



Deliverable D3.11

Report on the implementation of novel co-creation initiatives



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Executive summary

The goal of this ORION task (T3.5) is to support making research funding and performing institutions more permeable to Responsible Research and Innovation principles by encouraging collaboration of Core and Associated ORION partners with stakeholders in the quadruple helix through co-creation approaches. Two projects have been supported through this ORION task. “Virtual Activity Co-Creation Initiative for Novel Engagement” (VACCINE), an online [game](#) to engage young members of the public with the science behind infections, immunity and vaccinations, which was a collaboration between Babraham Institute scientists, students from a school in Cambridge and a game developer. The second project, “*Melting Pot for ICT in Health Research*” (MELTIC), was a collaboration with small isolated communities in Europe to co-create [new ideas](#) for ICT in health research and the use of public spaces.

In both cases the involvement of novel stakeholders has brought novel ideas and perspectives to the projects, which has helped to ensure their outputs are useful and appealing to their intended audiences. However, the perceived impact (benefits) of co-creation in the participating scientists varies depending on the discipline. ICT researchers from the telemedicine unit at ISCIII (Meltic) have benefited considerably from the co-creation process, even despite its online or hybrid version forced by the COVID-19 pandemic, and their project partners have indicated the intention to continue collaborating after the project finishes. However, in the case of VACCINE, conducting workshops remotely has resulted in weaker connections between students and BI scientists. We believe this has played a role in making BI scientists less clear on the benefits of co-creation – despite the final game being a much improved version of the initial simulator developed by BI scientists thanks to the co-creation approach.

Accordingly, it is fair to conclude that the pandemic has presented a challenge for co-creation methodologies, where interpersonal communication is central. Nevertheless, one of the projects supported by this ORION novel co-creation initiatives fund, Meltic, has indeed encouraged further collaboration of ISCIII - Core ORION partner - with stakeholders in the quadruple helix and these collaborations have supported an institutional department to open up to diverse views not previously considered, which is being taken stock of by ISCIII to showcase the benefits of co-creation to the whole institution. In the case of VACCINE, the co-creation approach has added considerable value to the game produced; new ideas have been incorporated which would otherwise not have been considered. Additionally, the experience has had a number of benefits for the young people involved, including showing them that they can make important contributions to real-life science projects.

Evaluation of the funding call for novel co-creation initiatives was undertaken by ORION partner CRECIM. Their findings are shared in Section 7 of Deliverable 5.4: Final evaluation report on co-creation experiences.



Introduction

The goal of this ORION task (T3.5) is to support making research funding and performing institutions more permeable to Responsible Research and Innovation principles by encouraging collaboration of Core and Associated ORION partners with stakeholders in the quadruple helix through co-creation approaches. Two projects have been developed through ORION fund to support novel co-creation initiatives:

VACCINE

The original proposal, titled “Vaccines on Tour: Why Should We Care About Vaccination?” was originally not selected during the corresponding funding call. However, as the winning proposal (MELTIC) requested approximately 40% of available ORION funding budget for this task, the ORION Project Officer and External Evaluator at the Research Executive Agency recommended during the ORION review meeting in January 2020 to consider funding an additional co-creation initiative with the remaining budget of the call. As the only shortlisted proposal which could be adapted to the reduced budget and timeframe, “Vaccines on Tour” was awarded funding. In the original proposal, “Vaccines on Tour” was planned to run from approximately January 2020 – December 2020. However, the confirmation that “Vaccines on Tour” had been awarded funding, in October 2020 after a grant amendment, came amid the COVID-19 outbreak. Accordingly, the proposal had to be adapted at short notice not only to a reduced budget (28.400 Euros from 100.000 Euros) and timeframe (9 months from 12 months), but also to comply with COVID-19 rules and guidance around home working and social distancing. The name of the project was changed to the “Virtual Activity Co-Creation Initiative for Novel Engagement” (VACCINE), to acknowledge the significant changes to the original proposal and omit from the project title its original travelling nature.

The aim of VACCINE was to engage members of the public with the science behind infections, immunity and vaccinations. To achieve this, the primary objective of the project was the co-creation of a novel online game that addresses this topic through simulating viral outbreaks. This was a collaborative project with three key partners:

- Scientists and public engagement professionals at the Babraham Institute, an ORION partner organisation.
- Students and teachers at the Cambridge Academy for Science & Technology (CAST). This school has a STEM focus and champions collaboration with local organisations and industry through ‘Challenge Projects’ embedded into the curriculum.
- Game Doctor, a game development company specialising in mobile games, software and media for STEM education.

The Cambridge Science Centre, a hands-on science centre for families, were also consulted in the initial stage of the project. They have extensive experience developing interactive exhibits, shows, workshops and pop-up events.

The inspiration for the project was a Virus Outbreak Simulator previously developed by Babraham Institute scientists, Prof Adrian Liston and Dr Simon Andrews (<https://s->



andrews.github.io/virusbreak/www/#). VACCINE game makes use of, but goes beyond, the technology used in the original simulation.

MELTIC

Meltic is a co-creation project to develop new ideas for ICT in health research and the use of public spaces in small isolated communities. The main activity was a meeting between project partners and relevant stakeholders using the Design Thinking co-creation methodology. The meeting was originally planned as a series of small focus groups over several days, taking place in la Palma del Condado (Huelva, Spain).

The project was led by Victoria Ramos, a scientist from the Telemedicine and Digital Health Unit at ISCIII and includes four partners representing small and isolated communities in Europe:

- [La Palma del Condado Municipality](#) (Huelva, Spain), Andres Dochao, Head of Friendly City Programme
- [Mirabello Municipality](#) (Italy), Roberto D'Amico, Advisor in Friendly Cities Programme
- [Asociatia TIMIS TOROTAL BARZAVA](#) (Romania), Gheorghe Duta, Manager
- [Reguengos de Monsaraz](#) (Portugal), Anabella Caeiro, Head of Friendly City Programme

The pandemic situation resulted in a complete change of structure and plan of the project, and the need to adapt the Design Thinking methodology to online formats. Nevertheless, the project could successfully achieve the planned deliverables, namely a booklet with 100 Challenges for Healthcare and Wellbeing in Rural Areas that could be enriched by ICT solutions, and a technological proposal for a web platform to support and encourage sociospatial interaction of citizens in small communities.

VACCINE

1. Project activities

To develop the project proposal to deliver its ultimate output, an online game to simulate viral outbreaks, three co-creation events with stakeholders were organised: the kick-off meeting, the design workshop and the testing workshop.

Kick-off meeting

The kick-off meeting was held in December 2020 and involved scientists, public engagement professionals, teachers, game designers and museum staff. One aim of the meeting was to clarify the key scientific messages the game should promote. To identify these, Nominal Group Technique (NGT), a co-creation process which allows decisions to be made while taking everyone's opinions into account, was used (Figure 1).



