



Madrid, 4 September 2015

Subject | Minutes of the Seventh Management Committee Meeting of COST Action IC1201 “Behavioural Types for Reliable Large-Scale Software Systems (BETTY)”

*Madrid, Spain
4 September 2015*

1. Welcome to participants

The participants were welcomed by Dr Simon Gay, Chair of the Action. Dr Gay chaired the meeting.

2. Adoption of the agenda

The agenda for the meeting was adopted (Annex 1). 15 parties were present, and so the meeting was quorate.

3. Approval of the minutes of the last meeting; matters arising from the minutes

The minutes of the last meeting were approved. Dr Gay said that matters arising from the minutes would be covered by later agenda items.

4. Update from the Action Chair

Dr Gay reported that the Action has 22 parties, the same as at the time of the last meeting. A new MC member from Greece has been nominated: Dr Petros Stefaneas from the National Technical University of Athens.

Dr Gay summarised the budget that has been approved for the third and final grant period, 1st June 2015 – 25th October 2016. The most significant items in the planned budget are the MC/WG meeting in Madrid (September 2015, €30.8k), the MC/WG meeting planned for Spring 2016 (€30.8k), the Training School (Summer 2016, €35.3k), the final meeting of the Action (October 2016, €35.6k), and STSMs (€19.2k). Dissemination costs are €3.5k and overheads are €23.3k. The total budget is €178.5k.

Concerning STSMs, Dr Gay reported that this year there is again a system of calls and deadlines for STSM applications. The 15th July deadline had 5 applications, of which 3 were funded within the budget that had been set for that deadline. Dr Gay reminded members that the next deadline would be 15th September, and encouraged them to submit applications, even if they had been unsuccessful in the



previous call. He said that, as in previous years, it would probably be possible to increase the budget for STSMs because usually expenditure on meetings is less than expected.

Dr Gay thanked the STSM coordinator, Dr Silvia Ghilezan, and the WG chairs, for their work on the STSM committee, and also reminded participants to acknowledge STSM funding in their publications and to send him details of STSM-based publications for the Action website.

5. Promotion of gender balance and of early stage researchers

Dr Gay noted that BETTY activities continue to show a good gender balance and significant involvement of early stage researchers. Approximately 50% of STSMs since the beginning of the Action have been by early stage researchers.

6. Follow-up of MoU objectives

(a) Reporting

Dr Gay explained that this year there was no COST Annual Progress Conference, but that he had submitted a written report to the COST Office.

The chairs of the Working Groups reported on the status of the state-of-the-art reports (SOARs). The WG1 (Foundations) SOAR has been submitted in revised form to ACM Computing Surveys, after reviews had been received from the original submission. The WG2 (Security) SOAR has been accepted by the Journal of Logical and Algebraic Methods in Programming, in a revised form following reviews after the original submissions, and it should appear in September or October. The WG3 (Languages) SOAR has been submitted to the journal Foundations and Trends in Programming Languages and is being reviewed.

(b) Working Group activity

Dr Gay noted that there has been substantial research in all four Working Group areas, and that research is more balanced between the WGs than it was as the beginning of the Action; initially there was more theoretical work and less on tools and applications, but this is no longer the case. The aim of the Action, namely to move research on behavioural types from theory into practice, is being achieved. There was some discussion about the status of research on type systems for quantitative properties of programs, which was part of the original work plan. There has been recent work on incorporating time into behavioural types, which is certainly a form of quantitative analysis; the meeting noted that there is still an opportunity to consider probabilistic properties.

Dr Gay asked members to check three areas of the Action website and send him any necessary additions: the list of publications, the list of software tools, and the list of funded projects.

(c) Dissemination

Dr Gay reported that two early-stage researchers within the Action have received awards for their PhD dissertations. Dr Ornela Dardha (University of Glasgow) won the prize for the best Italian PhD thesis of 2014 in theoretical computer science, awarded by the Italian chapter of the European Association for Theoretical Computer Science (EATCS). Her PhD was completed at the University of Bologna. Her thesis, "Type Systems for Distributed Programs: Components and Sessions", will be published by Springer. Dr Fabrizio Montesi (University of Southern Denmark) won the prize for the best PhD thesis of 2014, awarded by the European Association for Programming Languages and Systems (EAPLS). His PhD was completed at the IT University of Copenhagen and his thesis is titled "Choreographic Programming".



Dr Gay congratulated Dr Dardha and Dr Montesi, and noted that these awards are significant in raising the profile of research on the topics of the Action.

Professor Mario Bravetti reported that he would give an invited talk at the FOCLASA (Foundations of Coordination Languages and Self-Adaptive Systems) workshop the following day.

Dr António Ravara reported that the paper “The stream-based service-centred calculus: a foundation for service-oriented programming”, by Luís Cruz-Filipe, Ivan Lanese, Francisco Martins, António Ravara and Vasco Vasconcelos and published in *Formal Aspects of Computing*, had been selected by ACM Computing Reviews as one of the notable articles of 2014. All of the authors except the first are active Action participants.

