

GLOBAL **excursion** ↩

Extended Curriculum for Science Infrastructure Online

*European Commission Seventh Framework Project
(Research Infrastructures Activity – Grant Agreement No. 283686)*

D3.3 First progress report on e-Infrastructures application experiences

June 2013
Final V 1.0



DOCUMENT CONTROL

Deliverable number: 3.3
 Title: First progress report on e-infrastructures application experiences
 Workpackage: 3
 Status: Final
 Level of Dissemination: Public
 Date: 10.06.2013
 Author(s): Sue Murkett, UCAM
 E-mail: sm330@cam.ac.uk

AMENDMENT HISTORY

Version	Date	Author/Editor	Description/Comments
0.1	02.04.2013	Sue Murkett	Creation of first draft version
0.2	10.04.2013	Barbara Kieslinger	Feedback and specific input
0.2.	16.04.2013	Kitti Varga, Evita Tasiopoulou, Fermín Serrano Sanz	Input about external views
0.3	20.05.2013	Sue Murkett	Second version
0.4	03.06.2013	Barbara Kieslinger, Teresa Hölcher	Additional feedback, contributions and editing
0.5	05.06.2013	Enrique Barra	Revision and small corrections
1.0	10.06.2013	Barbara Kieslinger, Claudia Magdalena Fabian	Final editing

CONTRIBUTERS

	Name of institutions
EUN	European Schoolnet (EUN Partnership AISBL)
ZSI	ZENTRUM FUER SOZIALE INNOVATION
UPM	UNIVERSIDAD POLITECNICA DE MADRID
UNIZAR	UNIVERSIDAD DE ZARAGOZA
UCAM	THE CHANCELLOR, MASTERS AND SCHOLARS OF THE UNIVERSITY OF CAMBRIDGE
MTA SZTAKI	MAGYAR TUDOMANYOS AKADEMIA SZAMITASTECHNIKAI ES AUTOMATIZALASI KUTATO INTEZET
ASSA	AGORA SYSTEMS, S.A.

Legal Notices

The information in this document is subject to change without notice.

The Members of the GLOBAL excursion Consortium make no warranty of any kind with regard to this document, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. The Members of the GLOBAL excursion Consortium shall not be held liable for errors contained herein or direct, indirect, special, incidental or consequential damages in connection with the furnishing, performance, or use of this material.

GLOBAL excursion is a supporting action funded by the European Commission under the Research and Innovation Infrastructures programme of FP7. This report reflects the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

LIST OF ABBREVIATIONS

Abbreviation	Description
BIFI	Institute for Biocomputation and Complex System Physics
DoW	Description of Work
ViSH	Virtual Science Hub

INDEX

EXECUTIVE SUMMARY	6
1. INTRODUCTION.....	7
2. VIRTUAL SCIENCE HUB	7
3. MASHMETV	8
4. REPORT ON UPDATED EXCURSIONS	9
4.1 UPDATES FROM BIFI.....	9
4.2 UPDATES FROM SZTAKI	9
4.3 UPDATES FROM UCAM.....	10
5. REPORT ON E-INFRASTRUCTURES APPLICATION EXPERIENCES.....	10
5.1 REPORT ON THE EXPERIENCES WITH VISH	10
5.2 REPORT FROM THE “MEET THE SCIENTISTS” LIVE SESSIONS	13
5.2.1 Feedback from the scientists	14
5.2.2 Feedback from the teachers	14
6. CONCLUSIONS & SUGGESTIONS.....	16
6.1 CONCLUSIONS	16
6.2 SUGGESTIONS FOR FURTHER IMPROVEMENT	16

Executive Summary

This document demonstrates that D3.3 has been delivered.

It describes the interactions between scientists from the Nanoscience Centre, University of Cambridge, Doñana National Park, Spain and BIFI, University of Zaragoza, Spain using the MashmeTV tool.

