INTERNATIONAL FEDERATION OF AUTOMATIC CONTROL

Council Task Force to consider an IFAC Industrial Committee

Final Report prepared for IFAC Council Meeting, August 2014

Overview

The Task Force was proposed by the Executive Board as a result of the Strategic Planning process and agreed at the July 2013 meeting of Council.

The proposition is a new, formally-constituted Committee which would have a Chair and a membership formally elected on a triennial basis. Much industry-related work is already done by the TCs and via IFAC events in terms of technology etc., so the idea is not to duplicate this: the question addressed by the Task Force is whether a more strongly established and focussed approach can help with the long-standing objective to strengthen engagement of industry and industry people in IFAC activities.

Discussions have been under four headings, the detail of which is contained in the main part of the report. Summaries are as follows:

Feasibility: Although there are uncertainties from the feasibility point of view (elaborated in Section 2), if these are recognised and addressed it is believed that some form of Industrial Committee is feasible (the exact title to be agreed). This would depend upon strong support from IFAC's current and future Presidents to bring forward the message and promote the committee.

Scope: This should be defined such that it complements rather than duplicates what IFAC is already doing, and in particular should have a mission to focus upon interaction between control researchers and practitioners. A number of specific ideas for activities have been suggested (elaborated in Section 3) and these will provide a useful starting point for the proposed Industrial Committee.

Operation: There is a clear view that the new committee should report to Council directly rather than via the Executive Board. Careful consideration needs to be given to the mode of operation in order to mitigate the "risk and potential failure mode" identified in Section 2. In particular, having a relatively small core/executive with a larger number of associate members is believed to be most appropriate.

Membership: A suggestion for membership involving a core/executive plus a Technical Advisory Group is proposed in the main part of the report. It's believed that the normal IFAC election processes will be suitable for the core/executive members.

Recommendations to Council

1. *To endorse the proposal to set up an industrial committee as a formal part of the IFAC constitution*
2. *To support the suggestion that this new committee should report directly to Council*
3. *To decide the most appropriate constitutional approach*

There is a strong will to move forward on the basis of the Task Force's recommendations, and so it has been decided to set up a "Pilot" Industrial Committee based upon the recommendations. This Pilot Committee is to be established within the TB and chaired by the Industry Vice Chair of the Technical Board (Tariq Samad). Council meetings during

the 2014-2017 triennium will include a report by the Chair on the pilot Industrial Committee's activities, which then has the triennium (i) to move forward with implementing some of the ideas highlighted in the TF report, and (ii) to propose a strong industrial structure within IFAC with the intention of implementing the necessary constitutional modifications via the General Assembly in 2017.

1. Background

The Task Force was proposed by the Executive Board as a result of the Strategic Planning process and agreed at the July 2013 meeting of Council.

The proposition is a new, formally-constituted Committee that reports either to Council or Executive Board. It would have a Chair and a membership formally elected on a triennial basis. Much industry-related work is already done by the TCs and via IFAC events in terms of technology etc., so the idea is not to duplicate this: the question is whether a more strongly established and focussed approach can help with the long-standing objective to strengthen engagement of industry and industry people in IFAC activities.

Task Force membership:

Dr Kazuya ASANO	JFE Steel Corporation	Japan
Dr Serge BOVERIE	Continental Corporation	France
Prof Russ RHINEHART	Oklahoma State Univ	USA
Dr Tariq SAMAD	Honeywell	USA
Prof Roger GOODALL	Loughborough University	UK

The Task Force firstly addressed the question of **Feasibility** and the associated issue of the **Scope**. The consensus from the Task Force members was broadly positive, so the second stage was to consider **Operation** and **Membership**.

For each of these four issues a number of questions were posed in order to focus the discussion, and the following sections summarise the Task Force members' response to the questions and then present the consensus view.

2. Feasibility

Q1: Will we be able to achieve sustained commitment from a sufficient number of senior industrial members to make the committee viable?

Many control researchers and practitioners in industry are interested in industry/academic collaboration issues, and many big companies have for many years had a career path for technical experts. Therefore, we can expect to find high level, senior engineers whose role among others is to define the technical orientations for new products and developments, and such people are often strongly involved in bilateral partnerships with public research, also in multi-lateral partnership R&D programmes such as EU framework and nationally-funded programmes, etc. This should be a target audience for the committee membership, and the judgement is that it should be possible to identify 30+ "senior industrial members" with whom to consult.