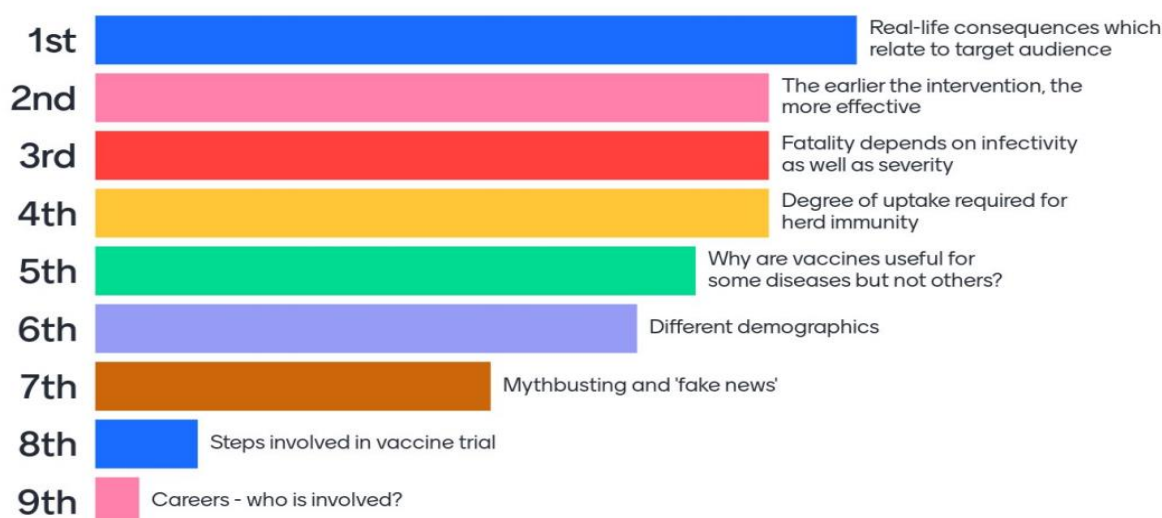


Figure 1. The results of the NGT discussion: “what are our key messages?”

Following the kick-off meeting and as outlined in the project specification, two co-creation workshops were held with the partner school, Cambridge Academy for Science & Technology (CAST): the ‘design workshop’ and the ‘testing workshop’.

Design workshop

In the design workshop, conducted online in January 2021, 25 Year 9 students (13-14 years old) tried out the Virus Outbreak Simulator created by Babraham Institute (BI) researchers Prof Adrian Liston and Dr Simon Andrews; gave extensive feedback; and designed their own game on the topic of viruses and vaccinations. Live interaction between students and BI staff was not possible due to institutional safeguarding policy on online events, as students were participating from home (schools were closed in the UK at this time, due to the pandemic). Instead, the workshops were planned collectively by BI staff and CAST teachers, with BI communication to students via pre-recorded videos and student communication to BI via an online form.

Student feedback was then reviewed and integrated into the design of a prototype game by the other stakeholders. Student ideas were vital to the game development; ideas suggested by students that feature in the final game include:

- Map design, to more easily visualise the virus spreading through a population
- Player in position of governance, trying to control the outbreak (implemented as “mission mode”)
- Different demographics represented in the game (implemented as child, adult and elderly profiles)
- Maintain customisable virus properties (implemented as “free play” mode)



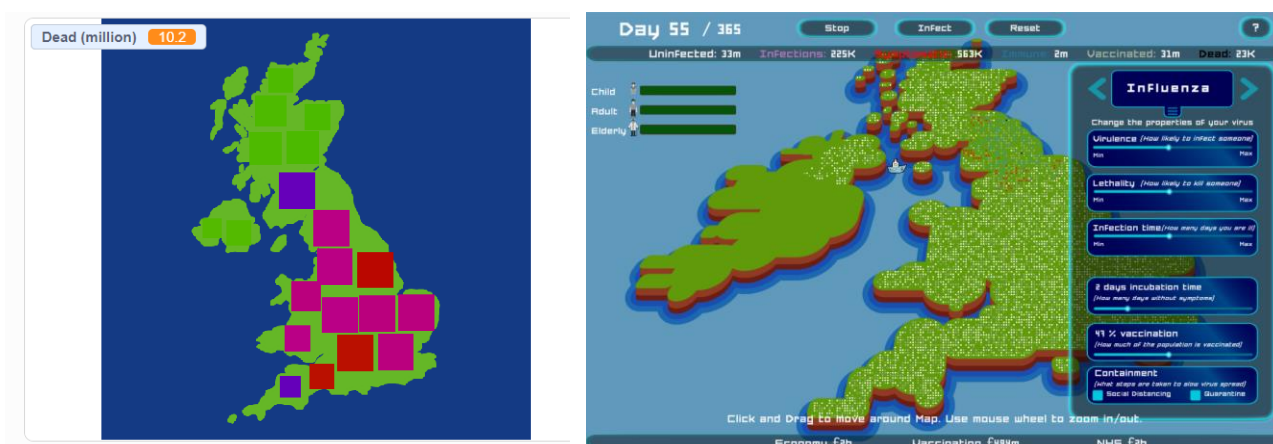


Figure 2. A student design for the game, next to a screenshot from the game prototype

Testing workshop

In the testing workshop, conducted in April 2021, two of the PhD students working on the project presented the prototype game to students for testing and further review. The prototype featured free play mode only due to time constraints. Feedback was again integrated into the final game design, which focused at this stage necessarily on aesthetic and practical elements rather than major design elements. The student feedback that was implemented includes:

- Use larger dots to represent the virus spread
- Use brighter / different colours
- Add “mission mode” and modifiable virus parameters (we had already intended to do this following the design workshop, but it was useful to know support for this was maintained)
- The speed of virus spread is right (not too fast or too slow)

2. Project outputs

The main output of the project is the Virus Fighter game, published on 23 July at <http://virusfighter.org>.

The game comprises two modes, both based on student feedback. In free play mode, players can simulate outbreaks from four viruses (influenza, coronavirus, ebola and measles) and adjust containment measures and virus properties to simulate different viruses or strains. The gameplay is similar to the original Virus Outbreak Simulator, but with a massively different user interface, and additional features including different age profiles and a health bar.

In mission play mode, there are four missions to choose from (“Ebola Crisis”, “Airborne Ebola”, “COVID-19” and “Flu Outbreak!”) The virus parameters are fixed depending on the mission chosen. As the simulation runs and the outbreak spreads, players are presented with a series of decisions about how to manage the outbreak. The decisions they make



affect how the outbreak spreads, and at the end players receive information about the virus the mission relates to and how effective their decisions were.

The project contained the following additional deliverables, in the form of written reports sent to the ORION Project Coordinator (CRG, Barcelona):

- Data Management Plan (M2)
- Ethics Self-Assessment (M2)
- Summary of Kick-Off Meeting (M2)
- Evaluation Plan (M3)
- Halfway Report (M5)
- Dissemination Plan (M7)

3. Deviations

For the first co-creation workshop, BI staff were not able to interact directly with students. In January 2021, UK schools were closed due to the COVID-19 pandemic, so students were learning from home. CAST and BI safeguarding procedures did not allow for BI staff to have live online interactions with children while they were in their own homes. Instead, pre-recorded videos explaining the project and tasks were prepared by BI staff and relayed to students by their teachers. Students were then invited to create visual game designs (such as animations, storyboards or presentations) and further ideas were collected using an online form. Student ideas and feedback were shared with BI scientists and public engagement staff by their teacher. For the second co-creation workshop, these issues had been resolved as students were back in school and a BI Public Engagement Officer and two PhD students were able to speak to students by video call.

Nevertheless, the challenge of conducting workshops remotely meant that there was less direct interaction between BI staff and CAST students as would have been liked. The 'arms-length' manner in which the co-creative activities were held may have led to weaker connections between the students and scientists involved in the project. Therefore, the project may not have been quite as successful as hoped at convincing BI scientists of the benefits of co-creation.

The project timeline was highly ambitious, especially given the complexity of the game we have produced. This means the launch of the game in July was a pilot one. A number of bugs have been identified in the pilot game, which are being resolved at time of writing. A fully tested and error-free version of the game will be launched instead at the ORION final conference on 28th September 2021.

4. Use of resources

A number of expenses were still unconfirmed at the stage of writing this report, pending acceptance of the error-free game (Table 1). Total expenses will not exceed the budget of 28.400 Euros.



