

Present: Mar Capeans (CERN), Matteo Cavalli-Sforza (IFAE), Kalevi Ekman (Aalto University), Sijbrand de Jong (Radboud, Chair), Michela Magas (ICF); Oday Darwich*, Oscar Lillelokken, Markus Nordberg, Saku Makinen*, Claudia Marcelloni, Romain Muller, Jani Sarnikorpi, Tuuli Utriainen*, Pablo Garcia Tello, Laetitia Veyrat, Laura Wirtavuori.

Excused: Julian Birkinshaw (LBS), Erika Garutti (Hamburg), Ezri Tarazi (Technion).

Meeting agenda: <https://indico.cern.ch/event/1122147/>

*part-time

S. de Jong welcomed everyone to the 6th ISAB(-G) meeting and presented the goals and overall schedule for the meeting¹. The participants then introduced themselves.

M. Nordberg provided responses to the ISAB recommendations in 2021 (Appendix 1). As for 2020, the activities in 2021 were strongly influenced by COVID. This prevented the active use of IdeaSquare and limited in-person interactions. Nevertheless, six of the seven recommendations made by ISAB could be implemented or launched. On recommendation 3, the ISAB noted that the new equipment attracted significant use from CERN personnel, thereby engaging them in some (light) sense with IdeaSquare, e.g., allowing one to ask some of them to help in, e.g., CBI activities in the future. Moreover, concerning the 2nd part of recommendation 3, (IdeaSquare being promoted as an “Experiment” for Fellows and other young researchers), ISAB noted that this is already being achieved through other measures and suggest it to be abandoned.

M. Nordberg then presented an update on [GRADE](#) projects (Appendix 2). He noted that formally, there are no current projects on-going, although a number of related activities have taken place at IdeaSquare during the past year, despite the COVID restrictions². New, potential initiatives are being discussed that could have potential for evolving into projects funded, e.g., by ATTRACT.

Following a question from the ISAB as to the expected future needs for GRADE, M. Nordberg felt that it still could offer a unique – and simple – framework for small detector R&D initiatives to grow into meaningful projects, benefiting from cross-disciplinary student interactions. ISAB also asked whether there are any geographical restrictions for external participation within GRADE, which M. Nordberg confirmed there are none. ISAB recommends either to populate GRADE with new initiatives or consider closing it down altogether.

¹ All the material has been uploaded on the Indico-agenda page, including the minutes and recommendations made from the previous meeting, endorsed by the ISAB-G in March 2021.

² Following guidance received from the management, those activities with are related to EU-funded projects, such as ATTRACT, cannot be included in the GRADE program. This has left some activities in limbo, as the previous Director of Research had been informed. CBI had been approved as part of GRADE by the Research Board in 2019 but no MoUs have been signed due to COVID. Now several of them are funded by ATTRACT.

S. Makinen then gave an update on [CIJ](#) (Appendix 3). The number of annual accepted articles is stable, and a healthy upward trend can be observed in the interest in the online, open access journal focusing on shorter reports of results in experimental innovation (experiments)³. He noted that CIJ is being integrated closer to CBI and ATTRACT projects and that the number of submissions is expected to grow. He also observed that the challenge continues being to engage (good) reviewers.

ISAB expressed its appreciation in the evolution of CIJ and in the contributions being made by S. Makinen and Tampere University. Following the recommendation made in the previous year, S. Makinen confirmed that the guidelines have been further clarified to emphasize the experimental nature of innovation reporting.

R. Muller gave an update on the status of Crowd4SDG (Appendix 4). He summarized the goals, methodology and highlights during the past year, as well as the relational value the project is creating. He noted that the reach in Crowd4sdg differs from CBI. Although its methodology is applied there, the focus is more on citizen science, reaching to the crowds.

ISAB asked about the connections between the identified SDGs and the entry point to the UN-world. R. Muller elaborated on the combination of SDGs and explained that UNITAR acts as the entry point for the project within the UN.

P. Tello then continued with an update on ATTRACT and related initiatives (Appendix 5). He presented the current role of IdeaSquare in ATTRACT and on student activities within and explained why IdeaSquare is an integral part of them.

In the discussion that followed, ISAB observed that in these plans, IdeaSquare would also be incorporating new technologies from the outside world inside CERN in the Green Village initiative, therefore re-vitalizing one of the key ideas behind GRADE. M. Nordberg and P. Tello confirmed this. Following a question about the connection with the Green Village and ATTRACT, P. Tello pointed out that Phase 1B would be focusing on Environmental technologies and that CBI students would be engaged *both* in Phase 1B and the Green Village initiative. ISAB congratulated IdeaSquare staff for ideating these schemes which visibly connect IdeaSquare with also future CERN strategies supported by the CERN management.

ISAB asked whether CERN management is aware of the new active role of European Research Infrastructures as innovation drivers in ATTRACT and asked when last an update on ATTRACT has been provided in Council or in the Finance Committee. M. Nordberg recalled that Th. Lagrange (former IPT Head and ISAB Chair) gave an update in 2019 or 2020. ISAB asked whether one could provide examples of breakthrough technologies resulting from Phase 1 to demonstrate the importance of ATTRACT as an engine for creating innovation ecosystems in Europe. P. Tello referred to the [ATTRACT Showroom](#) where plenty of such examples are available.

