



Towards a European Quantum Technology ecosystem

Ali BenMoussa, DG CNECT

High Performance Computing & Quantum Technologies (C2 Unit)

European Commission, Luxembourg

European Quantum Technology Community Meeting

19 April 2018, Oberkochen, Germany

Flagship initiative on Quantum Technologies

The “Quantum Flagship” should prove its value as large scale mission-oriented initiative, accelerating the transition from science to technology.

Main challenge:

To create the European QT **ecosystem** that will deliver the knowledge, technologies and open research infrastructures and testbeds.

Timeline: towards a QT ecosystem

2016

PREPARATORY STEPS

- 04/2016: Announcement in EU Cloud Initiative
- 09/2016: Set-up of the QT Flagship High Level Steering Committee
- Intermediate report (02/2017)
- Final report (09/2017)

2018

2019

2020

RAMP UP PHASE

- + Flagship Coordination & Support Actions: 0.5 m€ (2017) + 2 m€ (2018)
- + Flagship Research & Innovation Actions: 130 m€ (2018)

QUANT-ERA

- + QuantERA (01/2018): 26 countries, 36 m€ (1/3 EU)
- + QuantERA II (2020 - tbc): FET call: 10 m€

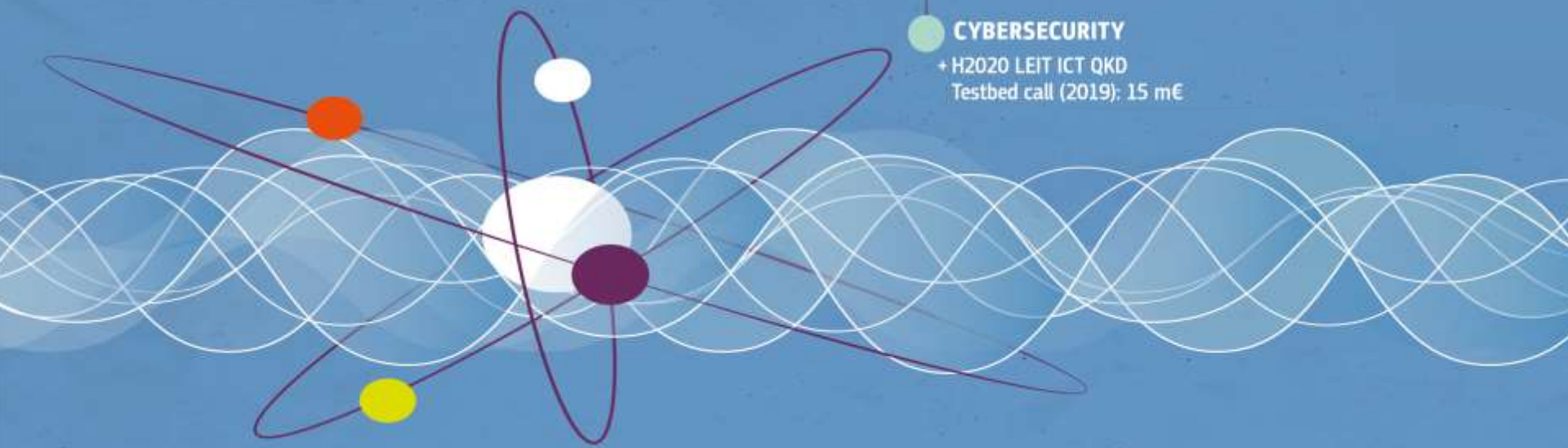
FULL IMPLEMENTATION*

- + Series of QT calls
- + EU Quantum Key Distribution Network

* pending adoption under the next multi-annual framework programme

CYBERSECURITY

- + H2020 LEIT ICT QKD Testbed call (2019): 15 m€





Ramp-up Phase: 2018-2020

- *H2020-FETFLAG-03-2018 (closed: 20/02/2018)*
 - 1st call implemented under Horizon2020 work programme
 - Follows the Strategic Research Agenda (cf. QT-HLSC final report, 2017)

