
# Exploiting the potential of quantum technologies

# the Quantum Technologies Flagship Initiative

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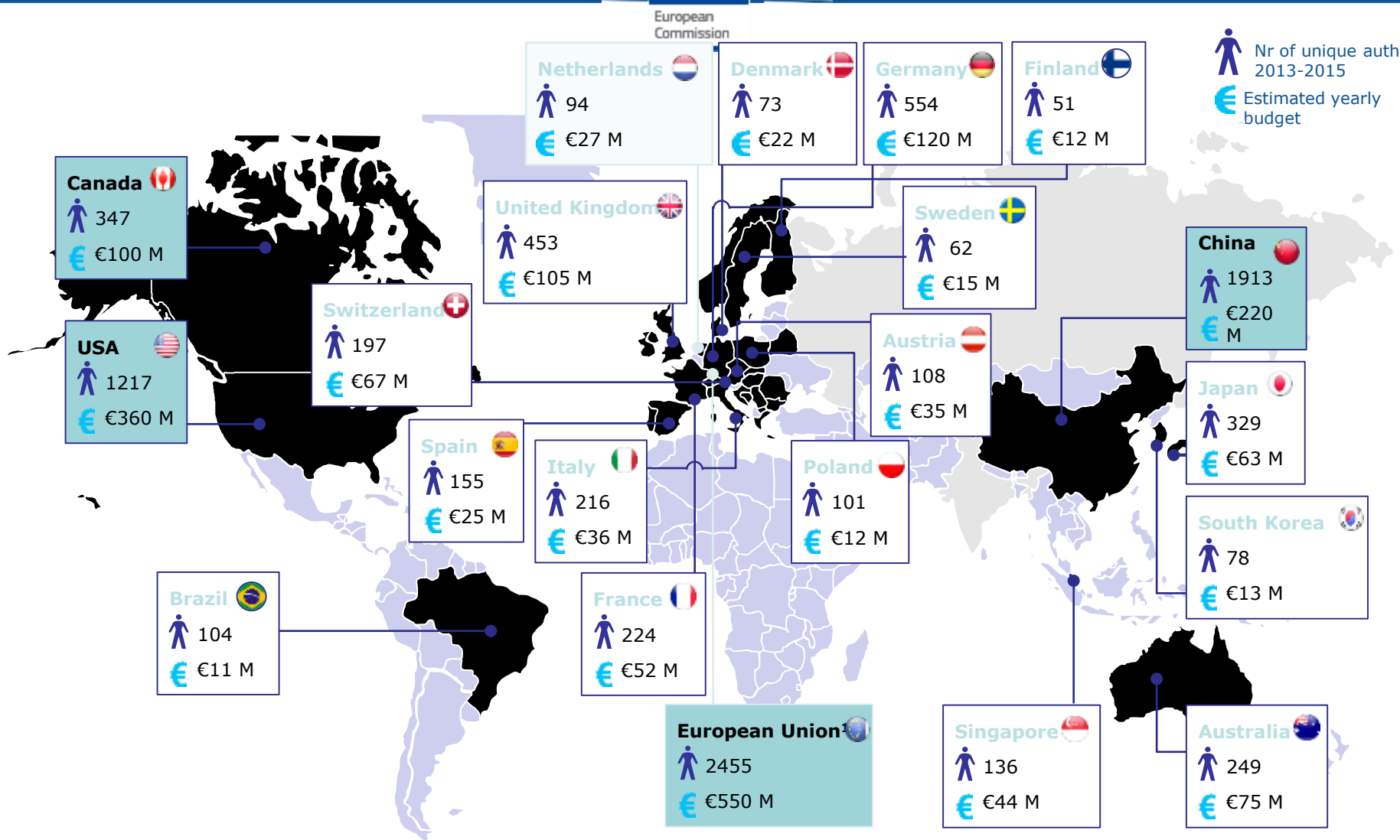
*High Performance Computing & Quantum Technologies*