In particular, the “meet the scientists” sessions with teachers and students from across Europe have proved to be both popular and successful and the plan is to continue these. They will be refined and enhanced following discussion with teachers to establish the type of material they would like to cover within the parameters of the various science institutions.

In addition, views and opinions have been canvassed from research institutions outside the project. These research institutions include e.g. the Institut für klinische Molekularbiologie und Tumorgenetik, Helmholtz Germany, the University of Salamanca, Trinity College, Dublin and others. Therefore the aim of the project has been to make this deliverable as externally facing and inclusive to others as possible.

1. Introduction

This document describes the e-Infrastructures application experiences, primarily from the scientist's viewpoint. As an introduction the document summarizes the main tools that have been used and the latest updates that have been made regarding the resources available.

A series of questions were sent out to various research institutions to learn whether scientists were interested and also permitted to share elements of their research with school teachers and their pupils. This might be through posting images to the ViSH, which can be used in lessons, or through interaction with classes and/or teachers in "meet the scientists" sessions via MashMeTV. The responses from the researchers have been complemented by internal views on the systems use as well as a short online poll.

Additionally, in this deliverable we will report on the experiences achieved during the recently implemented live sessions called "Meet the scientists".

Finally a set of conclusions and suggestions are drawn to improve the services from the scientists' and providers' perspective.

We encourage the reader to check deliverable 3.1. "Report on Design and Development of e-infrastructures in education" for further information about initial technical analysis and design decisions.

2. Virtual Science Hub

The ViSH website (<http://vishub.org>) is an online platform for collaboration amongst teachers and scientists as well as the creation of innovative science teaching resources. A detailed description of the ViSH and its features is available in the deliverable *D2.2: Second release of revised stable Virtual Science Hub with virtual excursion rooms* as well as in the *ViSH User Manual*, which is available on the ViSH itself.

In the last 1,5 years the ViSH has experienced a series of changes and adaptations based on user feedback. So far, the feedback coming from the teachers, as one of the main user groups, has been driving these developments. Integrating scientists in the active use of the ViSH has been a challenge so far. The resources and excursions available on the ViSH have been distributed mainly by the consortium partners as well as by establishing links to external resources.

Various strategies regarding the involvement of scientists in the ViSH have been discussed between the consortium partners. The most feasible approach identified is to offer membership not only for individual scientists, but also for scientific institutions. This will be realised in the next release version of the ViSH, which is planned for the beginning of September 2013.

Thus one of the important improvements from the WP3 perspective is the inclusion of the scientific organisations as users of the ViSH. This may help to provide visibility to the organisations and motivate them to share resources under their own branding. Figure 1 below shows the planned element shapes for the next release of the ViSH where a dedicated element will be introduced for organisations.