130 M€ - Research & Innovation Actions (RIAs)

- a) Q-communication
 - b) Q-computing systems
 - c) Q-simulation
 - d) Q-metrology & sensing
 - e) Q-fundamental science (up to **20 M€**, max 2-3*M€/project)
- No strict repartition of the call budget (**~110 M€**)
But at least 2 projects/topic (max 10*M€/project)

2 M€ - Coordination & Support Action (CSA)

Note: This action will follow a 1st QSA ending in 04/2019 (FETFLAG-02-2017; 0,5M€; lead by University of Ulm; www.qt.eu)

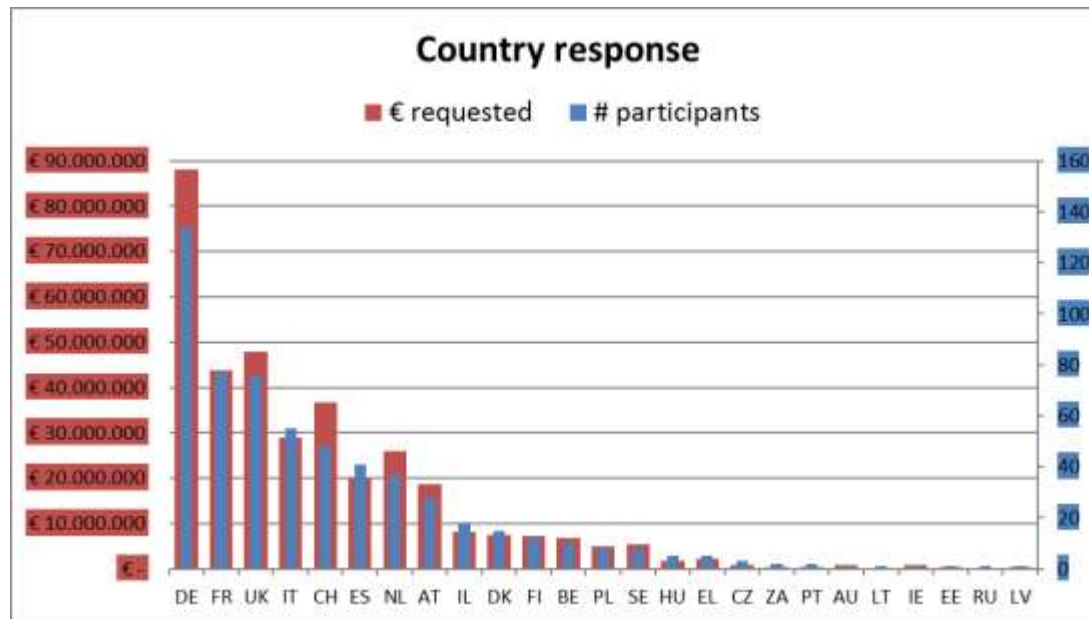
Ramp-up Phase: some numbers

140
proposals

603 M€
requested

132 M€
budget

- 10(a), 11(b), 6(c), 22(d)
- 90 for e)
- 1 for CSA
- 358 M€ for a) to d)
- 241 M€ for e)
- 3.5 M€ for CSA
- ~110 M€ for a) to d)
- up to 20 M€ for e)
- 2 M€ for CSA



Ramp-up Phase: some numbers

428
partners

Gender balance
~12% Female coordinators

32*%
Industries

- * for topics a) to d)
- 9% for e)

