

# Report NII IAB Meeting 2013

## Introduction

This is the report of the 2013 meeting of the International Advisory Board (IAB) of NII, which took place on March 11 and 12, 2013 at NII in Tokyo. A list of members of the IAB and the program of the meeting can be found in Appendix 1 and 2.

This report contains general observations and specific comments and recommendations on the positioning and strategy of NII, the research program, its management and organisation, industry engagement and the organisation of the IAB.

## General Observations

First of all, the IAB should like to commend Professor Sakauchi, who is about to retire on his term as Director General of NII. Prof. Sakauchi and the entire staff of NII should be congratulated on the huge progress that has been made over the past 10 years.

NII, with its tripartite mission, is a unique institute and gradually the potential benefits of synergies between the three pillars of the mission are more and more realised. NII clearly is pushing the envelope and has leading researchers with boldness and clear vision. The international focus is impressive and should be commended, as well as the engagement with society.

NII Shonan Meetings is a great initiative, the first of its kind in Asia.

The IAB is pleased to observe that many of the recommendations and advice given in the past have been followed, although we recognize that there are maybe particular constraints which may be unknown to the IAB.

## Positioning and Strategy

NII has a unique position in the Japanese ICT research ecosystem with its tripartite mission:

1. Independent Research Institute
2. NII as a platform for Collaborative Research
3. Cyber-Science Infrastructure

The IAB has seen strong evidence of progress in all three parts of the mission. Also, we have seen examples of synergy being realised between the first two parts of the mission. It is not evident, however, that the potential synergy between NII's research (part 1 and 2 of the mission) and the Cyber-Science infrastructure, is yet fully realised. In this respect it is suggested to start research projects on enhancing the cyber-science services, both in terms of technical infrastructure as well as in terms of research tools, such as 'big data' analysis, and engage in joint research projects with university researchers in different disciplines. Thus, NII could become the defacto eScience Research Center in Japan. The IAB feels that SINET is a big asset of NII and a unique opportunity.

The IAB feels that the unique positioning of NII and the value proposition relative to universities should be articulated more clearly to the outside world. Naturally, the organisation should reflect the positioning and value proposition in all respects.

With regard to conditions for future progress it seems that funding for research is ensured. It seems, however, that funding for the cyber infrastructure is provided on an ad-hoc basis, as is the case in many countries. The importance of the cyber infrastructure for progress in all fields of science would warrant a more structural funding and NII is encouraged to strive for such continuous funding.

Several research programs show evidence of societal engagement. Cooperation with industry, however, remains a point of concern.

## Research Program

NII has excellent researchers who do great research. There are many excellent individual contributions. Coherence of the overall research program, aiming for optimal synergy between projects, is a point of continuous attention.

NII has world class researchers. The IAB encourages NII to aspire world leadership in selected topics, to set new trends and have worldwide impact.

The Quantum Computing research program is very impressive – differentiated from the rest of the world. This is commendable. This surely is a flagship project. The IAB suggests considering other flagship projects NII could pursue. The Todai Robot Project is an example that certainly has the potential to become a flagship. It demonstrates boldness and clarity of vision of the researchers involved.

Research portfolio management involves some paradoxes. For every research institute it is a challenge to find the right balance between focus and diversity. Duration of research projects is another paradox: it is important to have the courage to stop research in time, to make room for new topics; on the other hand, sometimes it is necessary to pursue a grand challenge for a longer period, in order to arrive at results that have an impact.

With respect to the research portfolio, the IAB acknowledges that obviously choices have to be made. It is not wise to try to cover all topics and follow all the new hypes. Nevertheless, the IAB observes that some topics with increasing relevance, such as cyber security and gaming, seem to be absent in NII's research program.

The IAB commends NII on the progress made in the field of engagement with society. To further enhance engagement with society and industry it might be a good idea to stimulate "end-to-end" projects that cover the trajectory from fundamental research to demonstration of applicability, possibly in "living lab" environments.

## **Management and organisation**

The organisational structure of NII is matrix based and therefore rather complex. Centers seem to be subsets of divisions rather than being truly cross-cutting. Additional value could probably be derived from broadening the centers' scope.

One of the most important aspects of managing a research institute is Human Resource Management (HRM). Within the field of HRM, recruitment has the highest impact. Recruitment policy obviously highly determines the quality of researchers as well as the research topics, but also the diversity of the staff. A proper diversity should be aimed for in terms of background of researchers, gender, age, skills and international orientation.

With regard to background of researchers, the staff should reflect the positioning of NII as a national institute and therefore NII should strive for hiring researchers from all relevant universities in Japan. The IAB is not familiar with the specific terms of employment, whether professors have tenure at a university and are seconded at NII, have tenure at NII or have part time positions at a university and NII. These conditions have an impact on how NII is looked at from the academic realm, as well as on facilitation of university – NII cooperation. Dual affiliation may be beneficial, but it should be recognized that it may also create a tension in terms of loyalty: where lies the primary engagement?