Type of Expenditure	Original Budget	Reallocated Budget	Amount Spent/Allocated (€)	% Spent/Allocated	Amount Spent/Allocated (£)
TOTAL	€ 28,400	€ 28,400	€ 26,356.40	93%	£22,527
Personnel Costs	€ 11,000	€ 16,000	€ 15,619.50	98%	£13,350
GD - Research			€ 1,228.50		£1,050
GD - Design Document			€ 819.00		£700
GD - Prototype Development			€ 4,738.50		£4,050
GD - Artwork Development			€ 2,340.00		£2,000
GD - Software Development			€ 4,738.50		£4,050
GD - Testing and debugging			€ 1,755.00		£1,500
Travel and Subsistence	€ 2,000	€ 0	€ 0.00		£0.00
Materials and Consumables	€ 900	€ 400	€ 300.11	75%	£256.50
Vouchers for co-creation participants			€ 300.11		£256.50
Production Costs	€ 5,000	€ 4,000	€ 3,949.15	99%	£3,375.34
Tablets & accessories for delivery			€ 2,919.55		£2,495.34
GD - Website publication			€ 819.00		£700.00
GD - Website hosting fees (12m)			€ 210.60		£180.00
Communications and Marketing	€ 7,500	€ 6,000	€ 5,850.00	98%	£5,000.00
Local advertising			€ 1,755.00		£1,500.00
Video			€ 2,340.00		£2,000.00
Branded consumables			€ 1,755.00		£1,500.00
Other / Contingency	€ 2,000	€ 2,000	€ 637.65	32%	£545.00
GD - Additional Artwork			€ 637.65		£545.00

Table 1. Expenses highlighted in green are paid or allocated. Expenses highlighted in red are approximate future spend. Exchange rate: 1 GBP = 1.17 EUR

As the game contains a large amount of bespoke content, the personnel costs required to produce the game (i.e. Game Doctor professional fees) were larger than originally budgeted (142% of the originally budgeted € 11,000). However, travel and subsistence planned expenditure (originally budgeted € 2,000), which was no longer needed due to travel restrictions, was redirected to cover this increased costs. Overall, the project has therefore remained within budget.

Communications and Marketing spend is highlighted in red as it is the maximum estimated spend, but exact figures are not confirmed. This is for legal reasons – until formal acceptance of the completed game from Game Doctor, BI does not own the rights to the game content, logos, etc. and cannot use them for marketing (or any other) purposes until after this date. Any further spend will be kept within the budget outlined above.

5. Interactions with ORION and beyond

Interactions with ORION consortium

As an ORION delivery partner, the Babraham Institute has interacted with ORION consortium throughout the project:

- All project deliverables were sent to the ORION Project Coordinator (CRG, Barcelona) for review.
- VACCINE project coordinator at BI presented an update at ORION online community meetings in February and July 2021.
- In collaboration with ORION WP6 on dissemination (VA, Stockholm), two [news articles](#) about the VACCINE project were published on the ORION website and



VACCINE was presented alongside other ORION projects at two conferences: Högskola & samhälle i samverkan (University and society in collaboration) on 6th May and Future of Science Communication on 25th June (Figure 3). In both conferences, the involvement of VACCINE was to showcase gamification as a tool for engaging public audiences, with a focus on the benefits of co-creative design processes. The latter event was attended by almost 70 people and is [available](#) to watch on YouTube.

- In consultation with ORION WP5 on evaluation (CRECIM, Barcelona) a student questionnaire was developed to evaluate students' experiences of participating in the project. Key results are outlined in the 'Impact' section below and were published on the BI website in a [blog post](#) about the project impact.

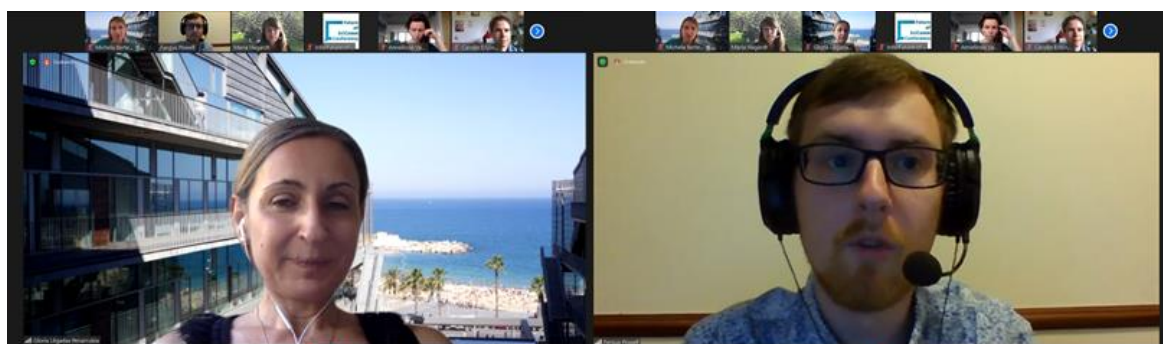


Figure 3. Discussing gamification and co-creation with ORION colleagues at CRG in Barcelona at the Future of Science Communication conference, June 2021.

Continuation beyond ORION

This project has been a considerable undertaking for the Babraham Institute, and the resulting Virus Fighter game will form a significant part of the Institute's public engagement programme for 2021/22 and beyond.

We plan to take the Virus Fighter game to several UK science festivals across 2021 and 2022, including the Norwich Science Festival, Peterborough STEM Festival, and Cambridge Festival. We are particularly focused on proposing activities for festivals in areas with relatively high levels of deprivation (Figure 4), as studies show people in these areas may be less likely to have vaccinations^{1,2}.

¹ Hungerford, D., MacPherson, P., Farmer, S., Ghebrehewet, S., Seddon, D., Vivancos, R. & Keenan, A. (2015) Effect of socioeconomic deprivation on uptake of measles, mumps and rubella vaccination in Liverpool, UK over 16 years: a longitudinal ecological study. *Epidemiology and Infection*, pp. 1-11. <https://doi.org/10.1017/S0950268815002599>.

² Vukovic, V., Lillini, R., Lupi, S., Fortunato, F., Cicconi, M., Matteo, G., Arata, L., Amicizia, D., Boccalini, S., Bechini, A., Prato, R., Stefanati, A., Panatto, D. & de Waure, C. (2020) Identifying people at risk for influenza with low vaccine uptake based on deprivation status: a systematic review. *European Journal of Public Health*, 30(1), pp. 132–141. <https://doi.org/10.1093/eurpub/cky264>

