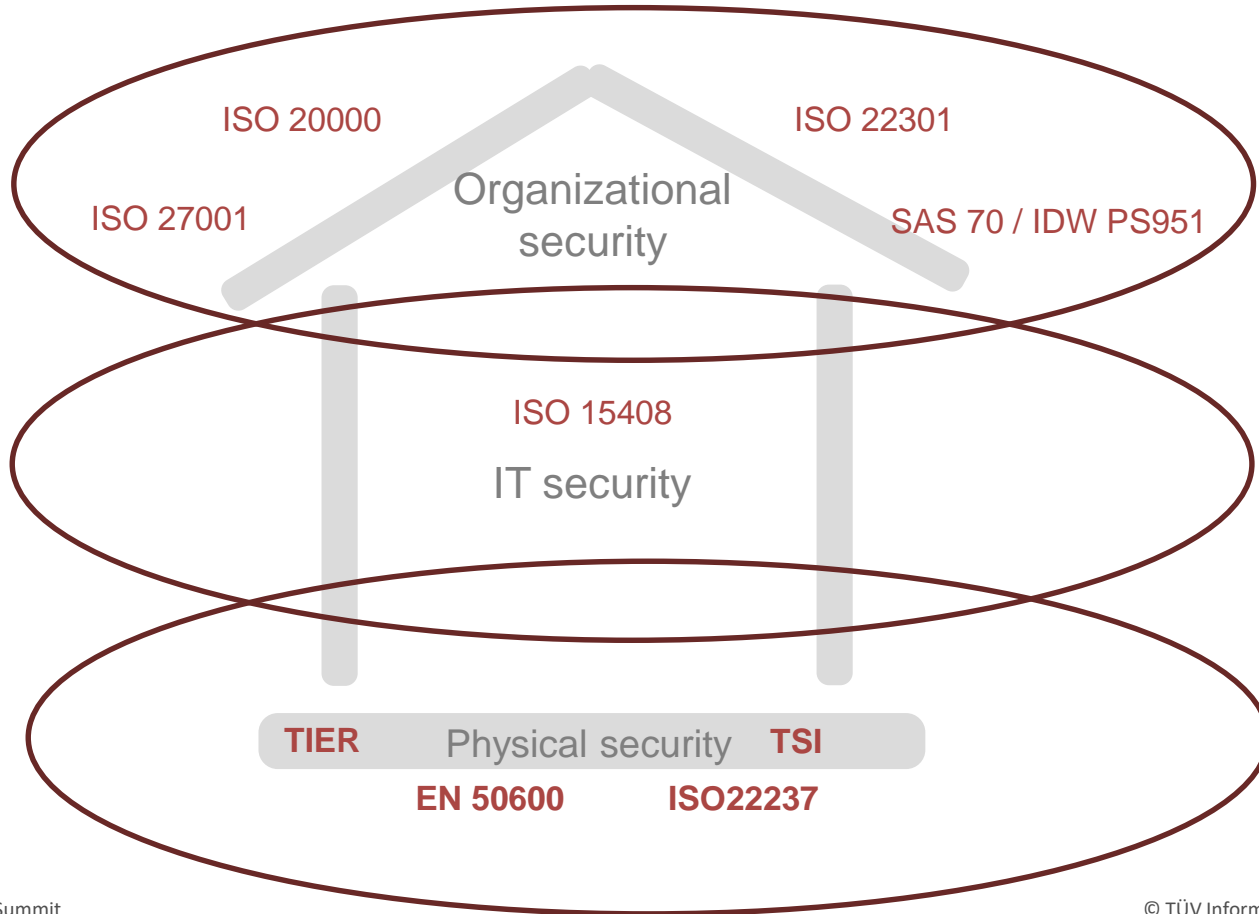
Source: <http://www.businessdictionary.com>



# CERTIFICATION IS MORE THAN DRAWING A CERTIFICATE



# SECURITY WITH DIFFERENT OBJECTIVES



## Value of the EN 50600 / ISO 22237



# WHAT IS THE EN50600 / ISO 22237?

## Conformity EN50600/ISO22237

Represents a comprehensive approach for the planning, construction and operation of data centers in terms of their physical security and availability



Realized one of four availability classes



Implemented at least the protection classes 1-3



Energy efficiency capabilities under one of three granularity levels



# EN 50600 GOES INTERNATIONAL

ISO/IEC JTC 1/SC 39 "Sustainability for and by Information Technology" has decided to take up EN 50600 series to the international level. Based on the ENs, seven Technical Specifications have been decided, which will be further developed into International Standards to take onboard North American and Asian input.

