

QUAIN T Workshop 1 – Coordinator’s Memorandum

As the Consortium would be well aware, there are several deliverables that are due to be reported to the European Commission at various points during the project. In particular, three overview papers are to be submitted to popular journals on the three Work Package topics (Optimal Control, DNP, Open Quantum Systems) and three white papers (4-page pieces giving a policymaker summary of the area and an indication of its strategic importance) are to be returned to the Commission and/or published in policymaker journals. For precise details and schedules of each deliverable please refer to the Description of Work document.

White papers

As described in the talk given at the meeting by TC, the strategic importance of the white papers in securing the future European funding of Quantum Optimal Control is enormous – they are key decision making reference points and as such must be delivered at exactly the right time, be of exceptional quality and reflect the broadest possible community consensus. The following decisions were made at the Workshop regarding White Papers:

1. That the internal deadline be brought forward to **March 2013** to align with the political decision making process for *Horizon 2020*.
2. That the writing shall proceed using *Google Docs* as a medium of collaboration.
3. That **CK** shall coordinate the White Paper on Optimal Control and co-opt other Consortium members as necessary.
4. That **FWM** shall coordinate the White Paper on Open Quantum Systems and co-opt other Consortium members as necessary.
5. That **IK** shall coordinate the White Paper on Dynamic Nuclear Polarization and co-opt other Consortium members as necessary.
6. That the White Papers be merged as appropriate into a single White Paper should it become clear at the final writing stages that this is beneficial. **IK** shall contact the Commission to determine if this is possible.
7. That **IK** shall inform the Commission of the White Paper delivery schedule change.
8. That **IK** shall circulate the White Paper Example Set assembled over the years by TC, to provide White Paper writing guidance to the Consortium members.
9. That **IK**, **CK** and **FWM** shall poll the Consortium for ideas and suggestions before producing first drafts of the White Papers and opening them for editing.
10. That **IK** shall supervise the progression and timely delivery of all three White Papers.
11. That **IK** shall explore the possibility of getting EC financial support for publishing the White Papers in policymaker journals.

It was noted during the discussion that the overly aggressive marketing campaign waged by the Quantum Computing / Quantum Information community is starting to backfire on its originators and a decision was made to avoid using “Quantum Information” or “Quantum Computing” phrases in all official correspondence to distance QUAIN T Consortium from the unfounded and over-optimistic speculations made in the Quantum Computing literature. More neutral “Quantum Control Technol-

ogy” and “Quantum Technology” terms are to be used instead with a note that precise control is an essential requirement in any successful technology.

It was also noted that “Minimal Resources”, “Minimal Time” and “Minimal Energy” features of Optimal Control algorithms are received favourably by public and policymakers, but care must be taken to avoid any statements lacking firm factual foundations or firm expectations thereof.

It was also noted that DNP is emerging as an excellent case of scientific and medical applications, including ongoing clinical trials that show promise in prostate cancer diagnostics. It was noted that DNP Optimal Control papers are starting to appear and that this should be noted prominently in the relevant White Papers.

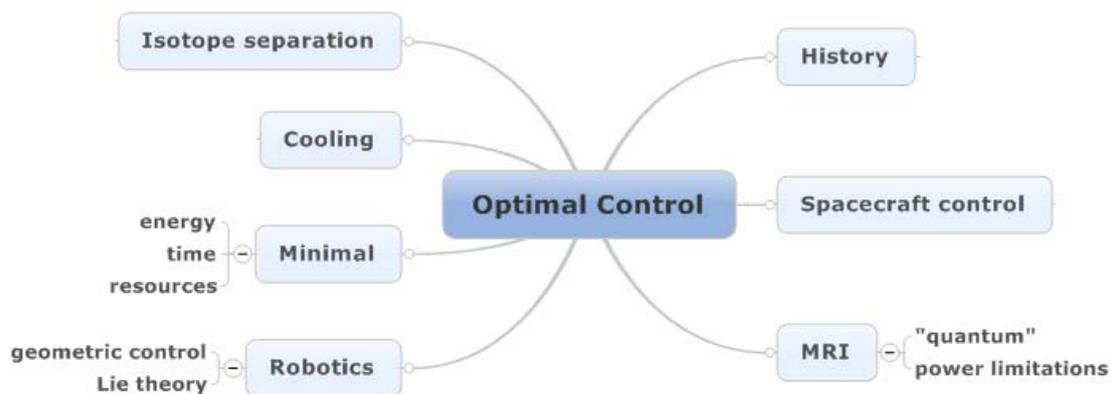
A point was raised during the discussion about the necessity of writing three separate White Papers and a suggestion was made to merge the three into a single White Paper. The point was accepted as valid, but it was noted that the Description of Work is a legally binding document that cannot be disobeyed unless the Commission agrees to amend it. The latter was deemed unlikely, as the Commission representative was clearly very enthusiastic (during her meeting with IK and CK in Brussels) about having three White Papers delivered. It was decided that a high quality paper on Quantum Optimal Control be written first and the other two papers revisited at a later date and written, if necessary, with smaller time commitments. **IK** was charged with trying to negotiate a White Paper merger with the Commission.

