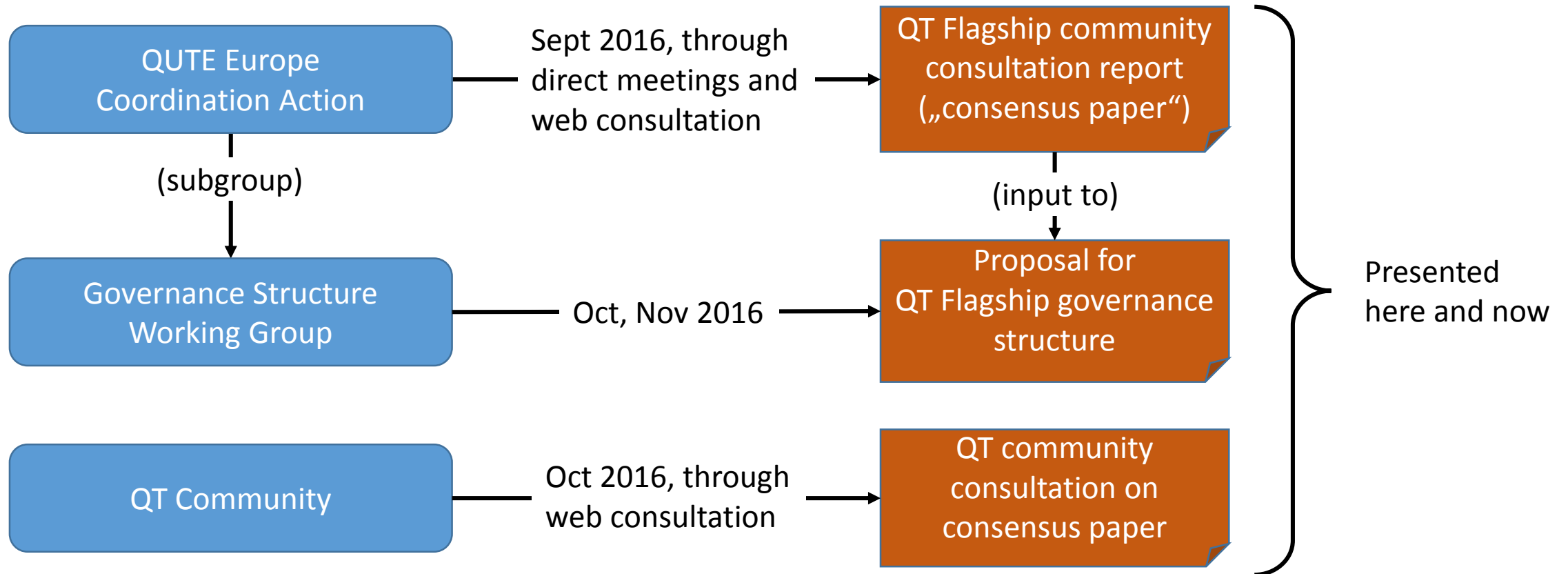


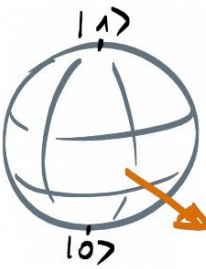
Proposal for the QT Flagship governance structure

Thomas Strohm (Bosch), Max Riedel (Siemens),
QUTE Governance Structure Working Group
2016-11-08 (v16)

Provenance of proposal



Summary of QT Flagship community consultation report (“consensus paper”)



Goal: Place Europe at the forefront of the second quantum revolution, bringing transformative advances to science, industry, and society, in synergy with national QT programs.

