

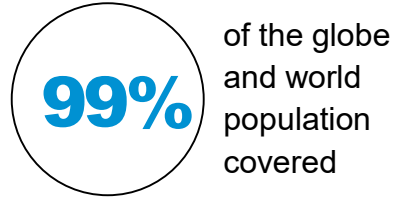
Space-based Quantum Key Distribution

Space innovations

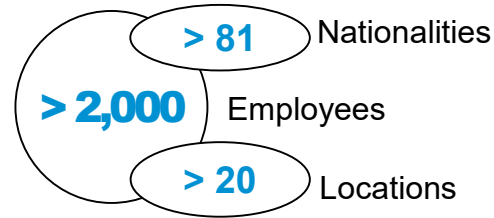
Fleet



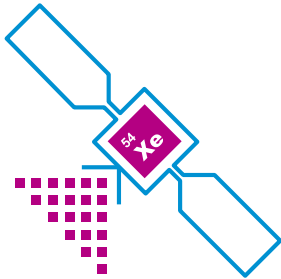
Coverage



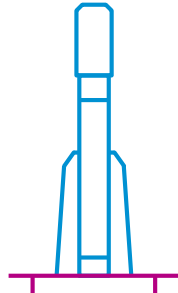
Presence



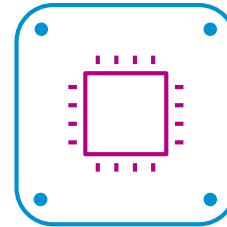
Revenue



**ELECTRIC
PROPULSION**



**ROCKET
REUSABILITY**



**GOING
DIGITAL**

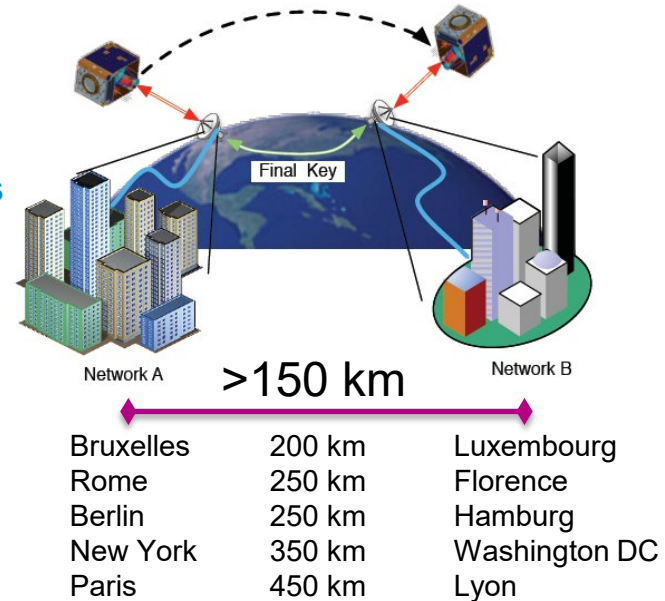


**QUANTUM
KEY
DISTRIBUTION**

Quantum Key Distribution

Why Quantum Key Distribution via satellite ?

- ▲ **Quantum Key Distribution uses symmetric cryptography to distribute the same pre-shared key to communicating partners** - this technique is considered to be resistant against known quantum computing algorithms and is Information Theoretically Secure (ITS)
- ▲ **Terrestrial QKD implementations have significant limitations** in terms of bridging larger geographical distances
- ▲ **Space-based QKD will keep information and communications secure in an era of quantum computing** – the service will distribute symmetric cryptographic keys to pairs of users located anywhere on Earth, thereby delivering a global QKD service that enables users to keep securing their information and communications while entering the era of quantum computing