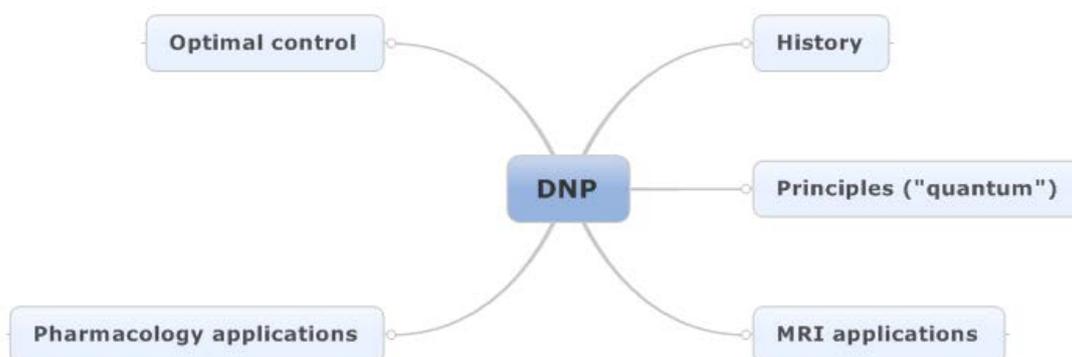
Web site

It was agreed that **IK** should approach Lukas Theussl of QUROPE Consortium (CC to TC) with a request to host the QUAIN T Consortium web site on the QUROPE portal. TC is confident that the request would be accepted. In the unlikely event of it being declined the site should be hosted on WordPress platform running on Southampton hardware in a manner similar to how the QUAIN T Workshop web site operates.

Popular papers

It was noted that funders and policymakers are placing an increasing emphasis on the quality of public engagement and communication in their funding decisions and that popular papers in journals such as Scientific American, far from being a chore, should be viewed as an opportunity to boost public communications credentials of Consortium members. The following topics were suggested for two of the three popular papers that are listed as Deliverables in the Work Description:





It was decided that the decisions on the Open Quantum Systems paper would be postponed till the meeting in Dijon. It was further decided that IK shall seek the advice of Ian Walmsley and that TC shall contact his acquaintance at Financial Times for further advice on the matter.

It was suggested that all members of the Consortium should contribute to the preparation and writing of the Optimal Control popular paper (IK to coordinate) to the best of their ability and inclination to popular science writing. SG, BL, IK and WK were appointed as contributors to the DNP popular paper (WK to coordinate). It was noted that the below noted political matters related to the DNP review do not extend to a popular paper on DNP spectroscopy.

Review papers

It was noted that the community leaders (most notably DT and SG) have been encouraging the Consortium members for some time to write comprehensive review papers and that the Deliverables of the QUAIN T coordination action serve well to give a formal blessing to such writing.