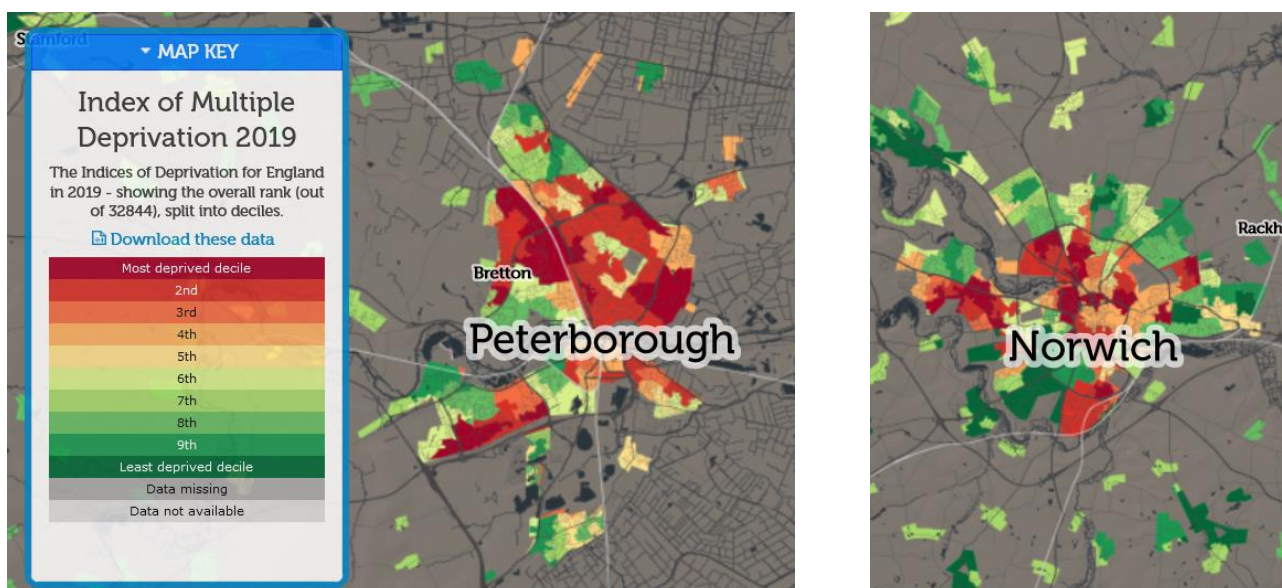


Figure 4: Both Peterborough and Norwich contain areas with relatively high levels of deprivation, according to the England Indices of Multiple Deprivation, and are target locations for science festival engagement using the Virus Fighter game.

The game will be publicised on the BI website, on social media, circulated among BI contact networks and in local print media.

With an undergraduate student at a local university, we have co-created a lesson plan and associated resources which utilise the Virus Fighter game as a tool which can be used to teach children about viral diseases and prompt discussions in a classroom setting. This will be made available to the Babraham Institute’s teacher contacts and on the Institute website once the error-free game is launched (end of September).

Finally, we discussed the VACCINE project at the online BIG Event on 14th July, a skills sharing conference for STEM engagement professionals in the UK. The session was a combined exhibition from the Babraham Institute and Swansea University’s science centre (Oriol Science). The Institute contribution to the session focussed on how the VACCINE project was adapted for success despite changing circumstances throughout the pandemic. The session was attended by over 40 people.

6. Impact

For BI Public Engagement:

This project has given the Babraham Institute experience of developing an engagement tool in a co-creative manner with the intended target audience, which constitutes a novel approach for those involved. Involving students in the design process generated insights and ideas that made the end product (game) more effective and relevant to its target audience (see section 1 for examples of student ideas which are reflected in the final game), thereby demonstrating the advantages of involving your audience as a creation partner.

The game produced is an excellent engagement tool that will be used extensively in future public and schools engagement initiatives (see section 5 for an overview). The project has



also given all those involved a better understanding of co-creation techniques and stakeholder involvement.

For BI scientists:

Early career researchers participating in the project have stated that working on this project has had a very positive impact on their career and enthused them about doing science outreach. The particular activity that was most highly regarded was the collaboration with other scientists on creating missions for the video game, and to work with the outreach team and the game developers. Furthermore, they reported that 'involving students to create the game was a good call, because they bring new ideas and perspectives for the missions'. The expectations were that the children would enjoy the game and learn from the science and history behind it all, especially if some of them decide to become scientists. Another expectation is for the game to serve as an educational tool across many ages and attract attention to the scientific community's goals to share scientific discoveries and research with the public for the benefit of all. The game has also been regarded as 'an example that scientific literacy is key to the maintenance of a working society and that using science to make informed policy decisions is a positive avenue'.

From CAST teachers:

"Thank you for [giving] the students [the opportunity] to participate in a unique project, very relevant to them at the moment that we were in lock down. This was a really good way to link the real situation with scientists working in developing solutions. Also they engaged with the content and managed to put their ideas through in a very creative way."

From CAST students:

An evaluation questionnaire was used to collect students' opinions about participation in the project. 22 students completed the questionnaire: 18 of whom took part in both the design and testing co-creation sessions, and 4 of whom took part in just the design sessions. Some key results are outlined below.



Co-creation outcomes

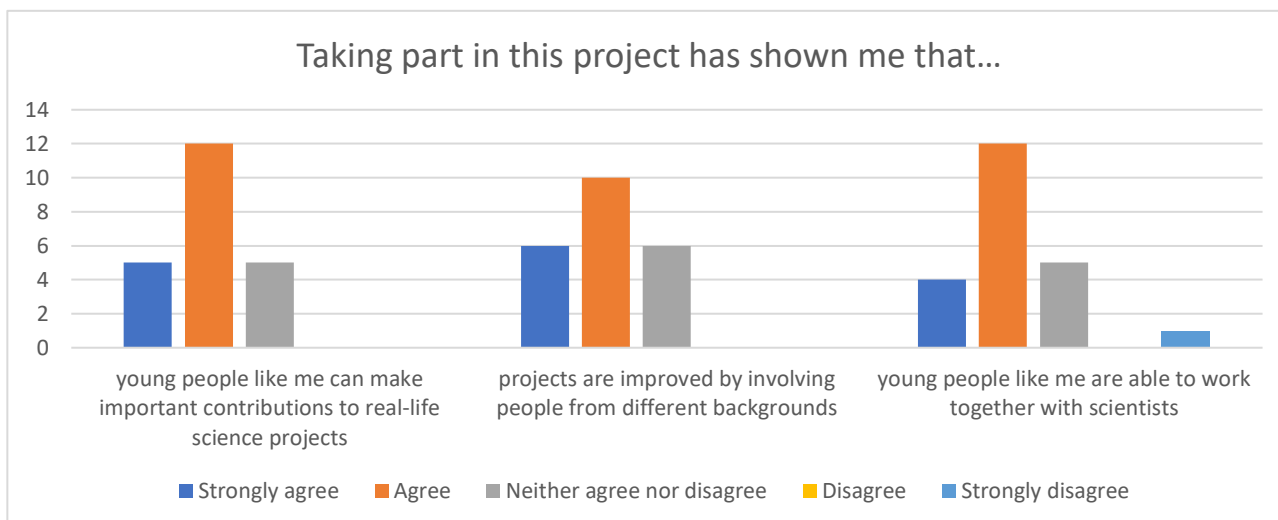


Figure 5: A clear majority of students agreed or strongly agreed with each of the above statements (77%, 72% and 72% respectively), highlighting the benefits of co-creation participation for young people and that the project was successful in showing young people these benefits.