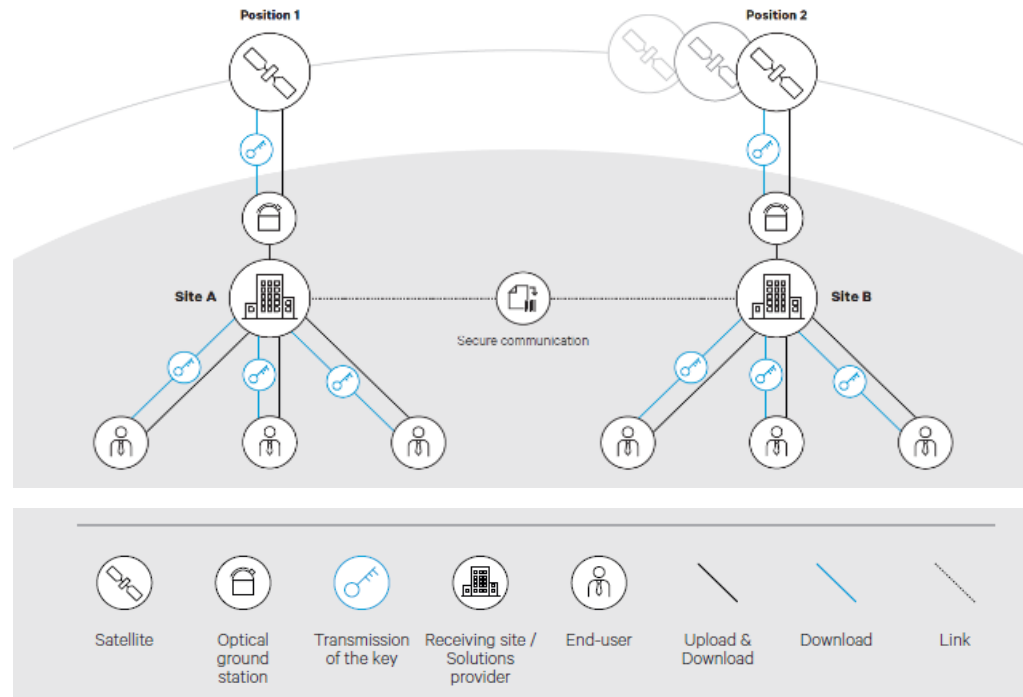
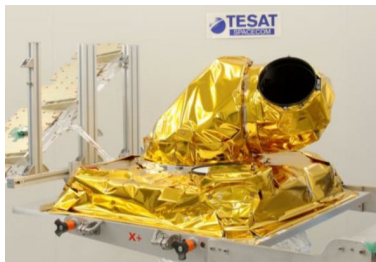


Space-based Quantum Key Distribution

Insight into the program

In a nutshell

- ▲ Design and implementation of a LEO satellite based QKD system
- ▲ QKD payload as trusted node - QKD protocol based on BB84 (Prepare & Measure)
- ▲ Encryption keys generated on board (QRNG)
- ▲ Key distribution only, no customer communication
- ▲ Driven by user requirements / business case and requirements for integration into the EuroQCI
- ▲ Full end-to-end system development and implementation including QKD Payload, Ground Terminals and Operations Center
- ▲ Full end-to-end system and service validation



Space-based Quantum Key Distribution

What are the capabilities needed?

SES capabilities		Capabilities from our partners
Experience in the field	Added value	Requirements
<p>Quantum-enabled comms and cybersecurity - SES leading the ESA QUARTZ project as well as Luxembourg national QCI and participating in the European Commission Quantum Communication Infrastructure projects</p> <p>Internal cybersecurity services - vulnerability scanning, prioritization, sharing and follow-up via Security Delegates to patch most critical and exposed vulnerabilities</p>	<p>Strong customer focus - recognized for strong operational KPIs, operating multi-orbit constellations</p> <p>Investment acumen - large institutions look for partners with a strong commercial and cost-efficient procurement process and operational capabilities</p> <p>Service oriented - development based on end-to-end system, fully integrated into future European Quantum Communication Infrastructure</p>	<p>New space approach – flexible development cycle processes allowing fast-pace development while ensuring adequate quality of development</p> <p>Product oriented – development of key components and systems with a strong industrialization culture from design to production</p> <p>Cost efficiency – ensure proper design strategy to enable cost effective recurring unit production</p> <p>European sovereignty – rely on European technology partners while supporting development of European native technologies when needed</p>

THANK YOU



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Connect with us

