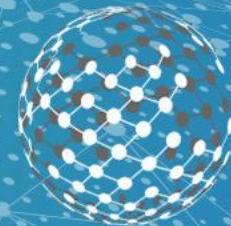


Why are there still **risks** in
datacenters designed with
redundancy as per
TIA-942 Standard and/or UTI Guidelines?



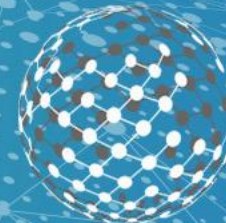
DATACENTER
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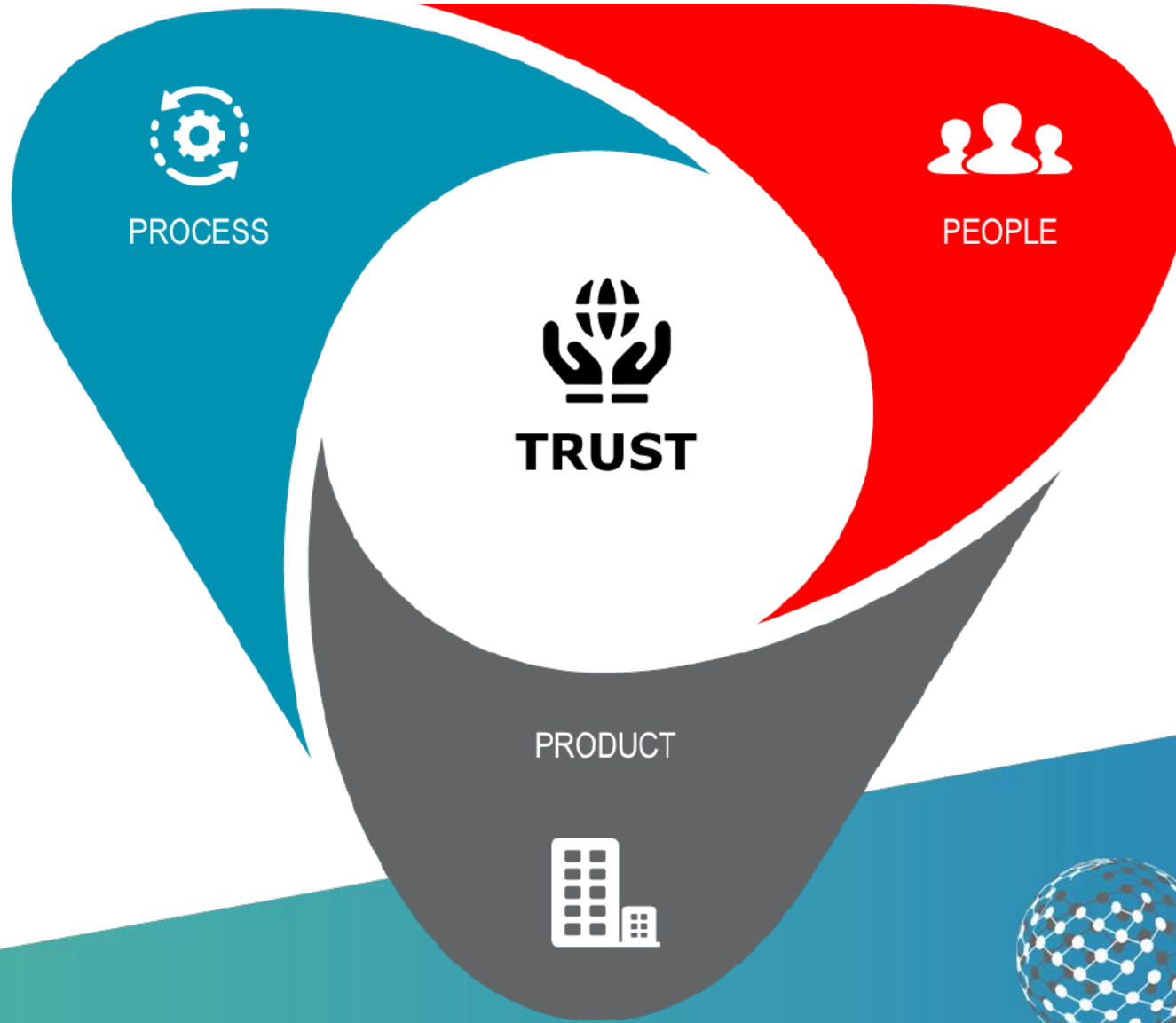
The Data Center Trinity

The 3 P's of a High Performance Datacenter

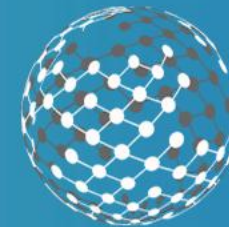
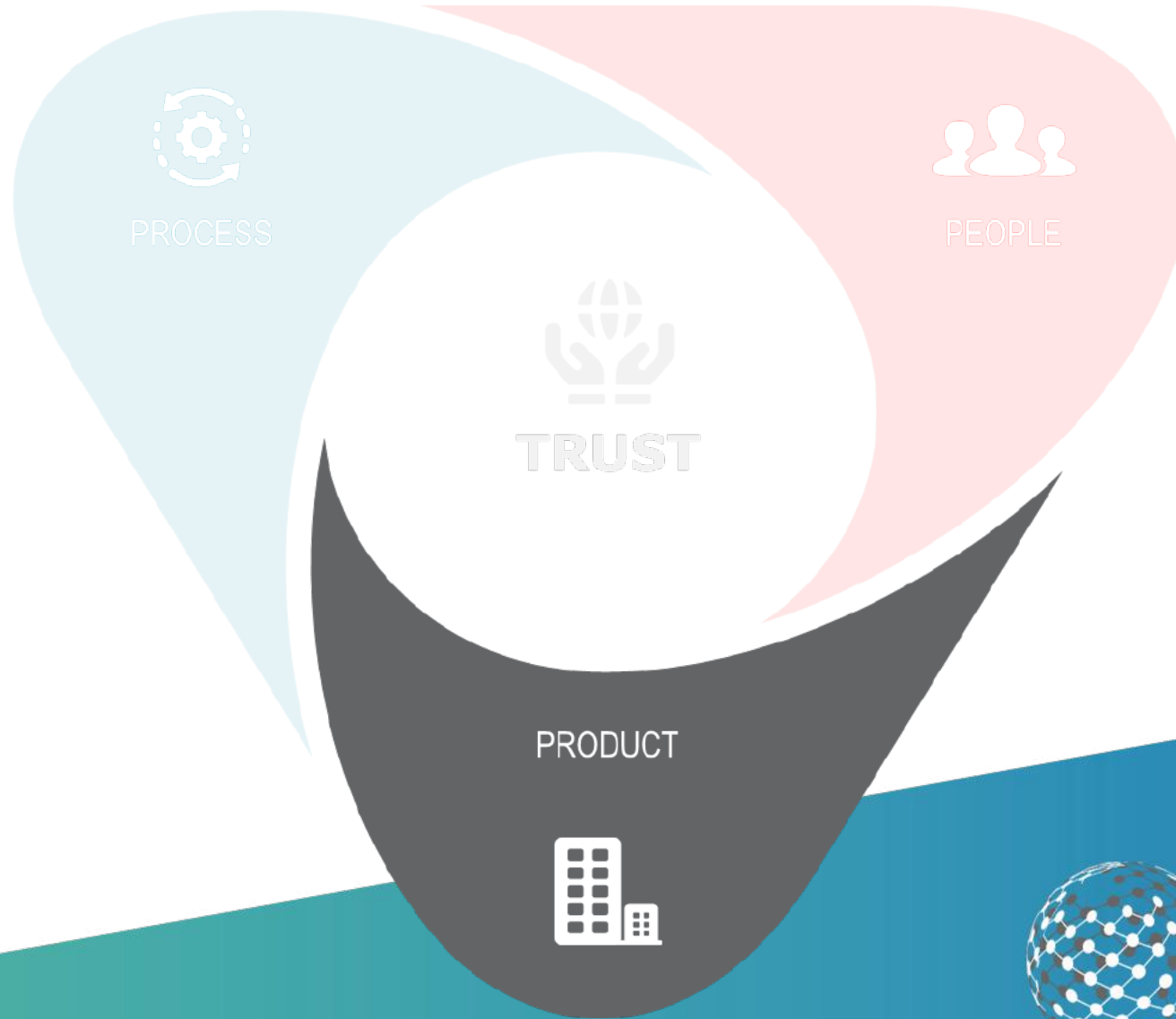
Bastiaan Janssen
Managing Director, EPI Europe