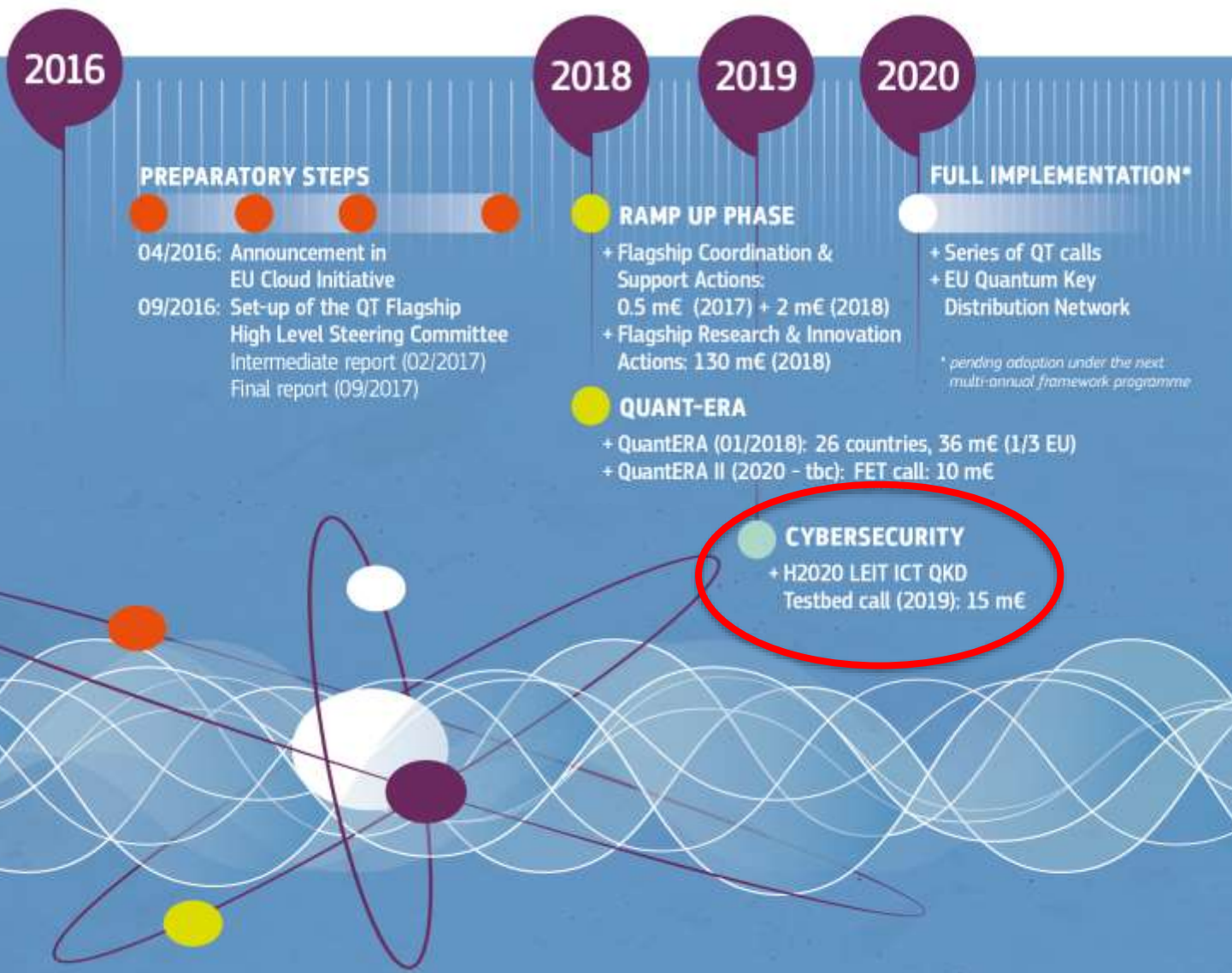
37
countries

- 24 EU-countries
- 3 Associated countries
- 10 Non-EU countries



We expect the projects to be ready to launch by end of 2018

Timeline: towards a QT ecosystem



Quantum Key Distribution (QKD) testbed

- *H2020-SU-ICT-04-2019: cybersecurity strategy*
 - Opening (planned): 26/07/2018; Closing: 14/11/2018
 - **Up to 15 M€**
 - Build an experimental platform to test and validate the concept of end-to-end security, providing QKD as a service (economically justified).

