



Draft of
Minutes of the EU-MATHS-IN Kick-off meeting
November 27, 10.00-17.00

*Amsterdam, Centre for Mathematics and
Computer Science (CWI), Science Park*

Agenda:

11.00-11.10: Opening address (Mario Primicerio)

11.10-11.25: The Forward Look "Mathematics and Industry" (Mario Primicerio)

a very short description (outlining the role of ECMI and EMS) of the work done and of the report, survey, success stories produced

11.25-11.40: MATHEI, VEIMI, EIMI (Volker Mehrmann)

a summary of our past history; strengths and weaknesses of the proposals; why we did not succeed, what should be changed

11.40-11.55: EU-MATHS-IN (Maria J. Esteban)

the structure of the network; its aims and goals; what should be avoided; statutes and practical functioning

11.55-12.10: What we expect from this meeting (Wil Schilders)

summarize the strategy document; we expect that the final outcome will be "who does what and when"; is it possible to get support from national funding agencies?

12.10-12.25: Opportunities in the EU calls (Volker Mehrmann)

a short information will be given on the possible calls that could suit our activities

12.25-12.45: First plenary discussion round

12.45-13.45: Lunch

13.45-14.45: Second plenary discussion round

14.45-15.00: Intermezzo: plans for cooperation in the Pacific region (Masato Wakayama)

15.00-15.30: Tea/coffee break

15.30-17.00: Final discussion round and wrap-up

17.00-18.00: Reception

Participants:

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1. The meeting started with welcoming speeches of EMS president Marta Sanz-Solé and ECMI representative Hilary Okendon, which represent the promoting organisations
2. Mario Primicerio presented the history of the forward look and the EU-MATHS-IN. (Slides see Appendix 1)
3. Volker Mehrmann discussed the unsuccessful attempt of EU proposals, Mathei, EIMI, VEIMI. (Slides see Appendix 2)
4. Maria J. Esteban presented the concept of EU-MATHS-IN (Slides see Appendix 3)
5. Volker Mehrmann presented current Horizon 2020 calls (Slides see Appendix 4)
6. Wil Schilders presented the strategy document. (Slides see Appendix 5).

7. First Plenary Discussion

- Georges-Henri Cottet asked about the ideas to start the job portal, whether it should be a new or an aggregated portal.
- Georges-Henri Cottet asked also about the software depository and mentioned that it would be important to guarantee the quality.
- Maria J. Esteban suggests aggregation,
- Marta Sanz-Sole suggests a new design and to put the job information also to EURO access

- Concerning the software Volker Mehrmann mentions that the Slicot library (<http://slicot.org/>) could be a starting case
- Anders Logg suggests to form a subcommittee that takes care of software and that one might offer more than software, but also mathematical expertise.
- Tony Mulholland asked how industrial contributions could be considered
- Fabio Chalub asks which industries are under discussion.
- Volker Mehrmann suggests to consider large as well as small and medium size enterprises
- Thibaut Lery suggests to consider something like gold members who support EU-MATHS-IN.
- Mario Primicerio mentions the contact the round table of industrialist as potential gold members
- Marek Niezgodka explains that the work programmes for e-infrastructure are most likely not the correct programs and that the other calls on big data and social data mining, as well as advanced communities facilitating access to HPC centers, such as the PRACE initiative are only loosely addressing mathematical research
- Marek Niezgodka suggests to consider also the infrastructure Open Air and the EUdml within EU-MATHS-IN, as well as a software repository for high performance computing software and large scale data software
- Hilary Ockendon asks about the time line for EU calls
- Zdenek Strakos mentions that a primal area as in the ERC, where there is a panel PE1 for Mathematics, should be installed in general EU proposals.
- Thibaut Lery suggests that the mathematicians should design sales pitches like the physicists to convince the public why mathematics is such an important factor in the GDP. Also even with possible disagreements within mathematics one should unite to the outside.
- Philip Aston mentions that in the recent UK Research assessment evaluation the impact of research was a factor taken into account, and that therefore efforts should be made to document the impact.
- Maria J. Esteban cites from a discussion with a representative from EU that EU does not support scientific fields but more technology areas and that grant challenges are more on the technology areas not on the needed mathematical research.
- Marek Niezgodka suggests as an example: computing technology on the high end.
- Robert Leese mentions that in the Deloitte report it is mentioned that in UK 10% of jobs and 16% of GNP is related to Mathematics and that engaging with industry added value.
- There is a suggestion to help to turn industry into intelligent users of math,