Participation and communication

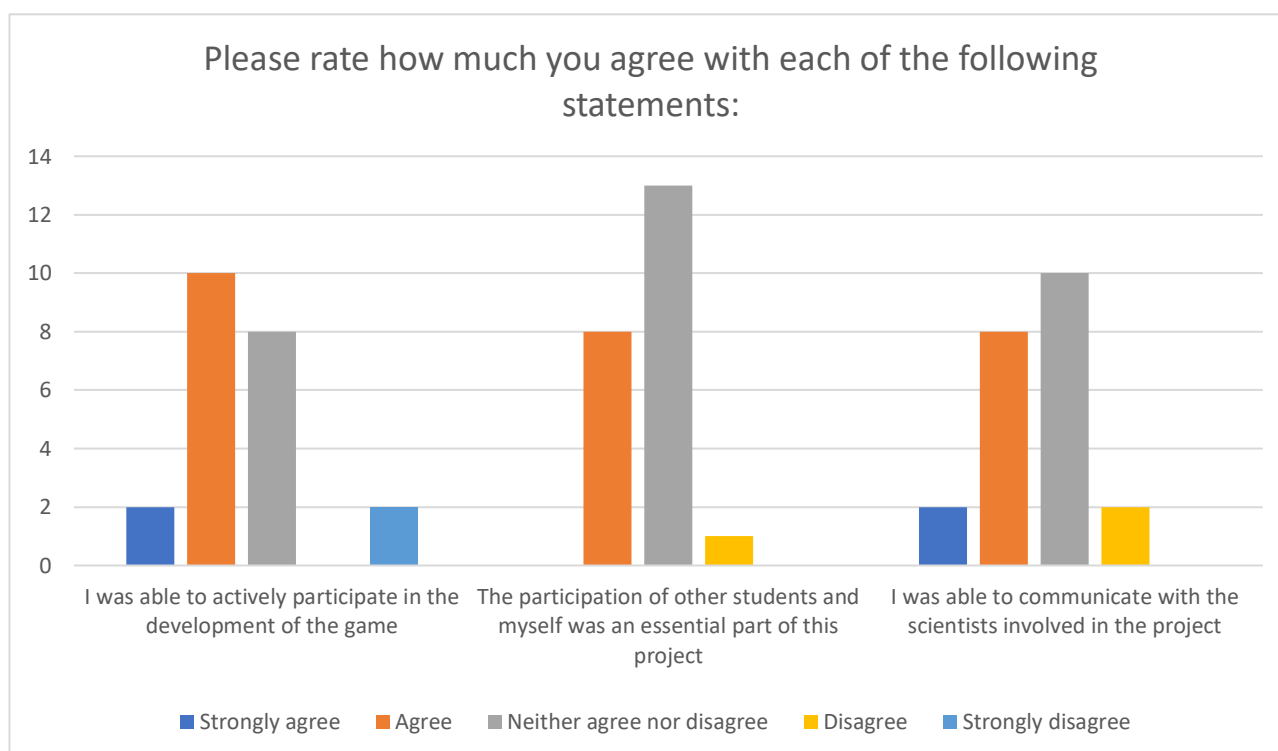


Figure 6: Just over half of students (54%) agreed that they were actively able to participate in the development of the game. Fewer than half agreed with either of the other two statements. These findings highlight the limitation of the ‘arms-length’, online approach which was necessary due to the pandemic.



Science learning outcomes

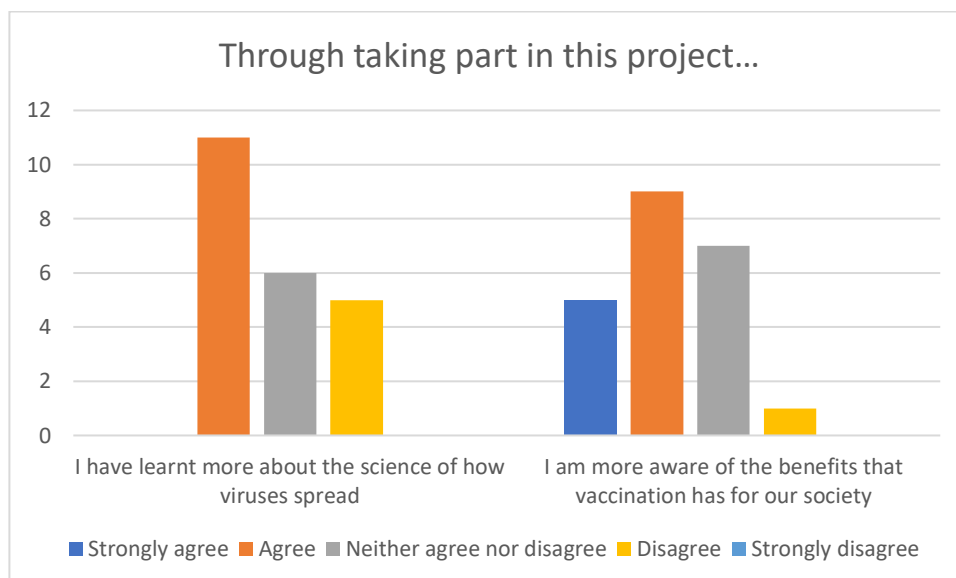


Figure 7: 50% of students agreed that they learnt more about how viruses spread, and almost two-thirds (63%) of students agreed or strongly agreed that they were more aware of the benefits of vaccination as a result of taking part in the project.

Student Comments

When asked what they found most positive about taking part in the project, one student commented that it “made me feel like I’m actually contributing to society”. Another remarked that it had been an “interesting way of learning”, while a third said they appreciated “that our ideas were actually considered”.

When asked what could have been improved, a common response was that students wished there had been in person meetings and increased interaction between themselves and the other stakeholders involved. This was not possible due to the pandemic, but echoes the thoughts of BI Public Engagement staff. The feedback that students would have liked to have been even more involved in the game development process has encouraged the BI Public Engagement team to consider using co-creation methodologies again in the future.

Meltic

1. Project activities

The pandemic situation resulted in a complete change of the project’s structure and plan, and the need to adapt the Design Thinking methodology to online formats. The first step was to organise individual meetings in each of the participating countries instead of a series of meetings with all participants together in La Palma del Condado, as originally planned. The different modalities of the meetings depended on the pandemic situation in each country. There were three possibilities: online, face-to-face and hybrid (online and in person). Victoria Ramos, the project coordinator and principal investigator, adapted the first



phase into an online format and prepared it to be reproduced independently by each partner in each country.

Manual Thinking, the methodology service provider, offered three online seminars (November 13, 2020; December 22, 2020; and January 26, 2021) to train partners to be able to apply the methodology on their own meetings. Following this training, each partner could decide how to celebrate their co-creation experience.

After the initial meeting with Manual Thinking, Victoria Ramos decided to carry out two additional meetings in Madrid to test the methodology's materials in a face-to-face environment, which was allowed at the time despite pandemic restrictions in other countries. One of the meetings took place in the ISCIII facilities and the other online with participants from the Complutense University of Madrid. These sessions in Madrid were not foreseen in the initial plan, however face-to-face sessions greatly facilitate interpersonal communication, which was deemed a key element in such a co-creation experiment.

The other international partners conducted their co-creation experiments with their selected stakeholders. They all received the Manual Thinking materials (maps, stickers, markers ...) by mail, and the company provided online support for the methodological process where necessary. However, even with this support, not all partners were able to hold their meetings, as was the case for the Italian partners, so they became reviewer-evaluators for the work of the other partners. For this reason, to maintain the same number of co-creation experiments, the additional meeting was celebrated in Madrid.

The final schedule for the meeting(s) was December-January 2021, instead of October 2020 as originally planned.

To prepare Meltic's co-creation meeting(s), the partners prepared the deliverable *Stakeholder analysis and context description for co-creation process (D3)*. This deliverable analysed and described the process to find the stakeholders to invite to participate in Meltic co-creation events and possible topics of interest to analyse during the meeting. For this analysis, partners carried out an exploratory study on stakeholders and their areas of work, as well as the spatial and social aspects in small and isolated communities that could be enriched by ICT. The results are shown in Figure 1.



