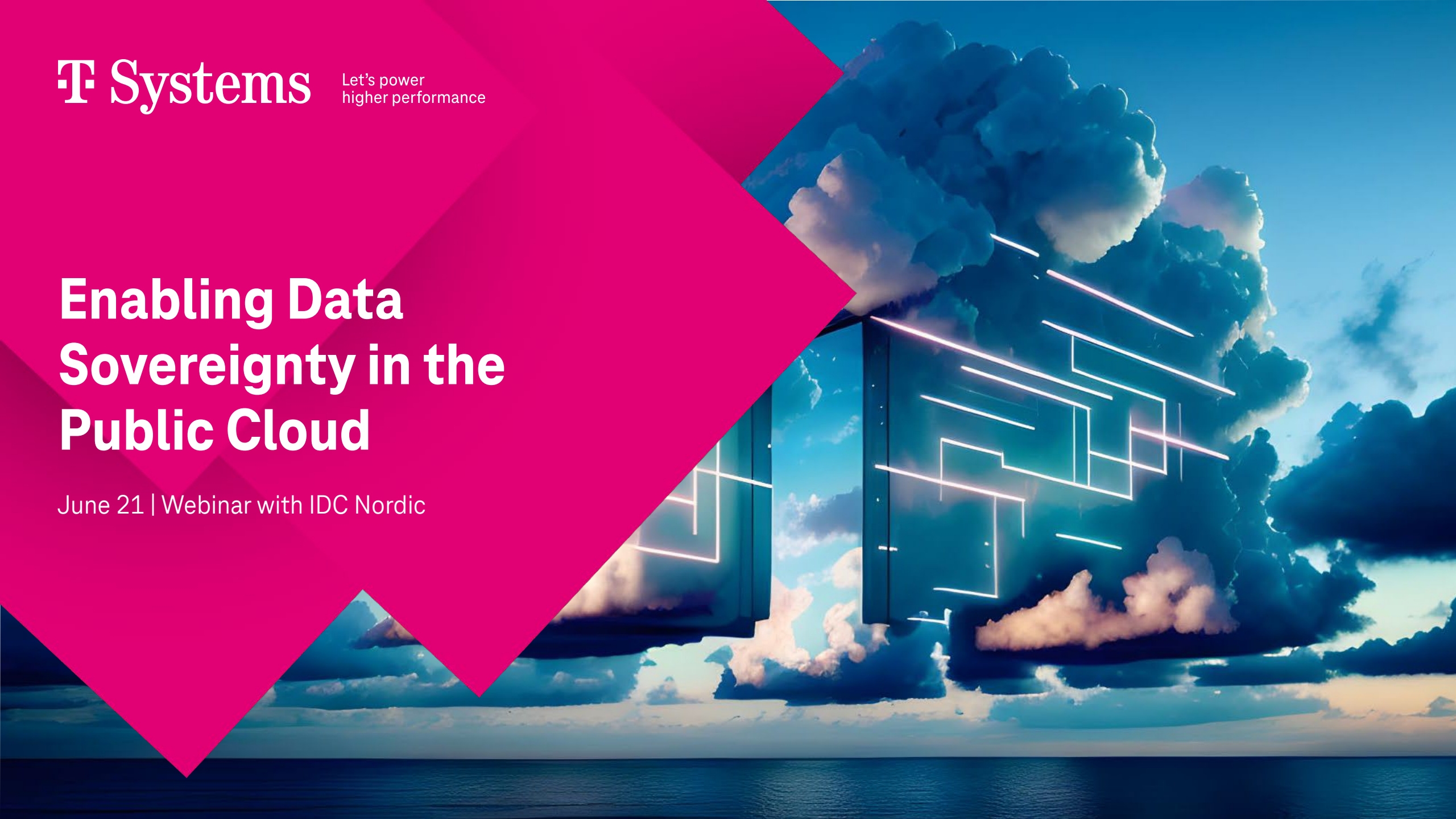


The logo for T Systems, featuring a stylized 'T' symbol followed by the word 'Systems' in a serif font.

