Strategic Plan 2021 – 2025

IdeaSquare@CERN

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History

IdeaSquare @ CERN: Exploring and tinkering the Future for a Sustainable Present

"*To dream the impossible dream, that is my quest*."
Miguel de Cervantes Saavedra, Don Quixote

Names encapsulate and spill over meaning and values.

The first part in our name carries the word ***Idea***. An idea frequently arises without a systematic reflection process but as a result of serendipity. Ideas are the seeds of our aspirations, inspirations and curiosity. Over the course of history, these have profoundly transformed and enabled the way we understand our origins, ourselves and our place in the Universe. They have crucially shaped our relationships with each other as social creatures and towards the planet we inhabit. Our future, as well, will be largely determined by our ideas. Such is their unbounded power.

In the spirit of CERN's formidable endeavor of discovering the material building blocks originating our Universe, at IdeaSquare, we wish to explore the ideas constituting the building blocks of our own future as humankind. As no idea can flourish in isolation, it needs to be openly shared and explored. It needs to be tinkered, both mentally and physically. Only then, enriched by diversity, can the idea reach its potential in full.

The name IdeaSquare was suggested by the former Director of Administration, Sigurd Lettow. The name originally proposed was "IdeaLab" but that could not be used for registered trademark reasons. Mr. Lettow was building on the idea that ideas "colliding" is more than their sum, so in fact idea*s (to the s-power). That is why the IdeaSquare logo looks like it does. As the minimum meaningful number of ideas needs to be two, it should have been called "IdeaSquared". But saying "ideasquareD" is hard, so the "D" was dropped.

Thus, the second part in our name carries the word ***Square***. In ancient Greece, the square was the backbone of the commercial, athletic, artistic, spiritual and political life in the city. It was a place for passionately sharing and discussing ideas, sometimes fervently, but always within an atmosphere of curiosity, tolerance and trust.

Reinvigorating the diversely open spirit of the square and inspired by the proton collisions at CERN's Large Hadron Collider (LHC), IdeaSquare is our human experiment for "colliding" minds and ideas, as described by Mr. Lettow. Colliding is not enough, though. As the LHC experiments do, it is necessary also to detect and analyse the results of these collisions. Only then, previously invisible gems, like the Higgs Boson become visible. Following example, at IdeaSquare we are dedicated to developing our unique "detectors" for making the invisible visible.

CERN's humanly epic adventure of discovering the building blocks of our Universe started in 1954. As we know, a lot has been revealed from Mother Nature but so much still remains invisible and yet to be discovered. New minds and ideas will be needed to turn it visible, and along with it, building an ethically sustainable future for our Planet.

Introduction

This **Strategic Plan** 2021 – 2025 for IdeaSquare (ID2) has been developed to articulate within CERN the purpose, goals, and subsequent actions needed to achieve the set goals described below. It incorporates critical elements developed and identified during the planning exercise in 2020. Moreover, this document addresses the recommendations and observations made by the IdeaSquare and GRADE Advisory Board (ISAB-G).

The main activities at IdeaSquare currently include:

- Neutrino Platform (with a separate governance structure)
- GRADE and student activities (CBI-like)
- EU-support activities
- ATTRACT and Crowd4SDG
- Workshops, hackathons, events (SDG-related[1])

More detailed information can be found in the Progress Report 2017-2018.

The Neutrino Platform activities are not included in this document, as it has a separate governance structure and reporting line. The EU-support activities referred here specifically include the Development of EU Projects & Initiatives Section (IPT-EU-PI). It reports to the Head of IPT.

The strategic planning model adopted for the purposes of the exercise is based on the key elements shown in Figure 1 below. The planning process is also integrated into the current document, so to provide background information on the assumptions and nature of the information used and processed throughout the planning cycle.

[1] IdeaSquare invites SDG related events to take place at the premises, as well as collaborates with the SDG Lab. They have guided IdeaSquare students to think in a systemic way about the SDGs through presentations (i.e 5th November 2020 for CBI Fusion Point, 19th January 2021 for CROWD4SDG).

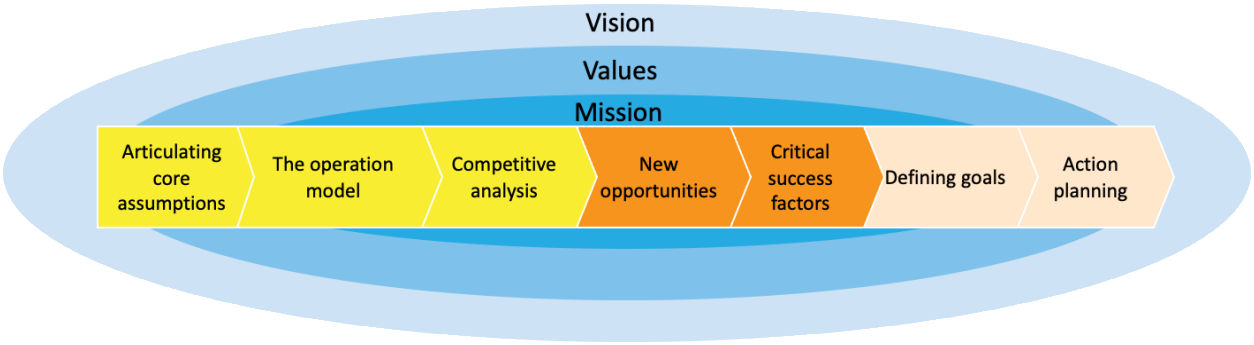

Figure 1. The key elements of the Strategic Planning Model used in the current exercise. These elements are core assumptions, the operation model, competitive analysis, new opportunities, critical success factors, defining goals, and action planning.

IdeaSquare: vision, mission, and values

IdeaSquare is a space, a facility, and an experiment: a bridge between society and CERN.

IdeaSquare is an open, unique space at CERN designed to experiment multidisciplinary collaboration. A facility to co-create and tinker innovative solutions for the future of our society. An experiment inspired by R&D in particle physics and scientific thinking. A place where people have the license to dream.

The vision, the mission, and the values of IdeaSquare are described below, starting with those of CERN. As IdeaSquare is an integral part of CERN, IdeaSquare functions by the vision, mission, and values of CERN.

The Vision

CERN probes the fundamental structure of the particles that make up everything around us. It does so by using the world's largest and most complex scientific instruments. CERN aims at being able to develop, design, construct, and operate high performance particle colliders and detectors to extend the current reach of physics research. For example, through its FCC-initiative, CERN is already looking well beyond 2035 and the general road map for particle physics, including the role of CERN, is laid out in the European Strategy for Particle Physics. Representing a wide range of technological capabilities, one of CERN's strategic skills is technical integration capabilities.

The scientific advancements of CERN push the frontiers of technology, which has a positive impact on society globally. Although the core mission of the Laboratory is fundamental research in particle physics, it also has a remit to train the next generation of scientists and to bring nations together. The transfer of CERN technologies, exchange of knowledge and expertise with society is an integral part of these activities, providing novel solutions in many fields.

In line with these goals, the vision for IdeaSquare is to:

Become the global reference for how science and society collaborate, with special emphasis in young innovators, in multidisciplinary teams to create innovative solutions for the future of humankind.

The Mission

The Mission of CERN is to:

- Provide a unique range of particle accelerator facilities that enable research at the forefront of human knowledge;
- Perform world-class research in fundamental physics;
- Unite people from all over the world to push the frontiers of science and technology, for the benefit of all.

Beyond science, CERN also aims to:

- Be a politically neutral voice for science, advocating investment in fundamental research and evidence-based policy;
- Build further links with industry in terms of the transfer of knowledge from CERN to industry;
- Train a new generation of scientists and engineers;
- Inspire and nurture scientific awareness in all citizens.

IdeaSquare aligns with and supports all the above Mission Pillars. Its specific focus is on offering a platform for early-stage collaboration between students, scientist, other CERN personnel and relevant organizations across disciplines. The activities carried out at IdeaSquare tie science to SDGs and to a better future of our society.

IdeaSquare's mission, inspired by the way science is done at CERN, is to provide a space to tinker and co-create, and to foster the next generation of scientists and innovators by supporting and inspiring them in their early-stage science, technology, and open innovation initiatives for the future of society.

Our Values

The Core Values of CERN are related to pursuing excellence, notably: professionalism, creativity, diversity, integrity and commitment.

In line with the above values, IdeaSquare promotes the following value attributes: Dream Big, Be open, Collaborate, Experiment and Learn.

Summary

IdeaSquare's vision is to become a global reference for how science and society can collaborate in a multidisciplinary approach to create innovative solutions for the better future of humankind.

