


# Quantum Internet Alliance

## Fact Sheet

### Project Information

QIA

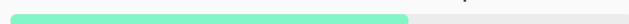
Grant agreement ID: 820445

[Project website](#) 

Status  
Ongoing project

Start date  
1 October 2018


End date  
30 September 2021



Funded under  
H2020-EU.1.2.3.

Overall budget  
€ 10 406 113,75

EU contribution  
€ 9 999 566,39

Coordinated by  
**TECHNISCHE UNIVERSITEIT  
DELFT**  
 Netherlands

## Objective

The future Quantum Internet will provide radically new internet applications by enabling quantum communication between any two points on Earth. The Quantum Internet Alliance (QIA) targets a Blueprint for a pan-European Quantum Internet by ground-breaking technological advances, culminating in the first experimental demonstration of a fully integrated network stack running on a multi-node quantum network.

QIA will push the frontier of technology in both end nodes (trapped ion qubits,

diamond NV qubits, neutral atom qubits) and quantum repeaters (rare-earth-based memories, atomic gases, quantum dots) and demonstrate the first integration of both subsystems. We will achieve entanglement and teleportation across three and four remote quantum network nodes, thereby making the leap from simple point-to-point connections to the first multi-node networks. We will demonstrate the key enabling

capabilities for memory-based quantum repeaters, resulting in proof-of-principle demonstrations of elementary long-distance repeater links in the real-world, including the longest such link worldwide.

Hand in hand with hardware development, we will realize a software stack that will provide fast, reactive control and allow arbitrary high-level applications to be realized in platform-independent software. QIA's industry partners examine real world use cases of application protocols and their hardware requirements. We will validate the full stack on a small Quantum Internet by performing an elementary secure delegated quantum computation in the cloud. We will validate the design of the Blueprint architecture by a large-scale simulation of a pan-European Quantum Internet using real world fibre data. Through synergy of leading industrial, academic and RTO partners, QIA's Blueprint will provide a targeted roadmap for the main Flagship phase and set the stage for a world-leading European Quantum Internet industry.

## Field of science

/engineering and technology/electrical engineering, electronic engineering, information engineering/electronic engineering/computer hardware/quantum computer  
/natural sciences/computer and information sciences/software  
/natural sciences/computer and information sciences/internet

## Programme(s)

## Topic(s)

## Call for proposal

H2020-FETFLAG-2018-03

## Funding Scheme


RIA - Research and Innovation action

## Coordinator



**TECHNISCHE UNIVERSITEIT DELFT**

Address

**Stevinweg 1  
2628 CN Delft  
 Netherlands**

Activity type

**Higher or Secondary  
Education Establishments**

EU contribution

**€ 2 631 653,75**

## Participants (22)

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### FUNDACIO INSTITUT DE CIENCIES FOTONIQUES



Spain

EU contribution

€ 763 495

Address

**Avinguda Carl Friedrich  
Gauss 3  
08860 Castelldefels**

Activity type

**Research Organisations**

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### UNIVERSITAET INNSBRUCK



Austria

EU contribution

€ 601 170

Address

**Innrain 52  
6020 Innsbruck**

Activity type

**Higher or Secondary  
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### OESTERREICHISCHE AKADEMIE DER WISSENSCHAFTEN



Austria

EU contribution

€ 328 303,75

Address

**Dr. Ignaz Seipel-platz 2  
1010 Wien**

Activity type

**Research Organisations**

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### MAX-PLANCK-GESELLSCHAFT ZUR FORDERUNG DER WISSENSCHAFTEN EV



Germany

EU contribution

€ 549 625

Address

**Hofgartenstrasse 8**

Activity type

**Research Organisations**

80539 Muenchen

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## CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE CNRS

 France

EU contribution

€ 624 998,75

Address

**Rue Michel Ange 3  
75794 Paris**

Activity type

**Research Organisations**

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## KOBENHAVNS UNIVERSITET

 Denmark

EU contribution

€ 582 962,50

Address

**Norregade 10  
1165 Kobenhavn**

Activity type

**Higher or Secondary  
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## SORBONNE UNIVERSITE

 France

EU contribution

€ 406 500

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**21 Rue De L'ecole De  
Medecine  
75006 Paris**

Activity type

**Higher or Secondary  
Education Establishments**

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## UNIVERSITE DE GENEVE

 Switzerland

EU contribution

€ 460 700

Address

**Rue Du General Dufour 24  
1211 Geneve**

Activity type

**Higher or Secondary  
Education Establishments**

[Website](#) 

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## NEDERLANDSE ORGANISATIE VOOR TOEGEPAST NATUURWETENSCHAPPELIJK ONDERZOEK TNO

 Netherlands

EU contribution

€ 322 635

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**Anna Van Buerenplein 1  
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## UNIVERSITAT BASEL

 Switzerland

EU contribution

€ 224 010

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4051 Basel**

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## UNIVERSITAET STUTT GART

 Germany

EU contribution

€ 306 495

Address

**Keplerstrasse 7  
70174 Stuttgart**

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Activity type

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## INSTITUTO DE TELECOMUNICACOES

 Portugal

EU contribution

€ 160 806,25

Address

**Campus Universitario De  
Santiago Universidade De  
Aveiro  
3810 193 Gloria E Vera Cruz**

Activity type

**Research Organisations**



## MY CRYO FIRM

 France

EU contribution

€ 235 883,90

Address

**104 Avenue De La Resistance  
93100 Montreuil**

Activity type

**Private for-profit entities  
(excluding Higher or  
Secondary Education  
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## SWABIAN INSTRUMENTS GMBH

 Germany

EU contribution

€ 157 847,50

Address

**Stammheimer Strasse 41  
70435 Stuttgart**

Activity type

**Private for-profit entities  
(excluding Higher or  
Secondary Education  
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## TOPTICA PHOTONICS AG

 Germany

EU contribution

€ 395 250

Address

**Lochhamer Schlag 19  
82166 Graefelfing**

Activity type

**Private for-profit entities  
(excluding Higher or  
Secondary Education  
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## VERIQLOUD

 France

EU contribution

€ 144 700

Address

Activity type

13 Rue Victor Hugo  
92120 Montrouge

Private for-profit entities  
(excluding Higher or  
Secondary Education  
Establishments)

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## ELEMENT SIX (UK) LIMITED

 United Kingdom

EU contribution

€ 258 060

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Global Innovation Centre  
Fermi Avenue  
OX11 0QR Harwell  
Oxfordshire Didcot

Activity type

Private for-profit entities  
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## SAP SE

 Germany

EU contribution

€ 202 375

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Dietmar Hopp Allee 16  
69190 Walldorf

Activity type

Private for-profit entities  
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## SURFSARA BV

 Netherlands

EU contribution

€ 110 543,74

Address

Science Park 140  
1098XG Amsterdam

Activity type

Private for-profit entities  
(excluding Higher or  
Secondary Education  
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## CRYSTALLINE MIRROR SOLUTIONS GMBH

 Austria

 Austria

EU contribution

**€ 202 738,75**

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1060 Wien**

Activity type

**Private for-profit entities  
(excluding Higher or  
Secondary Education  
Establishments)**

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**MUQUANS**

 France

EU contribution

**€ 202 562,50**

Address

**Rue Francois Mitterrand  
Institut D'optique D'aquitaine  
33400 Talence**

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**JPE B.V.**

 Netherlands

EU contribution

**€ 126 250**

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**Azielaan 12  
6199 AG Maastricht Airpor**

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