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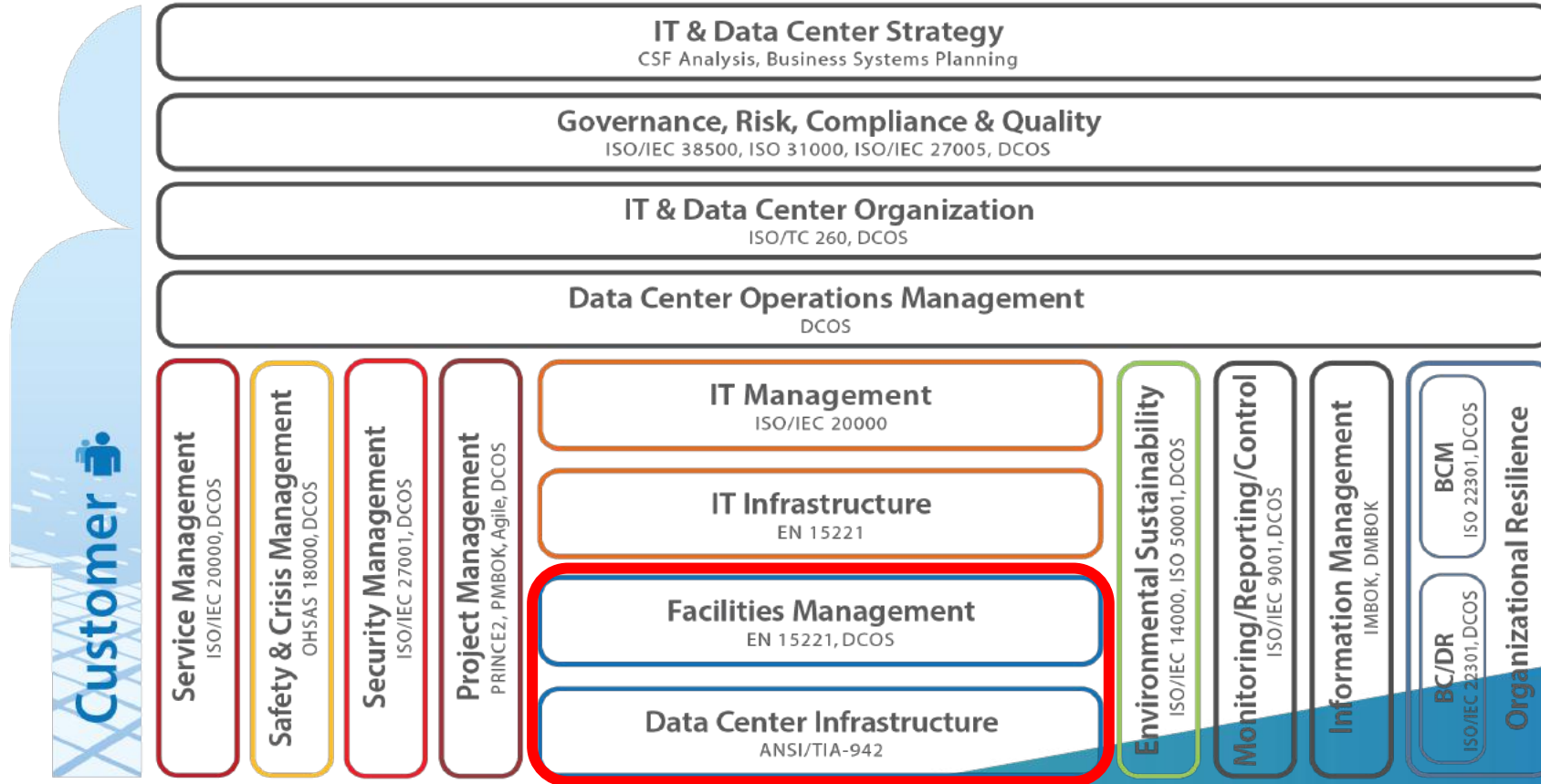
**DATACENTER
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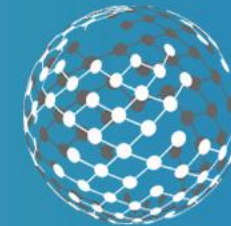
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EPI - IT & Data Center Framework[®]

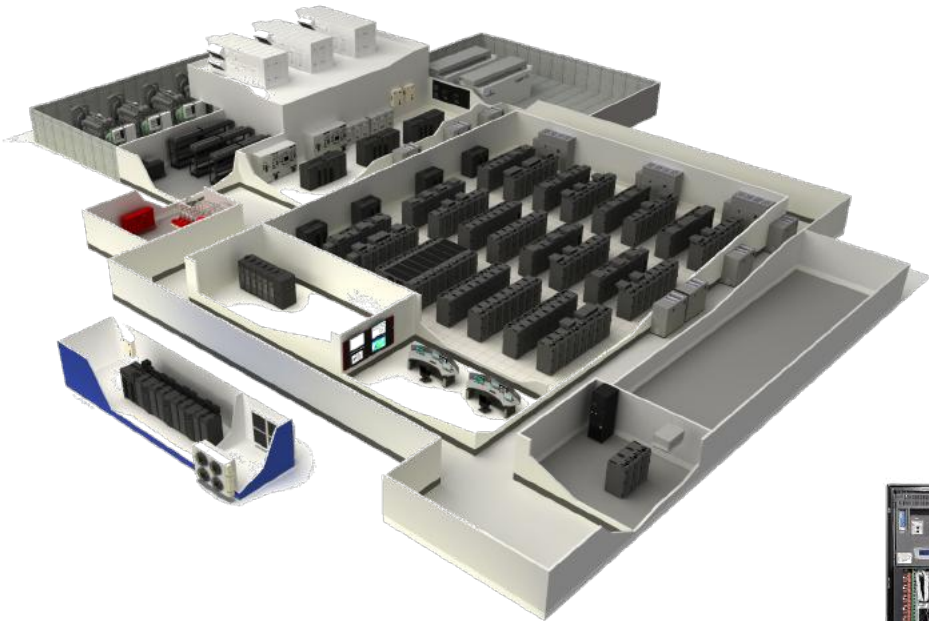


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The complexity of datacenters