- On the question about which further networks should be integrated, Marek Niezgodka explained how the new network in Poland was set up by making a call with the Mathematics departments which yielded positive responses from 17 of them, and that there is discussion about the creation of a national program in Poland
- Mario Primicerio explains why to get started with EU-MATHS-IN a top down approach was used.

8. **Presentation of the Japanese activity given by Masato Wakayama.**

The institute is located in Kyushu (Institute for mathematics for industry). Also the historical situation was described. In 2006 an official study said that mathematics is not so strong, and also that mathematics for industrial technologies should be developed. An investigation for mathematics to cooperate with other fields, lead by Kyushu U., Tokyo U., the Mathematical Society of Japan and the Nippon steel company was made. After that they created a Mathematics Innovation unit and the committee for innovation and for mathematics was then officially created. All this is from 2011. Since then, some workshops, collaboration between different institutes and universities. The IMI was created in 2011. They are involved in the Center of Innovation Program. The units in this institute are:

- Division of advantaged mathematical technology
- Division of applied mathematics
- Division of fundamental mathematics
- Laboratory of advanced software in mathematics.
- They have study groups 3 times a year. They organize a Forum for Math in industry, and a journal of math-for-industry
- They try to develop and push people in pure math to work in projects for industry. For instance, people in geometry, or number theory.
 - They have also launched the Asia-Pacific Consortium of mathematics for industry, a copy of some activities of ECMI.

9. **Second plenary discussion round.**

JOB PORTAL :

- Georges-Henri Cottet explains how the AMIES portal works, most things are automatic, but there is some filter and moderation; how to convince companies to go to the site and fill in the online forms, very quick and easy. AMIES

advertizes the jobs also in its newsletter, and that is very good also. That gives more visibility to the adds. The facilitators contact many companies. Mario Primicerio asks to Cottet if he is ready to coordinate a working group about this subject. Can the National Networks organize contacts with companies like AMIES? The answer is YES. Can they work with AMIES setting up that portal ? YES

- Robert Leese proposed to create a group of industry people associated to EU-MATHS-IN, giving advice, etc. Some could be more or less involved in a formal advisory group in the industry. Not necessarily very top people, but sufficiently high level.
- V. Capasso explains how EU-MATHS-IN could “interact” with the journal of industrial mathematics. He says that this initiative is a big plus for the journal and all the activities in industrial math. He presents the journal, launched by ECMI, with relations with ECCOMAS. This journal could be a forum for this network networks. This could be a win-win situation.

Action item: the EC prepares a short article for the journal free pages in the journal; to explain this initiative! A special issue of the journal with articles presented or selected by EU-MATHS-IN, maybe with selected stories, or declaration of CEOs, etc One could use some contributions of the German book? Mario Primicerio: we have had a good idea, now we have to prove it!

SUCCESS STORIES:

the Spanish and the Italian national networks want to think about this item. The Smith Institute also is interested about this. Manuel Cruz says that they have a lot of success stories. They can provide them. The Spanish and the Italians could coordinate the thinking about how to do it, different kinds of success stories, short ones, others more complete with quantitative data about the results of the project for the company, etc.

SOFTWARE DEPOSITORIES:

Marek Niezgodka says it is important. We have to put this in the agenda, but a small group will start thinking about how to do it. Or what to do. He is willing to coordinate it; other interested people: Cottet, Bock, Logg, and Torsten Köhler would like to join also.