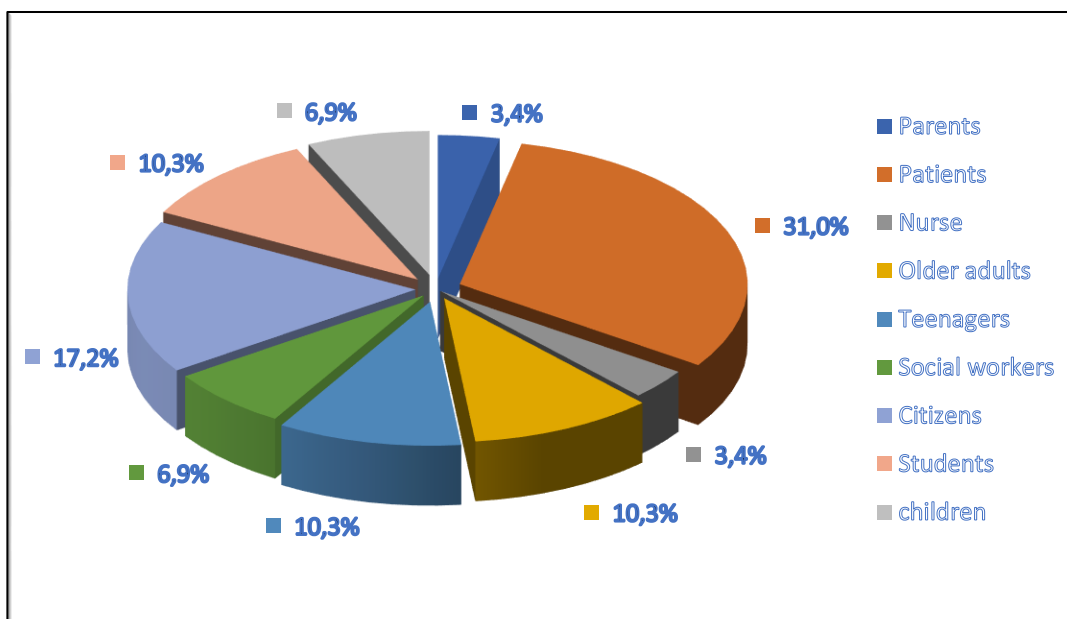


Figure 1. “Stakeholders invited by profile” as described in Meltic deliverable 3.

Meltic partners (Figure 2) mapped stakeholders from governmental bodies, educators, charities, civil societies, patient groups and citizens, and shortlisted potential participants with a representative combination of end and intermediate users with regards to healthcare resources, services, technologies, research profiles and those proactively involved in healthcare. This short list of stakeholder candidates was evaluated by the partners and the final number of stakeholders participating in the co-creation events were over 5 people from each of the four EU participant countries (Spain, Portugal, Italy and Romania).



Figure 2. Partners involved during training meeting: Partners: • Andrés Dochao, Head of the Friendly City Programme of La Palma del Condado Municipality (Huelva, Spain); Roberto D’Amico, Advisor in the Friendly Cities Programme in Mirabello Municipality (Italy); Dr. Gheorghe Duță Manager of a Local Action Group in Timisoara

Region (Romania); Anabella Caeiro, Head of the Friendly City Programme of Reguengos de Monsaraz (Portugal)

2. Project outputs

Meltic project [website](#), embedded in ISCIII website, contains the links to the following project outputs:

WP1. Project Management and Data Management Plan.

- D1.1. Data Management Plan. [D1.1 DMP M3.pdf](#)
- D1.2. Project specification. [D1.2. MELTIC Project Specification.pdf](#)
- D1.3. Halfway Report. [MELTIC Halfway Report.pdf](#)

WP2. Analysis of ICTs state of the art.

- D2. Literature review. [D2-Literature review reviewed.pdf](#)

WP3. Stakeholder analysis and context description to feed into the co-creation process.

- D3. Stakeholder analysis and context description for co-creation process. [D3 Stakeholders v5 Definitive checked.pdf](#)

WP4. Technological proposal for implementation.

- D4. Technological proposal. [D4 Technological proposal .pdf](#)

WP5. Co-Creation experience in ICT in Health and Biomedicine Research.

- D5.1. Analysis of result of Co-creation Workshop [Manual Thinking - Meltic Workshop - Final Dossier.pdf](#)
- D5.2. Elaboration of conclusions for ICT in Health and Biomedicine Research. VADEMECUM. Pdf: [D5.2 Vademecum.pdf](#) & video: <http://hdl.handle.net/20.500.12105/12786>

WP6. Outreach and dissemination.

1. Web: LIV_IN: <https://www.living-innovation.net/news/article?id=204&title=online-workshop---smart-health-use-cases-and-champions> **SMART HEALTH USE CASES AND CHAMPIONS, March 30th, 2021**. Meltic participants took part in the LivIn innovation European project, presenting the Meltic project on the 30th March event.

Linkedin: <https://www.linkedin.com/events/workshop-smarthealthusecasesand6778014820500332544/>

2. Blog RRI Tools: <https://blog.rri-tools.eu/-/collecting-evidence-of-the-positive-effect-of-applying-responsible-innovation-approaches-when-developing-smart-ehealth-and-healthy-living-wellbeing-so>
3. ResearchGate: <https://www.researchgate.net/project/MELTIC-Ideas-MELting-pot-for-TIC-and-Health-science-for-Citizens-in-small-communities>



Meltic's project specification indicated two main outputs, a **Vademecum** with 100 ideas and a **technological proposal** that would offer solutions for citizens in rural or isolated areas.

Vademecum

The Vademecum is the result of compiling all ideas born from the co-creation projects. It is a concrete proposal, with one hundred ideas, that comes from the real need of all the stakeholders involved. The ideas generated during the co-creation workshop were collected in a Vademecum of 100 Challenges for Healthcare and Wellbeing in Rural Areas. Partners carried out an exploratory study on stakeholders and their areas of work as well as the spatial and social aspects in small and isolated communities that could be enriched by means of ICT.

The Vademecum has been translated into a [written document](#) and a video that can be accessed from the ISCIII open repository, [repisalud](#). All Meltic documents are accessible in Repisalud. The areas considered most important by the stakeholders are shown in the following diagram:

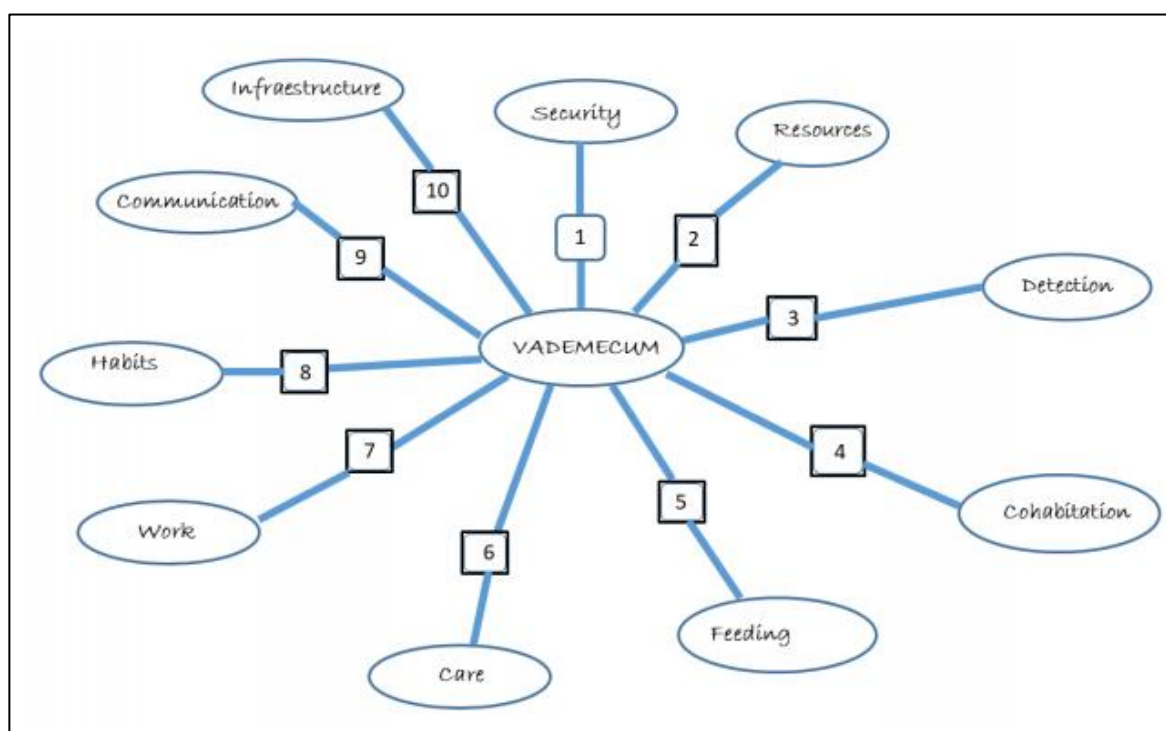


Figure 1. Vademecum Areas

The main conclusions contained in the corresponding deliverable are the following.