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Standards drive quality

EN-50600

BS-5306

ISO-60364

ISO-27001

IEC-364-4-7

TIA-606

UPTIME

TIA-568

EN50173

LEED

ANSI/TIA-942

ISO-11801

NEN-50131

NFPA-75

ISO-6100-4-2

IEEE-1100

ISO-TS-22237

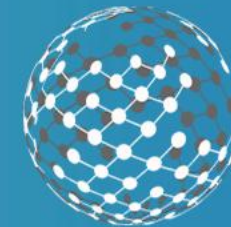
BREEAM

ISO-31000

ASHRAE

NFPA-2001

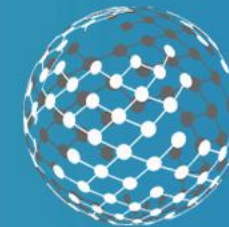
BICSI-002

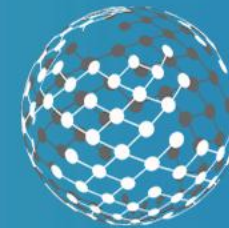
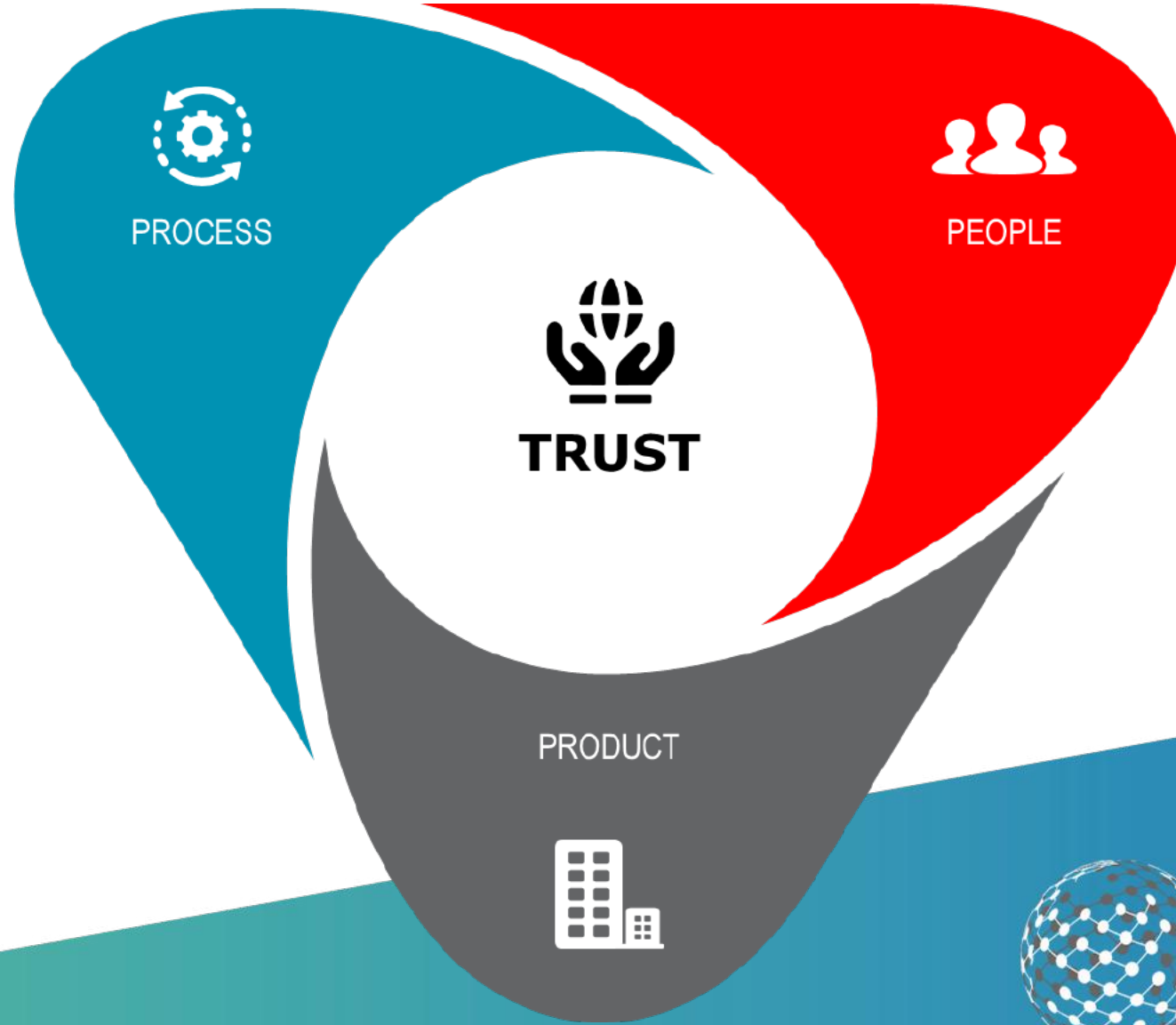