- ✓ ISO/IEC TS 22237-1      General concepts
- ✓ ISO/IEC TS 22237-2      Building construction
- ✓ ISO/IEC TS 22237-3      Power distribution
- ✓ ISO/IEC TS 22237-4      Environmental control
- ✓ ISO/IEC TS 22237-5      Telecommunication cabling
- ✓ ISO/IEC TS 22237-6      Security
- ✓ ISO/IEC TS 22237-7      Management and operation

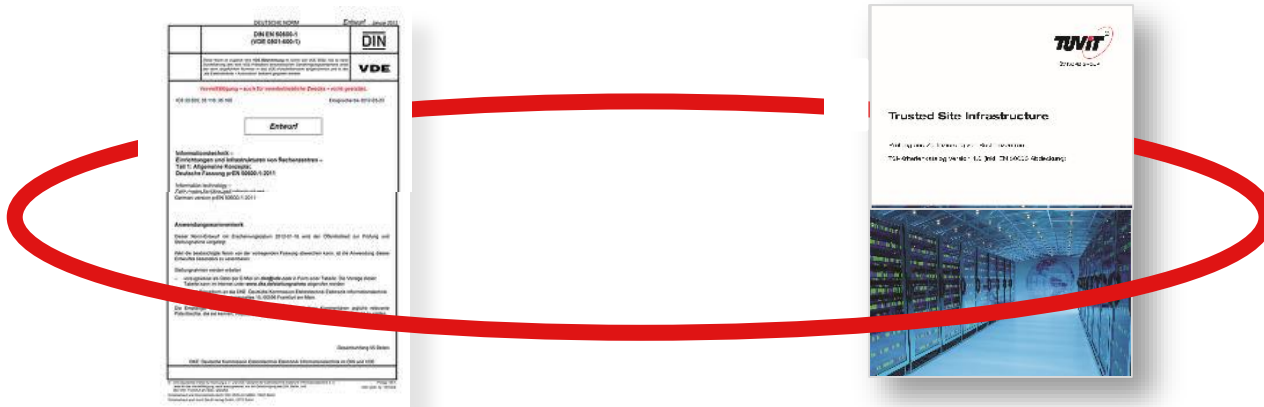
# EN 50600 / ISO 22237 – WHO IS ADDRESSED?

This series of European/international standards specifies requirements and recommendations to support the various parties involved in the **design, planning, procurement, integration, installation, operation and maintenance** of facilities and infrastructures within data centers.

These parties include:

1. owners, facility managers, ICT managers, project managers, main contractors,
2. consultants, architects, building designers and builders, system and installation designers,
3. suppliers of equipment,
4. installers, maintainers.

# EN 50600 – WHAT DOES IT NEED FOR A CERTIFICATION?



The missing link

## Standard EN 50600

Lack of evaluation scheme guideline  
ca. 240 pages

## TSI.STANDARD Criteria Catalogue

Evaluation & Certification Scheme  
Compact (48 pages)

# WHAT IS TSI?

- TÜViT Trusted Site Infrastructure
- It is an auditing and certification system
- Provides guidance on data center design
- It is a tool to evaluate
  - Server rooms
  - Data centers
  - Co-locations / Cloud infrastructures
  - Dual site data centers
  - ...as well as other security areas with specific supply requirements



# TSI – THE FOUNDATION

- TSI is based on a single, clearly defined list of criteria -> TSI.STANDARD
- TSI.STANDARD is regularly revised, updated and further developed by technical experts in accordance with the state of the art
- TSI.STANDARD includes approx. 950 notes and evaluation rules for the auditors to ensure the most consistent evaluation possible.