Let's power
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Enabling Data Sovereignty in the Public Cloud

June 21 | Webinar with IDC Nordic



Compliance & Sovereignty in the Public Cloud

Mari Sterman | Security Manager
June 21, 2023

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Defining Sovereignty

- Dominance
- Power
- Control
- Enforcement
- Regulation
- Compliance
- Law
- Data Protection
- Personally Identifiable Information



GDPR Article 45 – Adequacy Decision

The European Commission recognises the following countries as meeting the adequate protection requirements:

- Andorra
- Argentina
- Canada (commercial organisations)
- Faroe Islands
- Guernsey
- Israel
- Isle of Man
- Japan
- Jersey
- New Zealand
- Republic of Korea
- Switzerland
- United Kingdom
- Uruguay



GDPR Article 46 – Appropriate Safeguards

The following details the appropriate safeguards needed to meet minimum requirements for data transfers without any specific authorisation from a supervisory authority:

1. A legally binding and enforceable agreement with public authorities or bodies
2. Binding corporate rules in accordance with [Article 47](#)
3. Standard data protection clauses adopted by the Commission in accordance with the examination procedure referred to in [Article 93\(2\)](#)
4. Standard data protection clauses adopted by the supervisory authority and approved by the Commission pursuant to the examination procedure referred to in [Article 93\(2\)](#)
5. An approved code of conduct pursuant to [Article 40](#) together with binding and enforceable commitments of the controller and/or processor in the third country to apply the appropriate safeguards, including as regards to data subjects' rights
6. An approved certification mechanism pursuant to [Article 42](#) together with binding and enforceable commitments of the controller and/or processor in the third country to apply the appropriate safeguards, including as regards to data subjects' rights

Schrems II

In July 2020, the ECJ issued the Schrems II judgement. The ruling of this case involving the Irish Data Protection Commissioner Vs Facebook Ireland & Maximillian Schrems resulted in significant changes for the use of US cloud service providers.

All customers of US cloud service providers are now responsible for verifying the data & privacy protection laws of the recipient/host country, document the risk assessment & advise their client base on any findings.

Companies can no longer solely rely on Standard Contractual Clauses (SCCs) & Binding Corporate Rules (BCRs) to verify adequate privacy protection.

The Schrems II judgement means if the host country is outside the EU/EEA's legislation, it must be analysed to confirm if the country offers equivalent protection for privacy similar to the GDPR.

It is the responsibility of the organisation exporting data to the US or other third country (not the Cloud Service Provider) to perform a documented Transfer Risk Assessment (comprised of an analysis of the data flow, supplier's access to the data, recipient country's legislation & any other safeguards applicable to the SCCs).

Data Sovereignty

- **Control**
- **Enforcement**
- **Regulation**
- **Compliance (GDPR, Schrems II)**
- **Standard Contractual Clauses (SCCs)**
- **Data Protection (DPIAs)**
- **Data Privacy**
- **Data Encryption**
- **Data Governance**



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Enabling Data Sovereignty in the Public Cloud with External Key Management

Sakari Palko | Head of Cloud Sales
June 21, 2023



T-Systems Data Protection as a Managed Service



Fulfilling EU Customer Requirements for Data Security



in the AWS cloud means...