This vision relies on continuous learning and improvement of IdeaSquare's mission which is to provide a space to tinker and co-create, and to foster the next generation of scientists and innovators. This is achieved by supporting and inspiring them in their early-stage science, technology, and open innovation initiatives for the future of society. In order to improve on this mission, IdeaSquare will enhance its prototyping facilities, bringing more diverse people to IdeaSquare focusing on the young but also welcoming the more seasoned professionals. IdeaSquare will be experimenting with new methodologies for supporting serendipity as an important part of the discovery process and collaboration and tinkering with ways to incorporate new technologies in the innovative projects. This is done always having in mind the above vision. The values of dreaming big, being open, collaborating, experimenting, and learning, will be reflected on how IdeaSquare operations are run on a daily basis. These principles are summarized in Figure 2 below.

Figure 2. IdeaSquare is *the* place for early-stage scientific instrumentation developers and next-generation of scientists and innovators to meet, in order to dream up solutions for a better society.

Creating the Strategic Plan

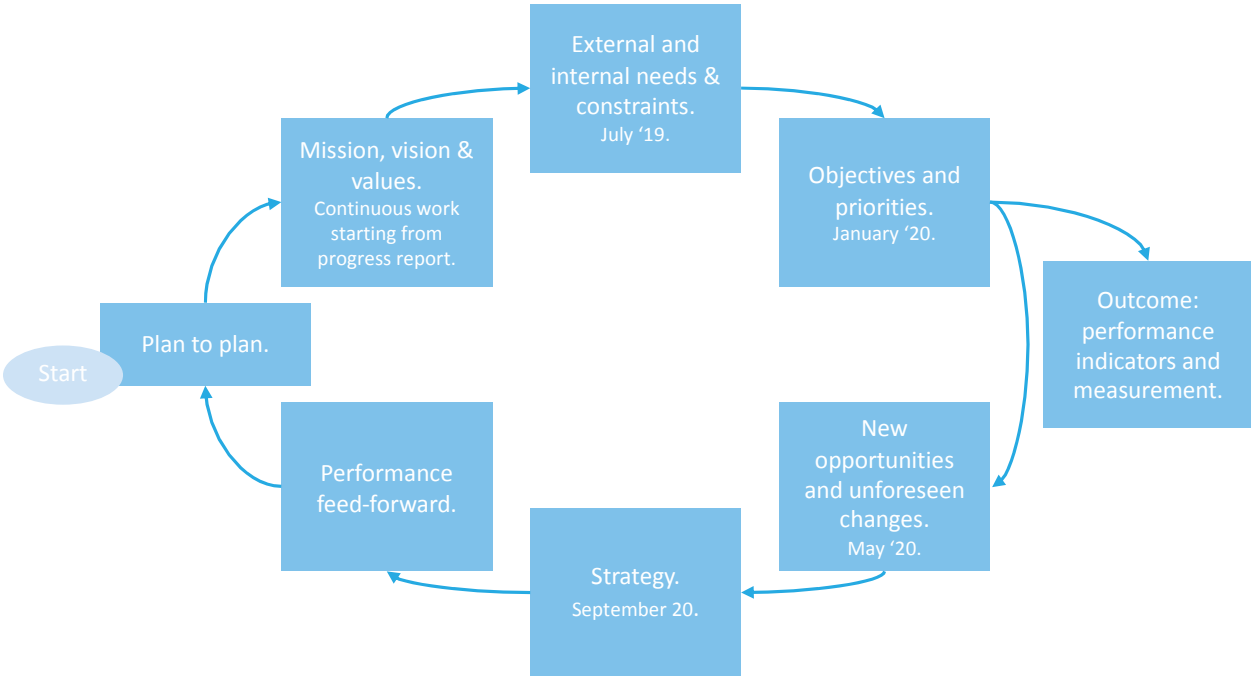

Figure 3. The Strategic Planning Cycle used during the planning exercise.

The document has been compiled using the iterative process summarized in Figure 4 above. A number of dedicated workshops were organized starting in 2019 and extending to the Autumn of 2020 to address the different elements and parts of the process (July 3rd, 2019 (ref.), January 21st (ref.), May 14th (ref.), May 26th (ref.), September 25th (ref.) and November 31 – December 1 (ref.).).

The following aspects of the planning cycle were addressed:

- Vision, mission and values;
- External and internal needs and constraints;
- Objectives and priorities;
- Performance indicators and measurement;
- New opportunities and unforeseen changes;
- Strategy.

For creating the Strategy, key stakeholders both inside and outside CERN were contacted to hear their views and insights as to how IdeaSquare could best serve their needs in the future.

Inputs

Data was gathered from multiple sources, such as the Progress Report 2017-2018, interviews with IdeaSquare personnel, daily users of IdeaSquare, other key stakeholders at CERN and IdeaSquare partners, and event organizers both inside and outside CERN. A review and synthesis of publicly available documents on similar types of activities elsewhere were produced and shared. Regular questionnaires handed out to IdeaSquare users were also used as input.

Development

The formulation of a meaningful and inspiring strategy for IdeaSquare is based on examining and re-visiting its current activities, both for its internal and external partners and users.

The oversight of past and on-going activities at IdeaSquare has relied on constant monitoring and interaction with our research and education partners (e.g. through using above mentioned questionnaires and other means to collect data). Guidance has been sought in meetings and through other channels of communication among the organization's hierarchy. Invaluable feedback and constructive guidance has been offered also by ISAB-G.

This collected feedback and gained hindsight has been used as input to develop a foresight (see below), and to develop a common understanding regarding the identified needs and what the response to these needs should be, and subsequently, what the strategy of IdeaSquare needs to be for the coming years.

Outputs

The output of the IdeaSquare strategic planning includes the following information elements:

- Proposing the strategy and action plan for the years 2021 – 2025, inclusive.
- Addressing the recommendations and observations made by ISAB-G.
- Providing feedback and reporting to ISAB-G.

The current documentation is to be submitted to ISAB-G for its consideration by early 2021. Following the received feedback from ISAB-G, the endorsed strategy and implementation will be communicated to the personnel and stakeholders.

From Four Sights to Insight – What could IdeaSquare strive for?

Figure 4. The cycle used during the planning exercise to obtain a holistic view of IdeaSquare.

The purpose behind the Four Lines of Sight method is to learn from the past, envision the future, integrate the operative guidance from the hierarchy – in this case through ISAB-G, and gain a deeper understanding of the opportunities IdeaSquare could seize. The process is summarized in Figure 4 above.

From the dedicated workshops and collected information from IdeaSquare users and partners, the following picture has emerged:

Insight

- CERN as a system integrator inspires our partners as a model to strive for addressing very ambitious societal challenges and the longer-term future of our Planet;
- CERN continues to be a strong brand for science and cutting-edge technology, as well as a model for organizations striving to integrate and exploit the richness of diversity for reaching (sustainable) goals;
- SDGs are very important to young people as a motivational factor. Organizations increasingly relate their goals to them;
- COVID-19 like events offer new opportunities to develop a strong online offering, as several CBI-like courses are already taking place online;
- The COVID-19 response by CERN demonstrates a potential for organized emergency response in crisis situations. IdeaSquare could play a similar supporting role as it did in one of the COVID-projects (3D masks).

Foresight

- Scientific and technical skills are becoming even more important in integrating social innovation (e.g. sustainability, Earth-shaping actions, also called terraforming);
- A multidisciplinary approach is also becoming increasingly important in creating innovation;
- Incremental or linear innovation is not enough to solve the challenges humanity is facing, Instead, exponential innovation and systemic thinking are needed for building the future for our societies;
- Addressing the diversity of cultures is crucial for being inclusive in a virtually connected world;
- IdeaSquare is well positioned to demonstrate what are seen as top skills of future innovators by 2025, such as analytical thinking and innovation, complex problem-solving, critical thinking, technology use, and creativity.[2]
- More hybrid-form of interactions (collaborative tooling, streaming, virtual visits, virtual meetings);
- Organizations with sustainable commitments at global levels will need to tackle and address challenges entailing diversity of cultures and environments;
- The proximity of Science Gateway will bring new opportunities to interact with new audiences using different formats.

Oversight

- Increasing security measures on the CERN site in general, and specific measures such as the COVID-19 restrictions, affect how IdeaSquare can be used in the future for the intended hands-on, interactive space activities (for example, complicated registration process, occupants limitations, strict access criteria, required safety courses, preparatory activity reports on the planned use of space for events, event contracts, transfer of liabilities etc.);
- Impact of moving the public fence behind IdeaSquare (thus shifting ID2 to the public access area). Questions of securing safe operation within the building, procedure for granting access rights etc.;
- ISAB recommendations (e.g. focus on the “Fuzzy Front End”, better visibility and relevance within CERN).