³ On slide 3, the abrupt drop from 1000 to 0 downloads at the end of 2021 is a technical reporting bug in the portal and is being fixed.

L. Wirtavuori provided an update on CBI-like student activities at IdeaSquare (Appendix 6). She noted that 2021 was a far more challenging year than 2020 due to several reasons. Despite this, over 200 MSc-level students nevertheless were facilitated, in most part remotely. Some limited in-person events could be organized which were much appreciated both by the students and the teaching staff.

ISAB asked how much of the current remote teaching activities will be kept once the students can return to IdeaSquare. L. Wirtavuori responded that some parts can still be handled remotely but priority will be given to physical presence.

O. Lillelokken continued giving an update on prototyping-related activities at IdeaSquare (Appendix 7). During the past year, a clear increase of involvement from scientific projects was seen as for the active use of the workshop premises at IdeaSquare. Moreover, technical workshops were organized (e.g., FPGA) with very good attendance, despite the COVID restrictions. O. Lillelokken reported also on the CBI-related prototyping activities. Finally, he summarized the new acquisitions made during the past year for the workshops.

ISAB expressed its satisfaction in seeing how scientific projects are now using IdeaSquare technical facilities, further consolidating its relevance for CERN. ISAB encourages the use of (expert) multidisciplinary teams to prototype together, also to make CERN people and (CBI) students to interact with each other using prototyping as a common focus of interest and to further inspire systemic thinking.

C. Marcelloni continued by summarizing the communications strategy for IdeaSquare, resulting from the Strategy Plan endorsed by the ISAB, and describing the actions taken since 2021 (Appendix 8). C. Marcelloni showed some statistics of the use and impact of social media platforms. She also shared the new graphics image (visible also in the presentations made) and introduced the key messages around IdeaSquare as the innovation space for SDG-driven innovation processes, highlighting connections also with the Science Gateway.

ISAB congratulated IdeaSquare for its increased and visible communication efforts and results achieved so far, including the latest Progress Report. ISAB considers that IdeaSquare is actually in the centre of creating new knowledge at CERN, beyond the domain of traditional outreach. It was curious to observe that IdeaSquare does not seem to be present in Instagram which is more popular with the younger generation. C. Marcelloni replied this is actually being updated and has not been forgotten. As for the connection between IdeaSquare and Science Gateway, ISAB asked whether IdeaSquare has already in place a Roadmap on how exactly IdeaSquare will support the goals of Science Gateway, avoiding unintentionally becoming a “pure” extension for it. As the public can now drive in front of IdeaSquare, they most likely expect to be able to enter it like Science Gateway. C. Marcelloni acknowledged this danger and noted that such a Roadmap has not yet been produced. She explained that it needs to be understood that the agreed goals of IdeaSquare are not to be compromised by the needs of Science Gateway which focuses more on hands-on experience. Instead, IdeaSquare focuses on the creative experience (“Science Gateway touches, IdeaSquare creates”). ISAB did notice that there may be a continuum from Science

Gateway displays to interactive experience, to discovery activities, to creative experiments at IdeaSquare, where IdeaSquare can profit from if the interface is clearly defined.

M. Nordberg proceeded then to present an update to the Strategy Plan 2022 – 2025 (Appendix 9). He summarized the key activity drivers and resources, emphasizing that IdeaSquare operates at the “Fuzzy Front End” of the spectrum, tracing from basic research up to a “pre-incubator” level (Figure 9). He reminded that Figure 11 has been updated since last year and that the CERN management made available the equivalent of 70% of the ATTRACT Phase 2 overheads in 2021, thus facilitating budget allocations for 2021 and 2022. Due to additional budgets made available by IPT management both in 2020 and 2021, which M. Nordberg gratefully acknowledged, made it possible to consolidate outdated or missing infrastructure items in IdeaSquare⁴. M. Nordberg concluded by noting that in case CERN would not make a budget available beyond 2022, by 2024 IdeaSquare would not be able to fulfil its commitments to ATTRACT (including CBI) without generating new income streams. He expressed optimism that an agreement will be reached with ESADE business school for executive management courses which would offer a solution for 2024. He also informed the ISAB-G that IdeaSquare is now on the public side of the fence as part of the Science Gateway offering. Although this is welcome to ease up, e.g., the registration and access for the CBI-students, public access to the building needs nevertheless remain restricted due to the technical nature of the building and building ownership and safety/access questions should be clarified.

ISAB asked to what degree IdeaSquare has access to the ATTRACT funds coming from the EU. M. Nordberg explained that apart the question of the use of overheads, it has full access. As to whether a budget request has been made beyond 2022, M. Nordberg explained that since 2020, IPT management has submitted a 10-year comprehensive budget request for Ideasquare to the CERN management and that an update will hopefully be submitted soon. Concerning the security and access questions related to IdeaSquare now being on the public side of CERN, ISAB recommends that this is addressed as part of a Roadmap integrating IdeaSquare to Science Gateway offerings (see discussion above related to C. Marcelloni’s presentation).