1 Full Control of Keys



2 Seamless Integration to AWS Services



3 EU Compliance like GDPR



4 Key Management Provider in the EU



5 Encryption keys in secured hardware



6 Encryption Keys Outside AWS

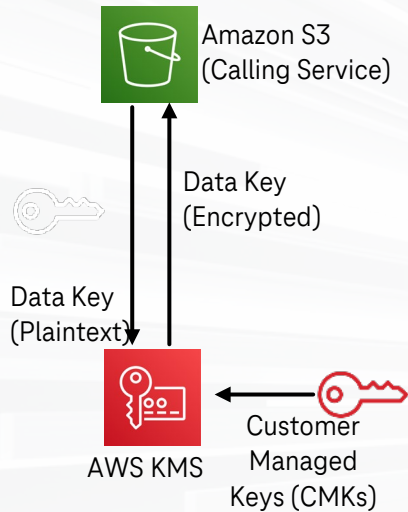


Data confidentiality using KMS

STOP handing over the encryption keys

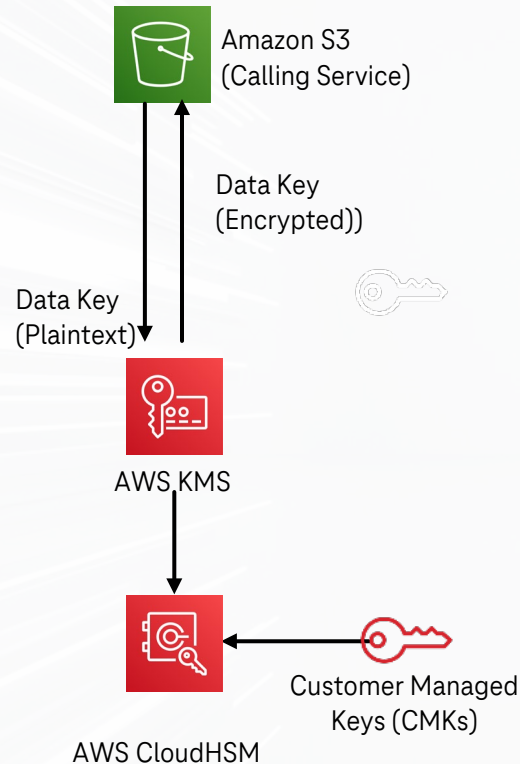
Over 100 AWS services supported today
Available from AWS Marketplace

1. AWS KMS only



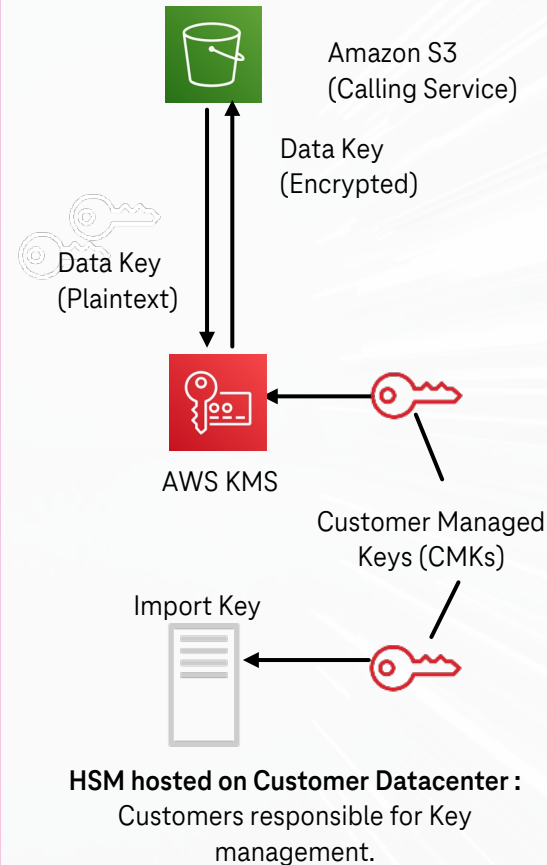
Stored in AWS KMS built-in HSMs.

2. AWS KMS with Custom Key Store



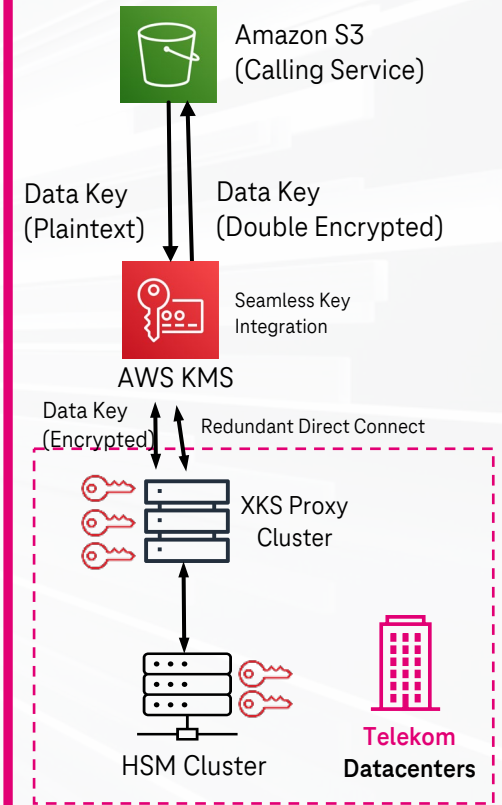
Stored in AWS CloudHSM under customer's control.