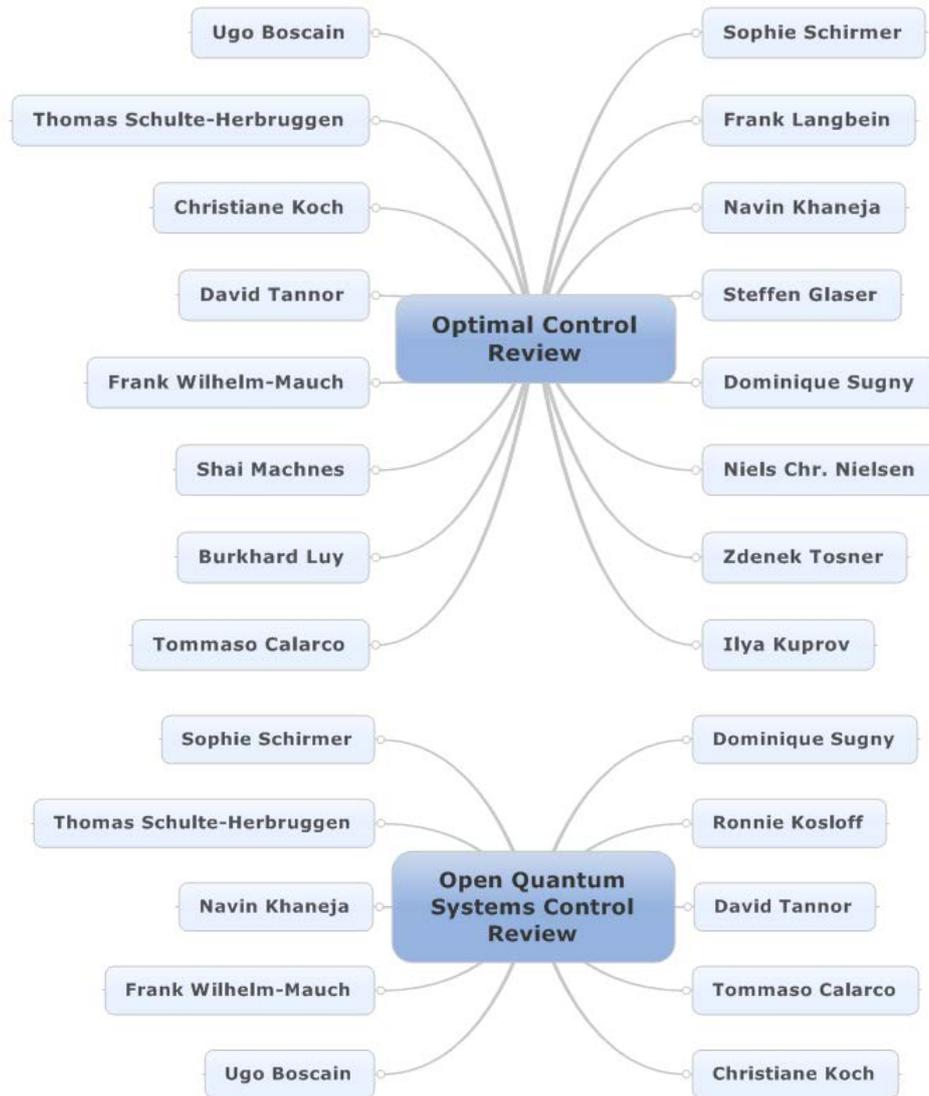
It was further noted that large-scale collaborative paper writing presents a significant administrative challenge. It was decided that the following technical means would be used in preparation of the review papers:

1. Version control, merging and synchronization: SVN server based at IK's lab in Southampton.
2. Feature requests, bug tracking, discussions: TRAC server based at IK's lab in Southampton.
3. Manuscript typesetting and preparation: LaTeX, which several members of the consortium (most notably IK) would have to learn.

It was also noted that Facebook presents an excellent communication environment and wider participation from the Consortium members would be welcome. Strong views were noted on the subject.

When discussing DNP, a point was raised about WK's COST action and whether the Consortium should simply contribute an Optimal Control snippet to whatever reviews the COST community may be writing. It was noted that the DNP review is not compulsory in the QUAIN T Work Description and may be skipped altogether. Further consultation with WK revealed no danger of overlap, provided that both networks are properly engaged and acknowledged. WK suggested involving Shimon Vega into writing and will contact him in due course with that offer.

Based on the views and votes of those present, the following allocation of authors to the review papers was made:



The following coordinators were appointed for the three review papers and put in charge of enforcing their quality and timely delivery:

1. Optimal Control: Steffen Glaser (*in absentia*, TBC)
2. Open Quantum Systems: Christiane Koch
3. DNP: Walter Kockenberger

It was noted that coordinating these reviews is a considerable task from both scientific and managerial perspective.

Miscellaneous action points:

1. IK to obtain support letters from Bruker, Agilent and Jeol, stating that the knowledge produced in Quantum Control community and exchanged during QUAIN T workshops is essential for their innovation. Forward to TC to be used for political ends.
2. FWM to obtain similar support letters from relevant industry partners, excluding the military-industrial complex.
3. IK to poll the consortium on who else can write similar support letters.