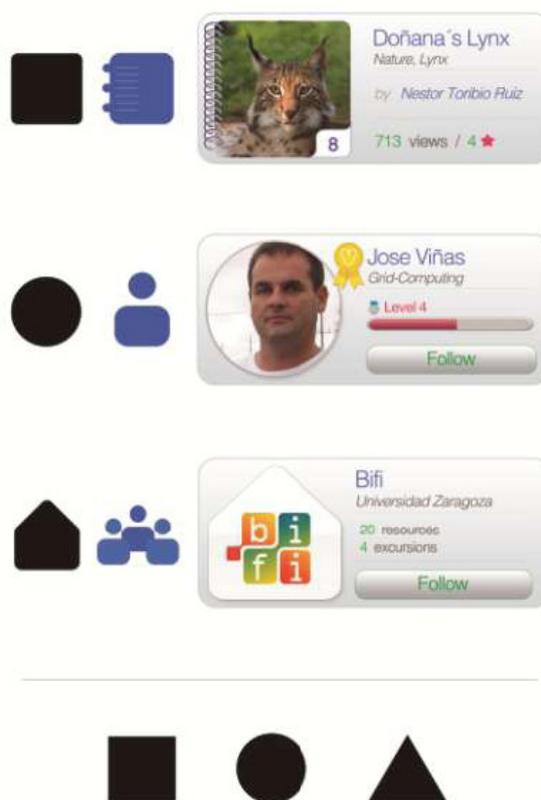


Figure 1: Element shapes of ViSH including organisations

3. MashMeTV

An important tool, in addition to the ViSH, is the live web-conferencing and collaboration tool called MashMeTV (<http://www.mashme.tv>). Live interactions between scientists, teachers and their students have been envisioned from the beginning of the project. The main challenge for a facilitation tool of such live interaction has been however the handling of many connections at the same time.

In the last few months the development team has been working on a new version of MashMeTV that offers a presenter mode as well as a spectator mode. While the presenters, including possible moderators, are directly interacting in a live session and can be seen and heard by everyone, the spectators have the option to interact via the chat with the presenters as well as to request an entry into the meeting and pose their questions directly. This has been an important improvement to the previous versions and has been tested in a series of “Meet the Scientist” sessions. More about the feedback on these sessions and lessons learned will be presented in chapter 5.2 below.

One of the plans for coming months for the developers is to better integrate both tools, the ViSH and MashMeTV. In the future each user should be able to manage his/her own events and will be assigned a personal room in MashMeTV. This should give more importance to live events stemming from the very positive feedback from the users and their expressed demand for it.

Figure 2 shows the possible design for the future management of events within the ViSH:

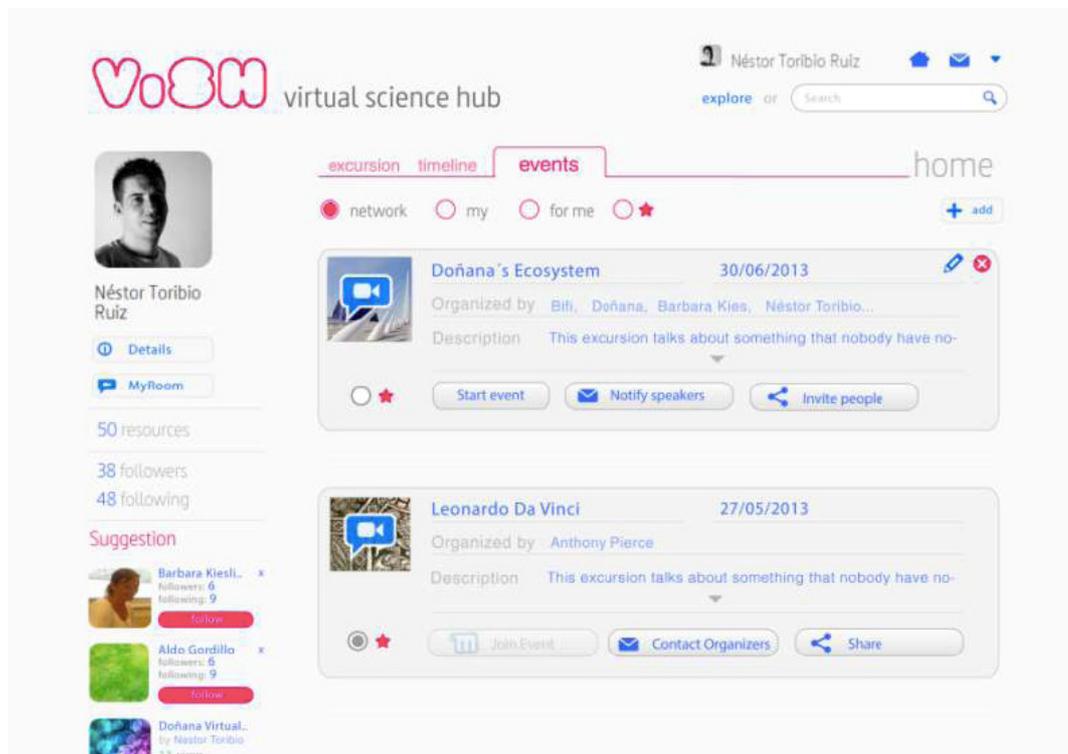


Figure 2: MashMeTV Event management within ViSH

In addition to the better integration of the ViSH and MashMeTV the developers have also provided Apps for mobile devices. This supports the scenarios of scientists showing their labs live online by walking through their premises with a mobile device (such as mobile phone or tablet) and at the same time talking to teachers and students. The mobile apps are currently available for iPhone, iPad, and Android.

4. Report on updated excursions

4.1 Updates from BIFI

No updates to report since Deliverable D3.2.

4.2 Updates from SZTAKI

No updates to report since Deliverable D3.2.

4.3 Updates from UCAM

UCAM has been working with technical experts from MashmeTV to create a live tour of Laboratory and Cleanroom areas filmed via an iPad and streamed live via MashmeTV. This has been tested successfully with a few contributors but ongoing work will include testing it with a larger audience of teachers and pupils. In the first instance, this larger group will be drawn from local schools from the UK.

5. Report on e-Infrastructures application experiences

5.1 Report on the experiences with ViSH

In light of the experiences made so far within the consortium, a decision has been taken to integrate external views of scientists regarding possible future usage of the ViSH. In order to do so a series of questions were posed to various research institutions drawn from the wider network of the consortium partners. Following a snowball effect consortium partners asked their network partners to answer the following questions via e-mail:

1. Are you and/or your organisations targeting schools and students for promoting scientific work and engage them into a career in science?
2. Do you already use online media and other ICT to disseminate and share your work with others?
3. Would your organisation allow you to share material, results or infrastructure online?
4. Would it allow teachers to use it in lessons and download images, etc.?
5. Would you or your colleagues be willing to participate in interactive online sessions with teachers and students; talking about your work as a scientist, showing them the lab etc.?

Research institutions in Spain, UK, Germany, Ireland and the Netherlands have responded so far. Overall, we have received 15 answers, which one may claim to have reached a level of saturation. The following gives an overview of the opinions received for each of the questions:

1. *Are you and/or your organisations targeting schools and students for promoting scientific work and engage them into a career in science?*

Nearly all the responses were “yes” and many organised specific events targeting schools, teachers and students.

2. *Do you already use online media and other ICT to disseminate and share your work with others?*

Here there was a mixed response with some institutions only using their respective websites to disseminate information so they could control what is posted and accessible to be used. Respondents were not specific about any other tools or portals they would use for dissemination.

While a few answered “no”, they only disseminate material online and only at University education level.

3. *Would your organisation allow you to share material, results or infrastructure online?*

Responses differed from institution and country. While some immediately said “yes”, others said that they would have to check and others that only after publication would it be possible for materials to be used, which is certainly not uncommon practice.

One or two questioned if material displayed in their native language being of much use to other nationalities i.e. in Dutch or some Scandinavian languages. Their reasoning being that there will not be many speakers of these languages internationally.

4. *Would it allow teachers to use it in lessons and download images, etc.?*

Most answers here are yes but in some cases with the proviso that the images are post-publication or have been passed as ok by principal investigators within departments. Some replies were that they were not sure of their respective institutions rules concerning the dissemination of their material and some doubted that the highly technical/scientific nature of their content would be of benefit to schools. A few said yes they already did this and if images were displayed on their websites teachers were free to use them. Clearly this varies hugely between both institutions and countries. One may doubt that many researchers are aware of any copyright legislation/rules so this issue might be worth pursuing or raising at a later date.