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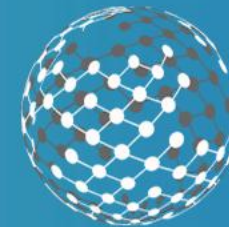
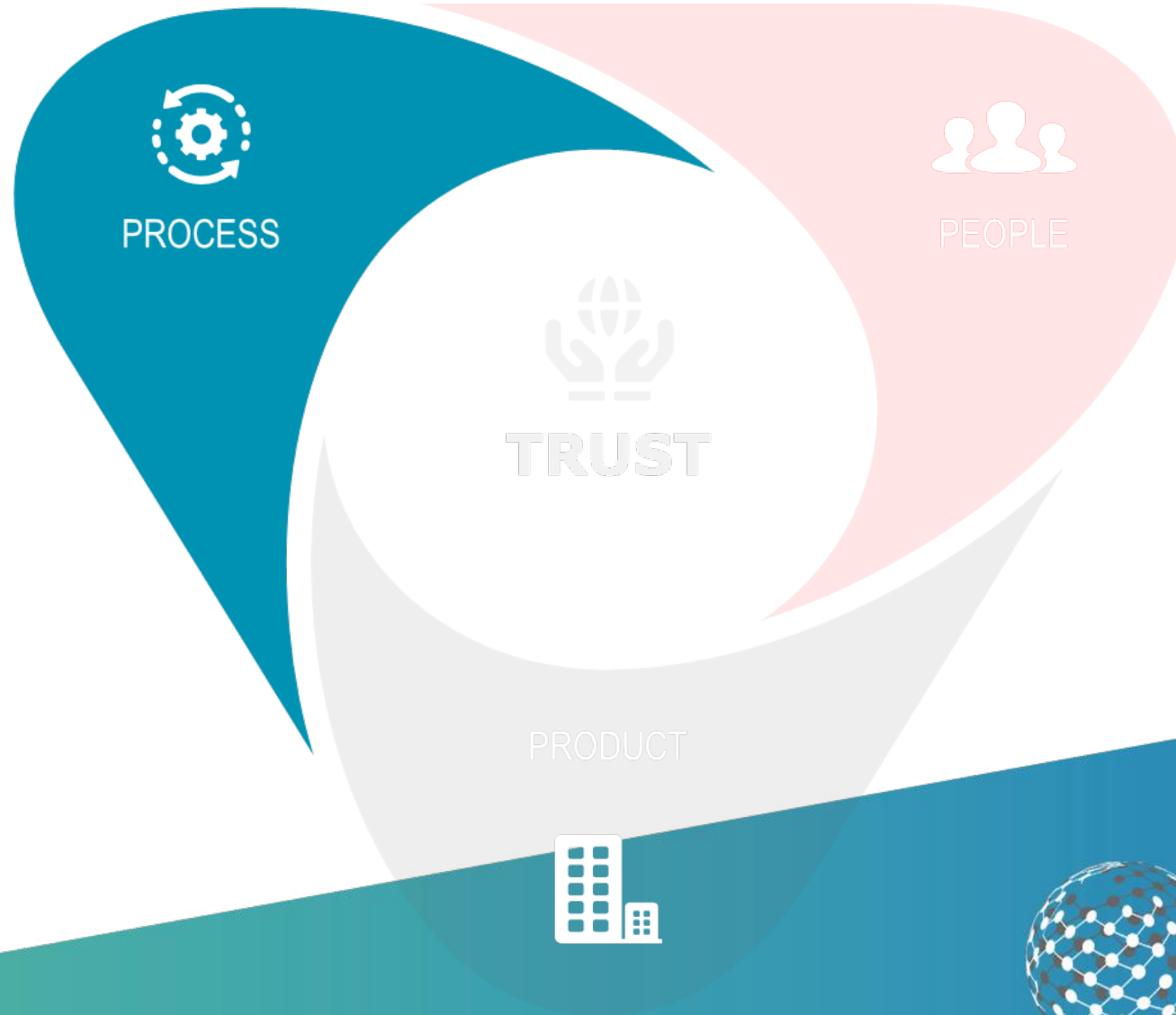
Rated / Class / Tier levels

Rated 1	Rated 2	Rated 3	Rated 4
Base Line Availability	Improved Availability	Concurrent Maintainable	Fault Tolerant
N Capacity without redundancy	Due to addition of redundant components to critical parts of the facility	Data center can undergo any form of planned maintenance without the need to shutdown which supports 24x7 operations	allows concurrent maintainability and one (1) fault anywhere in the installation without causing downtime



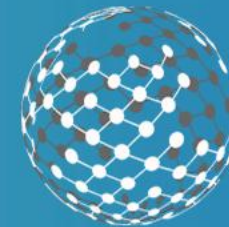
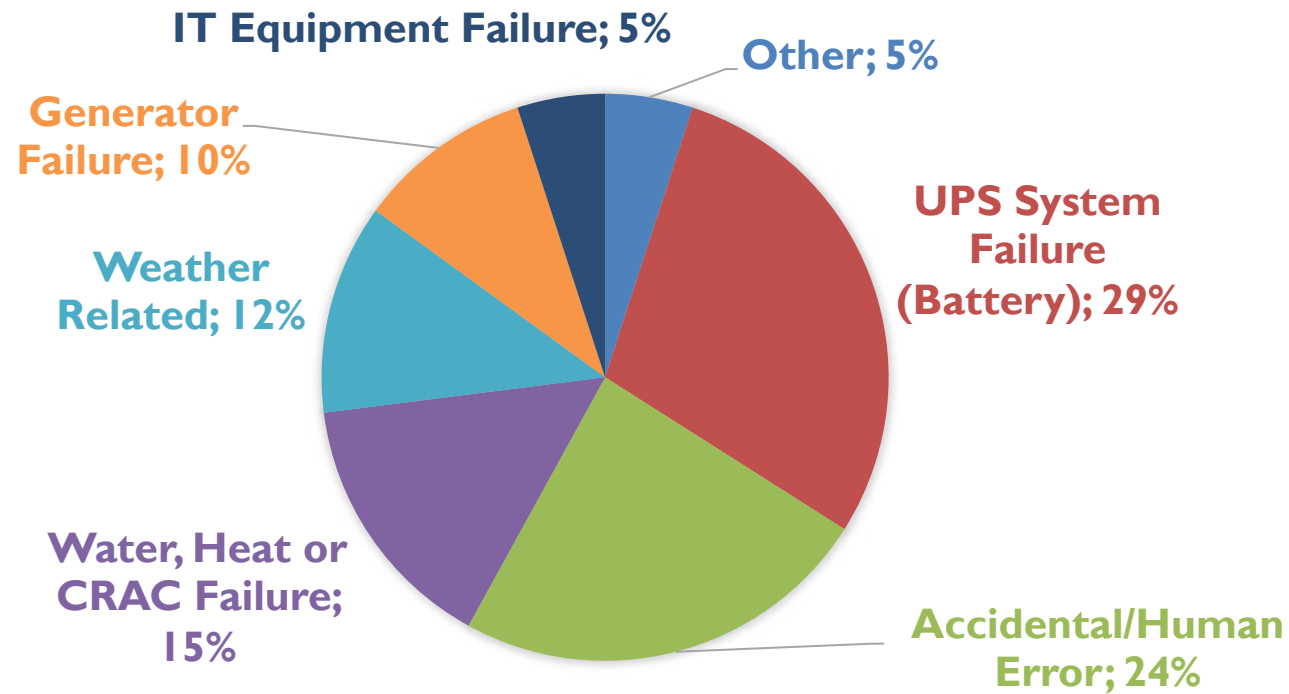


**DATACENTER
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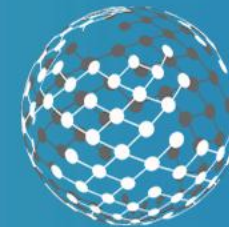
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Human Error / Human Factor



Causes of human related downtime

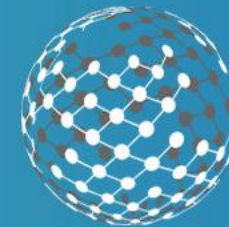
1. Processes at an incorrect maturity level in relation to the business objectives
2. Insufficient integration between processes
3. Human errors
4. Human violations



Human Error: the good news!