Hindsight

- CERN-related ATTRACT projects (Phase-1) have not used IdeaSquare as well as expected (although four of them do);

[2] https://www.weforum.org/agenda/2020/10/top-10-work-skills-of-tomorrow-how-long-it-takes-to-learn-them/

- It takes time & effort to nurture “critical mass” to start a R&D&I project and building prototypes - but only a few months to kill the progress and ultimately the initiative (e.g. lack of funding at home, admin complications etc.). A continuous support framework is needed;
- Hard to gain from “CERN leverage” due to small size of projects and limited available resources;
- The overall direction and priorities have not been stated clearly enough;
- Communication and marketing the offerings at IdeaSquare have not been on a desired level, especially for the internal CERN audience but also for society at large: the space is running at almost full capacity, yet the activities are not receiving the attention they deserve;
- It is harder to obtain new, external resources for IdeaSquare operation costs and new projects (i.e. EC funding) than originally imagined, as competition is fierce and success rate is very low. The excellent quality of proposals is no longer enough;
- Several external events at IdeaSquare bring little, if any, expected benefits to us.

Root Cause-Effects Analysis

The Root Cause-Effects Analysis (RCEA) is a methodology used to expose the nature of underlying processes and identify the related contributing factors, typically associated with undesired outcomes or situations. These could include, for example, work-accidents, process breakdowns, danger situations etc.

Stopping the covering of the operation costs of IdeaSquare from the CERN budget from 2020 onwards was analysed for its circumstances and effects. IdeaSquare personnel were informed of this change in mid-2019 and the effects of this was discussed and analyzed in the dedicated workshops and in other events, including interactions with the ISAB.

The following questions were addressed;

- Are the current offerings by IdeaSquare not adequately valued by its users? If not, why?
- Is the value of IdeaSquare not convincingly enough demonstrated or communicated to the upper management?
- Have the expectations of IdeaSquare not been met? If not, where? Why?
- What action needs to be taken to ensure a safe and meaningful operation of IdeaSquare in 2020 and beyond?

Following the internal discussions, and interviewing of people, the feedback was as follows:

- Value of IdeaSquare is not being questioned, but internal budget cuts (Cumulative Budget Deficit) no longer permits CERN to support the operating costs of IdeaSquare;

- It appears expected/assumed by the top management that IdeaSquare is self-sustaining through external funding (e.g. ATTRACT, Crowd4SDG, executive management courses etc.);
- The user community of IdeaSquare (ca. 1000 visitors and users per year at IdeaSquare) strongly support the continuation of the current activities (some 150 per year);
- IdeaSquare needs to better demonstrate its importance within CERN and better communicate its successes and opportunities offered.

The contributing factors can therefore be identified as follows: target (planning), communication issues, funding models. The so-called “Fishbone Diagram” is summarized below in Figure 5.

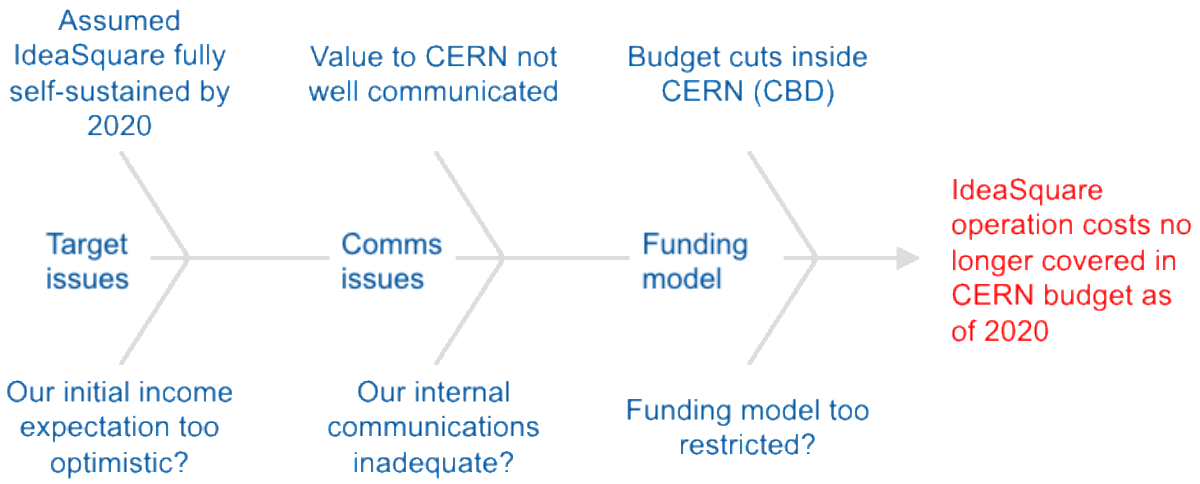

Figure 5. Simplistic Fishbone Diagram of RCEA done on a selected problem of funding.

The conclusion of the analysis is that IdeaSquare needs to carefully consider and find new ways to tap into external funding while being able also to fund offerings for the internal CERN community. For these purposes, EU-funding (ATTRACT, Cwowd4SDG) is very suitable, as the associated overheads can be used for the above purposes. In addition, some part of annual operation costs of IdeaSquare could be covered through e.g. executive management programs, or short courses created for companies. Attracting external donations is also a possible way of funding to be looked at, although highly uncertain. External donations would be welcome, in particular, for building an extension for IdeaSquare.

SWOT Analysis (Strengths, Weaknesses, Opportunities, Threats)

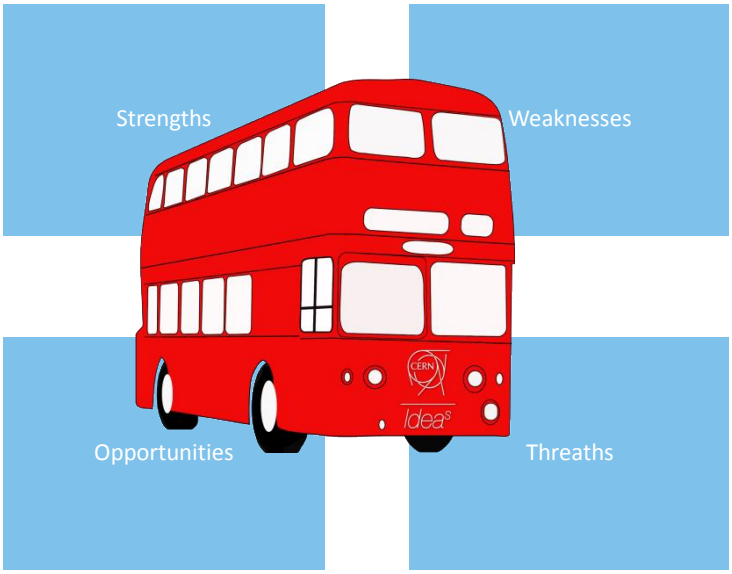

Figure 6. The four corner stones of SWOT analysis.

The classical SWOT-analysis was carried out using the four quadrants shown in Figure 6 above.

Strengths

- Openness: Flexible and modular space, adapts to circumstances and different objectives;
- Great place for thinking differently: Technological visionary work, creative process, innovation, challenging the status quo;
- New methodologies for multidisciplinary innovation[3];
- Human connections: Invites people to meet from different backgrounds, facilitating CERN and society interactions;
- Positivity: Creative, thinking outside the box, inspiring, creating a positive image and good “vibes”;
- IdeaSquare is strong in co-creation and prototyping;
- Being a part of CERN is a great motivational factor for students;
- Raises interest about CERN beyond the purely scientific realm;
- Good brand value. Large and enthusiastic external network of SDG actors.

[3] In the CBI students-context, this was one of the strong outcomes while asking for feedback from the participating university teaching teams during one of our dedicated workshops. A short summary is included in Appendix 2.

Weaknesses

- Lack of sense of a well-defined direction: How can partners engage, what is IdeaSquare's actually offering, what are the top priorities, how to empower the team, how to engage with other departments at CERN without overlapping?
- CERN connection: Integration into CERN's ecosystem and high energy physics community, ID2 currently not seen within as a core activity;
- Bureaucracy: How to allow access and engage with outside organizations and not let execution fall back because of heavy, unclear processes;
- Lack of resources: Needs to improve and be sustainable, but at the same time the team is small (PJAS's) and space limited (we need the extension![4]);
- Communications: Difficult to explain and visualize, many different activities and messages for collaborators, has not been possible to allocate adequate resources for these tasks.

Opportunities

- "CERN Garage" type of early-stage support for potential future entrepreneurs within CERN;
- More technical support for young and those young at heart members of CERN community;
- Using methodologies like Design Thinking and Multiverse thinking to support CERN teams to improve their work;
- Offerings to Science Gateway (close proximity!);
- Increasing demand from R&D&I, education and business organizations within and beyond CERN MS for engaging in activities led by IdeaSquare;
- Demonstrated interest from NGO's and humanitarian organizations in the Geneva area to work together with Ideasquare;
- IdeaSquare can adapt quickly to new situations, e.g. COVID-19 like urgencies;
- Reference and entry point for inspiring organizations wanting to think disruptively, in a CERN way;
- Ability to adapt to online student format;.
- Learning from EU projects and using them as a communications asset.