S. de Jong thanked IdeaSquare staff for the high-quality presentations and ISAB members the good and lively discussions and closed the first part of the ISAB meeting.

S. de Jong opened the internal session of the ISAB-G. He first reported the outcome of discussions with J. Mnich (CERN Director of Research) concerning the length of the mandate of ISAB members – this was never defined in the mandate. The agreement reached is that the assignment is for 3 years, with an option for another 3 years. S. de Jong shared the history of current assignments and concluded that as of 2023, two current members should be replaced. M. Cavalli-Sforza expressed his wish to step down having served as a ISAB member since the very beginning. S. de Jong suggested to return to this topic in the next meeting.

⁴ This resulted in an additional expenditure of 215 kCHF in 2021 which to a large degree is included in the presentation of O. Lillelokken (Appendix 7). As a reminder, the annual (net) expenses at IdeaSquare is ca. 400 kCHF, of which half is related personnel (now charged to ATTRACT) and half materials costs that are not eligible costs for ATTRACT (e.g. operation costs, equipment).

He then invited ISAB members to comment on the presentations and to add any other (new) observations or insights.

R&D&I activities and prototyping: ISAB appreciates the more visible role IdeaSquare is now playing in offering technical support to scientific experiments at CERN. ISAB encourages IdeaSquare to further explore this path, mixing CERN (and other expert) personnel together and offering e.g. young researchers the possibility to work on adjacent technology initiatives say, one day a week (as suggested in the 2021 recommendations).

Positioning IdeaSquare within CERN: ISAB strongly feels IdeaSquare is in the centre of CERN's knowledge creation mechanism. IdeaSquare could play a stronger role in helping to attract the brightest students to – and benefit of - CERN. It could help CERN not only in diversifying its current research reach but also in introducing new technologies at CERN for the society, e.g., in environmental challenges (Green Village). Inspired by the ATTRACT model, IdeaSquare could, for example, host a hybrid Sprint event⁵ to invite together experts from several different domains, including also the EC and policy makers, related to, e.g., the Bauhaus initiative and Cohesion Funds. This would give IdeaSquare high visibility and could lift it into a new league⁶. ISAB feels this would also benefit CERN in building support for its future plans.

CIJ: ISAB finds the concept interesting as the on-line journal focuses on (the process of) *experimental* innovation. ISAB thinks that the journal could be of interest in other domains, and some ISAB members will promote the concepts within their own networks.

Role in citizen science: ISAB understands that Crowd4sdg ends mid-2023. ISAB considers that IdeaSquare is making a unique contribution here, focusing on citizen science for *innovation* through applying its CBI methodology. Even if the views of CERN on citizen science remain unclear, IdeaSquare could continue developing its ideas in this respect, available resources so permitting⁷.

Communications: ISAB is very impressed by the progress being made since last year in clarifying IdeaSquare's key messages and its visibility on the social media, even if more progress can be made there (e.g., Instagram). ISAB considers the involvement of Ideasquare in both IR-ECO and KT-CT communication pipeline channels as wise, also in positioning its future role w.r.t to the Science Gateway.

Resourcing and longer-term perspectives: Despite the very positive news of CERN re-installing the removed 70% of the ATTRACT overheads as a budget for IdeaSquare in 2021 and 2022, ISAB finds the longer-term prospects of IdeaSquare beyond 2024 worrisome. ISAB finds the current strategy of mainly relying on ATTRACT funding as risky, even if understandable, under current circumstances. ISAB strongly encourages IdeaSquare to seek external funding opportunities – such as EU funding for the Green Village initiative and/or

⁵ This could be mainly an in-person event, supported by several globally distributed satellite locations.

⁶ M. Magas kindly volunteers to help as a co-organizer for such an event.

⁷ Examples to explore: <https://galaxycruise.mtk.nao.ac.jp/en/>; <https://www.zooniverse.org/>.

ESADE Executive Management courses – and it hopes any leverage created in terms of the gained (net) income can be directed to secure basic operations of IdeaSquare. Based on the received description of the resources available within ATTRACT, ISAB would strongly be in favour of *not* seeing the current level of personnel support reduce at IdeaSquare.

In conclusion, ISAB-G expresses its appreciation how IdeaSquare has progressed despite the many challenges it has been facing during 2021. IdeaSquare has demonstrated it has a clear focus and is executing an articulated set of selected choices. ISAB-G wishes to pass its congratulations to the IdeaSquare team for the above achievements.

S. de Jong suggested a follow-up meeting, preferably at CERN. Tentatively, April 8 was suggested as a date as the CBI students would be then in residence, and ISAB would get an opportunity then to see IdeaSquare “in action” (COVID situation permitting!).

Finally, S. de Jong thanked all ISAB-G members for their active and helpful interaction and constructive feedback. He said he will compile a list of recommendations based on the received input and share it for comments and further elaboration for the next meeting, hopefully on April 8th. He then moved to close the ISAB-G deliberations at 16:00.