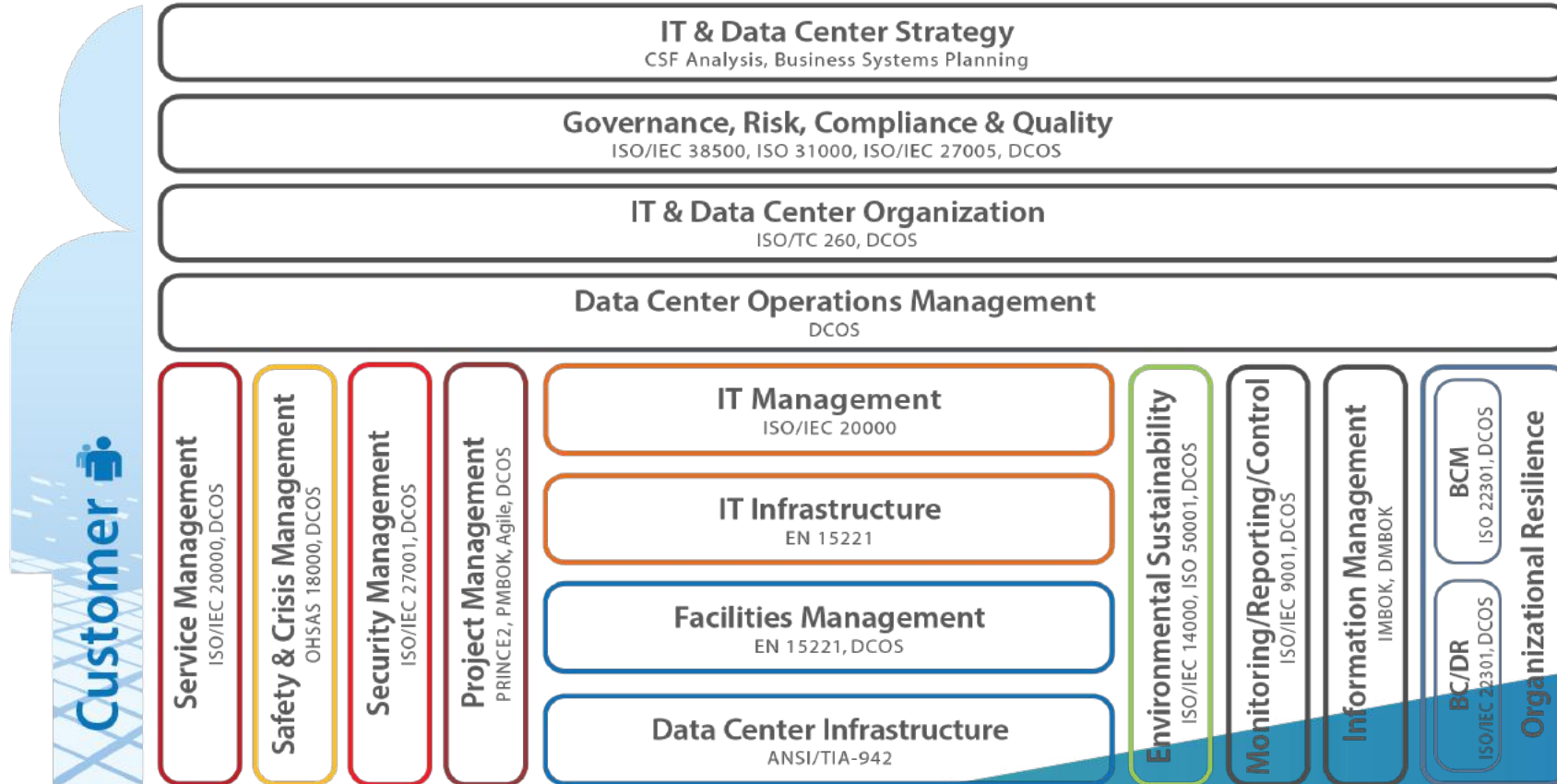


- Human Error is **predictable**!!
- Because human error is predictable, we can develop processes/procedures/training for;
 - Prevention
 - Consequence minimization

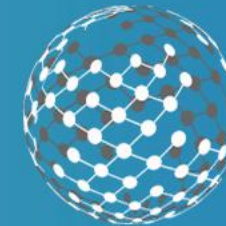




EPI - IT & Data Center Framework[®]



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11 Disciplines covered by EPI-DCOS[®]

1. Service Level Management
2. Organization
3. Safety Management
4. Security Management
5. Project Management
6. Facilities Management

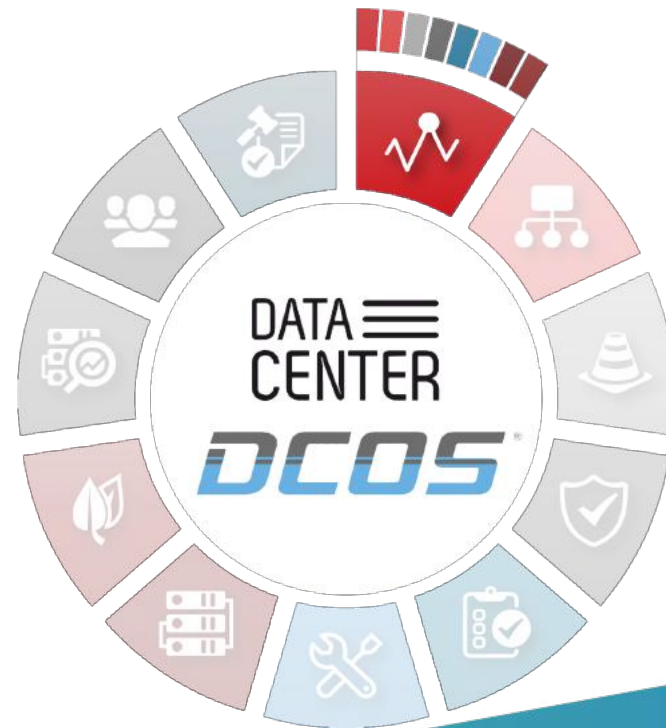


7. Data Centre Operations
8. Environmental Sustainability
9. Monitoring/Reporting/Control
10. Organizational Resilience
11. Governance, Risk and Compliance

DCOS[®] Sub Disciplines

Example: Service Level Management (SLM)

- Needs analysis
- Technical requirements
- Support requirements
- Commercial and legal requirements
- Service catalogue
- Service Improvement Plan (SIP)
- Service Level Management (SLM)



- Incident management integration
- Escalation policy and procedures
- Vendor management
- Reporting
- Complaint procedure
- Customer satisfaction management