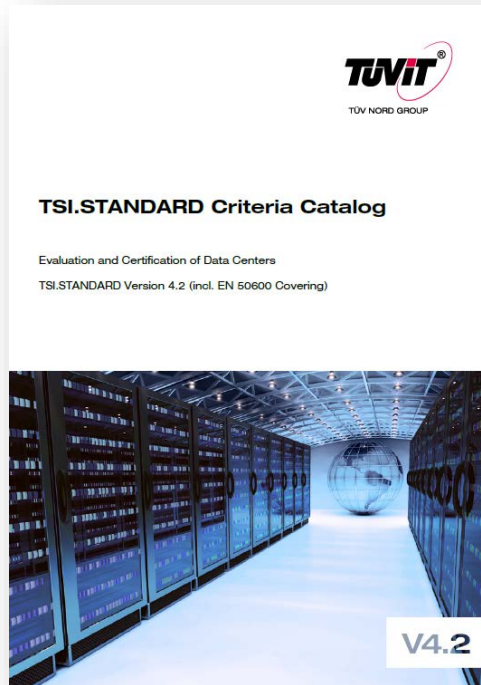
# TSI.STANDARD HISTORY:



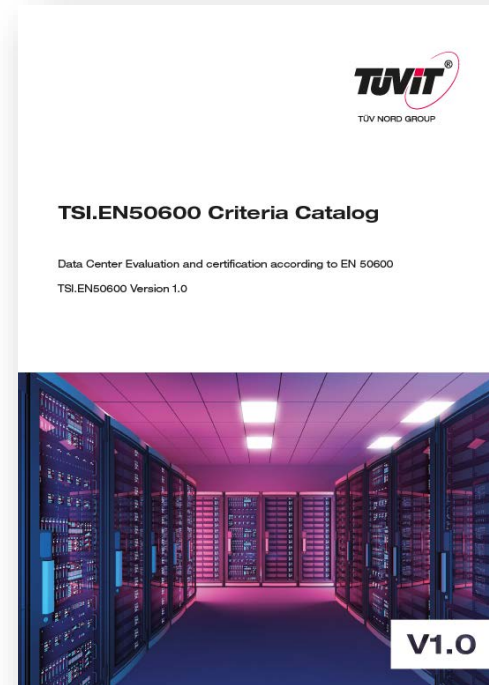
- In 2002 TSI V1.0 – V1.2
  - Ranking with 3 levels of availability
- In 2003 TSI V1.3
  - Environmental risk analyses, fine-tuning of program
- In 2007 TSI V2.0
  - Significant restructuring. Implementation of Level 4
- In 2010 TSI V3.0
  - Comprehensive explanation of requirements, 2-stage structure
- In 2011 TSI V3.1
  - Implementation of Dual Site Data Center Certification (DDC)
- In 2014 TSI V3.2
  - Concept-standardization energy supply, modification of criteria
- In 2016 TSI V4.0
  - Adaption of EN 50600
- In 2017 TSI.STANDARD V4.1
  - Adaption Proof of Concept, Implementation TSI.STANDARD
- In 2019 TSI.STANDARD V4.2
  - Minor improvements, precision,

# TSI. ONE METHOD. TWO OPTIONS.

- **TSI.STANDARD V4.2 EN**, since 01.01.2019



- **TSI.EN50600 V1.0 EN**, since 01.08.2019



# CONFIGURATION OF TSI.STANDARD & TSI.EN50600

- The TSI criteria catalogues comprises 10 categories for the comprehensive evaluation of the mission critical infrastructure and addresses
  - All relevant trades
  - Facility operating processes
  - Documentation requirements
  - Special rules for dual site data centers





# CERTIFICATION PROCESS. HOW IT WORKS.



# The Benefits of Certification.



## BENEFITS FOR DC OPERATORS

- TSI catalogue leads to targeted tenders
- Quality control during design & construction phase
- Proof of state-of-the-art data centers
- Unique selling proposition (USP)
- Creating trust for your clients
- Creating trust regarding regulating authorities
- Allows to offer high value DC services



# BENEFITS FOR DC CUSTOMERS

- Trust in DC Operator
- Orientation and comparability due to 4-availability level/class-ranking
- Confirmation of high availability
- Continued reliability because of biennial audits



# BENEFITS FOR DC DESIGNERS

- If agreed to TSI, planning can be more effective
- Economic aspects are in the hands of the DC designer, as the requirements are flexible (comply or explain)
- Applicable in a variety of fields due to the degree of freedom given to the requirements
- Continuous maintenance of the catalogue since 2002 with moderate updates
- German Team of experts (TSI Task Force), who can offer support to DC designers