5. *Would you or your colleagues be willing to participate in interactive online sessions with teachers and students; talking about your work as a scientist, showing them the lab etc.?*

One or two said an outright yes but others had more qualified responses. Issues appear to be: time, language and material, i.e. a theoretical physicist might not have much to show to high school students, except for “books and computations notebook”. The respondent thought that the latter might be far too technical for school age students. The issue of pitching the level correctly was identified a perennial problem as it is very difficult to gauge what students across the EC are learning or what stage they are at. Do they know what nanoscience or grid computing are?

However one scientist preferred the face-to-face approach and felt it was better to plan a visit from a school to the University rather than an online meeting.

The conclusions that we draw from these answers are summarised in the final chapter 6. Overall it may be safe to state that there is a general interest from scientists to disseminate information to and interact with schools and this interest is strongly supported by institutions. However, there are still a number of barriers to overcome. Some of these constitute challenges for the ViSH, others are organisational aspects within the scientific organisation and overall it is the willingness of the individual to participate or not.

To expand this external consultation process even a bit further a short poll was posted on LinkedIn and more specifically within a group. The LinkedIn Group is called "Horizon 2020, and has currently 41.847 members, mainly from the European Research community. The link to the poll is the following:

http://www.linkedin.com/groupItem?view=&gid=164166&type=member&item=240624328&qid=f597ca24-39c4-4ad5-b5e0-6b6f704e742a&trk=group_most_popular-0-b-ttl&goback=%2Eanp_164166_1369120269300_1%2Egmp_164166

The answers collected so far support the view expressed by the network partners rather clearly. There is a strong interest and willingness to disseminate scientific work to schools. When it comes to more specific sharing of resources however, the responses are different. While the poll has only been answered by 20 persons so far a clear tendency becomes visible. See below Figure 3 for the results:

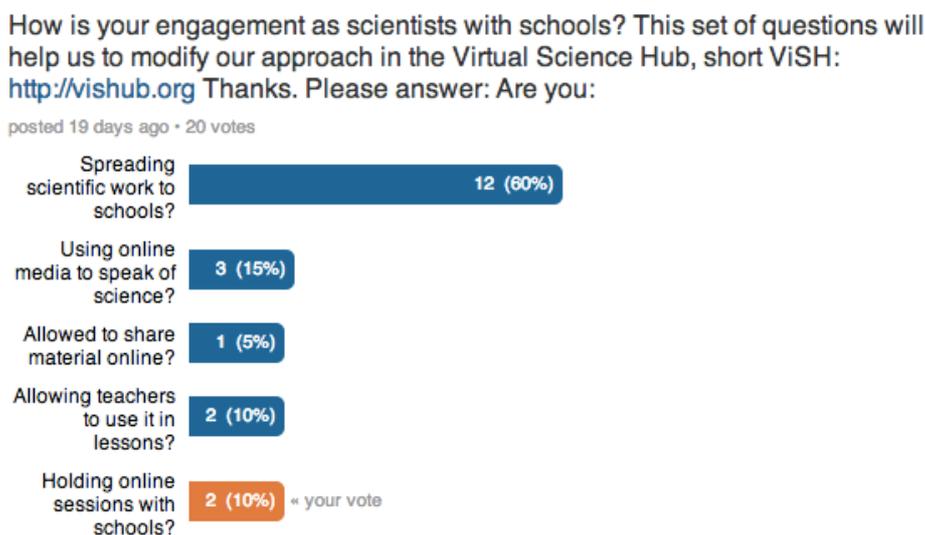


Figure 3: Results from online poll

5.2 Report from the “Meet the Scientists” live sessions

During the month of May 2013 a series of “Meet the scientist” sessions was conducted. The sessions were all live events where scientists would talk about their work and show some specific material from their research, such as images, infrastructure, videos, etc. The participating teachers and students were able to interact with the scientists via chat and could also gain access to the meeting directly to pose questions to the presenters in a direct way. However, the latter option was not clear to most of the users and so the main interaction took place via chat.

In addition, a presenter Enrique Barra from Agora served as a moderator during all the sessions. He made sure that the scientists answered the questions from the chat and gave technical support where needed.