• Values

- Transparency in development process
- Openness to emerging actors
- Fair evaluation of proposals with highest priority to excellence

• Central principles

- Flexibility in governance to allow program to adapt to evolution in field
- Sustainability, beyond program itself
- Accountability to community
- Goal-oriented academia-industry partnerships (basic to industrial research)
- Pan-European dimension with equal opportunities

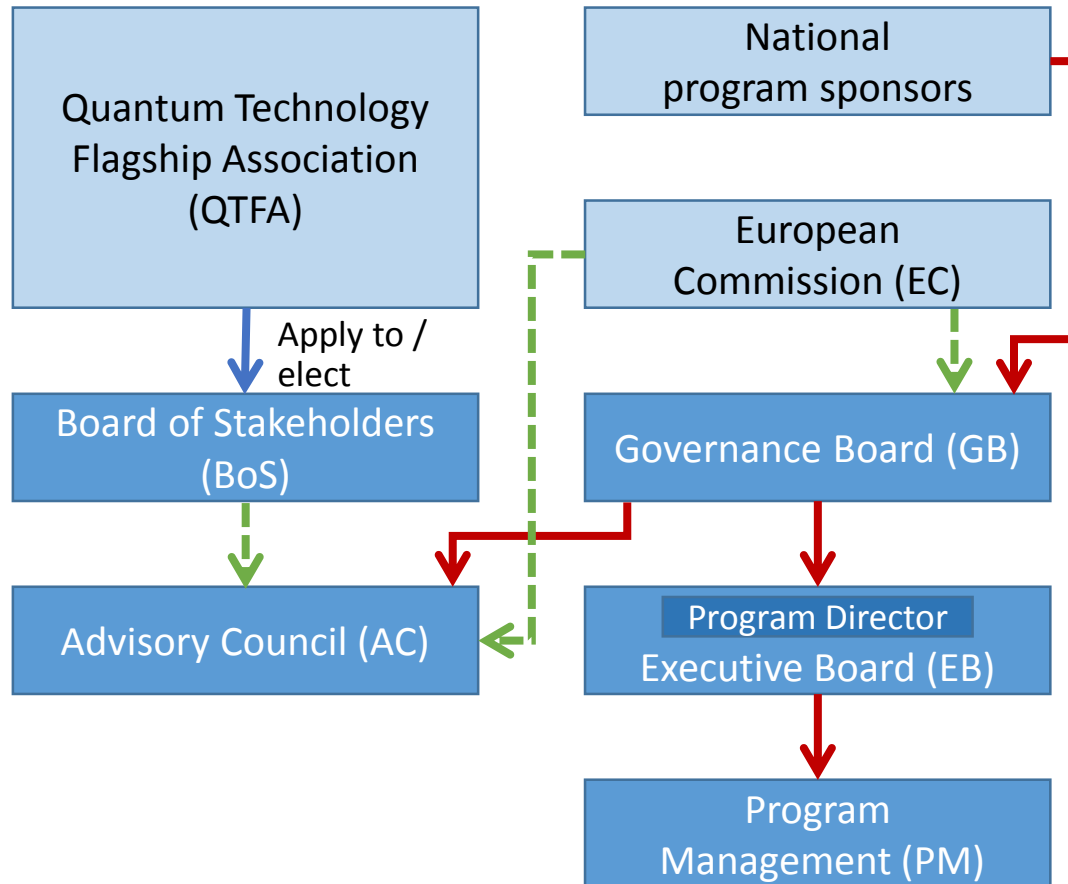
• Implementation elements

- Application focus in strategy, calls, evaluation criteria
- QT training programs
- Coordination services, IPR protection
- Effective outreach activities

• Down-selection and focus

- Ramp-up phase: peer-reviewed open calls
- Steady-state phase: to mix of open calls and fewer focussed projects
- Demonstrators among program goals

QT Flagship governance is carefully designed to balance all stakeholders' interests & enable lean decision taking