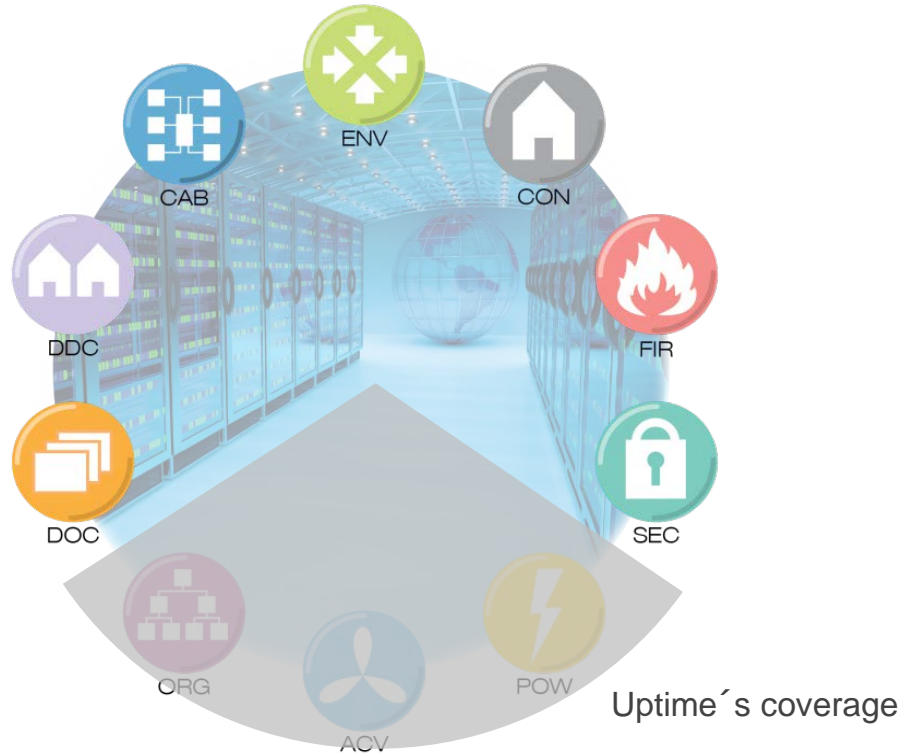
# UPTIME Tier vs. TÜViT Level



# UPTIME TIER VS. TÜVIT TSI

- TIER approach:
  - is widespread
  - is US driven
  - process incorporates consulting services
  - certification mechanism non-transparent
  - no independent accredited certification body
- TSI Level approach:
  - follows an overall holistic approach
  - covers European Standards
  - is increasingly recognized
  - goes international: ISO/IEC TS 22237
  - independent accredited certification body acc. ISO 17065
  - transparent (detailed TSI.STANDARD provided to customer)