NII's recruitment policy seems to actively stimulate increasing the number of female researchers, which is to be commended. Women are, however, still a minority and the IAB therefore strongly recommends to pursue this policy. It is suggested to look for successful examples elsewhere, such as Max Planck Institute and Stanford University as a source of inspiration.

The IAB was pleased with the strong increase in the number of international researchers. This is good for the international positioning of NII and for international cooperation. In addition, it would be good if NII staff get an opportunity to spend some time at research centers abroad. In this respect the IAB suggests to introduce a policy for sabbatical leaves.

There seem to be two clearly distinct groups of staff at NII: scientific staff (professors and junior researchers) on the one hand and administrative staff on the other. Increasing the diversity with some people with skills in both the research field as well as in project management and industry relations, to support the scientific staff, might be worth considering.

Once researchers are employed at NII, the important management issue is mentoring and guiding the researchers. The IAB is well aware of the practice of monitoring research projects at NII. The monitoring and evaluation meetings could be a good opportunity to pay attention to individual development of researchers and spotting opportunities for synergy and cooperation between various research projects, thus enhancing the coherence of the research portfolio of NII.

Research management should also help researchers in calibrating what they do relative to the rest of the world and articulate what their specific contribution is, both with respect to NII's mission and overall research program, as well as to the research community as a whole. The IAB recognizes the progress in terms of presentation skills of NII researchers, but further advances can be made as to articulation of the wider implications and impact of their research.

NII is publishing in well recognized publication venues. This is good, but it is suggested to think of what can be done in order to go beyond this. In particular, the IAB recommends to make all papers written by NII researchers freely available online.

## Industry Engagement

As stated in the third section, engagement with industry remains a concern. It seems that very little progress has been made on this issue since the previous meeting of the IAB. While the high-tech industrial landscape of Japan seems to offer ample opportunities for fruitful cooperation, there might be conditions which hamper such collaboration.

The IAB continues to encourage NII to strive for stronger industry engagement. Suggestions in this respect are:

- Install an Industrial Advisory Board
- Complement the IAB with one or more persons with an industry background
- Seek advice of individual IAB members. Several of the present IAB members have experience with cooperation with industry.

## **IAB: members, meetings, contributions**

The IAB thanks the staff of NII for the excellent organisation of the meeting. It was very good to have the opportunity to interact with many researchers during the poster session and the reception, in addition to the many presentations. A point of attention is the time available for internal discussions of the IAB, which was too short. The IAB therefore recommends to extend the duration of IAB meetings in the future to two full days. Also it is recommended to send some documentation to the members well in advance, so that members can prepare prior to the actual meeting.

In regard of the desirability of more industry engagement it might be good to add some members to the IAB with an industry background. Also, NII might benefit more from the IAB, by consulting individual IAB members in between meetings. Some of the present members have ample experience in collaborating with industry or creating start-up companies and are willing to assist NII management wherever possible.

Present membership of the IAB is all male. It is suggested to include one or more women among the membership, which would be good for the IAB and serve as a signal as to the importance of a better gender balance in general.

Finally, the IAB members thank Prof. Sakauchi for the productive cooperation during the past years and wish Prof. Kitsuregawa a lot of success for the coming period.

## APPENDIX 1

### **IAB 2013 Membership**

- Prof Yanghee Choi Director Multimedia and Mobile communication laboratory Seoul National University (Korea)
- Prof Michel Cosnard CEO INRIA (France)
- Prof Michael Keller Director of Academic Information Resources Stanford University (USA)
- Prof Jeff Kramer Imperial College London (UK)
- Prof Nelson Morgan International Computer Science Institute - ICSI- Berkeley (USA)
- Prof Gerard van Oortmerssen Professor Tilburg University (the Netherlands) (chair)
- Prof Tamer Ozsu Waterloo University (Canada)
- Prof Marek Rusinkiewicz Vice President and General Manager Applied Research laboratories Telcordia Technologies Piscataway (USA)
- Prof Wolfgang Wahlster CEO German Research Center for Artificial Intelligence DFKI (Germany)
- Prof Bob Williamson Scientific Director NICTA (Australia)
- Prof Yi Zhang Vice Provost for International Affairs Tsinghua University (China)

## APPENDIX 2

### **Program IAB Meeting 2013**

#### **Sunday March 10**

- 18h00 diner hosted By Prof. Sakauchi Director General Tokyo Dome Hotel 42 floor Pegasus room

#### **Monday March 11 at NII (Hitotsubashi 2-1-2 Minato-ku)**

- 10h-12h00 Two general presentations about NII achievements and /or policy by Prof Sakauchi and Prof Kitsuregawa followed by discussion
- 12h00 -13h00 O bento lunch
- 13h00-15h30: IAB members separate into different groups for NII thematic presentations/ discussion.
- 15h30-16h00 coffee break
- 16h00 -18h00 : NII posters session /discussion with NII researchers
- 18h15-19h45 buffet/get together Members IAB and NII researchers

#### **Tuesday March 12**

- 10h00-11h00 reports from the various "thematic groups" (NII + IAB members) and general discussion
- 11h00 internal IAB members discussion
- 12h30 : comments/recommendations by IAB members followed by general discussion.
- 13h00 O bento lunch