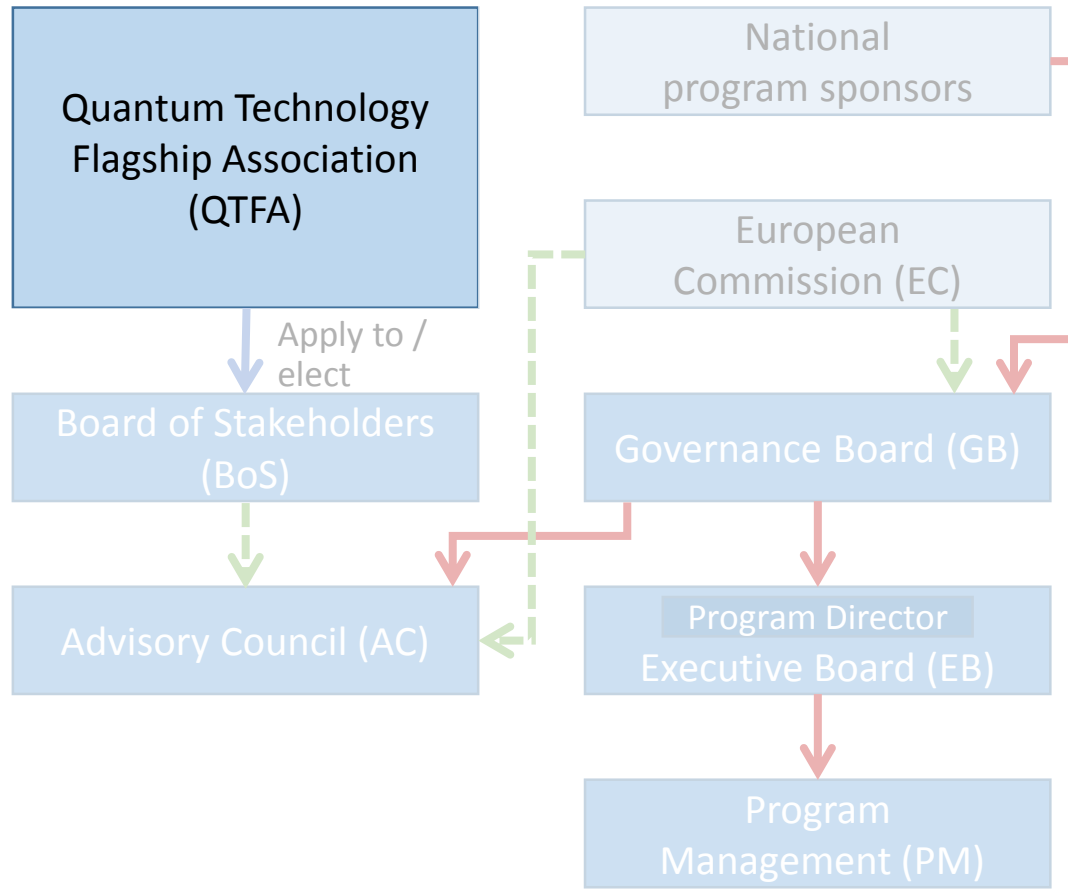
→ Nominates

- - - → Confirms

Overview

- BoS represents QT community towards GB and EB
- GB is responsible for overall strategy
- EB implements guidance & strategy of GB, decision-taking body
- PM implements EB decisions, administrates
- AC advises GB and EB on scientific, business and political questions
- Calls for proposals with clear funding and review principles
- Pool of proposal reviewers selected considering prevention of conflict of interests

QT Flagship Association elects the BoS and reviews project proposals



→ Nominates

- - - → Confirms

QT Flagship Association (QTFA)

