MINUTES OF MEETING: IGLO Open – Accelerating the innovation through science: the experience of emerging innovators within CERN

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Welcome and introduction

- Latvia is on its way to become a full member of CERN, probably in the next 2-3 years.
- Cooperation with CERN is crucial to solve current challenges.
- Latvia is doing quite good in the Horizon Europe programme, but there is need to improve participation in partnerships.

The role of CERN in the EU's research infrastructure programme

- First framework programme was established in 1983, FP2 in 1988 already included research infrastructures (RIs) and facilitated transnational access.
    - The aim was to share resources, to create future RIs jointly and to collaborate across EU to improve competitiveness.
- The European Commission (EC) does not build RIs. They are built by member states (MS) and third countries coming together, but the EC is funding transnational access and facilitates agreement of MS on a roadmap for future pan-European RIs and RI upgrades (via the European Strategy Forum on Research Infrastructures - ESFRI).
    - The EC is also identifying new RI projects, adding them to ESFRI Roadmap and is financially supporting their preparation phase (preparing governance, planning joint facilities, etc.).
- The EC supported the development of joint community (with projects such as CARE, TIARA, EUCARD2, ARIES, I.FAST) to overcome fragmentation in the field, because the community would have certainty of being supported in the long-term, but then some parts of the community wanted to split and create their own communities to ensure funding for them – the EC fell "victim to their own success" and in reality the fragmentation is still continuing. But there are still definite benefits to the creation of such communities:
    - Communities are essential for generating the synergies, for avoiding duplication and making the most out of public investments.
    - European collaboration is breaking down barriers to access to instruments, but also to technological deployment opportunities (thus enlarging the EU tech core).
    - Breaking barriers is also important for smaller innovative high-tech companies, often laboratory spin-offs.
- EU RIs programme is now at a crossroads and there are many pressures to change the model:
    - There is the need to deal with the fragmentation.
    - There is limited budget for all RIs created so far.
    - There are challenges of an open access model (a new vision is required for sustainability, but also for transparency and convenience).
    - There is a need to keep looking for new partners and new areas, which also requires more budget.
- Ongoing discussions for FP10 – so far it seems that the RIs programme will remain in FP10, but there is probably a need to think about different approaches to funding.

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- RIs remaining as a general initiative for transnational access.
- Communities should still enable networking in joint technology research in longer timeframes, while enabling co-creation with industry.
- There is need to think about the specific approaches to the joint technology research to use its full potential.
- Next year there will be a call for a small grant for laboratories to think about the future and to find a better way, so that we can be ready in two years to start adapting it into the FP10.

I.FAST project as an example of involvement of partners from smaller countries in a global research project with societal applications

- CERN was founded in 1945 and today it has 23 member states.
- CERN's missions include topics of science, technology, training and collaboration.
  - It is important not to focus only on science, but also on collaboration and inclusive and diversified environments, which are the basis for innovation-oriented environment.
- CERN is quite successful in EU calls mainly due to scientific excellence, but also due to coordination experience and because it is a natural aggregation and stimulation point for the scientific community. In Horizon 2020 CERN had almost 100 projects.
- Particle accelerators build within the Horizon Europe programme is the largest scientific instrument ever build by humankind. This kind of work requires collaboration with many partners and international environment.
- Realizing a pilot project I.FAST to foster innovation (48 beneficiaries, 4 years, EU contribution of 10 mil. euro, total costs around 19 mil.) - focus on the involvement of industry (one third of involved organizations), including SMEs.
  - General goal: to develop technologies for future use of particle accelerator.
  - Building the consortium: laboratories, universities and industry ("magic triangle") - laboratories create the conditions, universities often bring the innovation, industry focuses on the results and practical experience.
  - Also aiming at enlarging the innovation ecosystem from the technological core of the EU towards its dynamic periphery
- Latvia's cooperation with CERN in accelerator projects: the initial collaboration agreement was signed in 2012, afterwards the Riga Technical University (RTU) joined the ARIES project in 2015.
- Latvia and the Baltics' participation in the I.FAST project: RTU coordinates the work package on additive manufacturing and contributes to communication and management. Also, through RTU more partners from the Baltic region joined the project.
  - Additive manufacturing evolved into the idea of 3D-printing a complete small linear accelerator which was never tried before and this novelty attracted additional funding from industry and from universities beyond what is available in I.FAST.
- Cooperation beyond I.FAST: creating an advanced particle therapy centre for the Baltic states – currently working on a RI on treatment of cancer with particle beams and radioisotopes (advanced nuclear medicine), which will be a unique facility treating cancer with proton and helium beams, based on a compact synchrotron design developed with CERN.
- Previously it was relatively easy to integrate partners into EU projects with CERN - in Horizon Europe there is no more support for "integrating activities", but instead there is support for "communities".

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Strategic steps of Latvia in CERN: to use CERN capacity to grow Latvia's excellence

- One of the biggest challenges for Latvia is the gap between laboratories and industry/businesses.
- Lativa organizes outreach activities such as permanent CERN exposition in the Latvian National Library, participation in events and lectures of Latvian scientists at CERN (Latvian Physics Teachers Association), job-shadowing in CERN, School of the Young Physicist of Latvia (virtual and in-person lectures).
- There are dedicated doctoral programmes in collaboration with CERN Baltic group where students are supervised by CERN staff.

Q & A:

How do you approach industry and sell the culture of collaboration (e.g. in contrast to the competitions for patents)?

- There is a need to be honest and showing that the results will be open, but the company will be the first to apply it and it will open many doors for further cooperation and development.
- Patenting is slowly starting to be outdated, because it is expensive and takes a lot of time. For example, in the tech fields it is becoming more and more important to be first on the market and to be the first to be seen marketing the new technology.

Is there an access to RI for SMEs and the possibility for creating/using technology infrastructures?

- The RI are publicly funded, SMEs in general are already allowed to participate, but they are not always interested, because they are dealing with different issues (e.g. in Sweden there is a new initiative looking for companies willing to put together a team which will design the experiment for them, prepare the laboratory and then show the company how they can innovate and how much money they can save).
- CERN is trying to attract industry to their technology infrastructures, but there was little interest, because what CERN offers is so far not what the companies want and need.

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