In terms of the committee itself the commitment will depend on the activities and the work load of the committee. Companies may not allow their engineers to take a business trip specially to attend an IFAC face-to-face meeting, and so there is a risk that industrial people will not be able to attend meetings on an annual basis.

Q2: Are we considering only industrialists as members, or should we include people from government labs, the military, government-owned industries, public utilities, and standards organizations (etc.)?

The initial focus should be upon industry-related issues, which means that the representation of the industry to the committee should be predominant, and this should include people from government-owned industries. Nevertheless, the broader consultation should be open to all those interested in and willing to contribute, including relevant academics, but these should definitely form a minority.

Q3: Will the IFAC community support such a committee, given that some of the academic engineering community perceives that the intellectual challenges and work of industry are lower and scientifically less rigorous?

This is a risk and therefore a potential "failure mode" for the proposal, although there are many TC chairs and members in the IFAC organization who strongly support actions toward industry, especially in application-focussed TCs. The mission should include something like "Communicating the importance of industry interaction and the significance of industry-defined technical challenges to the control research community".

It would be valuable for industry to have the opportunity to explain the different but difficult kind of intellectual challenges for realizing and maintaining actual control systems. People in the control research community could certainly help industry cope with some of these.

Summary

Although there are uncertainties from the feasibility point of view, if these are recognised and addressed it is believed that some form of Industrial Committee is feasible. This would be dependent upon strong support from IFAC current and future Presidents to bring forward the message and promote the committee.

3. Scope

Q1: Should it be focussed primarily upon enhancing industrial participation and industrial relevance in IFAC events and publications?

Given the recognition of existing industrially-related activity, especially via the TCs, the proposed role would be to advocate for, support, and provide resources to enable improved industrial connectivity throughout IFAC.

There are a number of specific suggestions that have arisen from the discussions that are recorded in Appendix A, but the concentration should be upon complementing the existing application-based work in the TCs, in particular to promote methods and activities to enable control researchers and practitioners to be brought closer together. It would be essential to understand and articulate the reasons for the divide first and then think of initiatives related to events, publications, focussed workshops and other activities.

The activity should be organised in order to establish a facilitated exchange of

- ideas/new theoretical technologies from research that have application promise
- problem solving innovations from industry that could benefit from theoretical underpinning
- problems that industry is facing that need research to create solutions

- how to enhance knowledge exchange between universities and industry
- what industry would like to see in skill sets of graduates with automation and control specializations
- new product introduction and commercialization processes in industry
- etc.

This kind of agenda would become extremely interesting for industrial people.

Q2: Should the focus be entirely upon industry activity, or would a more appropriate name/scope be "Industrial Initiatives" to give a broader perspective?

It is industry engagement that the committee would be promoting, not only for getting research results into practice, but also to inform researchers of industry needs and mindset. "Relevance," "engagement," "interaction" are some words that might be included in the committee's title. It's also worth highlighting that providing a forum for enhanced interaction between different industries could be a valuable.

Q3: What specific issues might the committee be responsible for?

See Appendix A.

Summary

The scope should be defined such that it complements rather than duplicates what IFAC is already doing, and in particular should have a mission to focus upon interaction between control researchers and practitioners. A number of specific ideas for activities have been suggested and recorded in Appendix A, which will provide a useful starting point for the proposed new Committee. The exact title is to be agreed, but possibilities are:

Industrial Committee
Industry Engagement Committee
Industrial Initiatives Committee

4. Operation

Q1 Where should it sit in the IFAC structure? Suggestions are:

- *It could be responsible to the Council and at the same level as the Executive and Technical Boards in which case its Chair would be a (third) Vice President*
- *It could be responsible to the Council but have a different status, e.g. the Chair being an ex officio member of Council but not a Vice President*
- *It could be a fifth Executive Committee responsible to the Executive Board. Its Chair would then be an ex officio member of Executive Board*

To enhance such a committee and make it visible to all IFAC members, the view is that it must sit as close as possible to the top management structure. In addition the activities of the existing four Executive Committees are substantially different from those of the Industrial Committee, in particular including some technical aspects. It's also worth noting that most of the IFAC affiliates know very little about the various executive committees and so an additional Executive Committee would not be very visible.