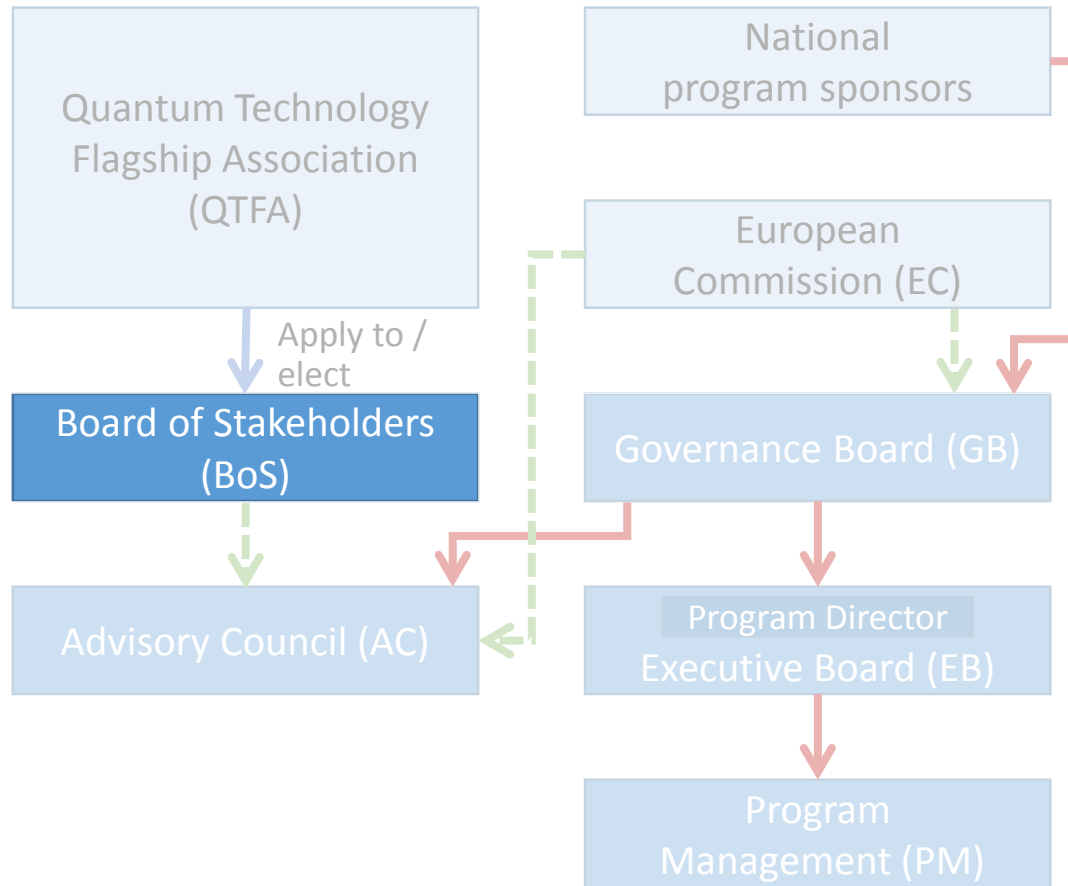
Responsibilities:

- Represents QT community
- Only members of the QTFA apply for BoS
- QTFA elects BoS members

Members:

- Candidates: Individuals, companies, institutes, universities and other organizations concerned with, and active in, research and innovation in the field of Quantum Technology in Europe, on a professional basis, can apply for membership
- Membership in the QTFA can be obtained by submitting an application to PM and is granted by EB
- Members can be excluded by EB on the basis of severe cause
- Membership is for unlimited period of time and ends via written notice of resignation
- List of initial members will be compiled based on clear rules (e.g. publications in the field of QT) and published

Board of Stakeholders represents the QT community and approves most important GB decisions



→ Nominates

- - - → Confirms

Board of Stakeholders (BoS)

Responsibilities:

- Represents QT community inside of the Flagship
- Advises GB and EB, possibly by consulting with QTFA
- Confirms AC members