Threats

- Post-COVID world impact on our external partners (less students coming to ID2?);
- CERN closing up (amplified by COVID) makes it too difficult for our external partners to engage anymore;
- Being labelled as only a "decorative facility" at CERN;

[4] Proposal for an extension of ID2 was first presented in 2017 for 0.8 MCHF, but no funds could be made available.

- Absence of regular operation budget from CERN (need to rely on external funding, e.g. EU).
- Potential security issues when being moved outside the CERN fences;
- High staff turnover due to not being able to provide attractive longer-term appointments.

Strategic Plan – Results of Deliberations

Based on Figure 1, the different elements of the planning process are integrated here. These are: 1) core assumptions, 2) the operation model, 3) competitive analysis, 4) new opportunities, 5) critical success factors, 6) defining goals, and 7) action planning. They are based on the current state of matters as well as the different analysis done, and the formulation of the vision, mission, and values statements. They are followed by a summary. The core operating pillars of IdeaSquare, presented in figure 7, will remain the same.

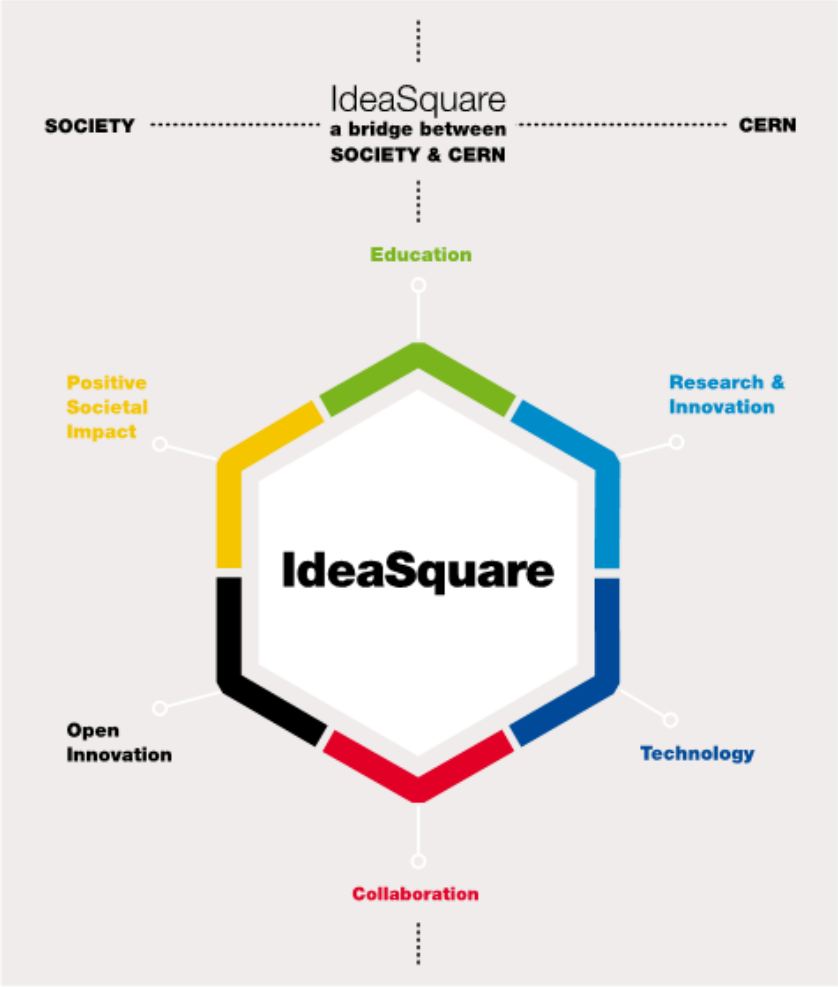

Figure 7. The core operating pillars of IdeaSquare.

1. **Assumptions**

This Strategic Plan is based on a set of underlying core assumptions. These are enlisted below, following feedback from discussions and interactions with different stakeholders (i.e. the CERN community, partner universities, students, external SDG-organizations, private sector, investors). As noted earlier, the Neutrino Platform operates at IdeaSquare and although not dealt with in this document, it is assumed it continues its operations there as before.

General perception of IdeaSquare among stakeholders:

- Great place to think and work outside the box;
- Red bus full of students, not clear what they actually do there?;
- Space for brainstorming;
- "Some sort of a social club?"

Funding:

- ATTRACT Phase-2 is funded, so part of the student activities will be covered in that, and part of the operating costs of IdeaSquare can be handled through the project overheads;
- Although the role of "Maxi"-ATTRACT in Horizon Europe is not addressed here, the interest of the EC in ATTRACT within Horizon Europe is tangible[5];
- The courses for bachelor's, master's, and PhD level students are free of charge, but those for companies or MBAs may include a fee.

Boundary conditions:

- In line with CERN's mission, IdeaSquare activities are to be covered on a not-for-profit basis. Nevertheless, additional income is needed to cover all operating costs;
- Regular requests from our partners to engage follow the cyclical annual pattern established since 2014;
- IdeaSquare will continue its current open science, open innovation, open world-policy (IPR).

[5] The potential incorporation of ATTRACT in the European Innovation Council (EIC) is being discussed for the Horizon Europe Programme. Additionally, IdeaSquare has been highlighted in the EC latest report for 'Valorisation channels and tools - Boosting the transformation of knowledge into new sustainable solutions', see: https://op.europa.eu/en/web/eu-law-and-publications/publication-detail/-/publication/f35fded6-bc0b-11ea-811c-01aa75ed71a1

2. Operation Model

As a reminder, the current activities at IdeaSquare include:

- GRADE and student activities (CBI-like; CESP, NTNU Screening Weeks etc.)
- EU-support activities; ATTRACT and Crowd4SDG
- Workshops, hackathons, events (SDG-related), both internal to the CERN community and external.

The GRADE programme was established in 2016 to foster small international, new and diverse detector R&D&I collaborations, aiming at gaining a critical mass to benefit from new complementary funding sources, such as ATTRACT. A strong connection to multidisciplinary, MSc-level students in innovation and entrepreneurship is built in (the CBI-like courses). Both rely on the easy access to the mechanical and electronics workshops at IdeaSquare. Of the four initiatives then launched, three were selected for funding in ATTRACT. The presence of the Neutrino Platform at IdeaSquare has been instrumental in launching these activities. Based on gained experience, GRADE is a very useful platform for very early-stage R&D&I development work, integrating new institutes (e.g. technical universities, business schools etc.) being less familiar to the particle physics research domain.

The plan for the coming years is to identify new R&D&I opportunities within the CERN community (e.g. in the experiments) around detection and imaging and strengthen the CBI-(like) student involvement in them, helping them to reach a stage that they can submit meaningful applications to primary funding sources such as ATTRACT (so-called Phase 1 seed funding) and other suitable EU-funded calls which have a SDG-connection. Here, the help from the EU-support office is crucial. We expect to have 2-3 GRADE-related projects by 2025, assuming that Phase 1-like seed funding will be available in the next EU Framework (Horizon Europe).

Over 900 students have participated in **student activities** at IdeaSquare since 2014. In 2019 alone, 23 CBI-like student events were organized[6]. The main activity is the Challenge Based Innovation or CBI programme. It explores new ways to apply scientific principles to address SDGs, inspired by Design Thinking and the methods and technologies developed at CERN. Special emphasis is placed on building conceptual prototypes, using the mechanical and electronics workshop facilities available at IdeaSquare. The involvement of the Knowledge Transfer (KT) Group has been crucial. Including now several CBI-like derivatives, the student activities engage some 20 university and other partners on three continents. Many of these partners are from the network of Design Factories, DFGN[7], of which IdeaSquare is an active and contributing member. IdeaSquare also hosts and contributes to other student programs

[6] In 2020, 13 MSc-level student events were organized remotely, due to the COVID-19 restrictions.

[7] DFGN refers to the Design Factory Global Network. It is mostly comprised of universities, and currently has 30 members from 24 countries, on 5 continents.

at CERN such as Knowledge Transfer (KT) Group's CERN Entrepreneurship Student Programme and the NTNU Screening weeks.

For the CBI-like activities, the plan for 2021-2025 focuses on closer links with the ATTRACT program and research community, including CERN. IdeaSquare was originally designed as the test-bed for ATTRACT, to help researchers in identifying with the help of students new-use opportunities for their ideas or technologies outside their primary domain. In Phase-2 of ATTRACT, we scale up the current student involvement, also from outside Europe, aiming at exposing up to 400 students to funded ATTRACT-projects by the end of 2024. This requires having a big enough pool of excellent students, which we are capable of producing in our current flow of CBI-like students (some 250 per year). More effort will be placed in enlarging the involvement of the CERN community in the student projects, and hopefully to launch new GRADE-initiatives referred to above.