The following sessions were held:

- May, 7th 2013, 10:00-11:00 CET: Doñana National Park, Spain
- May, 10th 2013, 14:00 – 15:00 CET: Nanoscience Centre, University of Cambridge, UK
- May, 24th 2013, 10:00 – 11:00 CET: BIFI, University of Zaragoza, Spain

During these sessions the teachers and students were able to gain a glimpse into the work of scientists and showed great interest in it. The scientists were confronted with lots of questions. The meetings have also been recorded. They will be available as resources on the [ViSH](#).

Here are the direct links to the recordings of the sessions:

http://stream.globalplaza.org/videos/vish/Meet_scientist_24_5_2013.mp4

http://stream.globalplaza.org/videos/vish/Meet_scientist_7_5_2013.mp4

http://stream.globalplaza.org/videos/vish/Meet_scientist_10_5_2013.mp4

Teachers and students who took part in the “Meet the Scientists” sessions were from Spain (50%), Belgium, Italy, Portugal, Romania and the UK. The majority of teachers were science teachers but some also teach other subjects. In total we had the following number of teachers (and in most cases the teachers brought along their student groups):

- Doñana session: 6 teachers connected
- Nano science session: 9 connected
- BIFI session: 9 teachers connected

After the sessions feedback was collected from the presenting scientists via e-mail and in direct communication while the teachers were asked to fill in a short questionnaire. In the following section the main feedback regarding these sessions is discussed.

5.2.1 Feedback from the scientists

On a positive note, all of the scientists enjoyed the interaction with the teachers and the chance to talk about the research or techniques they use every day. They agreed that some degree of preparation on their part had enhanced the experience for the teachers and should be continued for future sessions. In general they fully appreciate the need to encourage school pupils to consider science as a career and are keen to be a part of this process.

The use of a coordinator/moderator was much appreciated and considered a necessity to control the questioning process otherwise for a larger quantity of teachers and students it is difficult to keep track of who is speaking when.

On a negative note, there were still some technical issues that will need to be solved e.g. sound quality, but they can be worked on before any future sessions. The quality of the sound can however often not be regulated by the system. It tends to be a problem on the user side. Thus a proper preparation and testing of the equipment and familiarity with the tool is very important from the presenter's side.

One of the speakers also suggested having a pointer integrated so that audience can follow in more detail what the presenter is focusing on at a specific moment.

The issue of trying to match the input from the scientists to the teacher's lessons was raised as well as part of the preparatory work. As one of the scientists put it: *"So overall, good information about what is expected from the audience is important for the presenter."*

As some of the scientists remarked, it has been a learning process for them as well and it helps to practise their line of presentation and discussion when interacting in this type of online medium. Thorough preparation on both sides and the alignment of expectations and presentation objectives are important for future events.

5.2.2 Feedback from the teachers

Feedback was received from teachers who took part in the live sessions and the majority were positive. They enjoyed the opportunity to interact with the scientists and on the whole enjoyed the session. Apart from the online questionnaire a few even sent personal e-mails to stress the positive experience they had during the sessions.

Some were slightly less positive about the question *"I found the role of the scientist in relation to my performance very important"*. This related back to the lessons learned by the scientists. Overall there is a need to better align the pedagogical needs of the teachers and students with the presentations of the scientists. In the future, the ViSH will thus support the negotiation process between presenters (scientists) and audience (teachers and students) about the specific expectations, learning goals to be covered, etc.

The following Figure 4 show the feedback collected from the teachers after the three events held so far.