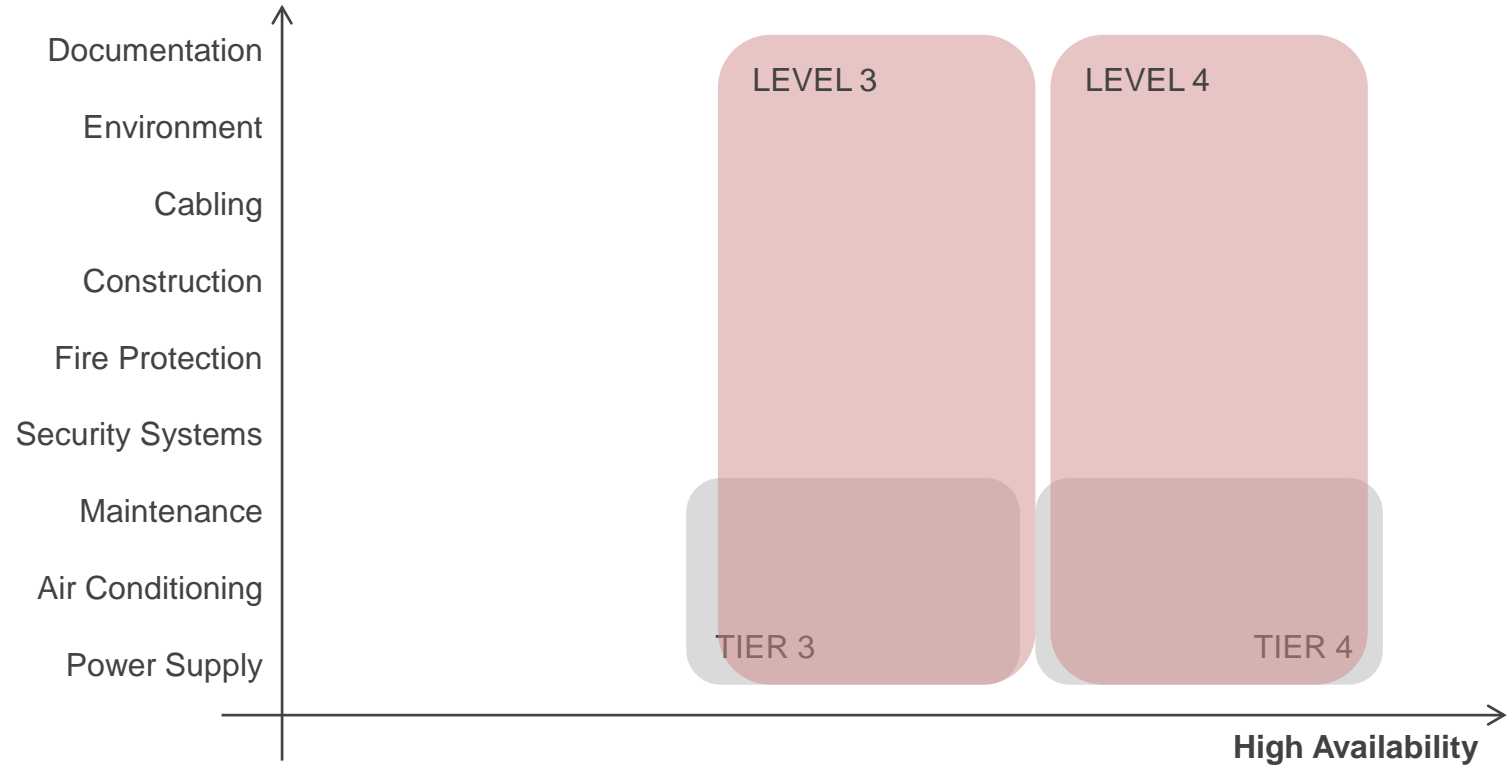
# UPTIME TIER VS TÜVIT TSI





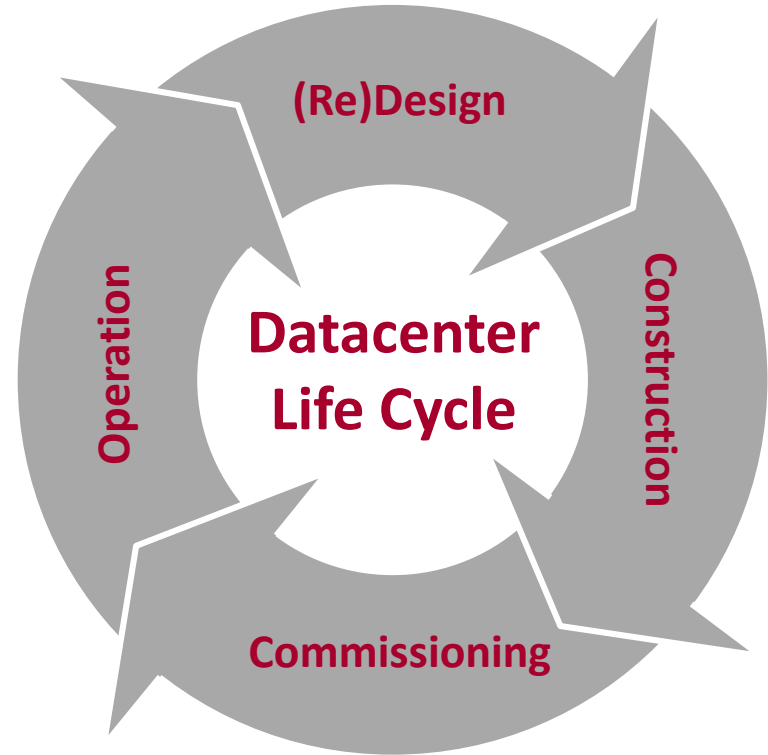
# UPTIME TIER VS TÜVIT TSI

## Evaluation Aspects



# TSI.PORTFOLIO

- ✓ Workshop/Trainings
- ✓ Environmental Risk Analyses
- ✓ Design Evaluation
- ✓ Construction Supervision
- ✓ Commissioning
- ✓ Acceptance Test
  
- ✓ **(Re)Certification of constructed Facilities**
  
- ✓ GAP-Analyses
- ✓ Conformity Assessments
- ✓ Operation management audits
- ✓ Energy Efficiency audits (TSe<sup>2</sup>)



Thank you for your attention!  
Спасибо за внимание!

Published certificates:

<https://www.tuvit.de/en/services/certification/secure-infrastructures-for-it-systems/>

# Contact Persons



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