3. AWS KMS with 3rd party solution



Stored in external HSM; copy exists in volatile memory within AWS KMS

4. Solution Managed by T-Systems



T-Systems responsible for Key management stored via HSM.

External Key Management

Implementing Encryption in the AWS cloud



- 1 Key Infrastructure hosted in Germany**

Infrastructure is hosted on Telekom Datacenters in Germany. Deutsche Telekom/ T-Systems is the leading security provider in Germany. <https://www.t-systems.com/de/de/referenzen/analystenbewertungen/sicherheit/isg-provider-lens-cyber-security-solutions-2022>
- 2 Encryption keys managed outside the cloud**

Key Encryption is handled outside AWS giving customers a vendor independent control. Keys will be handled by T-Systems in German Data-Centers.
- 3 Encryption keys are stored via secure hardware**

Master Keys are stored in FIPS 140-2 Level 3 validated Hardware Security Module (HSM).
- 4 Supports regulatory compliance**

Allows customers to encrypt data and applications handling sensitive data safe and confidential as well as help address compliance with government and industry regulations..
- 5 Seamless Integration to AWS Services**

Integration to majority of the AWS Services being used by AWS Key Management Services (KMS).
- 6 Key Access Auditing**

End to End logging and monitoring of Key Access.
- 7 Highly available and scalable Infrastructure**

Keys are hosted in highly available Infrastructure in Telekom Datacenters. AWS Services are connected to the datacenters using highly available Direct Connect connections.

Responsibility Matrix for External Key Management

Task	T-Systems	AWS	Customer
Hosting HSM Cluster	R		
Establish Network Connectivity to HSM	R		
Setting up TSI Proxy VPC	R		
Integration of HSM to Customer KMS	R		C
Defining IAM Policies for KMS Service	C		R
Defining Key Policies	R		C
Monitoring and Alerting	R		I
Setup of Backup and Restore Policies	R		C
Creation of Runbooks for Operations	R		A
Life Cycle Management of Keys	R		A
Management of Key Users	R		A
Provide KMS API Interface	A	R	

R: Responsible

A: Accountable

C: Consulted

I: Informed

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Use-Case

External Key Management for
Health App Provider



Use-Case: Enabling Secure Health Data



The German healthcare market is in motion. App providers can now support patients with apps for mental health, diabetes, heart diseases, etc. Technically, provision of these apps via the AWS cloud makes absolute sense: It ensures scalability, offers a risk-minimized approach, and applies modern CI/CD pipelines for agile development.

Thus, time to market and high innovation speed are guaranteed. However, the app and the respective data handling must comply with German law and regulations for processing personal (health) data!

With T-Systems, ITONICS could establish their diabetes solution in the market. Strong encryption protects personal health data. With the storage of the keys in the EKM operated in a Telekom data center in Germany, ITONICS could fulfil the regulatory authorities demands.



We take GDPR compliance very seriously at ITONICS, so when we were researching how to comply with the Schrems II ruling, we started looking for ways to encrypt our data with keys managed inside the EU.

We were delighted to be invited to T-Systems Key Management Service beta program to test the integration with a number of AWS services. The results of these tests were positive, and we are now moving to the implementation phase of the project.

- Martin Hignett, CTO at ITONICS

T-Systems Company Presentation

Northern Europe | June, 2023

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Work with one of the strongest brand in the world