Due to the rapid development of technologies and their application, there is a permanent need to monitor and support the work of ICT researchers, urban designers and social agents. The analysis carried out in the co-creation process by the stakeholders within their own fields of work, meets the expected objectives of the project. The stakeholder analysis highlighted that the use of smart technologies in public spaces is increasingly creating new forms of interaction and social practices, as well as creating new socio-spatial relationships



and promoting interactions and communication between isolated and disperse communities. These types of new relationship scenarios drive the need to rethink social practices and the use of public spaces, which can also influence the development of ICTs and their devices. Website-based interventions play a key role in fostering the ubiquitous and proactive health and social oversight and care services of the future and have the potential to reach a large population by completing what is already available on the Internet. The use of technologies to promote health and well-being is an idea highlighted by everyone.

Technological proposal

The technological proposal was decided with the aforementioned stakeholders, that is, the ISCIII telemedicine unit team. This team analysed the ideas extracted from the co-creation experiments, and based on them, decided the most appropriate technological solution from all those studied in the literature review (application, web, web platform, etc.). Finally the Telemedicine Unit chose the web platform, for its technical characteristics.

A technological proposal is a technological scheme that allows engineers to start developing this work, it is the hidden face, the prelude to any technological project. Meltic's technological proposal is for a [Web platform](#). The web platform was chosen because it allows several uses: to contact facilitating institutions, to offer health information and resources, and to search for training. All of this could be developed from the technological proposal.

The technological proposal will be a web platform to support and encourage sociospatial interaction of citizens in small communities. Developed together with practitioners, the technological proposal will allow users to identify potential impacts of new ideas for research as well as to know opportunities and risks that have not yet been systematically compared, discussed and evaluated. Due to the fast development in technologies and their application, there is a permanent need to monitor and support the work of ICT researchers, urban designers and social agents.

This technological proposal will be provided by ISCIII telemedicine unit team in a Digital Experience Platform (DXP - Digital eXperience Platform), which provides content management capabilities and easy integration with devices and various sources through "headless" technologies.



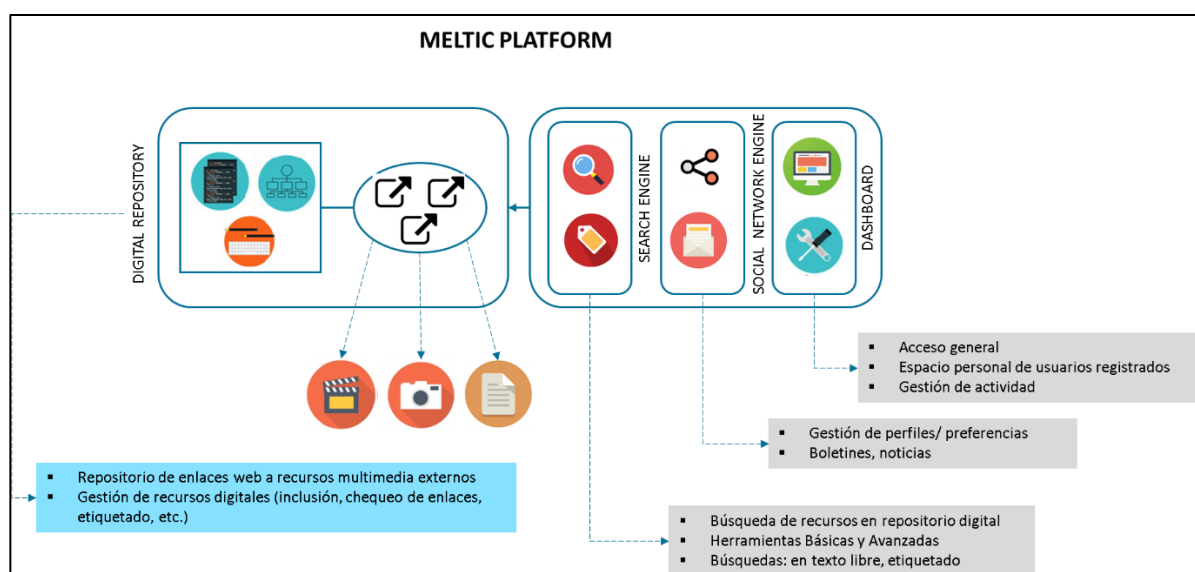


Figure 2. Technological Platform Diagram

Publications

Meltic has been featured in several communication and dissemination outlets, and a scientific publication is underway. Emphasis has been placed on publications aimed at dissemination to society, in short, making Meltic's scientific work known to the public and bringing it as close as possible to society.

A list of communication activities of the project:

- Meltic [presentation](#)
- Publication in '[Acta sanitaria](#)', a health information newspaper for health professionals (doctors, nurses, pharmacists). An article was published with two versions, one in [Spanish](#) and one in [English](#), to provide access to the international public. Acta sanitaria social media analytics reported 223 page views, 142 unique page views and 2min 10sec average time spent on the page.
- A regional newspaper, 'La Voz de Huelva', also published an [article](#) about Meltic. This publication is specially designed for the partner of La Palma del Condado. Local publications such as this one in the region of Huelva (Andalusia, Spain) is very important for local participants to understand the importance of the project and to encourage them to continue participating. This publication was also published on ISCIII social media.
- There is also a scientific paper to communicate the results of the systematic literature review. The paper, with the preliminary title "Co-creation methodology with Smart technologies in Health and well-being to enable communication between isolated and disperse small communities: a literature review", has been submitted to the British Medical Journal Open during the summer.



3. Deviations

Work packages 2 and 3 were timely developed before the pandemic that was declared in March 2020 in Europe. As a consequence of the pandemic, a three-month extension until May 2021 was granted to the MELTIC project, as shown in the updated Gantt chart below:

Work Package	Title	Duration	Mz	Ap	My	Jn	Jl	Ag	Sp	Oc	Nv	Dc	Jn	Fb	Mz	Ap	My
			M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15
WP1	Project Management and Data Management Plan	15 M	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
WP2	Analysis of ICTs state of the art	3M	█	█	█	D2											
WP3	Stakeholder analysis and context description for co-creation process	4M	█	█	█	D3											
WP4	Technological proposal for implementation	15 M	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
T4	Technological proposal (DXP)													D4			D.4
WP5	Co-Creation experience in ICT in Health and Biomedicine Research	12M	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
T5.1	Workshop in definition of concepts, topics to be treated and cocreation	3M	█	█	█												
T5.2	Cocreation workshop about ICT in Health and Biomedicine Research	3M				█	█	█									
T5.3	Analysis of results of Cocreation Workshop	3M							█	█	█			D5.1			
T5.4	Elaboration of conclusions for ICT in Health and Biomedicine Research	3M										█	█	D5.2			
WP6	Outreach and dissemination	12 M	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
T6.1	Dissemination plan							D6.1	█	█	█	█	█	█	█	█	D6.1
T6.2	MELTIC partners' websites and social media channels													D6.2			D6.2

A second extension until 31 July was additionally granted in order to publish the literature review in a scientific journal.