DG CONNECT

European Commission

# ~7000 investigators
# 1.5 B€/y-> 5B€/y




1 Combined estimated budget of EU countries

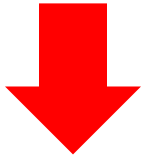
SOURCE: Publication search, Mac Kinsey

# Why now?


- Keep EU scientific leadership while preparing for exploitation and future industrial take-up
- QT maturing
- Build on strong interest from Member States
  - **ERANET Cofund with 24 MSs** (QUANTERA)
  - **National initiatives : NL, UK, others in preparation (DE, DK, IT,¨ES, PT, …)**
- Increasing interest from European industry
  - **Bosch, Thales, ASML, Safran, Airbus, ATOS/Bull…**
  - **SMEs : VLC Photonics, E2V, MuQuans, IDQuantique…**
- Global competition very active
  - **US, Canada, China, …**
  - **Industry engaged: MS, Google, Intel, IBM, Lockheed Martin, Toshiba…**

# EU Priority

- EC Communication ECI – Staff Working Document (April 2016)
- Quantum Manifesto (April 2016)
- EU Council Conclusions (May 2016)



"Action: The European Commission will start the preparatory steps for the flagship…with the aim to launch the ramp up phase in 2018."

# SWD on Quantum

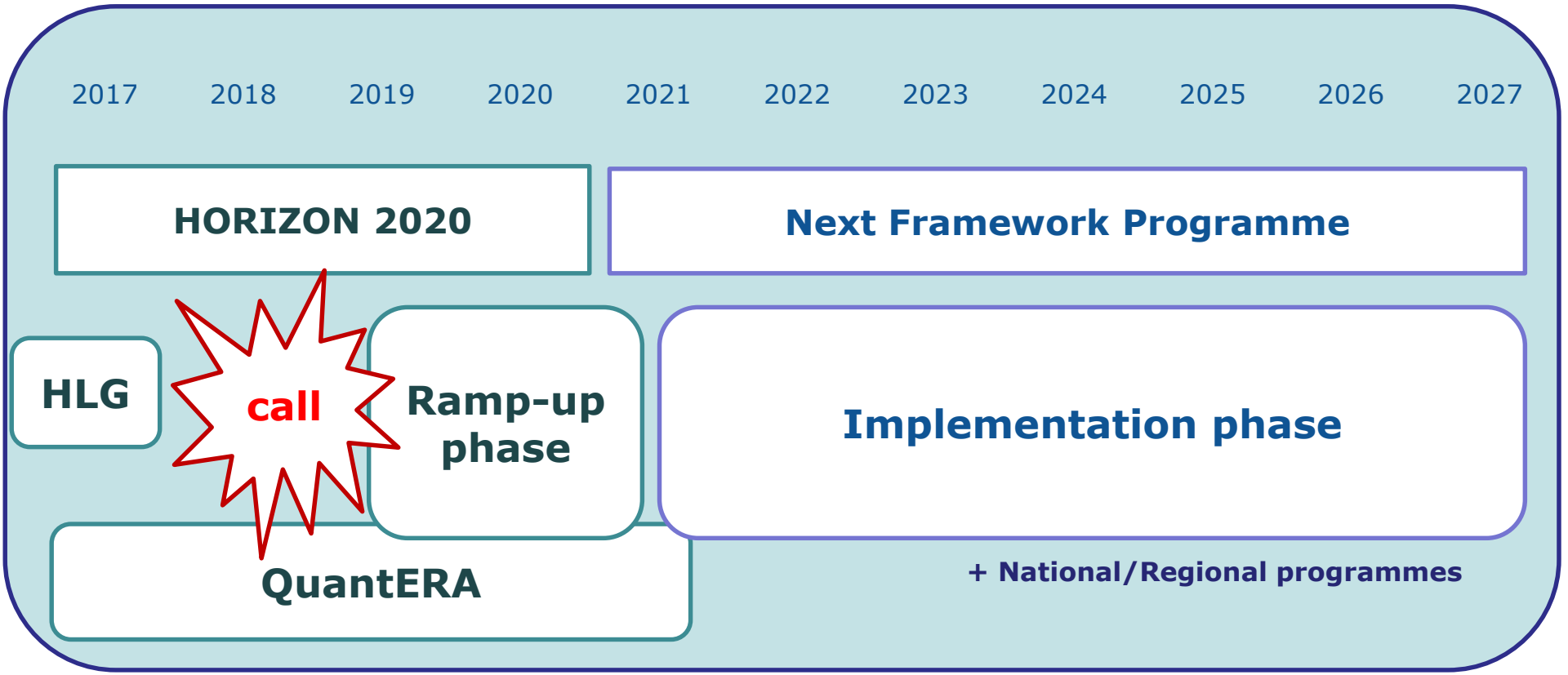
## EU Challenge: Turning science excellence into industrial success…