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/su-ict-04-2019.html>

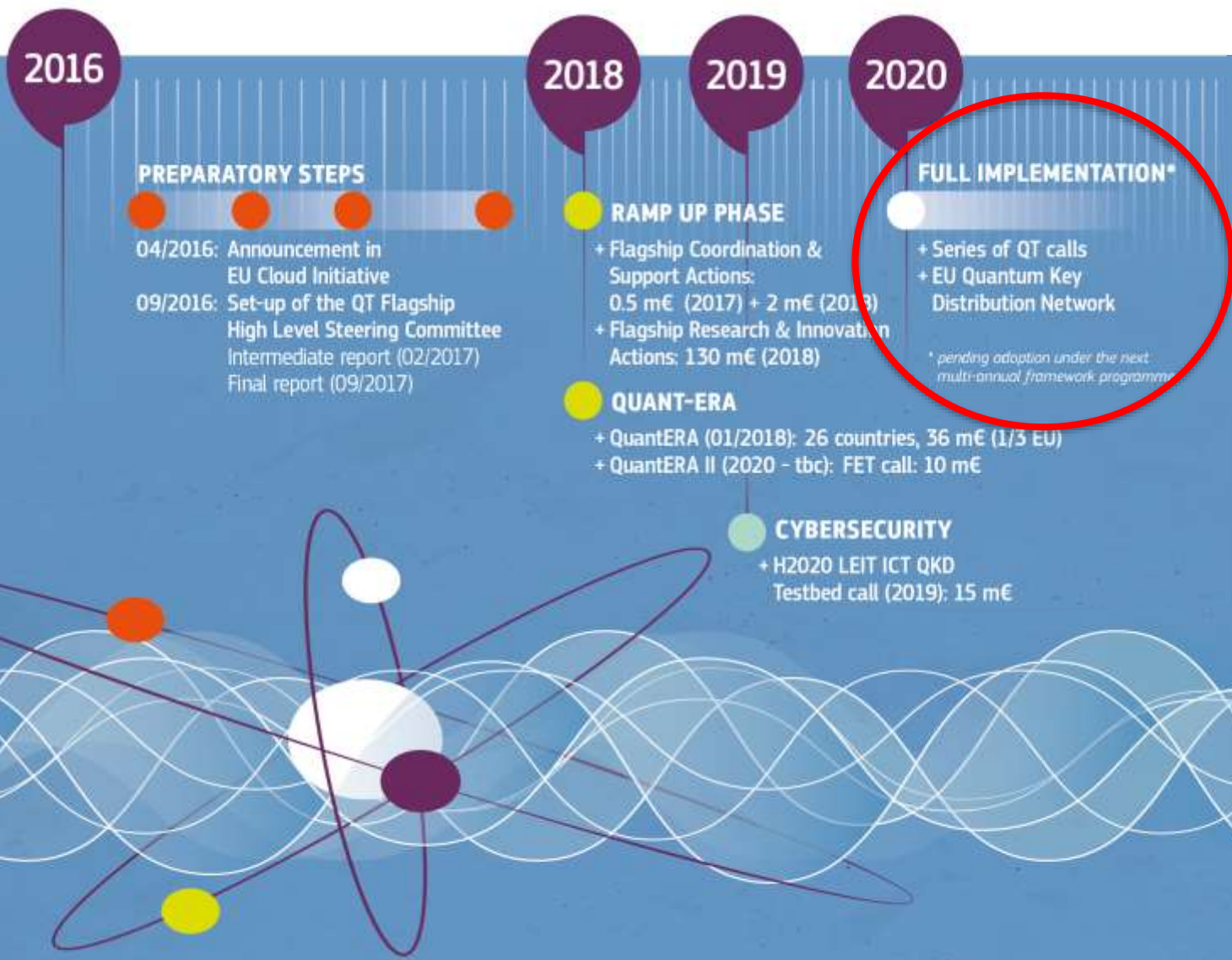
- *In parallel to the Flagship: in-orbit demonstration*
 - e.g, ESA Artes-ScyLight programme (space-based QKD, Line 4), ...



Towards a EU QT-ecosystem



Timeline: towards a QT ecosystem





Full Implementation: What's next ?

The European Commission is now preparing the next Multi-annual Financial Framework (expect. early in May 2018):

- Under FP9 (June 2018): QT as a mission,
- Others activities: Infrastructure, skills, applications in industry,

Further information

<https://ec.europa.eu/digital-single-market/en/quantum-technologies>

Contact

cnect-quantum@ec.europa.eu