#01 GERMAN BRAND

#01 EUROPEAN BRAND

#11 GLOBAL BRAND

T Systems

DETECON CONSULTING M M

Deutsche Tele



Top 20 global brands

The World's Top 25 Most Valuable Brands © Brand Finance Plc 2023

1 ↑ 2	2 ↓ 1	3 ↔ 3	4 ↔ 4	5 ↔ 5
 US\$299.3 bn -14.6%	 US\$297.5 bn -16.2%	 US\$281.4 bn +6.8%	 US\$191.6 bn +4.0%	 US\$113.8 bn +1.7%
6 ↔ 6	7 ↑ 8	8 ↑ 10	9 ↑ 28	10 ↑ 18
 US\$99.7 bn -7.1%	 US\$69.5 bn -7.4%	 US\$67.4 bn -3.2%	 US\$66.2 bn +43.9%	 US\$65.7 bn +11.4%
11 ↑ 17	12 ↓ 11	13 ↑ 20	14 ↓ 7	15 ↑ 16
 US\$62.9 bn +4.6%	 US\$62.7 bn -4.4%	 US\$61.1 bn +8.4%	 US\$59.0 bn -41.7%	 US\$58.8 bn -2.2%
16 ↓ 15	17 ↓ 14	18 ↑ 29	19 ↓ 12	20 ↓ 13
 US\$58.8 bn -3.2%	 US\$57.7 bn -7.0%	 US\$53.4 bn +16.9%	 US\$52.5 bn -18.3%	 US\$50.2 bn -19.3%
21 ↑ 32	22 ↑ 26	23 ↓ 19	24 ↑ 30	25 ↓ 23
 US\$49.7 bn +15.9%	 US\$49.6 bn +5.5%	 US\$49.5 bn -13.2%	 US\$48.4 bn +7.0%	 US\$48.2 bn -3.4%

Source: Brand Value Global 500, Brand Finance 2023 brandirectory.com/global

T-Systems Worldwide

- a leading IT-service provider

For more than two decades T-Systems has digitalized corporations and societies.

Our German origin shines through in our uncompromised approach to support our customers, a thoroughness which is mirrored in our vision to be the most reliable IT solutions provider with the best technology and industry expertise.

Headquartered in Germany, present in more than 20 countries, and around 28,000 employees, T-Systems is one of the European-leading IT service providers and suppliers of digital services.



