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## Quantum Networks by QTI

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The advances in quantum communications and quantum key distribution (QKD) during the past 30 years have been outstanding in terms of reachable distance and key generation rate. However, multiple challenges arise from the effective implementation of quantum systems in real telecommunication networks. Along with well-known challenges, including the fiber or wavelength availability between remote locations and the complicated scheme/topology of current telecommunication networks (which include optical amplifiers), other practical problems have to be taken into account. Examples are the temperature range of telecom data centres, the amount of noise emitted by the equipment, as well as the optical crosstalk coming from commercial signals into the quantum channels due to spurious effects on fibre.

In this talk, we will present the latest implementations we have conducted to both improve current quantum technology, and integrate commercial QKD systems in standard telecommunication networks. Thanks to our unique value proposition, which includes in the same family a quantum vendor (QTI), a cryptographic company (Telsy) and the largest Italian telecom operator (TIM), we present a series of concrete and existing use-cases implemented in the last two years in Europe and Italy.

### Abstract category

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**Session Classification:** Companies