(d) Funding applications

Dr Gay reported that the BISCUIT proposal, coordinated by Dr Hans Hüttl and submitted to the H2020 Internet of Things call in April, was not successful.

7. Scientific Planning

(a) Scientific strategy

Dr Gay summarised the plans for Year 4 of the Action, from the original proposal. The meeting agreed that in general the research of Action members was proceeding in the agreed directions. Dr Gay noted that the final year of the Action should focus on technology transfer and that the final meeting (October 2016) will need to have substantial industrial involvement. He asked members to tell him about projects with industrial participation, so that industrial contacts could be invited to the final meeting.

(b) Budget planning

Dr Gay noted that the budget has now been fixed until the end of the Action, for the meetings and activities agreed at the previous MC meeting.

(c) Long-term planning

The previous MC meeting in April 2015 had agreed that there would be an MC/WG meeting in Spring 2016, in Cyprus (with Malta as a potential back-up location), a Summer School in June or July 2016, and a final meeting in September or October 2016. Subsequently, Dr António Ravara, the Vice-Chair, offered to host the final meeting in Lisbon. After the April meeting, Dr Gay issued a call for proposals to host the Summer School. There were three proposals: one from Malta, one from Cyprus, and one from Lisbon (by a group not including the Vice-Chair). At the end of the WG session before this MC meeting, each proposer gave a short presentation. During the MC meeting there was considerable discussion about the location of the Summer School, which became connected to discussion of the locations of the Spring meeting and the final meeting. Dr Gay stated that it would not be a problem for two of these events to take place at the same location; nevertheless, the feeling of the meeting was that it would be better to take advantage of all three locations for different events. A vote was taken for the location of the Summer School, which resulted in a majority (9 votes out of 15) in favour of Cyprus. With the location of the Summer School agreed, the next proposal was that the final meeting should be in Lisbon and the Spring meeting in Malta. This was approved unanimously. The dates were not decided, but the meeting noted the dates of some other conferences that we should avoid clashing with, and Dr Gay agreed to discuss the exact dates of each event with the local organisers.

There was some discussion about the possibility of applying for another COST Action after the end of this Action. Dr Gay stated that it would not be possible to request a direct continuation of this Action, and that any follow-on application involving this community would need to have a different, probably broader, theme and involve new participants; it would also need to be led by different people. There were several



suggestions for themes including: programmable networks; programming languages for the Internet of Things; formalising software-intensive systems of systems; language technology for cyber-physical systems; fault-tolerance. It seems that the TYPES community (associated with earlier EU projects and networks of excellence) is working on a COST Action proposal; we might be able to join forces with them. Further discussion will continue during the coming months.

Dr Gay brought up the possibility of publishing a book as a final output from the Action, which had been mentioned at the previous MC meeting. The meeting was enthusiastic and noted that this would be an opportunity to describe open problems and future directions as well as summarising the achievements of the Action; also that writing about the current state-of-the-art in tools and applications, based on behavioural types, would be easier at the end of the project (because the state-of-the-art has been advanced by the project) than it was at the beginning. Dr Gay agreed to check the procedure with the COST Office.

(d) Dissemination planning (publications and outreach activities)

Dr Gay reminded Action members to inform him about publications, projects and news, for the website. He also noted that Action members had delivered successful tutorials at major conferences, for example one by Dr Vasco Vasconcelos and Dr Raymond Hu at POPL (Principles of Programming Languages) in January 2014. If other members are proposing to deliver tutorials at conferences then there is a possibility of providing Action funding as a dissemination activity.

8. Requests for new members

None.

9. Non-COST applications to the Action

None.

10. Any Other Business

None.

11. Location and Date of Next Meeting

March or April 2016, in Malta. The exact date will be decided in consultation with the local organiser.

12. Summary of MC Decisions

The summary of the MC decisions was left for the minutes.

13. Closing: Dr Gay thanked everyone for their participation.



**Draft Agenda
Management Committee Meeting**

COST Action no. IC1201

**Action Title: Behavioural Types for Reliable Large-Scale Software Systems (BETTY)
Venue Madrid, Country Spain from 4th September 2015 to 4th September 2015**

1. Welcome to participants
2. Adoption of agenda
3. Approval of minutes and matters arising of last meeting
4. Update from the Action Chair
 - a. Status of Action, including participating countries
 - b. Action budget status
 - c. STSM status and new applications
5. Promotion of gender balance and of Early Stage Researchers (ESR)
6. Follow-up of MoU objectives
 - a. Progress report of working groups
7. Scientific planning
 - a. Scientific strategy
 - b. Action Budget Planning
 - c. Long-term planning (including anticipated locations and dates of future activities: Spring meeting, Summer School, final meeting)
 - d. Dissemination planning (Publications and outreach activities)
 - e. Report on Horizon 2020 proposals
8. Requests for new members
9. Non-COST applications to the Action
10. AOB
11. Location and date of next meeting
12. Summary of MC decisions
13. Closing