- Maintain research excellence in EU
- Expand to engineering
- Stimulate innovation
- Stimulate industrial involvement
  - **Engage with industry, funders & investors**
  - **Joint agenda going beyond research**
  - **Join forces and coordinate at EU level**
    - No single country can do it alone

**…before Asian and US competitors dominate the market**

# How?

## Timeline



# Expert Group on QT

Rationale:

- **transparent process**
- **Participatory**
- **Advise the European Commission**
- **Technico-scientific**

Mandate:

- **Interface with constituency**
- **Bring together & represent academia +industry**
- **Coordinate input**
- **Do not defend own interests**

http://ec.europa.eu/transparency/regexpert/index.cfm?do=groupDetail.groupDetail&groupID=3453

# Expert Group: composition

European Commission

**Chair**

**Prof. Dr. Jürgen Mlynek** Humbold University

**Observer**
(link with FET Flagship interim evaluation panel)

**Prof. Maria Chiara Carrozza** Sant'Anna School of Advanced Studies

**Academic members**

| | |
|---|---|
| **Prof. Dr. Rainer Blatt** | University of Innsbruck |
| **Prof. Dr. Vladimir Bužek** | Slovak Academy of Sciences |
| **Prof. Dr. Tommaso Calarco** | University of Ulm |
| **Prof. Per Delsing** | Chalmers University of Technology |
| **Prof. Elisabeth Giacobino** | CNRS, Laboratoire Kastler-Brossel |
| **Prof. Dr hab. Marek Kuś** | Polish Academy of Sciences - Center for Theoretical Physics |
| **Prof. Eugene Simon Polzik** | Niels Bohr Institute |
| **Dr. Maria Luisa Rastello** | National Institute of Metrological Research (INRIM) |
| **Prof. Dr. ir. Wim Van Saarloos** | The Netherlands Organisation for Scientific Research NWO - Foundation for Fundamental Research on Matter |
| **Prof. Dr. Lluis Torner** | ICFO - The Institute of Photonic Sciences |
| **Prof. Ian Walmsley** | University of Oxford - Department of Physics |

**Industrial members**

| | |
|---|---|
| **Airbus Defense & Space** | **Mr. Paolo Bianco** |
| **ASML** | **Dr. Markus Matthes** |
| **Atos SE** | **Dr. Cyril Allouche** |
| **Ericsson** | **Dr. Fabio Cavaliere** |
| **ID Quantique** | **Dr. Grégoire Ribordy** |
| **KPN** | **Ms. Jaya Baloo** |
| **M2 Lasers** | **Dr Graeme Malcolm** |
| **Robert Bosch GmbH** | **Dr. Michael Bolle** |
| **Siemens AG** | **Dr. Norbert Lütke-Entrup** |
| **ST Microelectronics** | **Dr. Guido Chiaretti** |
| **Thales** | **Mr. Daniel Dolfi** |
| **VLC Photonics** | **Dr. Iñigo Artundo Martinez** |

# To summarize:

*The Flagship Initiative = under construction*

*All invited to contribute*

*QT = European & national priority*

*QT = economic priority*

*Large political & industrial support*

# Thank you for your attention