€4+ bn

Revenues

DAX30

T-Systems support all DAX30 companies

16

Data centers

20+

Countries where we are present

28,000+

Employees

8

Security operation centers (SOCs) globally

Fortune500

T-Systems support +100 Fortune500 companies

Northern Europe

Our local presence

#7

Office locations

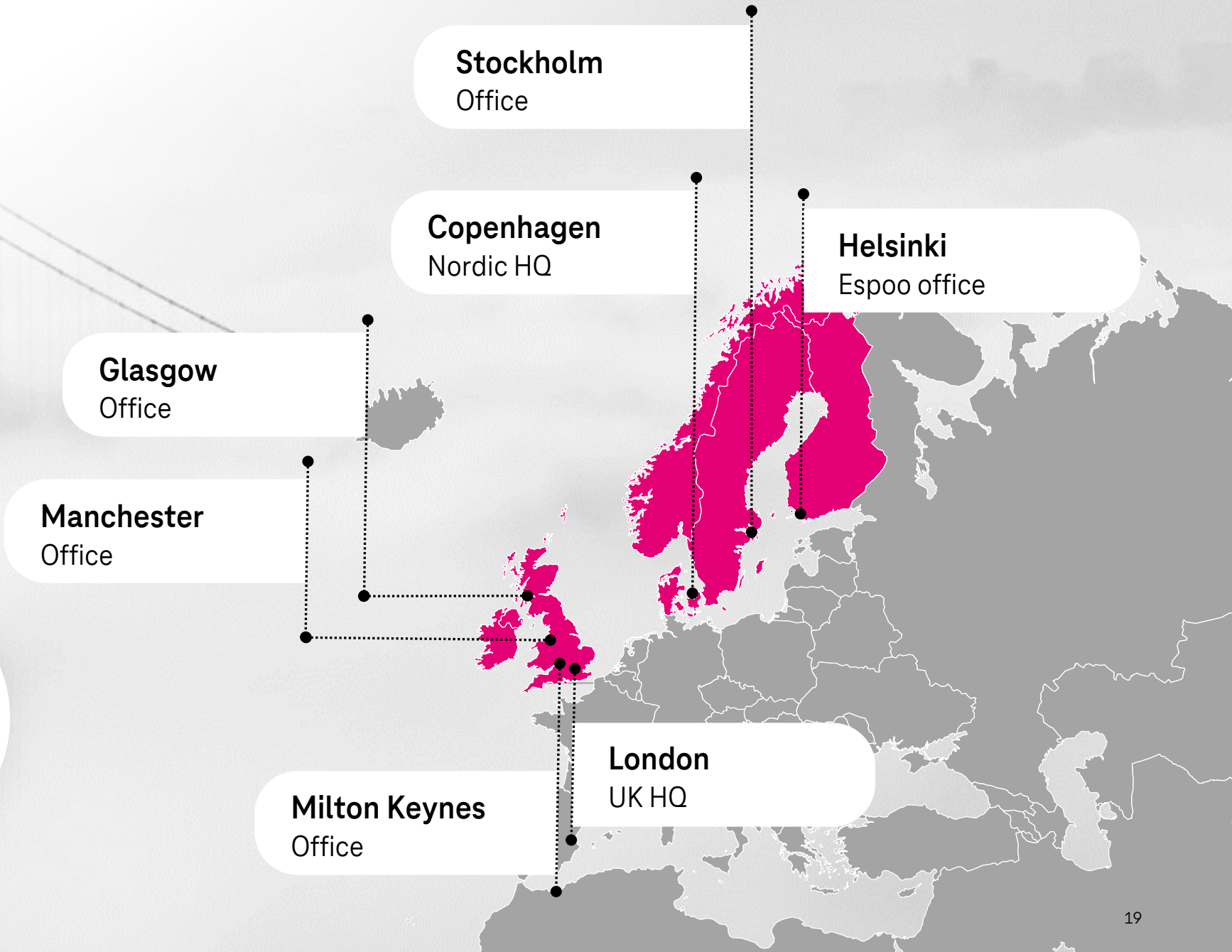
+200

Employees



+15

Nationalities




Our Strategy


Our Vision


Most reliable ICT solutions provider with best technology and industry expertise


We enable organizations to reach full potential through digitization


Our Mission


 Data sovereignty

 Innovation with an open partner ecosystem

 Secure operational excellence

Learning & relentless improvements 

#peoplemakeithappen 
Agility and T-Mindset

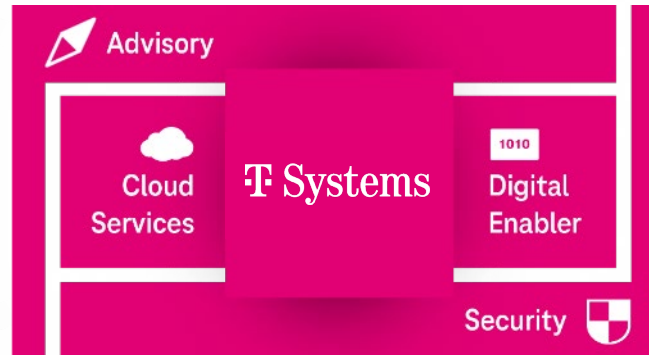
Sustainability & Diversity 

We are Multi Cloud Enablers & Operators

We are Digitization Enablers

We partner with you on your journey ...

... into a modern, secure & resilient digital environment



Going Beyond

To deliver tangible business value to you

T Systems

Let's power
higher performance

”

We understand the challenges companies are facing. The need for agility, adapting to stakeholder demands, sustainability, resilience, cyber security threats, and ability to deliver innovative products and services to end-users.

To us, it is not about the technology, but how we can help our customers to leverage technology to create real business outcomes.

We co-create to make amazing things happen

We automate
the global
manufacturing

We enable
the future
of mobility

We help to
put satellites
in space

We strengthen your business
and cyber resilience

We help airports to move
millions of people through
their facilities

We enable cloud services
to businesses & society

We help to realize space
programs to make the
world better and more
sustainable

We power global
telecommunications
to connect people

We save lives, with
our AI solutions that
prevents blood
poisoning

We make cars
to travel
without drivers

We help to
deliver energy
to mankind

We keep
the shops
stocked and
selling

We keep
hospitals
running



We are building digital tomorrow

We are a group of co-creators, consultants, delivery and customer support staff.

We continuously question and re-think the established in order to build a digital world with sustainable impact for our customers .

...through our experts and holistic cloud-native solutions

Our biggest asset? Our people behind the technologies. They come with deep tech knowledge and unparalleled skills in industry topics.

We deliver E2E-solutions for the digital needs of our customers, in order to fully develop and modernize business critical operations.