As part of the experimental nature of the innovation activities at IdeaSquare, a dedicated open access research journal was created in 2016 called CERN IdeaSquare Journal of Experimental Innovation (CIJ). It is peer-reviewed and indexed in Scopus and DOAJ. As its name suggests, CIJ focuses on the experimental side of the innovation process, either gaining new insights from innovation experiments related to CBI-like courses or other projects, or proposing testable new hypotheses derived from theories of innovation. The CIJ offers CBI and other students a venue to publish their first scientific publication and thus helps them to enter the scientific arena. Moreover, CIJ is recognized in increasing science literacy amongst designers, economists and beyond. Up to now, 48 articles have been published, 21 of which are directly connected to projects at IdeaSquare.

CIJ continues experimenting and studying the process of how and why ideas emerge and develop. As Phase-2 of ATTRACT is foreseen to start in 2021, CIJ will become a central platform for supporting the socio-economic research component embedded in Phase-2.

Concerning the KT-run student programmes at IdeaSquare, we continue strongly supporting them and welcome increasing involvement in them from our side. This entails at least one CESP- and NTNU event each at IdeaSquare, extending to several weeks at a time. KT plans to root such events deeper in fostering entrepreneurship-related support for the CERN community at IdeaSquare (more about this below). Deeper connections will be also sought with the funded Phase-1 ATTRACT projects where CERN is involved (19 of them).

IdeaSquare has been designed for human-centric, on-site student presence focusing on prototyping and active interaction with the CERN community. However, since March 2020, due to the COVID-19 crisis, all student activities have been handled remotely. The longer-term effect of this on student presence and volume at IdeaSquare remains to be seen, but we are prepared to possibility that in the years to follow, our online-presence needs to increase for the more introductory parts of the programme (more about this in the section "New Opportunities"). Based on a recent survey carried out among teachers involved in CBI-like

student programmes, it seems that more than 50% of the course staff still foresees the same amount of students coming back to IdeaSquare and spending the same amount of time there as before (see Figure 8).

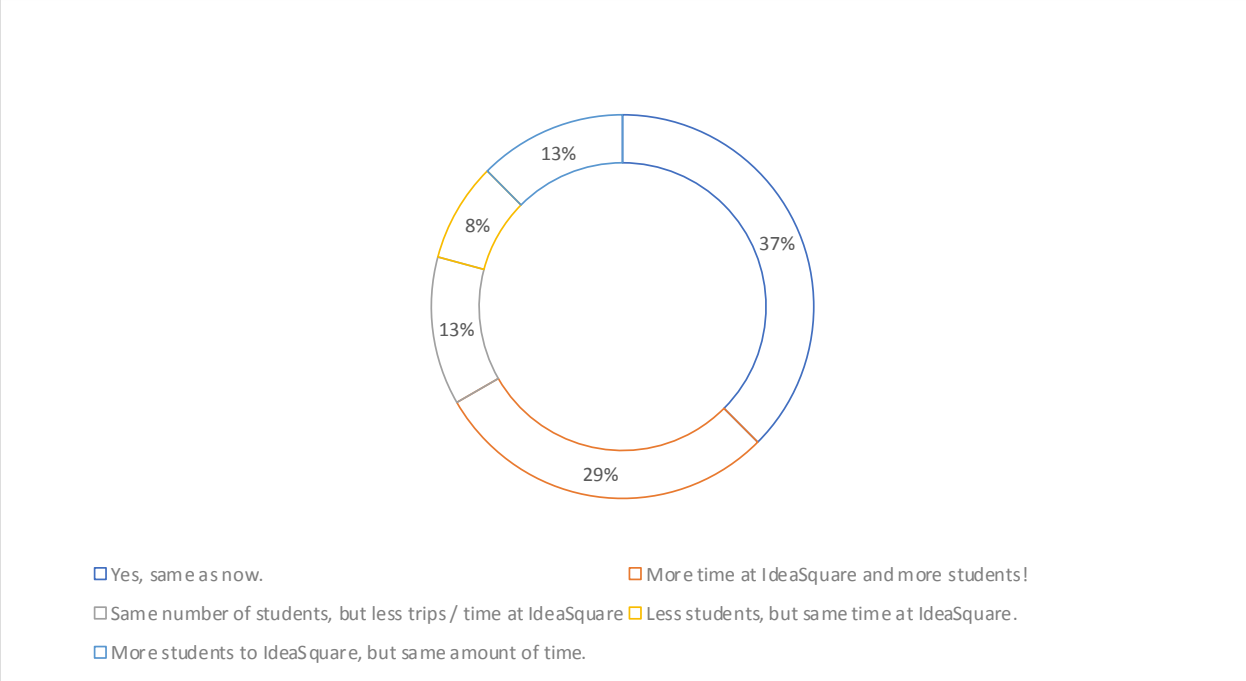

Figure 8: Results of a teacher-survey made on 1.12.2020 where the question was whether their students will still be willing and able to travel to IdeaSquare in the post-covid world . The total number of responses was 24.

EU-support activities continue looking for new EU-funding opportunities for initiatives at IdeaSquare and elsewhere at CERN. Despite having strongly contributed to 10 related submissions during the past five years, only two got funded (ATTRACT and Crowd4SDG, see below). This is due to two contributing factors: lack of suitable calls in H2020 and fierce competition for grants. Despite this low success rate, the EU Support Office has taken a proactive and leading role in the preparation of position papers regarding future EU policies and programmes. As a result, IdeaSquare has been highlighted as an example of an innovation centre in Europe in the last DG RTD Policy Report[8]. The plan for the coming years, concerning EU-support at CERN, is to extend the ATTRACT model beyond detection and imaging to include other areas of technologies relevant for CERN, and to promote these models in Brussels.

Since the EU-funded **ATTRACT-projects** started in May 2019, IdeaSquare has become the center stage for several of its activities. Being the experimental site for testing the key concepts behind the goals of ATTRACT, IdeaSquare is providing centralized support for the

[8] See the Report here.

funded 170 projects and it is piloting how CBI-like student involvement will be incorporated in Phase-2 of ATTRACT.

Phase-2 of ATTRACT extends from 2021 to 2024, inclusive. As part of its formal obligations to the EC, IdeaSquare is involved in nine major milestone events which will be synchronized with specific CBI-like student activities and targeted events both engaging the CERN community and external partners. Extensive use of DFGN-partner programs will be needed (e.g. with Aalto and ESADE). The continuation of the ATTRACT initiative will entail testing at IdeaSquare new student training methodologies beyond Design Thinking that will be progressively incorporated in the ATTRACT roadmap and scaled up at European level. Priorities will be given to those supporting activities where a direct connection with ATTRACT is demonstrated. The CIJ journal will be used for the purposes of the socio-economic research component built within.

The second EU-funded project, **Crowd4SDG**, is coordinated by University of Geneva and the involvement of IdeaSquare is focused there in helping to extend the CBI-methodology to engage citizen scientists in providing data for tracking progress made in Climate Change and other SDG-related goals. It started in 2020 and will finish in late 2023. IdeaSquare will design, prepare and host related events at IdeaSquare building on gained experience from the past and on-going CBI-like student projects and methodologies developed. In return, the experiences and potential involvement of citizen scientists in projects like ATTRACT will be explored. IdeaSquare is also in charge of the communication efforts in Crowd4SDG which will also help to promote the visibility and relevance of IdeaSquare.

The **workshops, hackathons, and other SDG-events** form the remaining part of the operations at IdeaSquare. One can separate these into two sub-groups; those aimed at the internal CERN community and those involving external stakeholders. In 2019, 33 events were organized at IdeaSquare for and by the CERN community, and 17 events organized by external partners[9]. Under the overall defined theme of connecting science with society, the former group of events have been more scientific or technical by nature, whereas the latter have primarily benefited from the facilities at IdeaSquare, which have been allocated, if available[10].

During the years 2021-2025, more emphasis will be placed on serving the needs of the CERN community to help them in their work. This includes, for example, more targeted offerings for members of the community in additive manufacturing, use of workshop tools like laser cutter or electronics and software tools like LabView and FPGAs, Raspberry Pi's, Arduinos etc. The CERN community can access these services at a short notice and within reasonable limits, free of charge. IdeaSquare differs from other available prototyping sites at CERN through the expertise that it can provide in rapid prototyping methods and tools, as well as in offering open,

[9] External events require the organizers (legal entities) to sign a contract, and since 2020, also an activity report on the intended use of the Ideaquare space, to be submitted to EP and HSE for prior inspection.
[10] Guidelines for applying for this space can be found here.

low threshold access to them. More effort will be put into promoting IdeaSquare prototyping facilities and the support available, with the aim of engaging CERN community in parallel more with the student activities. An annual "Open Day" will be organized to promote the use of IdeaSquare facilities inside CERN and encourage the community to get engaged with CBI and GRADE-related activities. IdeaSquare training opportunities could also perhaps be offered through the available CERN education activities for upskilling the personnel. Closer connection with the Globe and Science Gateway is also planned, e.g. by contributing to the annual, thematic SPARKS-event around recent advances in science and technology. All these activities are designed to bring IdeaSquare closer to CERN core activities, and to attract CERN researchers to IdeaSquare. A closer connection with CERN is crucial for enabling interactions between the society (students) and scientists.