The main difficulty resulting from the pandemic was to adapt the face-to-face meetings to the online or blended format, and the corresponding adjustments done by the stakeholders and to the project plan. The greatest challenge was not being able to share ideas together in the same space with all stakeholders involved.

Another important modification was the repurposing of MELTIC travel budget to other project tasks as explain in section 4.

4. Use of resources

ISCIII	Cost (€)	Justification
Travel	0	
Other Goods and services		
-Consumables	300	Consumables WP1 to 7.



-Communication	3,387.50	Publication in Open Access. WP6: Dissemination and communication.
	2,000	Revision and translation for position paper and articles.
-Co-creation Facilitator	14,995	Development exercise through the Design Thinking methodology. With the collaboration of Manual Thinking, experts in DT methodology. WP5/T5.2.
-Catering	2,200	Coffee breaks and lunch for assistants in different dissemination actions.
-Dissemination	3,480	Video about the MELTIC Project and about Vademecum
	4,500	Editing and printing
	2,892.50	Demonstrator (of the technological proposal).
	2,500	Dissemination of results in each country
TOTAL Other Goods and Services	31,287.50	
TOTAL	33,787.50	

The entire budget was repurposed as the main cost-incurring project task were the face to face meetings and their travel arrangements. Upon budget re-distribution, we placed more emphasis on dissemination videos (about Meltic and the Vademecum) and other dissemination actions, such as the publications in 'La voz de Huelva' from the Joly Group's Health Act, one of the most important communication groups in Andalusia and in 'Acta Sanitaria'.

The budget re-distribution also allowed us to further the design and development of the technological proposal.

5. Interactions with ORION and beyond

Relations with partners and stakeholders have been very fluid. Despite the difficulties resulting from the pandemic, all communications were timely and of outstanding quality. Despite moments of extreme complexity due to the pandemic situation in each country, the communication channels have remained open, yet adapted to an online environment, with



interaction through email and zoom-type communication technology platforms. The Meltic team has reported their intentions to continue working together on new projects.

ISCI III ORION project manager and Meltic lead have worked closely together, especially on the redesign of the project, and on the dissemination measures with numerous telephone and face-to-face meetings to help advance the project. ISCI III ORION project manager also participated in one of the Meltic co-creation experiments held in Madrid. The 'Acta Sanitaria' article and BMJ Open paper have been written in collaboration between Meltic lead and ORION project officer at ISCI III. In order to align with ORION communications, all Meltic actions have been shared and approved by ORION WP6 Communications lead. One of the publications in ORION website about Meltic resumes the whole project and shows the Meltic Video and the Vademecum.

<https://www.orion-openscience.eu/publications/projects/202010/meltic>

Meltic project leader participated in ORION 3rd General Annual online Meeting on 28-30 April 2020 <https://www.youtube.com/watch?v=sAl2Vc83DPo>

Meltic also participated in the two community meetings organised by the ORION consortium to give a progress update (15th February 2020 & 13th July 2021).

Finally, Meltic project leader will participate in the ORION [Final Conference](#). The virtual event will be held on September 27, 2021. Meltic is one of the project selected for this conference to discuss co-creation, engagement and dialogue. The event is designed to get practical hands-on tips and tricks to engage the public in science. Meltic will present about its co-creation process.

6. Impact

Co-creation is a very enriching methodology (Design Thinking), which seeks to incorporate different actors, bring novelty and generate new paths. It is key to introduce the knowledge and development of co-creation and quadruple helix methodologies, especially in disciplines that are not so porous, such as, for example, these carried out by Meltic, engineering specialized in ICT. Scientists closer to STEM disciplines need to experience the benefits of conducting research collaboratively with different stakeholders.

Meltic has had high impact in the ISCI III, because it has allowed the entry of novel methodologies of participation in the ISCI III health research discipline, where it is difficult to penetrate: engineering.

To increase and disseminate the Meltic impact, the project has been invited to participate in a webinar series on Open Science developed by ISCI III. This webinar series, which will be held online in September 2021, will address ISCI III Health Research Institutes, the recipients of another ORION funding (to open up research funding, ORION T3.2.1), which supported the development of 'ISCI III RRI Health awards'. Meltic will showcase how co-creation is done to continue the 'open science' momentum at ISCI III.

Another impact of Meltic is the interest it has created inside and outside ISCI III, with actions such as a "[coffee with Victoria Ramos](#)" (an interview to the PI, Victoria Ramos) from the



College of Engineers, or the invitation to present Meltic in the Online Workshop: Smart Health Use Cases and Champions organized by [the Living Lab of La Caixa project](#).

In addition, the experience had a domino effect on each of the Meltic partners, who were able to learn first-hand what a co-creation project is, how it is developed and to practice it by themselves. This effect resulted in the partners wanting to continue collaborating together in the area of co-creation among themselves and also with ORION partners. Meltic partners have also received an invitation for the World Health Organisation Health Equity Across Sectors Initiative (Health in All Policies), a flagship capacity-building tool that Meltic partners are currently updating to make it more agile and resourceful.

Meltic's partners are currently in talks to find synergies with ORION's partners and others (La Palma del Condado's Partner, and Mirabello Municipality) in order to present a new collaborative project in the field of ICT and co-creation on a larger scale, which can continue the work started by Meltic (potential proposal for Horizon Europe).

Meltic project has brought a greater impact to ISCIII when taken in combination with other ORION actions at ISCIII (ORION T3.2.1, ISCIII RRI Health Awards). All of these ORION actions are contributing to make the ISCIII a more porous institution to practice Open Science and co-creation.

Conclusions

Three main conclusions can be drawn from these two projects.

- The **involvement of novel stakeholders has brought novel ideas and perspectives to the projects**, which has helped to ensure their outputs are useful and appealing to their intended audiences. This is true of both projects, Meltic and VACCINE.
- The **perceived impact (benefits) of co-creation in the participating scientists varies depending on the discipline**. ICT researchers from the telemedicine unit at ISCIII (Meltic) have benefited considerably from the co-creation process, even despite its online or hybrid version, and their project partners have indicated the intention to continue collaborating after Meltic finishes. On the other side, conducting workshops remotely has resulted in weaker connections between CAST students and BI scientists involved in the project. This factor is believed to have played a role against influencing BI scientists on the benefits of co-creation – despite the final game being a much improved version of the initial simulator developed by BI scientists. Nevertheless, VACCINE has been a valuable first-hand experience of co-creation for BI, and has provided motivation and evidence for BI public engagement staff to pursue future co-creation projects.
- The projects have also resulted in **perceived impacts (benefits) of co-creation for other involved stakeholders**. In VACCINE, teachers highlighted the uniqueness of the project as a way of linking a real-life situation with researchers working on a



solution, and engaging students in a creative way. A clear majority of students agreed that taking part in the project had showed them that young people can make important contributions to real-life science projects, and that projects are improved by involving people from different backgrounds.

Accordingly, it is fair to conclude that at least for one of the projects (Meltic), ORION novel co-creation initiatives fund has encouraged further collaboration of Core ORION partner ISCIII with stakeholders in the quadruple helix and these collaborations have supported the institutional department to open up to diverse views not previously considered and to showcase the benefits of co-creation to the whole institute. For both projects, involvement of novel stakeholders has brought novel ideas and perspectives, and involvement has encouraged at least some stakeholders to pursue further opportunities for co-creation in the future.