We deliver

- ◆ Advisory
- ◆ Digital
- ◆ Cloud
- ◆ Security
- ◆ Connectivity

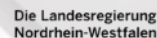
Our clients include

- ◆ Automotive
- ◆ Manufacturing
- ◆ Transport & Logistics
- ◆ Life Science
- ◆ Financial Services
- ◆ and more



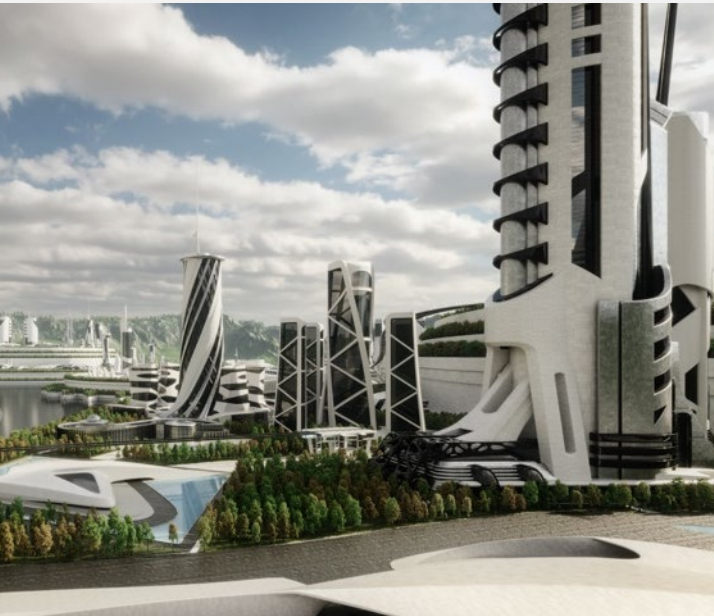
Leading global players put their trust in us – in +20 countries

Long-term customer relations and precise knowledge of the respective industries drive our success.



[More references and projects](#)

