Workstream C: “Voice of industry”

Objective: *Gather industry viewpoints on what issues they see with leveraging IFAC activities and academic research. These will probably also be specific to sectors, and perhaps to geographies as well.*

Chair: Alex van Delft (Royal DSM, the Netherlands)

Dear Workstream C group members,

Welcome to this challenging journey. To get things started, let’s first have a look at what the other workstreams are working on, to avoid duplication of efforts:

* Workstream A:  Benchmarking industry participation in IFAC (Serge Boverie, chair) – Collect data on industry participation in IFAC and any other related data (e.g., from other organizations such as IEEE CSS).  Analyze data, summarize findings, and develop hypotheses.  Analysis by industry sector, geography, and other factors would be useful.
* Workstream B:  Industry engagement models in different geographies and sectors (Kazuya Asano, chair) – There seems to be considerable variation in industry engagement in difference countries/regions and different sectors.  This workstream will collect information on industry-engagement models (e.g., government co-funding programs, industry consortia) and attempt to identify best practices that other regions/sectors can learn from.
* Workstream D:  Enhancing industry participation in IFAC (Roger Goodall, chair) – Recommend changes to conferences, journals, and committees that are likely to increase industry participation and make IFAC more relevant to industry.  Other mechanisms could also be looked at (e.g., start a webinar series?).  The recommendations should be informed by outputs from the above workstreams.
* Workstream E:  IFAC Constitution amendment for the Industry Committee (Tariq Samad, chair) – Formalize the notion of a permanent IFAC Industry Committee.  Define a suitable structure and scope.  Governance and leadership should also be defined.  Propose changes to the constitution to this end.

So workstream A looks at the as-is situation, and B as well as D are already about routes to solution. Our task is to collect current issues in *leveraging IFAC activities and academic research*.

Looking at the questionnaire issued by Tariq Samad this summer, some interesting observations emerged: See below for some quotes that may trigger thinking:

Q2 Challenges for industry applications of advanced control (selection):

* Industry lacks staff with the technical competency in advanced control that is required for high-impact applications
  + (Strongly) agree: 19; (strongly) disagree: 1
* Control researchers place too much emphasis on applied mathematics or advanced algorithms whereas successful industry applications require deep domain knowledge
  + (Strongly) agree: 19; (strongly) disagree: 3
* Control researchers place too little emphasis on plant/process modeling and model-development methodologies
  + (Strongly) agree: 13; (strongly) disagree: 4 -- [I: 0/12 disagrees; A: 3/10 disagree]
* Control students (undergraduate and graduate) are not sufficiently exposed to industry problems
  + (Strongly) agree: 16; (strongly) disagree: 3 -- [I: 0/12 disagrees; A: 3/10 disagree]

Q3 General issues (selection)

* Extra focus required on the people aspect: tools/techniques themselves are not the limiting factors anymore for adopting advanced control. The questionnaire reflects this issue already: too much focus on what is offered compared to what is required. *Industry*
* Models for successful transfer of advanced control to industry and pick-up by industry. Role of software vendors. *Academia*
* It would be great if the committee can help bridge the gap between industry and academy thru the conference, pilot projects, workshop/seminar. Taking process industry as an example, the gap is widening - Very few successful new control methodology like MPC have been introduced and widely used in industry in the past 2 decades. Until now, PID is still dominant in process industry. Industry needs academy doing more focused research on real industry problems instead of “math” problems. On the other hands, industry needs to work closely with the academy (and allocate reasonable amount of funding) and share the problems/data so researchers would be interested. *Academia*

So far the quotes. To get things started in our workgroup: let’s first identify the issues that we see. This will serve as a step up to investigate more broadly the real “voice of the industry”.

Let’s break it up in 2 questions: And remember: it is about identifying the issues and not immediately about formulating the solutions (see the other workstreams). On the next 2 pages I’ve already given some of my answers. Of course these are shaped by my background (working for a global specialty chemicals/lifesciences company and as chairman of the Dutch/Belgian Process Control end-user Organization WIB (with 40 members, like Shell, Akzo-Nobel, Heineken etc). I also did some questioning of colleagues of other end-user companies.

Please give/add your viewpoints to both questions. Send it to me before December 11th. Free format is fine. Be specific, but to the point.   
I’ll collect and publish all inputs (on our Sharepoint environment, I assume you all have access) and we can start categorizing/prioritizing. Most likely a telcon will be needed to share thoughts. Would be great (but probably very ambitious) to do this before Jan 1st. I’ll check next week with the other workstreams where we stand.

Best regards

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What issues do we see from an industry viewpoint in leveraging IFAC activities ?

* Lack of knowledge of what IFAC is really offering. My previous contact with IFAC was in an Emerging Areas workshop in 2003. I must say that had a look at the slides with industry needs I presented at that time, and questioned myself: what has changed ? In my network of end users nobody is currently doing something in the framework of IFAC. It is more something they remember from their University days.
* IFAC image of too academic, too bureaucratic

What is really the demand in the industry ?

* Less staff in the end-user industry regarding automation and process control. More relying on suppliers/system integrators. More focus on the systems rather thanb the process
* Less R&D work carried out in the end-user industries

Other alternatives present ?

* Overwhelming supply of other means to share knowledge.
  + Internet fora
  + Gartner, ARC, MESA, ISA etc conferences & publications
  + User group conferences of suppliers (Emerson, Honeywell,….)
  + End user organizations like NAMUR, WIB, Exera etc. Producing practical guidelines.

Your issues:

What issues do we see from an industry viewpoint in leveraging academic research ?

* Lack of the “people component” in academic research
* Compartmentalization in academia. In the industry we need integral solutions: robust, reliable, easy to understand and maintain,….E.g. I haven’t seen an academic research group that really covers the topic of “implementing” advanced control, including training/HMI/programming/security/maintenance aspects. Or an academic group that focuses on front end loading/opportunity surveys. Or an academic group that adequately combines process control with improvement approaches like LeanSixSigma.
* Long term academic interests (publications, PhD work) vs short term industry needs
* End-user industries participate occasionally in public-private partnerships, on national level, or European Commission funded (cross sectorial, involving suppliers/consultants/academia). This however is scattered.

Your issues:

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| Europe | 4 |  | Industry | 10 |  | 2 | 4 | 14 | 5 | 3 |
| N. America | 6 |  | Academia | 3 |  |  |  |  |  |  |
| S. America | 1 |  | Government | 1 |  | C: Chair | |  |  |  |
| Asia-Pacific | 2 |  |  | 14 |  | X: Member | | |  |  |
| Africa | 1 |  |  |  |  |  |  |  |  |  |
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