DC-Operations maturity levels

DCOS-1 Initial

- No/Little;
- Documentation
- Monitoring
- Training
- Process

DCOS-2 Repeatable

- Undocumented processes, high reliance on personnel

DCOS-3 Define

- Standardized and documented procedures

DCOS-4 Managed

- Processes are measured and controlled
- Continuous improvement programs

DCOS-5 Optimized

- Integrated processes
- Continuous improvement programs

How to get the most out of DCOS®



1

- Read the DCOS® to understand the big picture

2

- Determine which disciplines/domains to improve

3

- Perform a gap analysis / audit

4

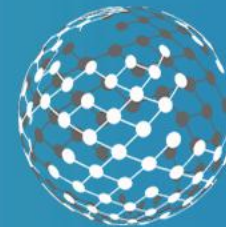
- Prepare a realistic action plan

5

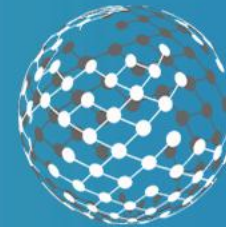
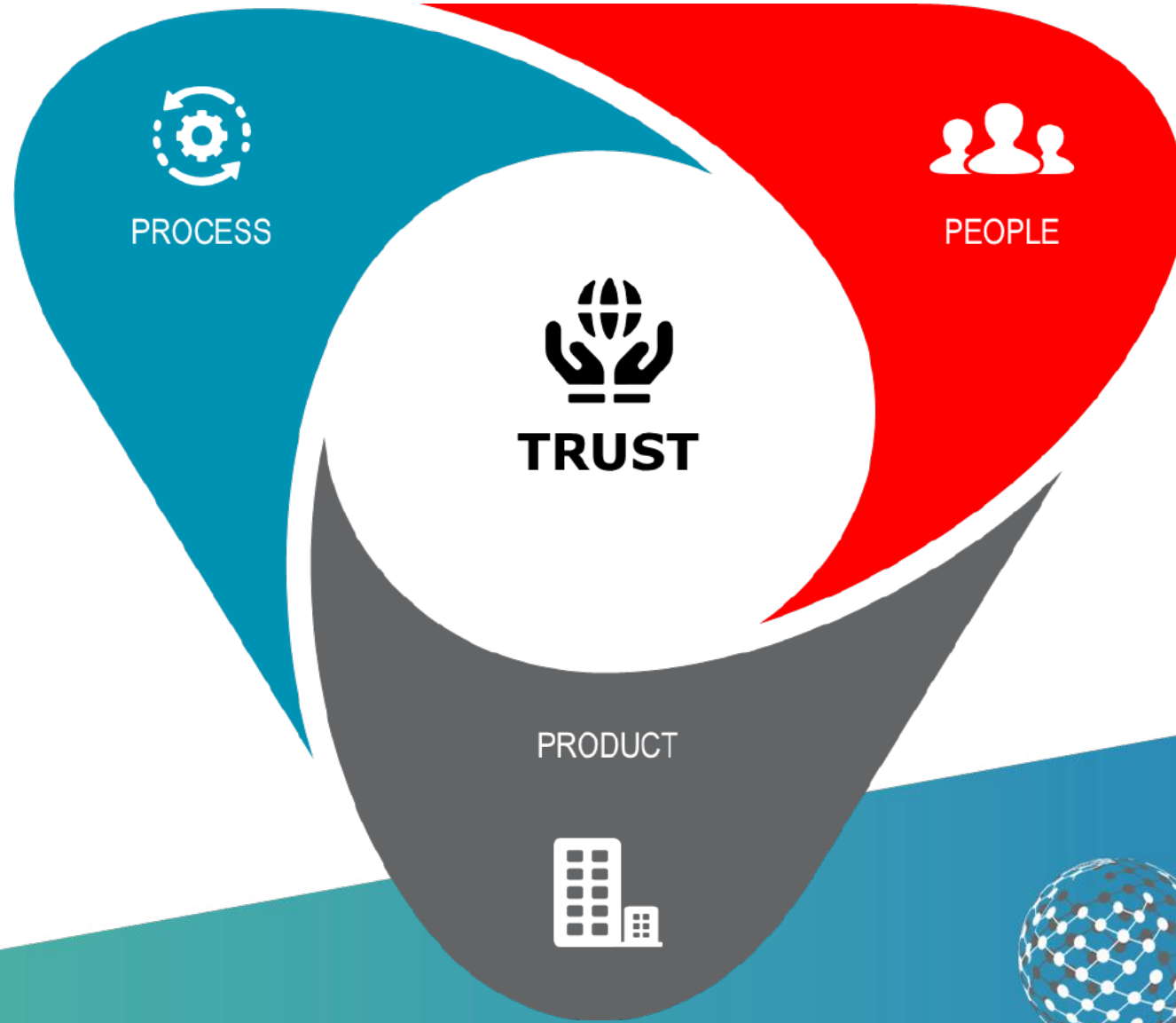
- Celebrate success

6

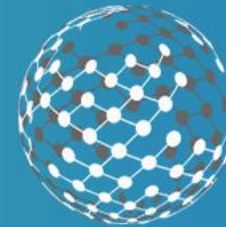
- Expand scope / improve maturity / maintain



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Data Centre Growth and Co-location Market Size by Region in 2024



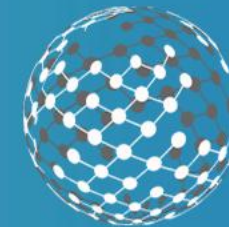
North America
CAGR: 6.4%
US\$23.4B

EMEA
CAGR: 11.1%
US\$17.2B

APAC
CAGR: 12.2%
US\$28.0B

Southeast Asia
CAGR: 12.9%
US\$3.5B

- Explosive growth in e-commerce and digital banking, demand for data storage globally is appealing to data centre players
- Well-located data centres that are built with redundancies will therefore be in high demand
- Data centre service providers should weigh the commercial opportunities against the risks and put in place appropriate measures



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Datacenter growth



Not enough
(experienced) datacenter
staff available



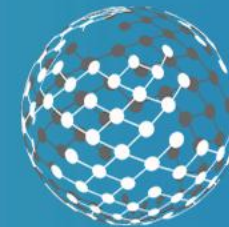
Lack of skills on
datacenter facilities



Exponential data
growth



More Focus on
Environmental
Sustainability



The world is changing...



Adoption of Cloud computing continues with hybrid being a key strategy



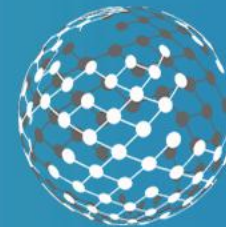
AI – Often an abused word. True AI will add value with cooling being the first target



Mobility and 5G create both challenges and opportunities



New competences are required. Skill gaps are widening



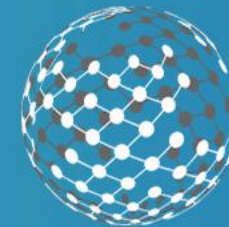
Electrical

- Utility power
 - PDU/DB design
 - Power cabling
 - Etc.
- Renewable energy
 - Solar/wind etc.
 - Self/Co-generation
 - Alternative energy storage
 - Modular configuration
 - Scalable architecture
 - Etc.



Old Skills

New Skills



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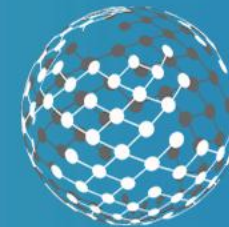
Mechanical

- Chillers
- HVAC/CRAC/CRAU etc.
- Hot/Cold aisle /containment
- Airflow management
- 3-12kW capacity
- Etc.
- “Free” Cooling
- Heat recovery
- Liquid cooling
- Direct chip cooling
- 3 – 28kW++ capacity
- Etc.



Old Skills

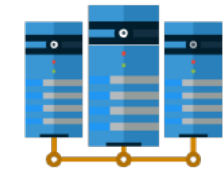
New Skills



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IT infrastructure

- Racks
- Servers
- Cabling
- Etc.

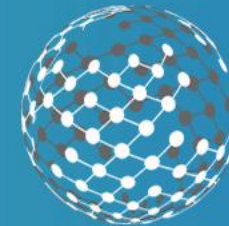


- Software Defined Everything
- Network
- Storage
- Servers
- Virtualization
- Etc.