Our clients are trusting us



92%

Confirm T-Systems
to be **RELIABLE***

* Brand Tracking Study GER Dec22



T-Systems is
part of **TOP**

10%

European
Benchmark**

**TRI*M 2022

T-Systems
present in

> 20

countries



91%
Perceive T-Systems
as **INNOVATIVE***

* Brand Tracking Study GER Dec22



**We are awarded across all major industries
by trusted analysts**

> 100x

**MARKET LEADER
POSITIONS**

IN

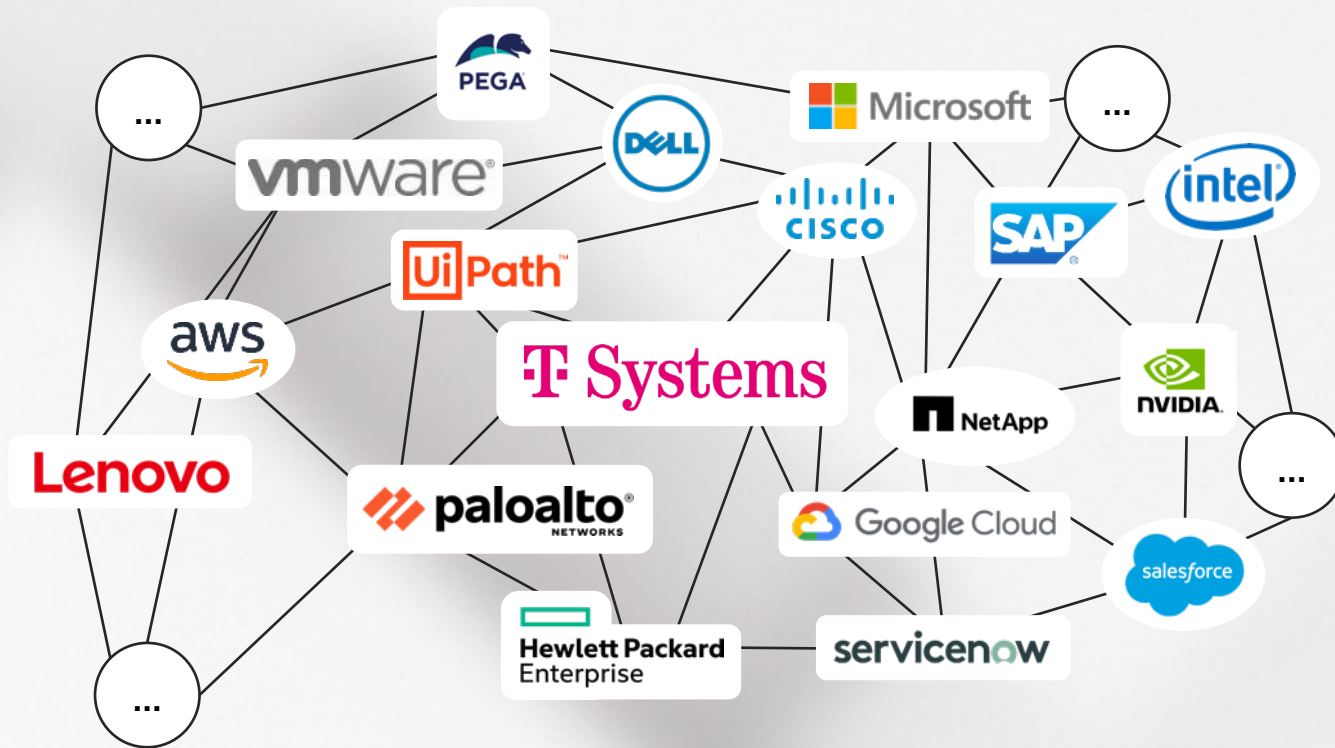
30

**BENCHMARK
REPORTS***



We work with long-term & dedicated partners

Global players and start ups



500+ prominent technology and industry partners and suppliers, as well as numerous start-ups

- ✓ Joint solution development
- ✓ Capability augmentation
- ✓ Joint project delivery
- ✓ Co-innovation

Building the digital future

Trailblazing solutions with partners

Industry solutions

Digital Health



BARMER
verimi

EV Charging



Ambika
servicenow

Automotive Omniverse



NVIDIA

Hybrid, multi-cloud era



CoE VMware
T-Systems
vmware

Sovereignty, privacy and compliance

T-Systems
Google Cloud



COMPLIANCE **REGULATIONS**

Sovereign Cloud

powered by aws



DPaaS incl. EKM

Sustainability

Climate and energy management data-based targets



Azure

Sustainability Manager

BCG BOSTON CONSULTING GROUP
CO2 AI



Impact Measurement

We work hard to become a leading sustainable IT Provider and make a significant contribution to lowering CO₂

0%

Net Zero for direct and indirect energy consumption until 2025

0%

Net zero full scope emission until 2040

100%

Sourcing of Renewable Energies 2021

Our commitment

Group climate targets



Fleet



Value chain



Buildings



Suppliers

Awareness

#peoplemakeithappen



Member of **Climate neutral Datacenter Pact**



High-efficiency **LEED-certified** Datacenter Biere



EU Code of Conduct energy efficiency compliance

[Research project](#) to increase self-sufficiency

Our Measures

Footprint reduction along full scope

Energy efficient Datacenter

Global portfolio for 20 Countries, with significant **Client Enablement Potential**

Holistic **End2End Supplier**

- Carbon Footprint **Consulting**
- Low Carbon **Infrastructure Services**
- Sustainability through **Digitization**

Sustainable Revenue Quota of 44 %*

~50 Sustainability Experts



Our Service & Our Capabilities

Enabling clients to reach their sustainability goals

* on Deutsche Telekom Group level, T-Systems overproportionally contributes

We rank as a leader in Sustainability & Decarbonization Services and help our clients in their sustainability journey with tailored offerings



> 40 sustainability related offerings and successful implementations

All details in the [sustain Highspot section](#)

***ISG**

“Leader” Ranking in Sustainability & Decarbonization Services in GER and Nordics in the ISG Study (since 2021)

Sustainability Advisory & Consulting



Low Carbon Mobility Management



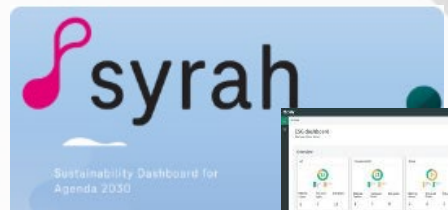
Airport Collaborative Decision Making



SAP Emission Free Cloud Services



Sustainable Development Goals Dashboard



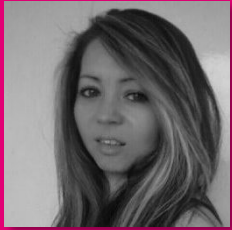
Headunit Remote Testlab



Eco Shift – Traffic Optimization



Contact Us



Mari Sterman
Security Manager
mari.sterman@t-systems.com



Sakari Palko
Head of Cloud Sales
sakari.palko@t-systems.com

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