Action Item: send minutes to everybody participating in the kick-off ; send clear questions and clear explanations to the National Networks.

CONTINUOUS PROFESSIONAL EDUCATION:

- A working group about the continuous professional education should be formed. Should this be done with ECMI educational committee, soon or later and how and on which topic. The education committee of ECMI can start thinking about this.
- How to prepare young people, how to present themselves? Can we do something about this? Marek Niezgodka proposed to form a working group about how to prepare the community about new ways to deal with new mathematics for difficult computing issues.
- Georges-Henri Cottet asks what we mean about one-stop shop? For instance, the Spanish SMEs will not go to EU-MATHS-IN, but to the Spanish contact. Similar in the Netherlands. A website with contacts, telephone numbers. Industry and authorities. Tangible. One idea in the Netherlands is the creation of some kind of yellow pages. Profiles of mathematicians. Expertise.

DATABASE OF EXPERTISE:

The Spanish and the Italians networks are ready to work on this, maybe together with the Dutch.

- Mario Primicerio: ask people not what can you do, BUT what have you done in collaboration with industry. That could be really very useful. The other option is not very interesting, too generic.
- Robert Leese says that it is difficult to maintain such a database, and not clear that can help the industry. More inclined to work on the success stories and case studies. More effective.
- Georges-Henri Cottet says 2 projects in AMIES about this: one about real existing collaborations, and one about expertise. It is difficult to have a centralized way of doing that, even in a country like France. You have to convince people that they can get visibility, contacts, contracts, etc. But this has to be made department by department, region by region. Half of all Math. departments in France have already inserted information in the database; Companies ask for this. Do they use it?

GRANT APPLICATIONS:

- Hilary Ockendon asks how are we going to work about concrete opportunities? MATHEON is closely watching the calls and will inform the network. If somebody has some information about some opportunity, please pass the information ! EU-MATHS-IN will coordinate applications for an infrastructure. The national networks will be part of it. The concrete work will

be done by the national networks. We will try to coordinate, harmonize the proposal, etc. Money should flow directly from Brussels to the national networks. EU-MATHS-IN will keep only some money for coordination, etc. Nicole Marheinecke asks about the topics in which we could apply. EU-MATHS-IN could push for interaction between the national networks to apply also in thematic calls. In which calls? Mario Primicerio: often there is mathematics in the projects but no mathematicians.

- EU-MATHS-IN could stimulate mathematicians to apply in industrial or very applied topics. We can advertise on what we know about. We will disseminate about existing opportunities. The NN can disseminate that information in their countries, and spot people who could take part. We could help building such network.
- We can try through the KET lobbying.
- Marek Niezgodka says that we have to launch the initiative in many countries. Only then such an action could be taken.
- Hans-Georg Bock says this is one of the hardest topics. We should be the driving force to build a group on energy networks with engineers, etc, we being the driving force! We could take the initiative, and answer some thematic calls, us being the leaders!
- Thosten Köhler says that we have to accept what there is and participate as much as there is in what exists. EU-MATHS-IN could coordinate projects where we are leaders.
- Michael Guenther: we could screen the calls and see where mathematicians can participate. And take the lead... !
- Mario Primicerio: we can identify groups which could team up to present projects. Create a temporary working group to do that?
- Carrillo says that it would be a good idea to try to create a EMS summer school series in industrial math, to be organized by the networks or by some network. It could be joint activity of EMS and ECMI, via EU-MATHS-IN...

10. **Final words by Mario Primicerio:** thank you very much to all for coming here, for participating, for understanding the shortcomings of what we did, but we are happy that despite the problems on the setting-up, and the poor communication, you are here, and willing to collaborate. Thanks to Masato Wakayama for a very nice description of their work, where all mathematics can participate in solving real problems, not only the so-called applied one. Thanks finally to Wil Schilders and CWI for organizing and hosting this event.

Signed: Volker Mehrmann

Appendices 1-5: Slides of presentations

Appendix 6: Comments by Italian Sportello and Spanish math-in received in written form.