Q2 How should it operate, for example:

- *Should it have annual face-to-face meetings like current IFAC committees, or something else?*
- *Should there be a reasonably large membership to guarantee that enough people attend the meetings, or should there be a small "executive" of some kind with a larger technical advisory group?*

The committee should include a restricted number of core members (or executive) who should meet regularly (ideally face to face on a yearly basis, as for other IFAC committees which may be necessary for credibility). However its business can be supported by e-mail and teleconference, and additional face-to-face meetings may be held at other IFAC events where a critical mass of committee members is present. There should also be a number of some associate members who can attend these meetings as appropriate and form a Technical Advisory Group. A face-to-face meeting will of course be held during each World Congress.

It's important that the committee should maintain a Web presence on the IFAC website in the manner of the Technical Committees, especially providing links to relevant information for researchers and practitioners interested in bridging the gap between these communities.

Summary

There is a clear view that the new committee should report to Council directly rather than via the Executive Board. Careful consideration needs to be given to the mode of operation in order to mitigate the "risk and potential failure mode" identified in Section 2. In particular, having a relatively small core/executive with a larger number of associate members is believed to be most appropriate.

5. Membership

Q1 What should be the basic constitution, e.g. Chair, Vice Chair, elected members (how many?). Perhaps ex officio members?

Chair, Vice-Chair, 5-10 elected members to make up the core/executive, plus a larger Technical Advisory Group making a target size of 30 industry people and 15 non-industry people.

The Chair would preferably be from industry, but a non-industry person is possible. The important attribute is that the person must be dedicated to the integration of industry within IFAC, willing to invest personal time, and able to interface with industry and IFAC. The Chair needs to be sensitive to the industrial perspectives and needs, and also has to understand the IFAC organisation, values, mores, etc.

Q2 Is the current IFAC process for choosing committee members OK, or is something else more appropriate?

The committee membership will be reconvened every triennium as normal. Members of the technical advisory group can be nominated by NMOs, although additional members can be nominated in the interim as well. It would be an option to get suggestions from the application-focused TCs instead of those from NMOs – the importance of collaboration with the Technical Board has already been emphasised.

It will be essential to maintain the appropriate industry v. non-industry balance, and also to ensure representation across a good range of appropriate industry sectors.

Summary

A suggestion for membership has been proposed, and it's probable that the normal IFAC election processes will be suitable for the core/executive members.

6. Recommendations

The overall view of the Task Force is that if carefully constituted and planned, an industrial committee would be a valuable way of fostering stronger links from industry people to IFAC. The Task Force therefore makes the following recommendations to Council:

1. To endorse the proposal to set up an industrial committee as a formal part of the IFAC constitution
2. To support the suggestion that this new committee should report directly to Council in order to emphasise the importance of the activity.
3. To decide which constitutional approach is most appropriate. (Two have been suggested by the Task Force, but there may be others.)

7. Next steps

It is not possible to make the necessary constitutional changes that would be needed to establish a new committee of this kind in time for the 2014-2017 triennium, but since there is a strong will to move forward on the basis of the Task Force's recommendations it has been decided to set up a "Pilot" Industrial Committee. This Pilot Committee is to be established within the TB and chaired by the Industry Vice-Chair of the Technical Board (Tariq Samad). It can include the industrial Vice-Chairs of the TCs (where they exist), and it is also suggested that the industrial Chair of the 2017 World Congress (Serge Boverie) could join. Other members can of course be invited, and the Task Force proposal of a core/executive plus a broader advisory membership will also be considered.

Council meetings during the 2014-2017 triennium will include a report by the Chair on the pilot Industrial Committee's activities, which then has the triennium (i) to move forward with implementing (some of) the ideas highlighted in our TF report, and (ii) to propose a strong industrial structure within IFAC with the intention of implementing the required constitutional modifications via the General Assembly in 2017.

Appendix A – initial list of ideas for Industrial Committee activities that emerged from the discussions

Special sessions, workshops, etc. at IFAC events

Articles and special issues for IFAC publications

Webinars and virtual panel discussions with industry participants

Promotion of industry success stories in advanced control

Solicitation of IFAC Industrial Achievement Award nominations

Special reports, white papers, tutorials, editorials, etc. prepared by the committee for the broader IFAC community and/or control engineers in industry.

Appendix B – proposed structure of Industrial Committee

Chair – appointed by IFAC's Election Committee (normally an industry person who has a strong record of engagement with IFAC)

Vice-chair – elected by committee members

Secretary – elected by committee members

Additional responsibilities may also be assigned to individual members. For example, a Web Presence Editor could be appointed.

Subcommittees may be formed as appropriate for initiatives the committee undertakes. Some subcommittees may be permanent, others ad hoc.