During the same time period, 2021-2025, more emphasis will be put on communications. In early 2021, a clear communications strategy will be established to support the presented IdeaSquare strategy. This will include target audiences and target messages and outline specific plan for social media presence. CERN internal communications will be improved to ensure that people are aware of the IdeaSquare offerings.

3. Competitive Analysis

The Operation Model for 2021-2025 IdeaSquare needs also to take into account how its offerings will differ from other maker spaces or (social) innovation labs in the world. Being a part of CERN already differentiates IdeaSquare, but it needs to serve other, clear needs. Based on reviewed literature[11], site visits and discussions with key stakeholders, it is concluded that IdeaSquare differs from other maker spaces or innovation labs in following ways:

- It is embedded within a technical facility at CERN which is pursuing an "out-of-this-world" type mission. It is thus exposed to a community with a special way of thinking ("CERN Thinking");
- It applies both scientific and ideation processes, such as design thinking, as well as new experimental methods and a collaborative approach, leveraging on diversity and SDGs as primary sources of inspiration;
- It focuses on early-stage or "Fuzzy Front End[12]" or low Technology Readiness Level (TRL) of the innovation spectrum but at the same time, strengthens the entrepreneurial capacity building skills of young innovators[13] and all those young at heart;
- It "collides" the CERN scientists and engineers with exceptional competences with students, as well as among each other.

Using as a point of reference commonly available incubator, science & business parks close to or within leading university campus areas, it is concluded that in general, at IdeaSquare the

[11] Some examples: here (1), (2).
[12] Some examples: here (3), (4).
[13] See footnote 1, p.3.

related TRLs tend to focus on the low side. The solutions tend to address the societal impact in a rather scalable way. In other words: still far from the market but with SDG-impact potential for the many (nations; humanity at large).

It thus suggests, that IdeaSquare fits in the space between maker spaces and incubators and can best serve innovation and development phases *prior* to start-up maturity and injection of private seed-capital. Therefore, CERN, leveraging in IdeaSquare, could set a forefront example for the new *innovation mindset*, facilities and organizational needs for tackling future Societal Challenges. This is very much the role of IdeaSquare also in ATTRACT Phases 1 and 2. What IdeaSquare focuses on is providing the first experimental involvement through rapid prototyping expertise and tools and development of future innovators in the context and challenges that teamwork entails (e.g. creativity, being able to dream up a future worth fighting for, task division, planning, road mapping, decision taking, etc.). Bringing the technology to market and focusing on selected, tested market segments would *not* differentiate IdeaSquare from the abundant facilities already specialized in that domain. The results of the analysis are summarized in Figure 9[14].

	Exploring "Fuzzy Front End"	Identifying societal opportunities	Incubation phase	Business accelerator	Business Parks, other
Time span	months	months	year(s)	< year	longer
Prototyping	x	x	x		
Exploring B. Model		x			
Consolidating B. Model			x		
Public seed-funding (e.g. ATTRACT, national sources)		x	x		
Capital (private)				x	x

Figure 9. Positioning IdeaSquare in the early part of the innovation chain (shown in grey). “B. Model” refers to Business Models.

Mapping the type of current activities at IdeaSquare across the identified differentiating parameters of facilities (space), operating philosophy (methodology), level of technology (capabilities) and collaborative approach (cross-connectivity), it is observed – not surprisingly - that they all center around the special physical surroundings offered by IdeaSquare. This is shown in Figure 10. It also indicates that the activities mainly occupying IdeaSquare personnel (i.e. EU-projects, CBI) all rely on a combination of new developed methodologies, connection with technologies and fostering cross-connectivity across communities involved.

[14] For a wider analysis, see e.g. Framework for Understanding the Role of the Physical Environment in Innovation, Creativity and Innovation Management 16(1):53 – 65, (2007); M. Schwemmle, et al., Overcoming Prominent Pitfalls of Work Space (Re-)Design: Using a Theoretical Perspective to Reflect and Shape Practice, In: Meinel C., Leifer L. (eds) Design Thinking Research. Understanding Innovation. Springer, Cham.; M. Caccamo, Leveraging innovation spaces to foster collaborative innovation, Creativity and Innovation Management, 29, 1, (178-191), (2020).

	Physical space	Methodology	Technical capabilities	Cross-connectivity
EU-projects @ IdeaSquare	X	X	X	X
CBI-like & GRADE	X	X	(X)	X
CERN Community	X		X	
External Workshops	X			(X)

Figure 10. The key activities regrouped in four categories and mapped across differentiating parameters. Color code in accordance with Appendix 1. Less dominant components indicated in parenthesis.

4. New Opportunities

New opportunities have been identified, based on the Four Sights, RCEA and SWOT analysis. These include the following, using the color code in Figure 9 to link them to key activities:

- Terraforming (Planet-B) o
- Online courses (MOOC-style) o o o
- Linking Design Thinking stronger to CERN Community events at IdeaSquare o
- Open CERN Garage o
- Science Gateway, SPARKS o o
- Exec mgmt. courses o
- Emergency response to global threats o o o

Terraforming refers to using systems-thinking approach to design and simulate Earth-like conditions of atmosphere, temperature, surface topography or ecology. The process involves rehabilitation of the planet's extant climate, atmosphere, and surface through a variety of resource-intensive initiatives, and the installation of a novel ecological system or systems. In the context of the CBI-programme, the aim is to expose the students to simplified tools to first extrapolate and simulate a sustainable, futuristic econo-ecological *system* ("Planet-B") and then interpolate back to the current conditions ("Planet-A") and to the corresponding SDGs that the students are focusing on. This helps further to illustrate how scientific methods can be used while addressing complex societal challenges and offers a (hypothetical) reference point for assessing the potential societal impact[15]. IdeaSquare is in discussions with EC-JRC who is building up a platform to develop a very high precision digital model of the Earth to monitor and simulate natural

[15] For example, NASA is currently working on this for Mars, see e.g. here.

and human activity, and to develop and test scenarios that would enable more sustainable development and support European environmental policies ("Destination Earth").

Due to the travel restrictions of the students, and the imposed COVID-19 restrictions on the use of IdeaSquare, most of the CBI-like student activities have moved online as of March 2020. Although this has not replaced the necessity of students to work together in small teams on their conceptual prototypes, or experiencing the special CERN-environment (e.g. visiting the experiments), it has nevertheless offered new possibilities to present activities at CERN and IdeaSquare. For example, pre-recorded greetings or lectures from CERN people can now be re-used with minimum engagement and effort; virtual tours to the experimental facilities can be offered; technical training courses can be provided (e.g. Labview, FPGA, 3D printing); hybrid versions of physical and online versions of CBI (e.g. CBI Nanosatellites, first to be organized by Tampere University in the fall of 2020). We are seeing a preference for real time lectures over recordings, which needs to be taken into account if planning for a MOOC style course. The plan is to continue the **online offering** with the CBI-partners until the COVID-restrictions are removed (presumably, at least until late Spring-2021) and the situation will be re-assessed mid-2021[16]. Until then, no new investments are planned.

Until the present, the user-centric **Design Thinking methodology** has not been much used within the CERN Community, nor included in the current IdeaSquare offerings for it. This has been the case mainly for cultural reasons – user friendliness has not much dominated the design of accelerators or detectors – but there have been recently a couple of events organized at IdeaSquare where the value of Design Thinking has been recognized in services provided at CERN. The plan is to offer Departments an introductory course at IdeaSquare, followed by specific assignments around selected service challenges at CERN. Another identified area of opportunity is in the use of science communication methods in the process of innovation. These methods have been successfully used in CBI student projects, but could be expanded for a wider enabling use, e.g. for Science Gateway and SPARKS (see below).

In line with the early-stage innovation phases IdeaSquare focuses on (see Figure 9 above), the CERN KT Group has requested whether a new, open "**CERN Garage**" concept could be introduced at IdeaSquare. This would entail offering members of the CERN Community a dedicated space and entrepreneurship-driven support to develop further first, loose ideas at the "Fuzzy Front End" of the innovation spectrum and to profit from the prototyping facilities available at IdeaSquare, before launching a possible start-up or moving on to an incubator elsewhere (e.g. one of the CERN BICs). Its spirit is to be a kind of a "Pollinator" or "Germinator" to help to spread new entrepreneurial ideas and insights outside. To effectively facilitate these needs, IdeaSquare would need the proposed extension, and the question of funding this will need to be urgently addressed (the same argument applies also for supporting new ATTRACT and GRADE initiatives

[16] A CBI-student survey carried out before the 2020 COVID pandemic, showed that 92% of students were not in favor of a MOOC-like experience of CBI, noting that physical presence, interactive and dynamic teamwork and benefiting from the CERN environment is what makes CBI unique. They were sceptical to the thought that an equivalent course could fully work online.

at IdeaSquare). The activity can, however, start on a pilot basis in IdeaSquare once the current COVID-19 restrictions have been lifted. Further collaboration with KT is envisioned in communications activities, for example through the KT Newsletter.