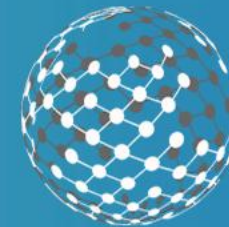
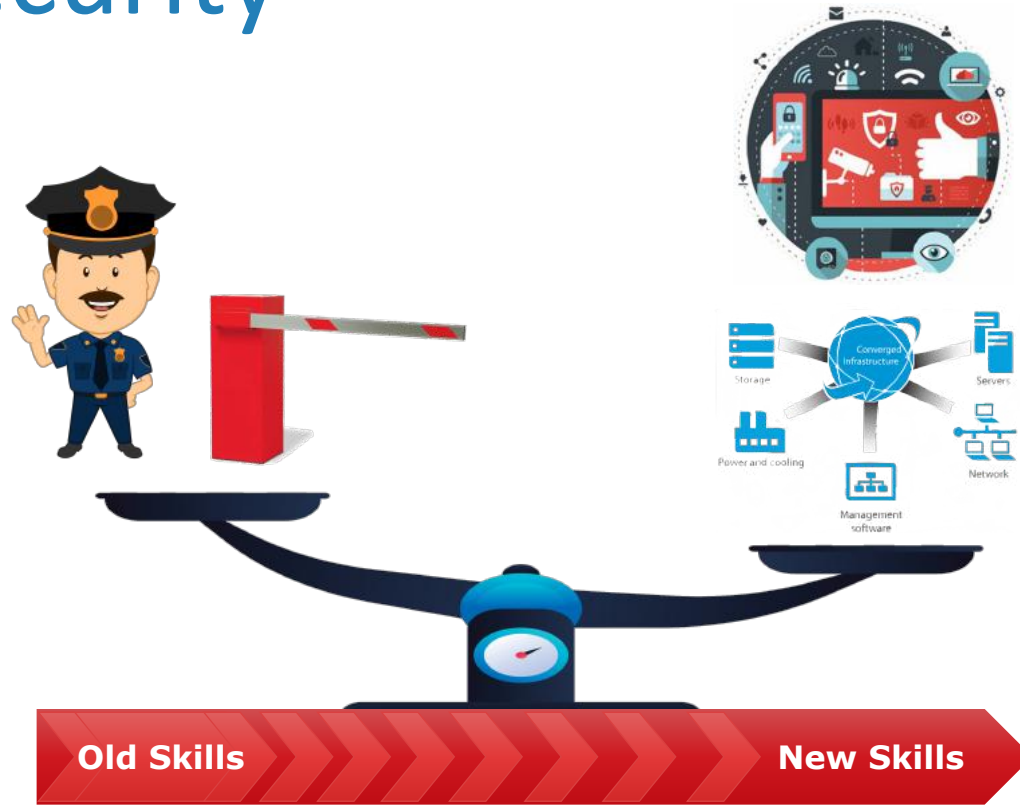
Old Skills

New Skills

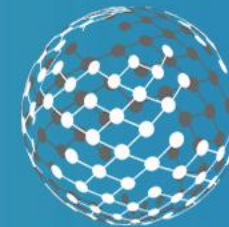
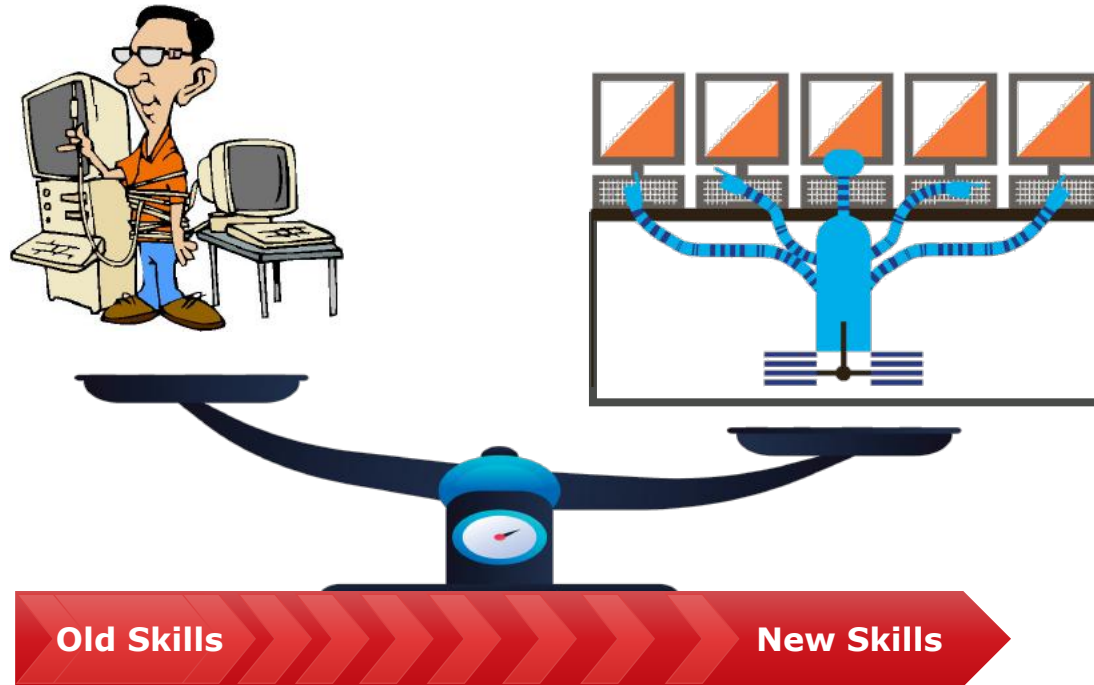


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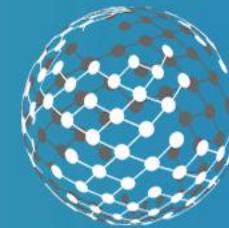
Security



Artificial intelligence



Soft skills



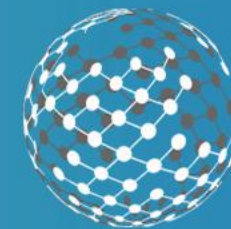
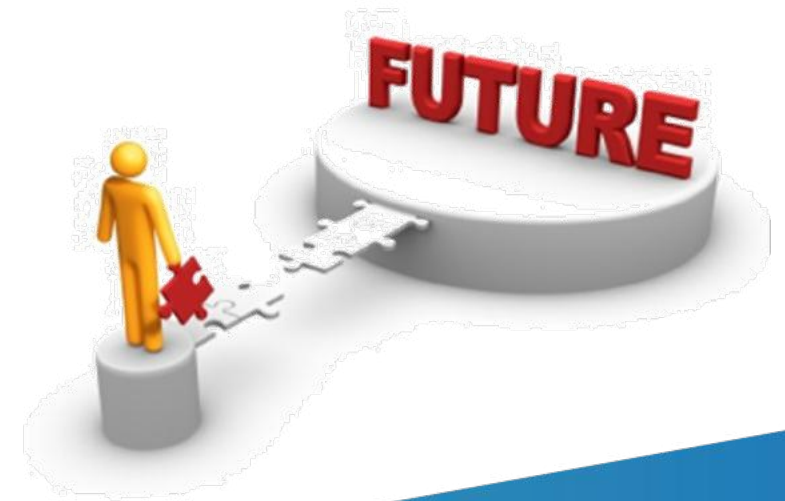
Training challenges

Which outcome of skills, knowledge and competences?