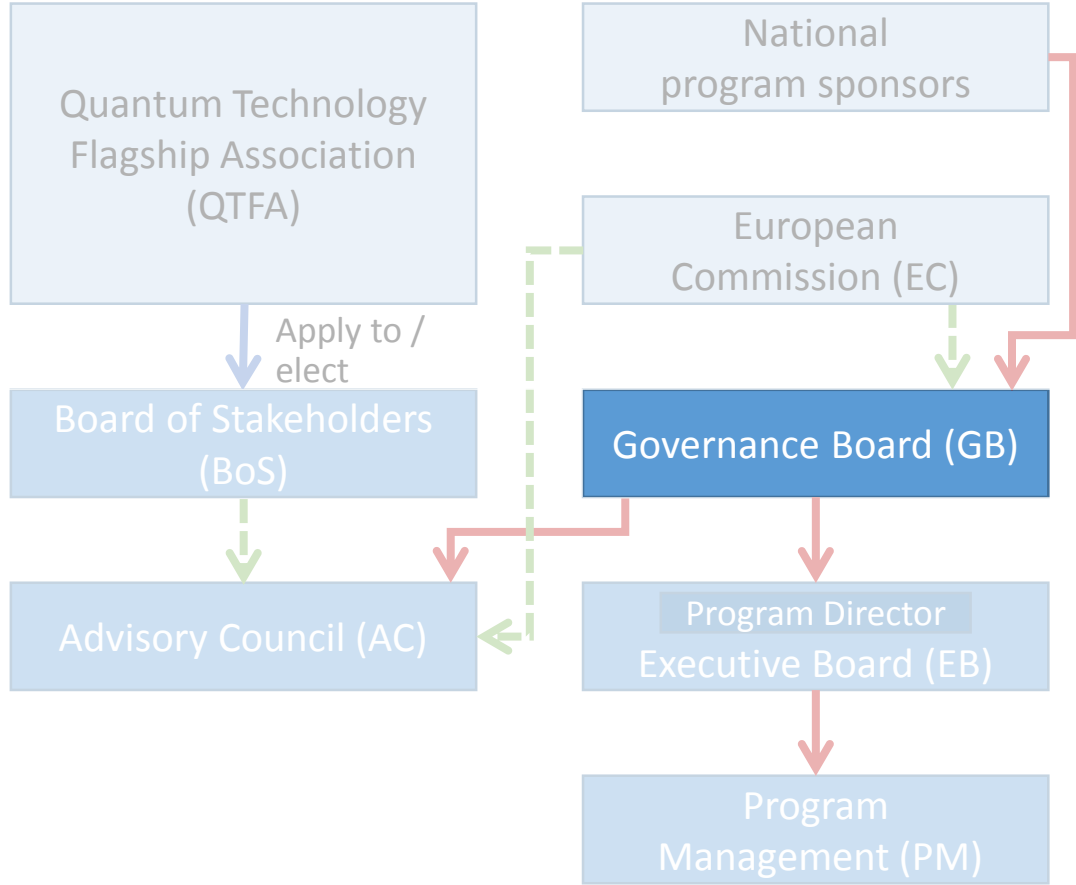
Members:

- Total size of BoS does not exceed 100 members
- Candidates for the BoS can be proposed with a letter of nomination to the PM, signed by ≥ 10 QTFA members
- BoS members are elected by QTFA, each QTFA member has one vote
- The candidates with the most votes will be considered elected until the total of the vacancies is reached
- Composition requirements: Election of BoS members may not result in more than 30% BoS members from the same country or less than 40% from academia or industry
- Mandate for BoS: 2 years (re-election possible)

Meeting frequency: Annually



Governance Board defines flagship strategy



→ Nominates

- - - → Confirms

Governance Board (GB)

Responsibilities:

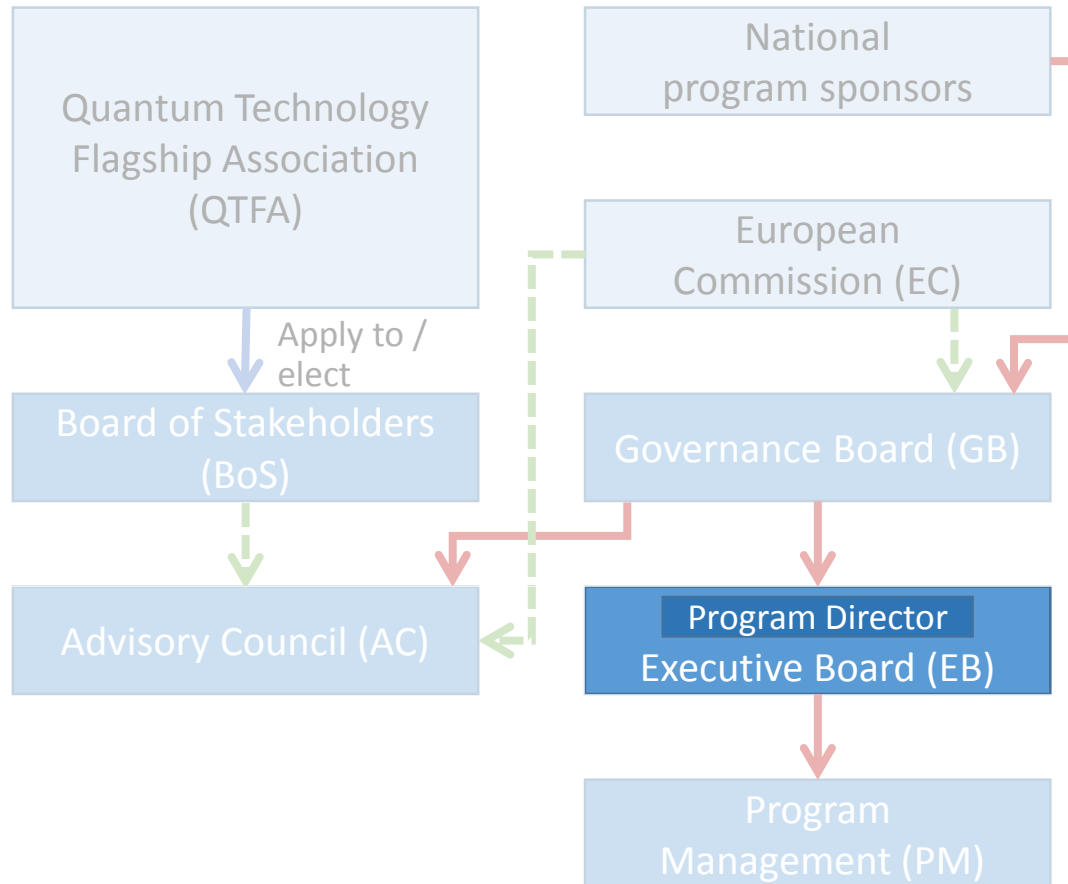
- Sets and adopts flagship strategy
- Assesses and benchmarks program progress
- Nominates EB and oversees its work
- Assess governance structure regularly and adopt if needed
- Consults with BoS before key decisions are taken

Members:

- Each nation nominates (at most) 1 academic + 1 industry representative
- EC confirms the GB members
- Additional members: BoS Chair and Vice Chair
- Voting power could be weighted, e.g. by $\sqrt{\text{funding}}$
- Requirements: Scientific or technical background
- GB elects Chair and Vice Chair
- Mandate for GB: 2 years (re-nomination possible)

Meeting frequency: Twice per year

Executive Board implements Flagship strategy in research agenda and concrete program elements



→ Nominates

- - - → Confirms

Executive Board (EB)

Responsibilities:

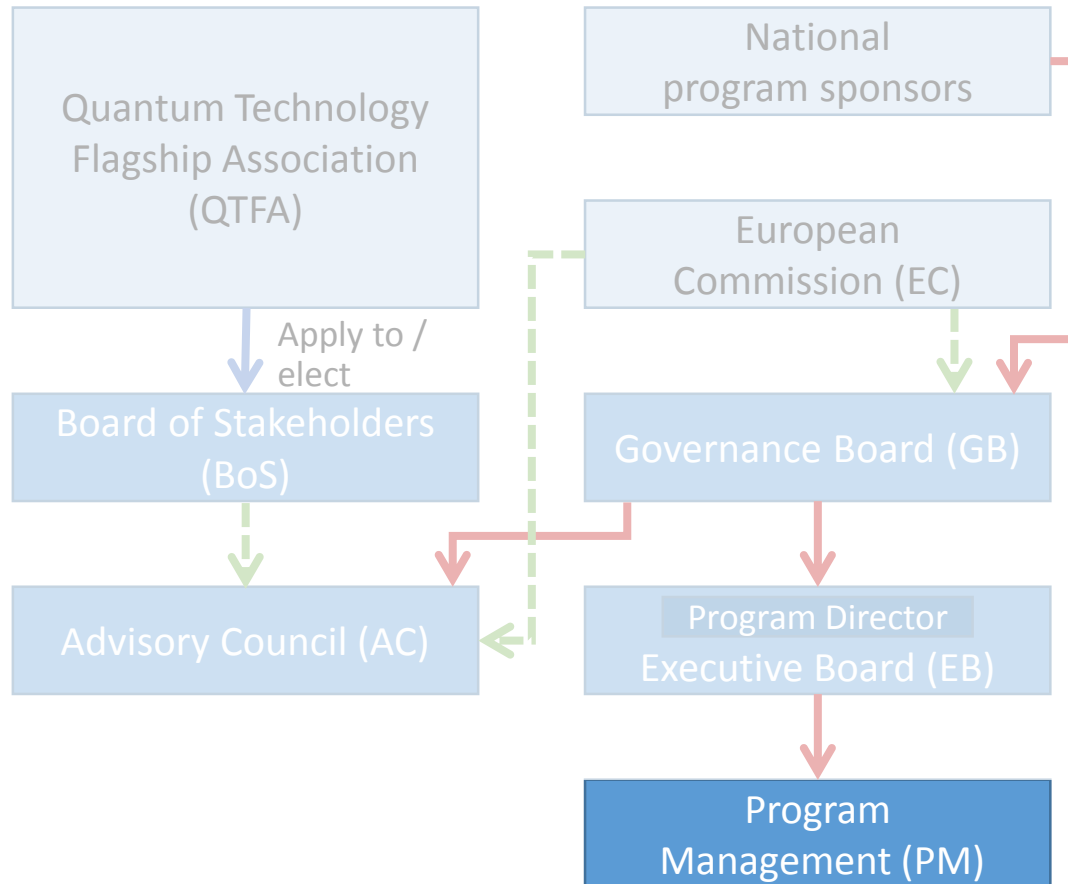
- Implements guidance & strategy of GB in research agenda and concrete program elements / work packages
- Regularly updates research agenda
- Aligns program with national QT funding programs
- Defines calls and oversees review process
- Nominates pool of independent reviewers
- Follows up ongoing projects, sanctions non-working projects
- Defines supportive measures (e.g. education, outreach, start-up incubation)
- Prepares BoS meeting agenda and decision proposals
- Compiles public annual report

Members:

- Nominated by and responsible to GB
- Includes full-time **Program Director** (+ Vice Director) who represents the QT flagship
- Includes GB Chair and PM Director

Meeting frequency: Bi-weekly and on demand

Program Management supports EB and GB and takes day-to-day decisions



→ Nominates

- - - → Confirms

Program Management (PM)

Responsibilities:

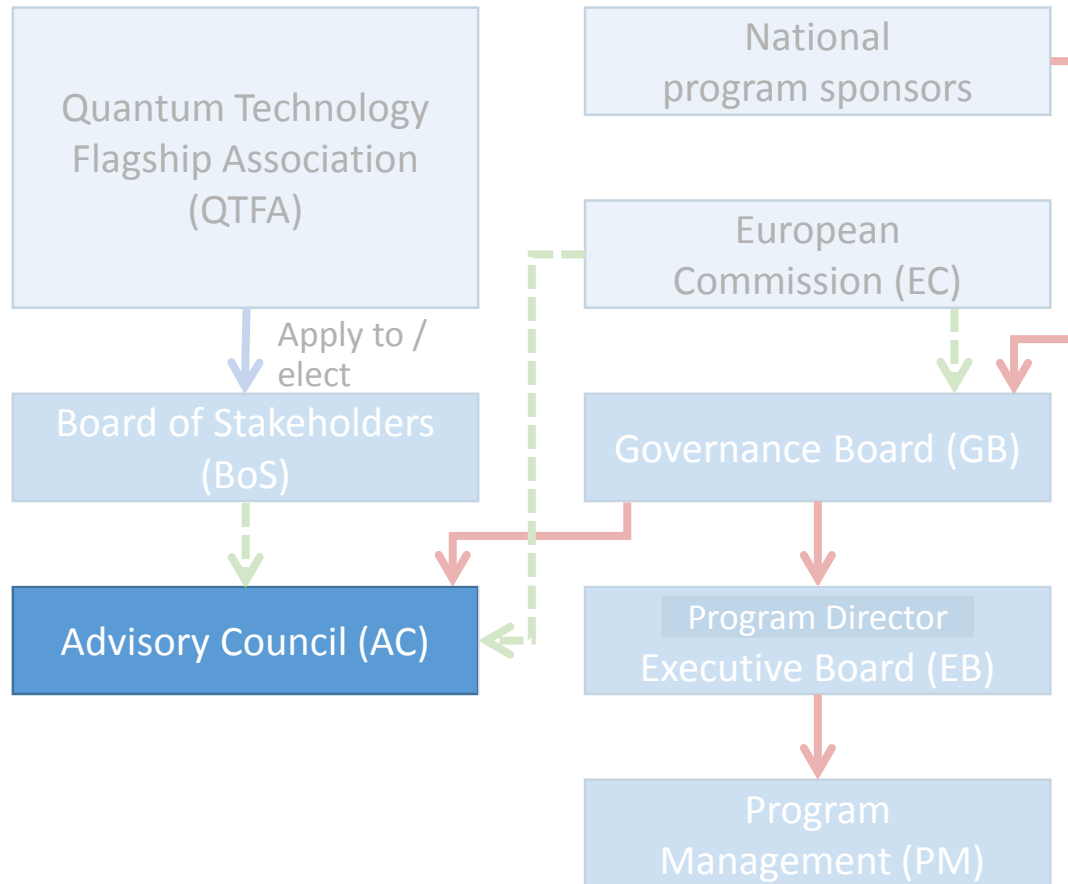
- Implements decisions of EB and takes day-to-day decisions on its own responsibility
- Supports of EB and GB with administration
- Coordinates interaction of all governance bodies
- Performs accounting