4. Your views on the session Please indicate the level of your agreement-disagreement with the following statements by ticking one box per each record							
	1: Strongly Disagree	2: Disagree	3: Agree	4: Strongly Agree	Do not know/N/A	Rating Average	Rating Count
4.1. The session fully achieved and matched my expectations	0.0% (0)	19.0% (4)	42.9% (9)	33.3% (7)	4.8% (1)	3.15	21
4.2. I enjoyed the session	0.0% (0)	19.0% (4)	23.8% (5)	52.4% (11)	4.8% (1)	3.35	21
4.3. During the session, I had the opportunity to easily interact with the scientist	0.0% (0)	4.8% (1)	28.6% (6)	52.4% (11)	14.3% (3)	3.56	21
4.3. I found the role of the scientist in relation to my performance very important	0.0% (0)	9.5% (2)	47.6% (10)	38.1% (8)	4.8% (1)	3.30	21
4.4. I learned more about how to enhance my science teaching	4.8% (1)	14.3% (3)	42.9% (9)	33.3% (7)	4.8% (1)	3.10	21
4.5. I found the content of the session useful for me	0.0% (0)	14.3% (3)	28.6% (6)	47.6% (10)	9.5% (2)	3.37	21
					answered question		21
					skipped question		0

Figure 4: Teacher’s feedback on the live events

6. Conclusions & Suggestions

6.1 Conclusions

Overall, scientists have a definite willingness to interact with schools and teachers and are keen to do so. In many countries and institutes this is already happening to various degrees. The participating scientists in our project all welcomed and enjoyed the interaction with the teachers through the project and would be happy to continue to do this. However, while many view online interaction as an excellent tool, others felt it could not wholly replace face-to-face visits and communication.

It is clear that preparation for the sessions is key and should not be underestimated by the project. Scientists do not have much extra time so the process of preparation and testing should be made simple and short. It is important to keep their engagement and enthusiasm but also to keep the sessions interesting, relevant and at the right level for teachers. The same sentiment holds for the ViSH and the provision of online resources and excursions. The time frame of the scientists is very restricted and clearly marked by other priorities. So the main conclusion regarding the tools is a clear and simple interface allowing for none time-intensive activities that can be embedded in daily routines.

With regard to dissemination, it is clear that some scientists do not know if their institutions have policies towards disseminating their material, so some do what they think best. The ViSH will target this by the organisational profile and an organisational user model.

Again, regarding dissemination activities the issue of language was raised; although the majority of science dissemination is in English, many teachers would prefer the material to be in their respective languages. While we are already in the middle of translating the ViSH interface into different languages, the resources are still available only in the language they are provided in. While some see this as an obstacle others see it as a chance for practicing foreign languages (especially English).

Apart from some technical issues the interactions with the ViSH worked well and the materials were well received. We are confident that with the final new release of the ViSH with the integrated organisational model and management of events the participation will be made easier again for both sides, the scientists and their organisations as well as the teachers and their students.

6.2 Suggestions for further improvement

The following main suggestions can be derived from the experiences collected so far:

- **Technical issues:** The platform must iron out any technical issues. Although there is a real willingness from scientists to take part this might not continue if the sessions do not run smoothly. Researchers do not have a large amount of extra time as outreach is usually in addition to their “real” jobs so if the technical side is not robust they will not wish to continue to be involved. Testing of equipment is vital, from the participants’ side as well as from the presenters’ side.

- **Dissemination:** Perhaps the project should point out to scientists that before posting their material, they should check if their respective institutions have policies regarding copyright or dissemination. This can be reflected in the organisational usage model of the ViSH.
- **Input, content and preparation:** Where possible, there should be some input from teachers as to what they are teaching in their classes e.g. *“In my biology lesson we are looking at soil and sand, is it possible to look at this under your microscope?”*. This would take some preparation and might not be feasible in all cases but should be considered. It would support the alignment of the scientific content with the curriculum and expectations from the learner’s side.
- **Language:** Despite the comments with regard to language, it would not be possible to have the content on the ViSH translated into various languages. The language of the live sessions depends on the language skills of the presenters. Since the Spanish teacher community is e.g. very actively engaged, we can consider having specifically targeted sessions in Spanish, performed by Spanish-speaking scientists. The same applies for other languages.