How can I create a structured training plan?

Which training provides the right outcomes?

How do I convince management?

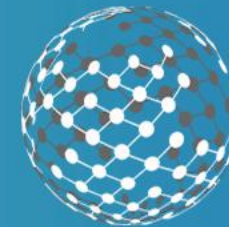


DCCF®

Data Centre Competency Framework



- The first and only competence framework for datacenters
- Based on the “e-Competence Framework (e-CF)”
- As well very useful for management / HR
- Describes competences and job roles (38)
- Download for free on - www.epi-ap.com/dccf



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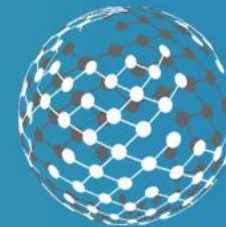
Course selection criteria

- Is the course provider a data centre expert?
- Trainers with hands-on experience?
- International Standards Based?
- Vendor Neutral?
- Independent/Impartial Exams?
- Globally recognized?



Most of all.....

- **Does it teach you the competences required?**



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How to get ready for the future?

1

- Review your current and potential future job role

2

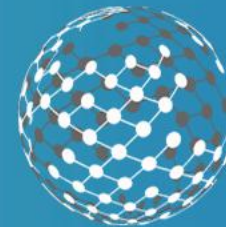
- Analyse current and future competence requirements (GAP analysis)

3

- Define timelines

4

- Find the right accredited courses

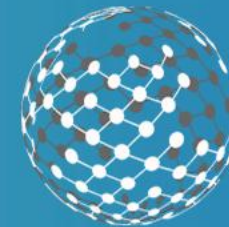




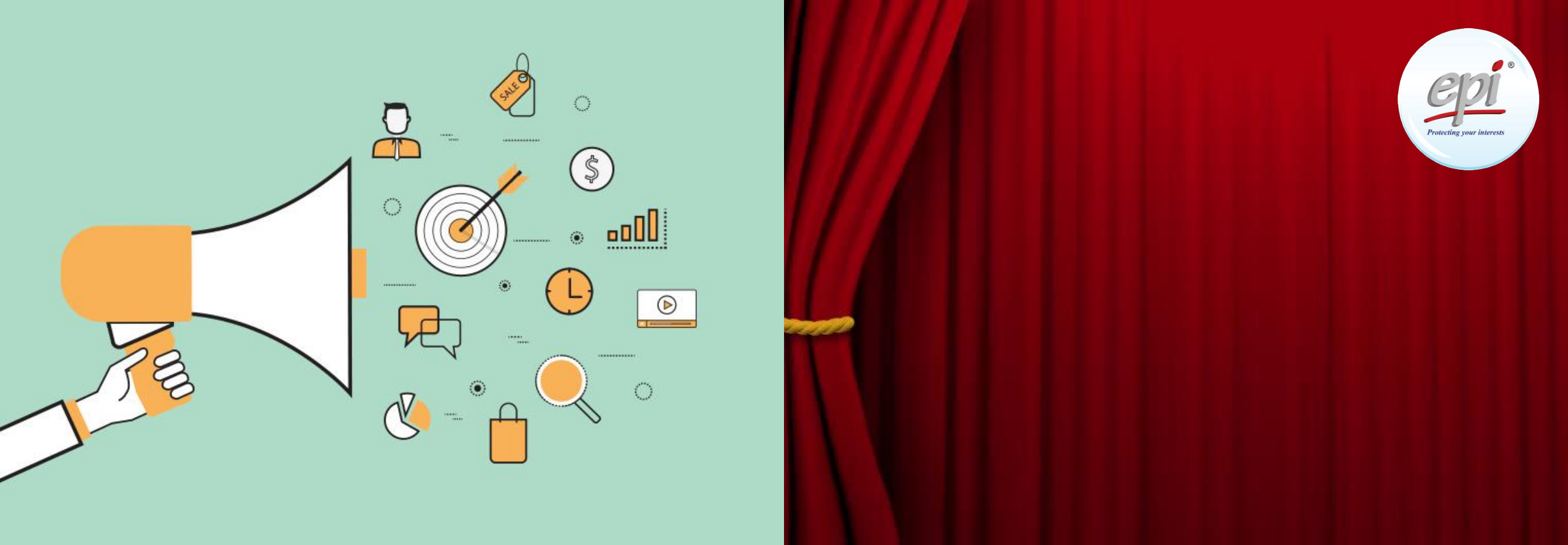
Most importantly

Make an appointment with

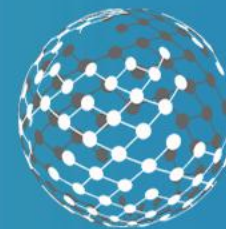
YOURSELF



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Closing remarks



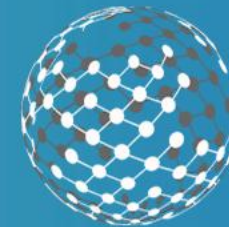
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Change, change, change

The world markets are changing and so is the IT and Data Centre market and at an ever increasing pace...

Business as usual doesn't exist!

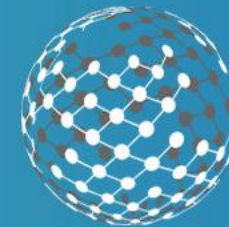
1



Remember the 3 P's

A resilient data centre infrastructure is important but it is NOT the only factor for high-availability

2

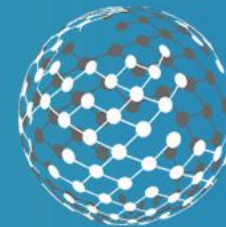


Processes

Ensure that all processes

1. Meet the maturity level required
2. Are under full management control
3. Are well/fully integrated

3



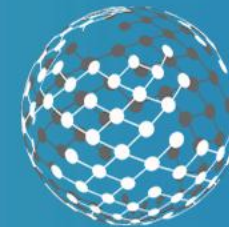
People

The future starts **now**, the world is **not** going to wait for you....

1. Planning is everything
2. Competence requirements are changing at an ever increasing pace
3. Invest in yourself and staff

Make an appointment with yourself!

4

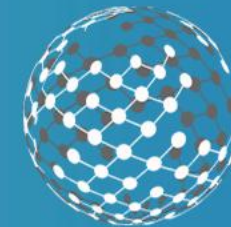


Use the FREE EPI tools

1. DCOS[®] – Datacenter Operational Standard
2. DCCF[®] – Datacenter Competence Framework

5





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THANK YOU!



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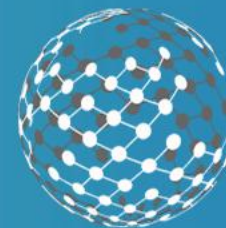
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Questions?