Science Gateway will be an emblematic education and outreach facility next to the Globe of Science and Innovation and IdeaSquare, hosting exhibitions and hands-on educational activities. It is scheduled to be in operation by late 2022. The proposal from IdeaSquare is to initially offer visiting high school teachers and early-stage university engineering students more advanced hands-on experience at IdeaSquare, by using additive manufacturing (3D printing) and other rapid prototyping tools to construct accelerator and detector related components. This would be part of a longer-term research project involving IdeaSquare on designing next-generation machine-human interfaces. The plan is to start a small pilot project with selected schools in 2021, assuming additional resources can be made available (the budget plan below does not include yet this activity).

SPARKS offers a dedicated, curated discussion forum for multidisciplinary collaboration around complex problems facing society, requiring knowledge and expertise from more than just one field. It will start in 2021 and will be part of the standard, annual offerings at Science Gateway. Being very close in philosophy to the goals of IdeaSquare, IdeaSquare can offer its Design Thinking inspired methodologies to some dedicated sessions of SPARKS ("Forum"), also possibly engaging the CBI-like students in channeling in their views about the future role of science in addressing pressing societal challenges. IdeaSquare will host one day of SPARKS in 2021, dedicated to Artificial Intelligence.

Following the RCEA and SWOT analysis, a **management education** offering at IdeaSquare has been developed for business executives. There are three specific motivations:

1) build on the CBI courses and expose industry to both the student activities and possible follow-up;
2) market the technology opportunities at CERN (via the KT Group);
3) obtain additional income to fully operate IdeaSquare.

This offering contains two strands. The first implies a full involvement from IdeaSquare. This builds upon a pilot carried out in 2017, and on the CBI methodologies developed at IdeaSquare. Two modules were planned for business executives for 2020 in partnership with ESADE who is a key partner in both CBI and ATTRACT. Due to COVID, these modules have been postponed to 2021. The 2nd strand offers making the space available for external management education providers with minimum participation from IdeaSquare. In both models, a fee is to be collected to cover the involvement and preparatory efforts made by IdeaSquare. In both models, collaboration will be created with established and knowledgeable business education partners.

CERN, among other organizations, had a swift response to the COVID-19 pandemic by launching several, bottom-up initiatives. IdeaSquare was involved in one of them, designing and producing

3D-printed masks. It has been suggested that IdeaSquare could host and coordinate an ad-hoc group of volunteers within the CERN community interested in planning bottom-up **emergency response initiatives** against global threats that potentially endanger humanity's long-term well-being. The goal would be to identify and limit the catastrophic effects of single points of failures and contribute to rapid sharing of relevant information[17]. Such plans for initiatives would include: pandemics, volcanic eruptions, geomagnetic storms, hypernova gamma/bursts, and technology misadventures (i.e. catastrophic failure of selected technologies). A dedicated workshop will be organized in 2021 by IdeaSquare under the theme "Resilient Society" to explore the feasibility and usefulness of this type of approach.

Reducing Current Offerings

In order to incorporate the new activities identified above, the following (type of) external activities currently hosted at IdeaSquare will need to be cut back on:

- Those which *only* look for space at IdeaSquare without a stated, direct contribution to IdeaSquare activities such as ATTRACT or EU-projects engaging CERN, CBI-like student activities, mgmt. education, CIJ;
- Those which do not have an internal CERN sponsor behind like a senior scientist or department head;
- Those that require significant or constant presence of IdeaSquare personnel, e.g. outside office hours.

Examples of organized events in 2019 where a direct link to the above-mentioned priorities were not stated at the time include, among others: IGLUNA, Proton for Schools, Art@CMS, PORT, Quantum Hack, CineGlobe, internal university meetings, internal UN meetings. This new policy would take effect as of June 2021 by which time activities around ATTRACT Phase-2 have effectively started.

Resources

The efficient operation of IdeaSquare strongly relies on personnel allocated by EP and IPT. Putting aside the EP resources that are reported elsewhere (there are some 10-20 persons present at IdeaSquare on a regular basis), the daily operation of IdeaSquare relies on 3 staff members from IPT Department and other three members of personnel supported by EU-funds. These resources include: project coordination (3 FTE), student activities coordination (1 FTE), technical support (1 FTE), administration support (1 FTE). One of the staff members with work

[17] It is encouraging to note that despite geopolitical trends to close up borders, the scientific communities *increased* their sharing of scientific data for the benefit of developing drugs for COVID-19. More than 23 000 scientific articles were published on preprint e-archives during the first six months alone in 2020. CERN and IdeaSquare could play an important role also in the future in contributing to the process of producing and sharing vital new information in a timely fashion.

experience in financial management, is responsible for the managerial decisions made at IdeaSquare, after consulting the team.

The plan relies on the current level of support provided by IPT Department (DI, EU support office, KT) and up to 6 FTEs supporting personnel paid by the EU-projects or from obtaining external funding. The additional personnel will be allocated to supporting the student projects, communication, special events and editorial support for CIJ.

Concerning the annual operation budget of IdeaSquare, the annual average expenditure since 2015 has been ca. 400 kCHF (excluding consolidation), including 2-3 FTE for student and technical support. Since 2019, this support personnel has been incorporated into ATTRACT Phase-1, thus reducing the operation expenditures to a level of ca. 150 kCHF in 2020.

Figure 11 below shows the projection of the minimum operation budget up to 2025 (in kCHF). It assumes that the 2-3 support personnel are included in ATTRACT Phase-2. Nevertheless, additional income is required to compensate the removal of ATTRACT overheads (0.5 ME) by CERN, originally intended to operate IdeaSquare. Therefore, some targeted new activities (e.g. exec mgmt. courses) are needed to create additional income, also to provide the planned offerings for the CERN Community. This does not, however, include possible targeted offerings to Science Gateway which would need to be covered separately[18].

It should be noted that the above resources planning does not include the in-kind effort made by the IdeaSquare partners, notably the universities participating in the CBI-like activities. This is estimated at 120 FTE, covering an average length of four months per program. Assuming average travel and prototyping costs of 2kCHF per student, this would indicate an annual in-kind investment of ca. 600 kCHF by the participating universities in CBI.

[18] A separate proposal for Science Gateway is included in Appendix 2.

		Actual	Actual	Actual					
		2018	2019	2020	2021	2022	2023	2024	Total
IdeaSquare	Personnel	330	50	9	10	5	5	5	414
	WS, equipment	65	25	65	70	70	25	25	345
	Consumables, prototyping	40	20	26	10	20	20	20	156
	Events at IS	65	20		20	380	385	50	920
	... of which charged to ATTRACT					330	335		665
	... plus using overheads								0
	Consulting, travel	97	60	24	126	40	40	42	429
	Sub-total	***597***	***175***	***124***	***236***	***515***	***475***	***142***	***2264***
Carry-over from CERN			*175*	*124*	*236*				
Other, new income (e.g. exec mgmt courses)				*0*	*0*	*370*	*280*	*284*	*934*

Figure 11. Minimum budget plan for IdeaSquare 2021-2025, showing past evolution. Numbers in red are related to income from EU-funds (ATTRACT). In the absence of overheads available, a balanced budget assumes additional total income of 0.9 MCHF (e.g. exec mgmt courses) to fund the offerings targeted at the CERN Community. It does not include possible offerings to Science Gateway.

5.Critical Success Factors

The critical success factors for being able to continue implementing our mission, we define as:

- Continuing support and interest from our stakeholders, in particular the CERN community and our educational institution partners;
- Integration of CBI-like student activities into research projects (GRADE, ATTRACT);
- Attaining and retaining sufficient funding to not only fund the current operations but to also improve on our offerings, developing new methodologies;
- Improving on communications within CERN;
- Retaining excellent team members who are able to contribute with their expertise and capacity to dream big and innovate;
- Continuing to explore the frontiers of innovation education and co-creation between science and society.

