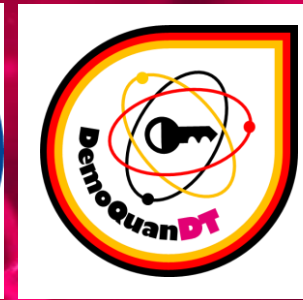


QKD @ DT: DT's Journey to Quantum Safeness

M. Vanlerberghe, K. Elder, F. Hofmann, M. Gärtner, F. Wissel
Deutsche Telekom Global Business Solutions Belgium
Deutsche Telekom Technik GmbH



PETRUS and QSNP: Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

Funded under grant agreement 101091719 (PETRUS) and 101080116 (QSNP)
DemoQuantDT: funded by German BMBF



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DEUTSCHE TELEKOM'S QUANTUM COMMUNICATION INVOLVEMENT



Past

- 

■ CiViQ 2018-2022
 - CV-QKD
 - Use Cases
- 
■ OpenQKD 2019-2023
 - Lab Demonstration
- 

■ QCI4EU 2020
 - Feasibility study
- 
■ QSAFE 2021-2022
 - Detailed Design
- 

■ QuNet Alpha
 - PoC Demo

Present

- 

■ DemoQuantumDT 2022-2024
 - Large scale QKD demo
- 
■ PETRUS 2022 - 2025
 - Coordination & Support Action
- 

■ Quantum Flagship 2023 - 2025
 - QSN Quantum Secure Network Partnership

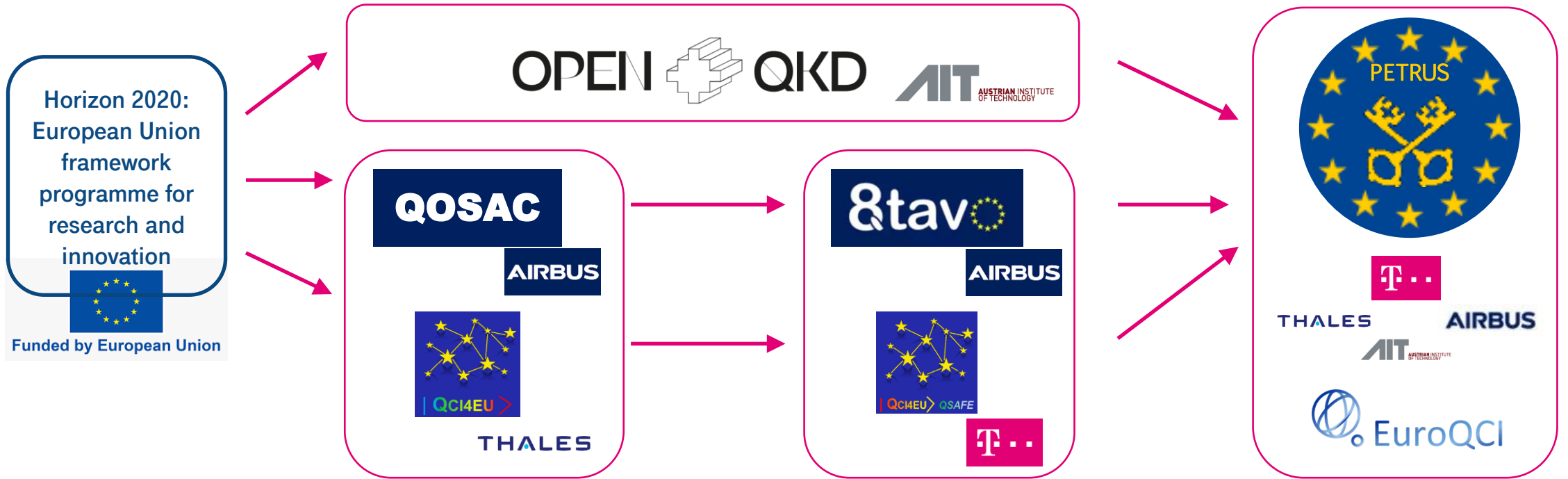
Other activities

- Standardization (ETSI, DIN, ITU, GSMA)
- Protection Profile
- Quantum Coordination Board
- DIVQSec
- R&D with TU Darmstadt
- QuNet+ ML

Future

- Digital Europe Programme (DEP) 4**
 - Testing & Validation Infrastructure

PETRUS – COORDINATION & SUPPORT ACTION (DIGITAL EUROPE PROGRAMME)



DEMOQUANDT: APPLICATION-ORIENTED DEMONSTRATION OF QUANTUM COMMUNICATION IN DEUTSCHLAND



Goal

- Large-scale QKD network demonstration closest to real-life application
- Deployment of a chain of 18 trusted nodes btw. Berlin & Bonn
- Gaining experience in how to handle QKD equipment
- Interworking and Interoperation
- Close to a real network operation
 - Derivation of security requirements & software development
 - Integrability into DT's OSS ecosystem & establishment of relevant DT processes
- Security check of crypto primitives, protocols & interfaces
- Verification of a "highly-secure transport service"