Members:

- Nominated by and responsible to EB
- Employment funded through Flagship funds
- Includes employees with scientific (PhD level) and industrial background to be able to coordinate project reviews
- Headed by PM Director and deputy

Meeting frequency: Full-time employees

Advisory Council gives advice but does not take decisions and has high reputation



→ Nominates

- - - → Confirms

Advisory Council (AC)

Responsibilities:

- Advises BoS (on assembly meetings), GB and EB (pro-actively and on request) on scientific, business and political questions
- No decision power, only advisory function

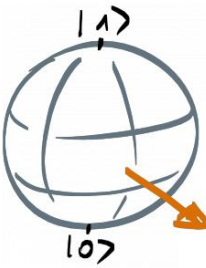
Members:

- 5-10 members from Science and Industry
- Members should be highly esteemed, e.g. Nobel laureates or from executive board of large companies / VCs
- Nominated by GB and confirmed by both EC and BoS

Meeting frequency: As required

Community consultation on consensus paper: Overview on comments

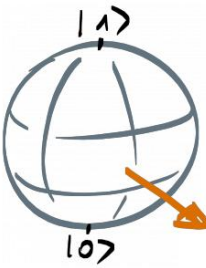
Not an agreed community position



✓ Strong agreement on the following

- Values of **transparency and openness** and avoidance of conflict of interest (5x)
- Pan-European **inclusiveness** (2x)
- **Lightweight processes** and proposals (4x)
- **Review process based on excellence**, potentially “double blind” (3x)
- **Measures to overcome “valley of death”**, adapted to the needs of start-ups, venture capital and industry (5x)
- Funding scheme to strengthen the **supply chain** – both in hardware and software (3x)
- **Outreach measures** to foster acceptance by public (4x)
- **Education measures** for grad students in QT, but also for pupils and undergrad students, e.g. by develop teaching materials (3x)
- Limit the duration of the **terms of governance**, have a clear renewal procedure for the board (3x)

Community consultation on consensus paper: Overview on comments



Not an agreed community position

X Strong disagreement on the following

- 50% funding for **industry-lead projects**:
- Percentage is too large (4x)
- Differentiate ratio based on call details (2x)
- “Collaborative” instead of “industry led” → Lead does not have to be industry
- “Governance is formed by wise people (**retired from the field**)” → this would block fresh ideas

? Contradictory comments on the following

- Funding focus on large “**moonshot**” challenges vs. funding of small and medium size **individual grants** – if one follows the other, what is the time scale?
- Involvement of various **stakeholders**: NMIs, computer science community, CEN-CENELEC (for standardization), existing networks & clusters, large international entities like ESA