6. Defining Goals

The main identified opportunities and improvements have to do with establishing stronger connections within CERN, When looking at these through the lense of the operating model, we arrive to the following measurable goals by 2025:

a. GRADE and student activities (CBI-like; CESP, NTNU Screening Weeks etc.):

1. Reach out to more than 2000 CBI-like, MSc-, bachelor-, and PhD-level students (cumulatively);
2. Help researchers in their early-stage R&D&I efforts to create at least three new projects in GRADE (for future ATTRACT) and three supporting EU-funded projects;
3. Achieving two new and unique students training concepts with a mix of bachelor's, master's, and PhD – level students, "made in IdeaSquare", extending it to a new paradigm beyond Design Thinking. These may be extrapolations of the current CBI-like courses and targeted at the students from existing partner organisations;
4. Achieving at least one new modular concept for MBA education;
5. Achieving by at least one new disruptive innovation thinking programme for organizations with global and sustainable commitments;
6. Achieving at least one new online/virtual course around experimental, non-linear innovation[19];

b. EU-support activities ; ATTRACT and Crowd4SDG

7. Successfully completing ATTRACT Phases 1 and 2 (as defined in the proposals, worth 55 M€), as well as the Crowd4SDG project;
8. Launching at least two new EU-funded initiatives where IdeaSquare has a strong and meaningful role;

d. Workshops, hackathons, events (SDG-related), both internal to CERN community and external

- Internal to CERN community
  9. Engaging more than 500 CERN personnel (cumulatively);
- External to CERN
  10. Engaging with more than two leading partners recognized in the SDG-domain.

e. General for IdeaSquare

11. IdeaSquare mentioned in at least two international publications as an example of how technology, science, and society interact (e.g. Wired, Forbes…)

[19] For example in the style of widely recognized "Elements of AI" – Elements of CERN thinking.

12. Continuing to improve the spaces so that they best support rapid prototyping and serendipity.

All of these defined measurable goals are seen as milestones towards achieving the vision of becoming a global reference for how science and society can connect and collaborate through multidisciplinary teams to create innovative solutions for the better future of humankind.

7. Action Plan

The Action Plan emerges from the Operation Model and goals above. It includes the following key actions (Figure 12):

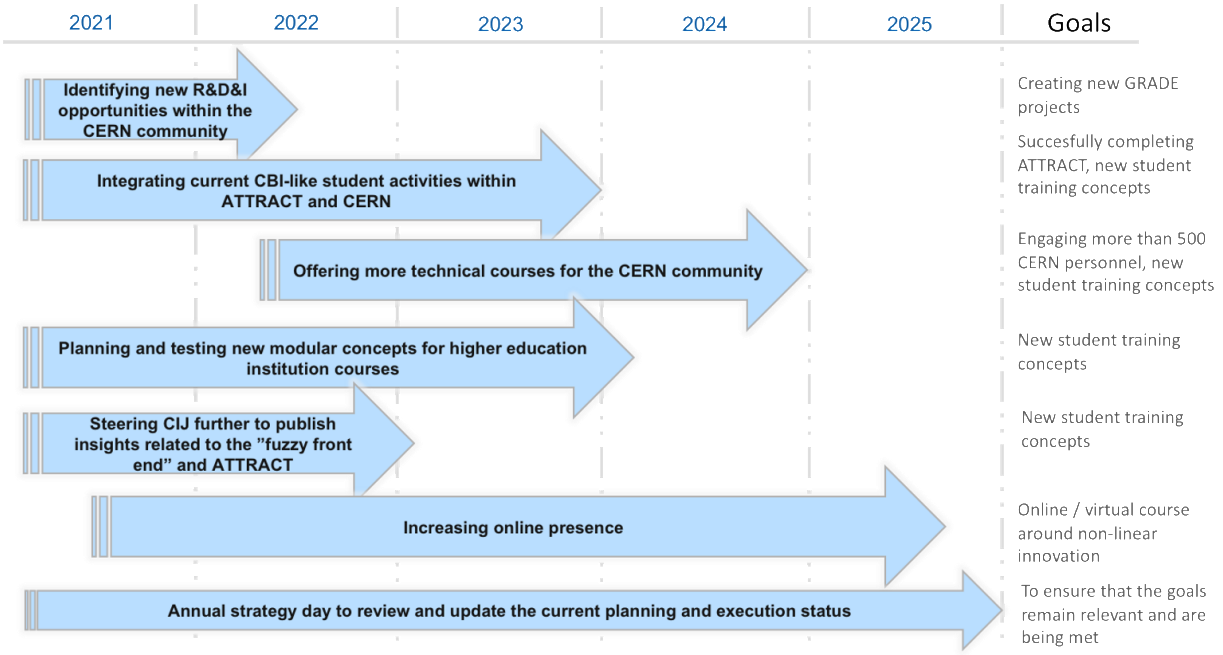

Figure 12. Key actions to be taken as part of the Plan during 2021 – 2025 and their relationship with the defined goals.

Summary

IdeaSquare delivers value by providing a platform for early-stage R&D&I collaboration and supporting cross-disciplinary education. These include four key, interlinked activities: ATTRACT & Crowd4SDG; CBI-like MSc-level student programs; offerings for the CERN Community; and related workshops and events, both internal and external to CERN. The key drivers are ATTRACT and the supporting CBI-like student activities. A large part of the annual operating costs of IdeaSquare will be covered from the budget of ATTRACT (its assigned overheads can be used for the purposes described in this Plan). Nevertheless, IdeaSquare is dependent on other external income as well, and its external offerings shall be configured accordingly. The related management structure is kept light and relies on a small core team at IdeaSquare from different departments (EP, IPT). The key activities are assigned measurable goals and an Action Plan is

laid out to reach the defined goals. The relationships between different activities at IdeaSquare, the vision and mission statements, the set goals, and the identified opportunities are visualized in the Figure 13. The figure is by no means exhaustive, but serves as visual support for understanding how the vision and mission statements are related to the defined goals.

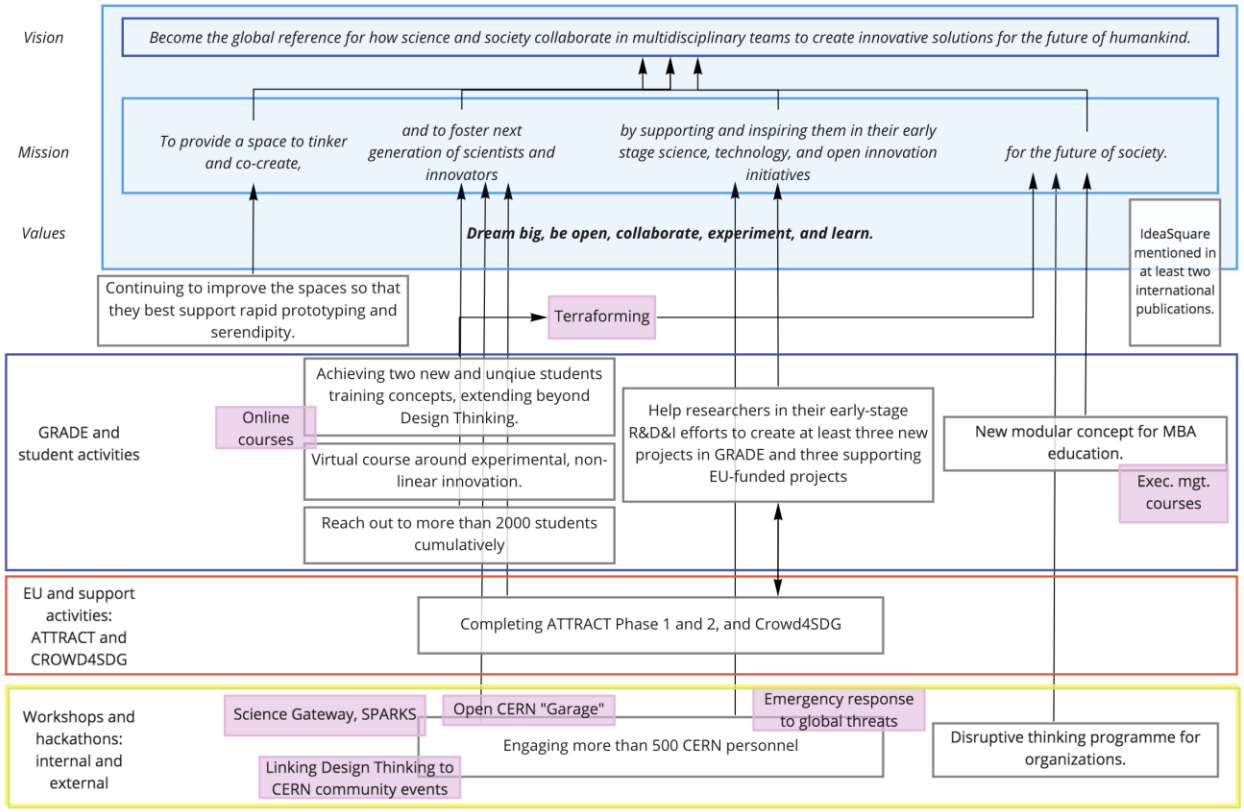

Figure 13. The relationships between different activities at IdeaSquare, the vision and mission statements, the set goals, and the identified opportunities.

Appendices

Appendix 1. Timeline 2021-2025 for key activities

Appendix 2. Additional details of the activities and resources planning