ROHDE & SCHWARZ

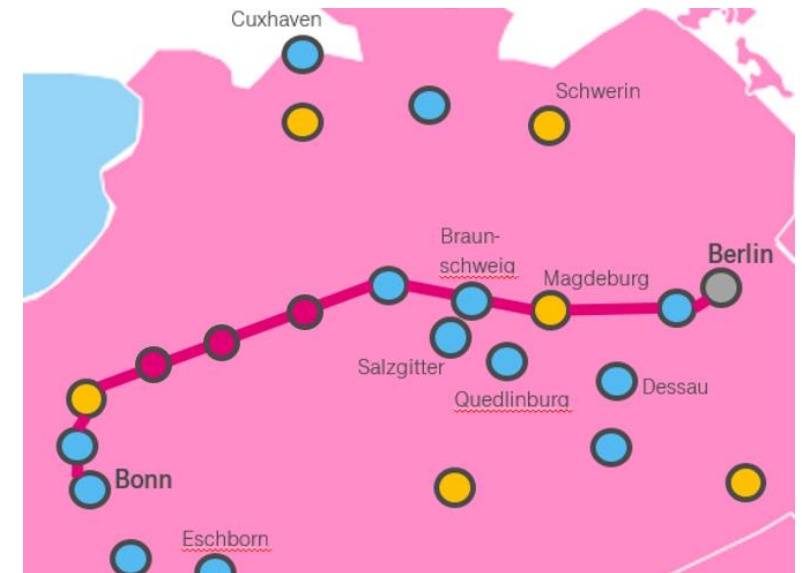


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Framework



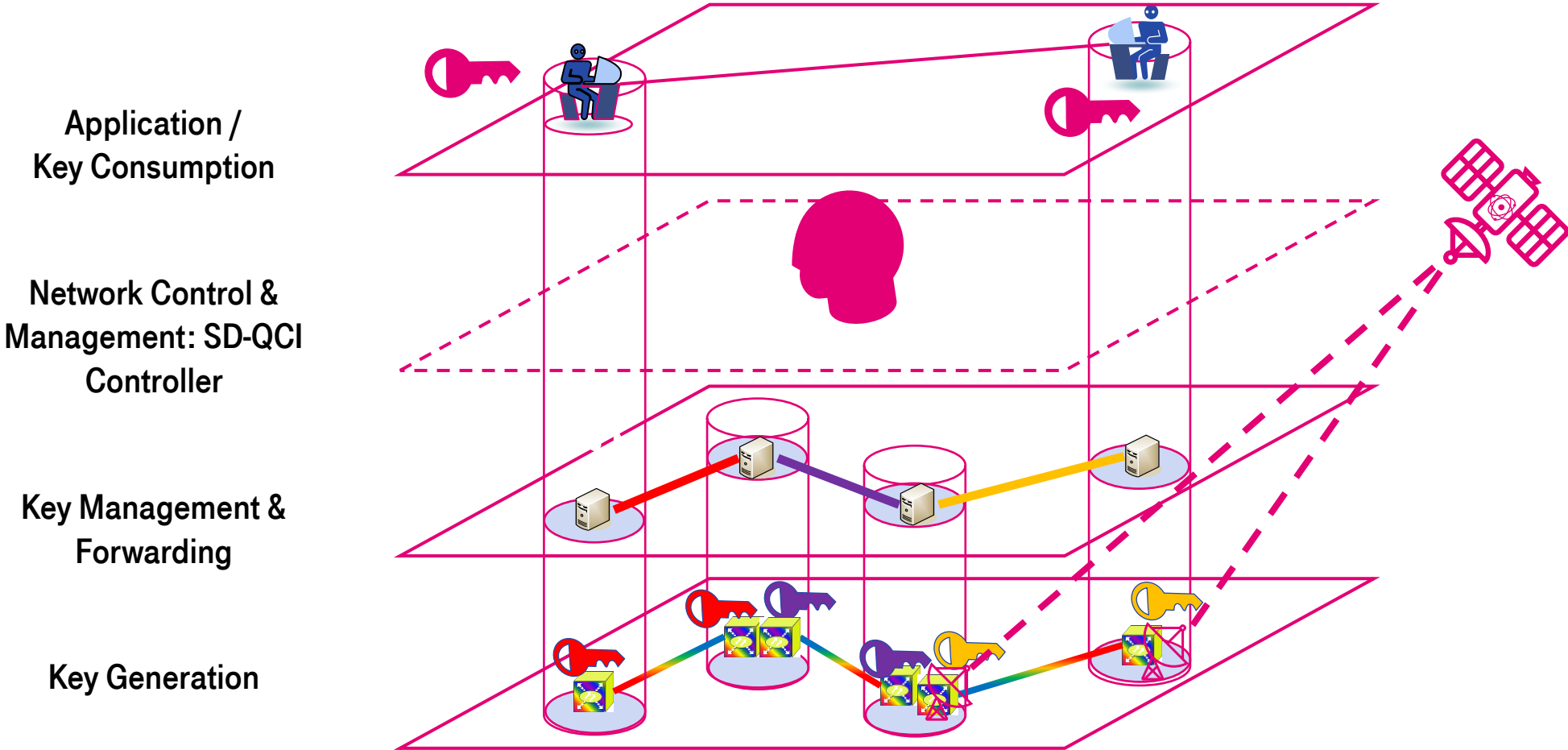
- Organisation: VDI on behalf of BMBF
- Total budget: 15,2 Mio. €
 - Telekom budget: 9,6 Mio. € (50% funding; 4,8 Mio. €)



<https://www.forschung-it-sicherheit-kommunikationssysteme.de/projekte/demoquandt>

EUROQCI / DEMOQUANDT

SIMPLIFIED FUNCTIONAL ARCHITECTURE OVERVIEW



Best of both Worlds



PQC:
Post Quantum
Computing

QRA:
Quantum Resistant
Algorithms



OUR MISSION

WE BUILD UP THE QUANTUM SECURITY OF THE FUTURE